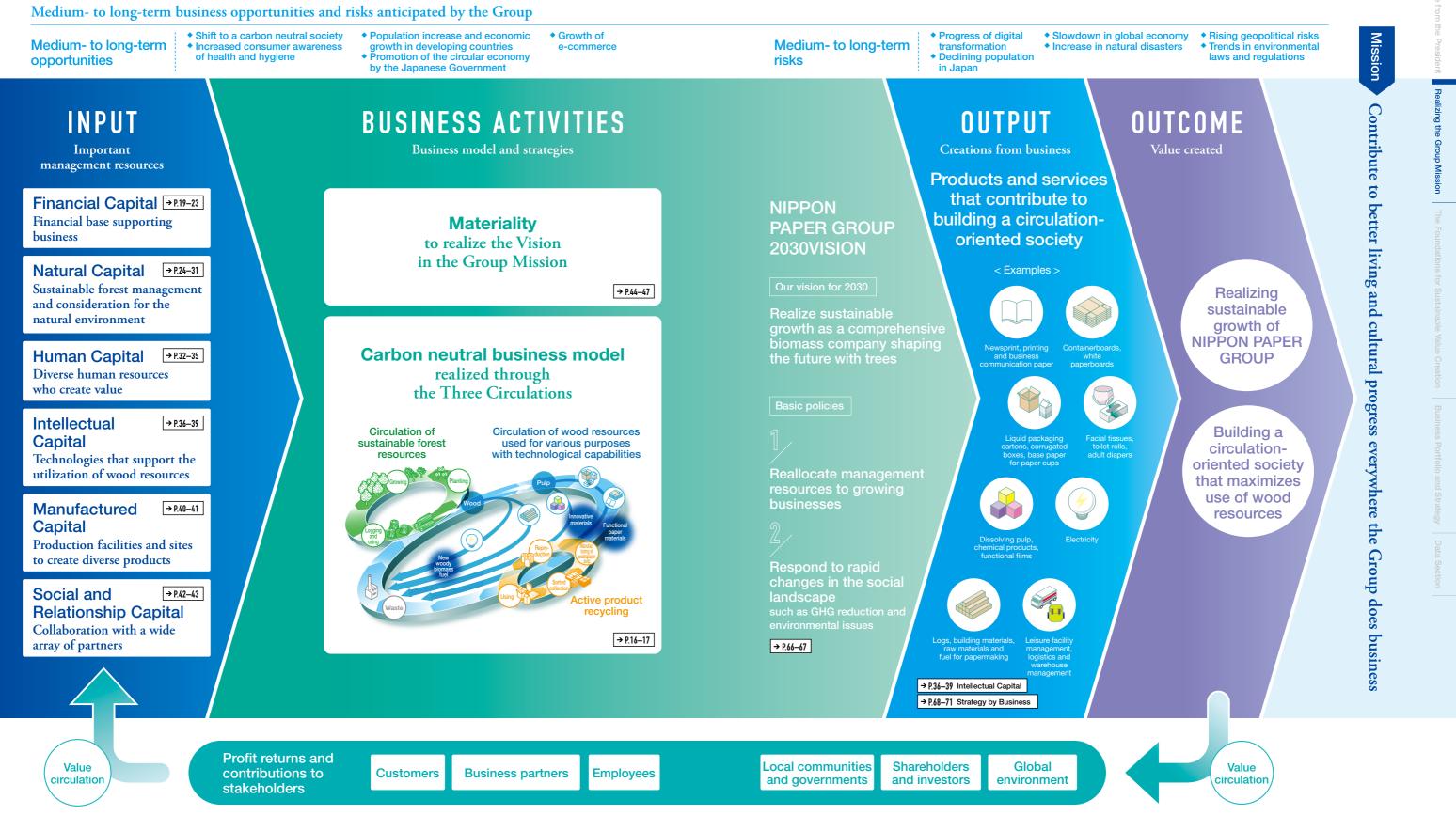
# **NIPPON PAPER GROUP's Value Creation Process**

Achieve sustainable growth and build a circulation-oriented society as a comprehensive biomass company

NIPPON PAPER GROUP has formulated the NIPPON PAPER GROUP 2030VISION from its materiality and the Three Circulations business model.

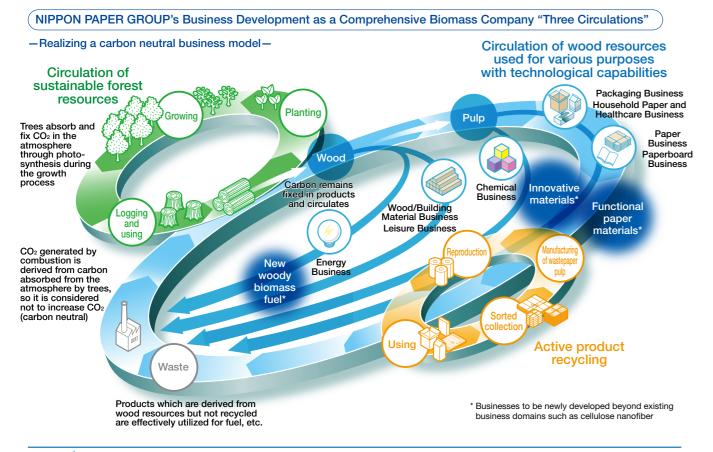
By maximizing use of management resources and conducting business activities based on the basic policies of the 2030VISION, it will achieve its sustainable growth and build a circulation-oriented society that maximizes use of wood resources.

In this way, the Group will realize its mission of "NIPPON PAPER GROUP aims to contribute to better living and cultural progress everywhere it does business."



# Value Created by the Three Circulations

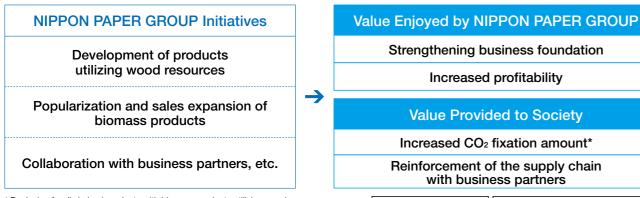
As a comprehensive biomass company shaping the future with trees, NIPPON PAPER GROUP operates its business based on its Three Circulations business model, which comprises "circulation of sustainable forest resources," "circulation of wood resources used for various purposes with technological capabilities," and "active product recycling." By making full use of all the Group's management resources accumulated through its business activities to date, and by rotating the Three Circulations rapidly on a grand scale, we will realize sustainable growth for NIPPON PAPER GROUP and build a circulationoriented society that maximizes use of wood resources.



# **Circulation of Wood Resources**

-Contributing to building a carbon neutral society by expanding sales of biomass products-

The Group develops business that utilizes renewable wood resources at many stages, based on the accumulation of a wide range of technologies, including pulping, and know-how. By expanding the provision of products and services generated from wood resources, it will strive to boost profitability while also enhancing its social responsibility in the supply chain with business partners and contributing to the creation of a carbon neutral society.



\* Replacing fossil-derived products with biomass products utilizing wood resources will increase the CO<sub>2</sub> fixation amount for society overall

→ P.36–39 Intellectual Capital > P.42–43 Social and Relationship Capital

→ P.68-71 Strategy by Business



# **Circulation of Forest Resources** -Maximization of forest value through sustainable forest management-

For the Group, which provides a variety of products that utilize wood resources, forests not only have value as a source of raw materials, but also provide important value to society and the environment, such as public functions. The Group will continue to create diverse value by appropriately managing the approximately 160,000 hectares of forests it owns in Japan and overseas while utilizing the unique technologies and knowledge it has cultivated until now.





For many years, the Group has actively used wastepaper as raw material for paper production. Furthermore, by simultaneously addressing customer needs for replacing plastic with paper and the recycling of paper products, the Group intends to increase demand for biomass products, which in turn will expand the market for replacing plastic with paper. For that reason, the Group will construct a sorted collection recycling system, a horizontal recycling scheme and upcycling scheme, and aim to expand sales of biomass products.

 $\rightarrow$ 

# NIPPON PAPER GROUP Initiatives

# Promotion of paper product recycling

- Expansion of the system for stable procurement of wastepaper
- Construction of a sorted collection recycling system
- Construction of a horizontal recycling scheme
- Construction of an upcycling scheme

Collaboration with customers, communities, etc.

# Value Enjoyed by NIPPON PAPER GROUP

Stabilization of procurement of wood resources at lower costs with higher quality

> Expansion of the elite tree seedling production business for forestry

Expansion of CO<sub>2</sub> sinks toward carbon neutrality

# Value Provided to Society

Display the functions of forests to enhance public interest

Alleviate climate change

Energize forestry in Japan

→ P.24-31 Natural Capital	→ P.42-43	Social and Relationship Capital
		→ P.68–71 Strategy by Business

# Value Enjoyed by NIPPON PAPER GROUP

Further development of the market for replacing plastic with paper

Sales expansion of biomass products

# Value Provided to Society

Promotion of recycling of resources

→ P.24-31 Natural Capital

# **Important Management Resources**

NIPPON PAPER GROUP has over the course of many years of business activities accumulated management resources, its source for creating value.

These management resources, as the driving force behind sustainable value creation, will generate new value through the Three Circulations business model that realizes carbon neutrality.

This value will flow back as management resources, and increased management resources will lead to further value creation.



Realizing the Group Mission: Sustainable Value Creation

Financial Capital –Message from the Executive Officer Responsible for Finance

We Strengthen Profitability and Improve **Our Financial Position by Accelerating Business Structure Transformation** 

# TOMOYASU

Director, Managing Executive Officer, and General Manager, Financial Division Nippon Paper Industries Co., Ltd.



Looking back at FY2024/3, one significant achievement was the recovery in operating income to ¥17.3 billion after posting an operating loss of ¥26.9 billion in FY2023/3 (Fig. 01). Also ROE improved to 5.3%, achieving our target of 5.0% or more as set forth in the Medium-Term Business Plan 2025.

In FY2023/3, the sudden and significant rise in raw materials and fuel prices due to Russia's invasion of Ukraine had a serious impact on NIPPON PAPER GROUP's business performance. However, the entire Group, including not only management but also employees, shared a sense of crisis and implemented various measures such as business structure transformation, cost reductions, and price revisions The results of these measures emerged in FY2024/3, and the increased focus on profit-seeking within the Group led to improved business performance. On the other hand, our



Business Results and FY2025/3 Forecast (¥ billior			(¥ billion)
	FY2023/3 Results	FY2024/3 Results	FY2025/3 Forecast
Net sales	1,152.6	1,167.3	1,200.0
Operating income	(26.9)	17.3	23.0
Ordinary income	(24.5)	14.6	19.0
Net income*	(50.4)	22.7	3.0

\* Profit attributable to owners of parent

### Breakdown of FY2024/3

Breakdown of FY2024	(¥ billion)	
	Domestic Business	Overseas Business
Net sales	913.4	253.9
Operating income	30.4	(13.1)

# **2** Segment Results and FY2025/3 Forecast

		Net sales		Operating income		
	FY2023/3 Results	FY2024/3 Results	FY2025/3 Forecast	FY2023/3 Results	FY2024/3 Results	FY2025/3 Forecast
Paper and Paperboard	563.2	570.2	565.0	(29.2)	11.7	13.0
Daily-Life Products	440.1	436.8	480.0	(7.8)	(8.1)	(2.0)
Energy	49.9	53.7	50.0	(1.7)	1.6	2.0
Wood Products and Construction-Related	68.9	75.5	75.0	8.9	9.8	7.5
Other	30.5	31.1	30.0	2.9	2.3	2.5
Total	1,152.6	1,167.3	1,200.0	(26.9)	17.3	23.0

overseas business posted a wider loss, highlighting our future challenges.

# Large Losses Overseas Were Impactful Despite the Return to Profitability in Domestic Business

In the domestic business, operating income exceeded ¥30.0 billion, a significant improvement from the previous fiscal year. Each company's efforts to reduce costs and revise prices led to the positive results, and we were able to return our domestic business performance to a level in line with the Medium-Term Business Plan 2025.

Looking back at each business segment, the Paper and Paperboard Business saw a greater-than-expected decline in domestic sales volume, and cost improvements could not be achieved as planned in some areas because of that situation, but the business turned profitable thanks to ongoing efforts to cut costs and maintain prices (Fig. 02). In the Daily-Life Products Business, sales volume of liquid packaging cartons decreased, but profits increased due to expanded sales of filling machines, introduction of new cartons, and price revisions. The Household Paper and Healthcare Business moved from a loss in FY2023/3 to a profit by promoting the penetration of differentiated products that are "long-lasting & compact," and by absorbing cost increases through price revisions. The Chemical Business was significantly affected by the slowdown in the Chinese economy as it exports a relatively large number of products. and profits remained flat from the previous year. In the Energy Business, sales and profit increased due to factors including the commencement of commercial operations of the Yufutsu Energy Center. In the Wood Products and Construction-Related Business, both sales and profit increased due to factors including the increase in handling volume of wood chips used for fuel.

Meanwhile, the overseas business posted a significant loss of ¥13.1 billion. The biggest reason for this was the poor business performance of Opal, which is included in the Daily-Life Products Business. Opal's business consists

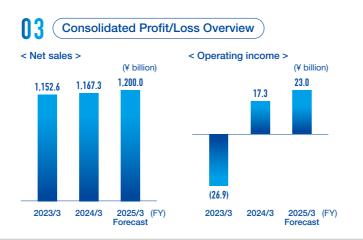
of the Maryvale Mill and the Packaging Business, and the Maryvale Mill posted an especially large loss. As it was forced to withdraw from the Graphic Paper Business in FY2023/3, the urgent challenge for the Maryvale Mill is the transition to a production system specializing in base paper for packaging and enhancement of profitability. In FY2024/3, through the shutdown of paper machines, fixed costs such as labor and repair costs were reduced by AUD78 million. However, due to the impact of the deterioration of the market for export base paper to Asia, Maryvale Mill was unable to compensate for the decrease in marginal profit caused by its withdrawal from the Graphic Paper Business, resulting in a loss of AUD128 million. Meanwhile, NDP, a US company included in the Daily-Life Products Business, recorded its first operating loss since its acquisition. This is because of a significant decline in sales and profits

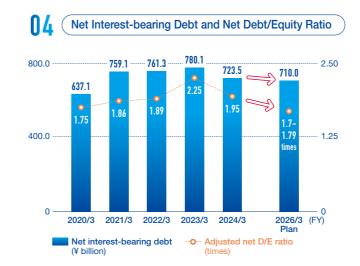
caused by sluggish demand for liquid packaging boards in the North American market, reduced production and worsening operational efficiency due to a fire at a chip yard, among other factors. Jujo Thermal, a European company included in the Paper and Paperboard Business, also posted an operating loss due to sluggish demand for thermal paper in Europe and high prices for raw materials and fuel, including electricity. The Group's overall operating income for FY2024/3 turned positive, but the loss in the overseas business remains an issue.

The Group recorded a loss on Opal's withdrawal from the Graphic Paper Business as an extraordinary loss, while recording a gain on the sale of assets which include land and buildings in Kita-ku, Tokyo, and cross-shareholdings as extraordinary gains. As a result, net income was ¥22.7 billion.

# FY2025/3 Outlook

In FY2025/3, despite the structural decline in domestic demand for graphic paper, demand for industrial paper such as packaging and wrapping paper, as well as containerboard, and household paper is expected to remain strong due to increased demand stemming from factors such as increased people flow (Fig. 03).





We expect FY2025/3 net sales to rise due to increased sales volume resulting from the operation of Opal's new corrugated box plant and new facilities for household paper. Operating income is expected to be ¥23.0 billion, with the domestic business maintaining profitability and the overseas business expected to improve its profitability through structural reforms at the Maryvale Mill and a recovery in sales volume at Jujo Thermal. However, most of the operating income is expected to be recorded in the second half of the year, since the effects of structural reforms at the Maryvale Mill will be realized in stages, and NDP plans to perform maintenance work for a longer period than usual in the first half of the year.

Assumptions for the business environment include continued yen depreciation and rising labor and logistic costs. Based on this premise, we will maintain and expand profitability by expanding our strategic products, including exports, and by promoting cost reductions. As for product prices, we will closely monitor trends in logistics costs, labor costs, and exchange rates, and will consider raising prices depending on the situation.

# Pursuing Acceleration of Business Structure Transformation

With respect to the Medium-Term Business Plan 2025, based on the basic strategy of "acceleration of the business structure transformation," we continue to work on the four priority tasks, which are to "improve profitability of Daily-Life Products Business," "strengthen competitiveness of Graphic Paper Business," "accelerate reduction of GHG emissions," and "improve financial position."

In order to improve the profitability of the Daily-Life Products Business, the turnaround of the Maryvale Mill is the top priority for the entire Group. We are working to increase daily pulp production by continuous digesters, improve the export sales mix, and reduce fixed costs. Under current plans, the Maryvale Mill is expected to remain unprofitable until FY2026/3, but we aim to eliminate deficits ahead of the schedule through rapid improvements. Opal's Packaging Business is planned to be profitable in FY2025/3 by improving productivity via upgrading processing equipment, strengthening the sales structure, and reducing personnel, thereby expanding profits. As Australia is a region where demand for corrugated boxes is expected to increase along with GDP growth, our strategy is to increase our market share in the Oceania region by enhancing production capacity through capital investment and by reducing costs.

In the Household Paper and Healthcare Business, Nippon Paper Crecia's highly-productive new paper machine began operating in the Ishinomaki Mill, and a cost-competitive production system is being established by sharing pulp within the Mill. Additionally, we are considering expanding sales in overseas markets through collaboration with global partners. For the Liquid Packaging Carton Business in Japan, we are promoting a differentiation strategy through one-stop provision of base paper, carton designing and processing/filling machines, as well as the development and sales of environmentally-friendly products such as strawless paper cartons and eco-friendly paper cartons. Overseas, we have begun moving towards global expansion through collaboration between NDP in North America and Shikoku Kakoki Co., Ltd., and Elopak ASA in Norway.

In the Chemical Business, as medium- to long-term market growth for products for electric vehicles (EVs) and smartphones is expected, we are systematically carrying out construction work to increase production and updating facilities in anticipation of growing demand. Large-scale capital investments are being executed particularly in functional cellulose and functional coating resins, and we aim to ensure that these investments effectively expand sales and profits. Expansion into overseas markets will also be accelerated, with increased sales to regions with favorable market conditions. Although the Chemical Business operates in a niche market, some of our products enjoy a high market share, enabling this business to achieve high profit margins. The aim is to increase the operating profit margin to 7% in FY2025/3 and 9% in FY2026/3.

In terms of strengthening the competitiveness of our Graphic Paper Business, given that domestic demand is declining more rapidly than expected, we strive to secure sales volume by developing environmentally-friendly products that emit less GHG during the manufacturing process and by strategically expanding exports. In addition, in light of the accelerating decline in demand, we have brought forward our plans to streamline our production system. A new plan to reorganize our production system will be ready by the first half of FY2025/3, and we aim to consolidate our domestic graphic paper production sites to around three locations by FY2029/3.

# Initiatives to Bolster Financial Discipline

Looking at the current financial environment, interest rates appear to be on the verge of rising. Amid these circumstances, we need to take the initiative in addressing various risks and continue to reduce net interest-bearing debt as outlined in our Medium-Term Business Plan 2025. Net interest-bearing debt was reduced by ¥56.6 billion from the previous fiscal year to ¥723.5 billion at the end of FY2024/3, and the adjusted net debt/equity ratio was 1.95 times, below the threshold of two times (Fig. 04). Although we have set a goal of reducing net interest-bearing debt to ¥710.0 billion by the end of FY2026/3, but this level is by no means sufficient. After factoring future interest rate

# Realizing the Group Mission: Sustainable Value Creation » Financial Capital – Message from the Executive Officer Responsible for Finance



increases into our existing scenario, we will first target ¥710.0 billion and work to reduce net interest-bearing debt ahead of schedule as early as possible.

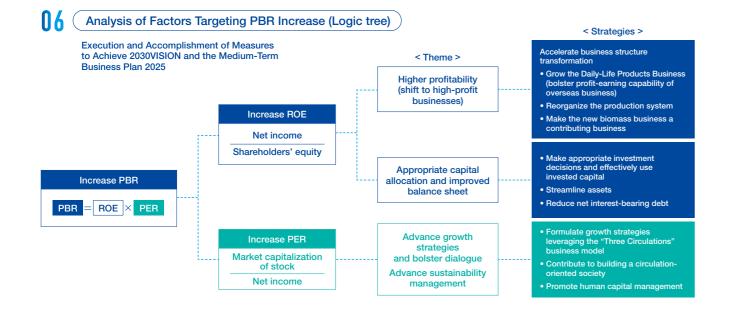
EBITDA for FY2024/3 was ¥84.8 billion, but from the perspective of generating cash to invest in growth and maintaining financial discipline, we aim to quickly achieve a stable EBITDA of ¥100.0 billion as set forth in the Medium-Term Business Plan 2025. This is closely related to achieving the target of operating income of ¥40.0 billion or more in the Medium-Term Business Plan 2025. Regarding asset sales, we will consider selling non-current assets and will verify the significance of holding cross-shareholdings to reduce them. In addition, we will strengthen inventory management to generate working capital and strive to generate cash. The approach to investment and cash allocation remains unchanged. Over the three-year period from FY2024/3 to FY2026/3, we plan to execute ¥90.0 billion in strategic growth investment (Fig. 05). With regard to future investments, we will strengthen investment profitability management, including profit margins and size, in light of rising costs. Investments will be selected with a more rigorous approach, including the concept of using ROIC as an indicator. First of all, we will work with determination to firmly establish a path to achieving EBITDA of ¥100.0 billion and reduce net interest-bearing debt to ¥710.0 billion.

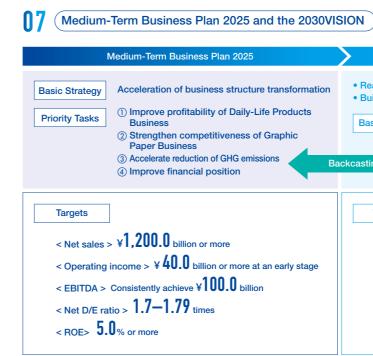
# Investing in Reduction of GHG Emissions and the Three Circulations

With regard to environmental investments, our biggest goal is reducing GHG emissions. The 2030VISION initially set a reduction target of 45% for FY2031/3 (compared to FY2014/3), but in 2023 we increased this target to a 54% reduction, and are working systematically to achieve this target. As of FY2023/3, we have already achieved a 30% reduction in GHG emissions, and are making steady progress.

Because the reorganization of our production system involves improving production efficiency and shutting down our coal boilers, we will continue to consider these initiatives as a set accompanying our efforts to reduce GHG emissions. Specifically, at our Akita Mill, which stopped producing graphic paper, we shut down our coal boilers in the spring of 2024. To reduce GHG emissions, we are also promoting fuel conversion, maximizing the use of black liquor, and advancing energy saving measures. We continue to make environmental investments to advance these initiatives and achieve a 54% reduction in GHG emissions by FY2031/3.

As a business model that leverages the Group's overall strengths aiming for an improvement in corporate value, the Group aims to aggressively implement the "Three Circulations" of "Circulation of sustainable forest resources," "Circulation of wood resources used for various purposes with technological capabilities," and "Active product recycling."





The circulation of forest resources, the circulation of wood resources in each business, and recycling and reuse efforts all contribute greatly to reducing GHG emissions. As the steady execution of "Three Circulations" is the very essence of our sustainability management, we continue to make active investment related to the "Three Circulations." In addition, we will continue working to obtain subsidies, which are also important from the perspective of environmental investment.

# Management That Is Conscious of the Cost of Capital and Stock Price

The Company's PBR remains low. In our understanding, this is because our ROE has not yet reached the level expected by shareholders and investors, although we are promoting business structure transformation to achieve our Medium-Term Business Plan 2025 and are steadily shifting invested capital to highly-profitable growth businesses. In light of this, we are considering introducing ROIC as an internal management indicator by around FY2026/3, including strengthening our investment profitability management to determine whether our investments can generate appropriate profits.

Looking at each business, profitability is an issue in the Paper Business, which has many mills and requires large amounts of invested capital. To address this, we will focus on generating cash through measures such as reorganizing our production system and expanding sales of strategic exports, and then invest that cash in more profitable growth businesses to improve the Group's overall ROIC. To that end, we will ascertain the current state of capital costs and invested capital, set KPIs that are in line with the characteristics of each business, and advance relevant measures.

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2030VISION
Realize NIPPON PAPER GROUP's sustainable growth Build a circulation-oriented society fully utilizing wood resources
Basic Policies ① Reallocate management resources to growing businesses
<ul> <li>(2) Respond to the rapidly changing social landscape, including GHG emissions reduction and environmental issues</li> </ul>
Targets
< Net sales > ¥1,300.0 billion • Of which, Daily-Life Products Business is 50% or more (=¥650 billion or more) • Includes ¥65.0 billion from new businesses • Overseas sales ratio: 30% or more
< Operating income margin in the Daily-Life Products Business > 7% or more < ROE > 8.0% or more < GHG emissions (Scope 1+2) > 54% reduction (vs. FY2014/3)

The PBR multiples ROE by PER (Fig. 06). As for ROE, towards the final fiscal year of the Medium-Term Business Plan 2025, we aim to achieve our target of 5.0% or more and make this the starting point for achieving ROE of 8.0%, which is the target in the 2030VISION. In order to improve our PBR, we are focusing on turning around Opal, our biggest challenge, and making the growing Daily-Life Products Business profitable including the overseas businesses, thereby realizing overall Group operating income of ¥40.0 billion, thus raising the feasibility of the Group's growth strategy.

# Achieving the 2030VISION and Increasing Corporate Value

In 2023, the Group reviewed the financial targets set out in the Medium-Term Business Plan 2025 in light of the changes in the business environment (Fig. 07). Although we did not reach the targets of the Medium-Term Business Plan 2025 in FY2024/3, we believe that we were able to show a certain degree of recovery, including returning to positive operating income. With an eye on the targets of 2030VISION, which lies beyond the Medium-Term Business Plan 2025, we aim to improve corporate value by further promoting growth strategies and sustainability management. To this end, my role as the officer in charge of finance is to ensure that we accelerate our business structure transformation and clearly demonstrate a path toward the Medium-Term Business Plan 2025 through our results. I will focus on this with a sense of speed and strong resolve.

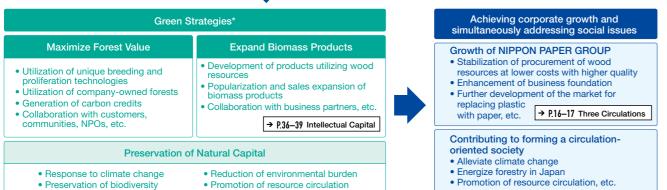
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# **Natural Capital**

NIPPON PAPER GROUP has an abundance of properly managed sustainable forest resources in Japan and overseas, which it effectively utilizes in promoting its aims of maximizing forest value and expanding biomass products under the 2030VISION. Amid a scenario of intensifying environmental issues globally, the Group aims to achieve corporate growth and contribute to building a circulation-oriented society by conducting business in close alignment with various forms of natural capital and persisting with efforts to conserve natural capital.

Strengths	<ul> <li>Managed forest area: Approx. 160,000 hectares* (company-owned forests in Japan / approx. 90,000 hectares, overseas plantations / approx. 70,000 hectares)</li> <li>* Forest certification acquisition rate: 100% in both Japan and overseas</li> </ul>
of Natural Capital	<ul> <li>Improved CO<sub>2</sub> absorption efficiency rate and increased the fixed CO<sub>2</sub> amount through utilization of unique breeding and proliferation technologies, as well as fields leveraging the aforementioned</li> </ul>
	Top-class handling volume of domestic wood in Japan
	Provision of public interest functions such as water source retention and biodiversity

### **NIPPON PAPER GROUP Initiatives**



\* The Group will contribute to building a circulation-oriented society while simultaneously achieving corporate growth by maximizing forest value and expanding biomass products.

# Enhancement of Sustainable Forest Resources

For the Group, forests serve as important management resources in providing public interest functions, while constituting a foundation for simultaneously facilitating business activities.

# 1 Forest Management

# [Overview of Forest Management]

The Group considers the environment, society, and the economy in managing and operating its approximately 160,000 total hectares of forests both within and outside of Japan, and has accordingly obtained forest certifications encompassing the entire area managed by Nippon Paper Industries and its overseas plantation subsidiaries.

In Japan, the Group conducts balanced, sustainable forest management with respect to its holdings of approximately 90,000 hectares of forests in approximately 400 locations, which it manages by categorizing approximately 80% as commercial forest areas for harvesting woody materials and approximately 20% as environmental forest areas where woody materials are not harvested and environmental

The Group seeks to maximize value inherent in forests through initiatives undertaken to sustainably secure and utilize forest resources.



functions such as ecosystem maintenance and water resource preservation (water source retention) are maintained.

Overseas, the Group engages in the plantation business encompassing approximately 70,000 total hectares in Brazil and Australia, where it conducts forest management with consideration toward cultures and traditions of local residents. as well as natural environments and ecosystems. The Group also contributes to local communities by, for instance, giving consideration to indigenous peoples and providing local residents with support for educational activities.

In addition, the Group enlists its unique technologies in contributing to building a carbon neutral society while enhancing its forest resources.

# [Promoting Use of Domestic Wood]

The Group maintains the domestic supply chain and promotes increased use of domestic wood underpinned by forestry policy centered on the basic policy of "green growth through forests, forestry, and the timber industry" promoted by the government.

The Company is taking steps to increase the proportion of domestic wood used as raw material for paper production. The Company's domestic wood usage rate was 36.8% in FY2024/3. Meanwhile, the volume of domestic wood chips for papermaking used by the Company accounts for about 10% of Japan's total domestic wood demand, thereby making the Company one of the largest wood chip users in Japan both in terms of its use volume and on a percentage basis.

Group company Nippon Paper Lumber actively engages in the domestic wood business underpinned by its target of achieving domestic log sales volume\* of one million cubic meters annually. To such ends, it leverages its strength by fully utilizing wood resources encompassing everything from lumber to low-grade timber such as raw materials for papermaking and biomass fuel, based on it having one of the largest procurement networks in Japan.

\* Does not include wood chips for papermaking

# 2 Initiatives for Enhancing Use of Resources

The prospect of securing forest resources is significantly affected by factors that include increasing and intensifying forest fires and localized rainfall events associated with climate change, as well as loss of biodiversity due to deforestation and forest degradation. Additionally, revitalizing the plantation business in Japan and expanding the overseas plantation business are also challenges to ensuring the sustainable forest resources.

# [Stable Procurement of Woody Materials from Overseas]

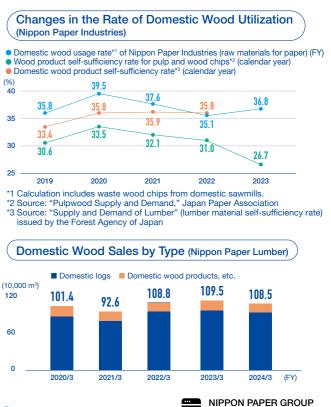
In its overseas plantation business, the Group believes not only in expanding area, but also increasing the amount of accumulation per area. As such, the Group is accordingly moving forward in securing new forest resources while also improving productivity in plantation areas. Improving

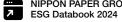
# -Improvement of Productivity

The Company has developed DNA marker selection technology to select eucalyptus plantation trees based on DNA information, enabling it to obtain superior trees with characteristics such as outstanding growth and quality at an early stage. Production of seedling varieties chosen through this technology started from FY2023/3. Furthermore, the Company will raise forest productivity through plantation management know-how it has accumulated over many years in its plantation business.

# -Securing of New Forest Resources

The Company will leverage its productivity improvement technologies and expand the forests in which it is able to secure resources, centered on the Asian region. Group company NPL RESOURCES ASIA enlists its operations in Vietnam, Thailand, and Malaysia in efforts that involve developing new plantation business, procuring and selling raw materials and fuel, and strengthening its foundations in the wood-related business.





The Group accordingly enlists its amassed technologies and expertise as well as its company-owned forests in addressing such challenges, thereby enabling it to contribute to building a circulation-oriented society as it seeks to achieve objectives that involve ensuring stable procurement of woody raw materials, seizing business opportunities, and strengthening its business foundation.

productivity not only makes it possible for the Group to secure stable supply of raw materials and keep costs down, but also enables it to mitigate climate change given that higher productivity leads to more efficient and greater CO<sub>2</sub> absorption.





Growth of tree varieties selected through DNA markers (AMCEL)



# [Stable Procurement of Woody Materials from Japan]

Under TCFD analysis with respect to the 1.5°C scenario, demand for domestic wood is forecast to increase due to difficulties in obtaining woody materials from overseas and rising wood demand for biomass fuel and other uses. Meanwhile, the plantation business in Japan already confronts many issues, including a labor shortage and increased costs of taking

measures against wild animals. With domestic wood accounting for about 37% of its procurement of woody raw materials, the Group will maintain the domestic supply chain in order to continue to consistently utilize domestic wood going forward, while also supporting revitalization of the plantation business in Japan utilizing its unique technologies and company-owned forests.

# -Expansion of the Elite Tree\* Seedling Production Business for the Plantation Business and Utilization of Company-owned Forests

The plantation business in Japan is dealing with the issue of a low reforestation rate due to an insufficient supply of seedlings and a labor shortage, high afforestation costs, and risks associated with long rotation periods. The Company collaborates with the Forestry Agency, local governments and seedling companies in the elite tree seedling production business. Rapid growth of elite trees gives rise to the likelihood of reduced tree cultivation costs due to a lower number of undercuttings, as well as shorter rotation periods, thereby helping to overcome issues encountered by the plantation business in Japan. Moreover, the Company is planting elite trees in reforestation areas in company-owned forests as a model for the regeneration of the plantation business in Japan.

In FY2024/3, the Company acquired certification as a specified breeding company for producing elite trees in Akita Prefecture, in addition to such initiatives carried out thus far in Kumamoto Prefecture, Tottori Prefecture, Hiroshima Prefecture, Shizuoka Prefecture and Oita Prefecture. The Company

is accelerating expansion of the elite tree seedling production business nationwide with the aim of building a structure that produces 10 million trees by FY2031/3.

\* An elite tree is a specified mother tree characterized as having a straight trunk and achieving growth at a rate 1.5 times faster than conventional varieties, while producing less than half the pollen of common cedar and Japanese cypress trees

# [Generation of Carbon Credits]

As the world aims to achieve a carbon neutral society, the market for carbon credits is expected to expand as demand increases and the outlook is that demand for forest absorption credits will also rise in conjunction with this. The Group has set a target with respect to its company-owned forests in Japan to complete efforts during the period FY2025/3 through FY2028/3 toward setting the stage for achieving carbon credits equivalent to generation of 200,000 tonnes of CO<sub>2</sub> emissions. From 2021 to 2023, the net absorption (absorption volume - logged volume) of company-owned forests in Japan and overseas plantation areas was approximately one million tonnes-CO<sub>2</sub>, and the total fixed CO<sub>2</sub>



→ P36-39 Intellectual Capital

Kazaki company-owned forest, Shizuoka Prefecture

amount at the end of 2023 was approximately 32.0 million tonnes-CO<sub>2</sub>. Apart from that, the fixed CO<sub>2</sub> amount in forests of the environmental protection zones established by its overseas plantation business is estimated at approximately 10.0 million tonnes-CO<sub>2</sub>, and the Group is investigating and examining these values and functions.

# -Acquisition of J-Credit Certification Enlisting Aerial Laser Survey Data

The Company is promoting utilization of J-Credits by closely monitoring revisions and other changes in forest management project methods and working closely together with other associated parties. In FY2023/3, Kazaki company-owned forest in Shizuoka Prefecture acquired new J-Credit certification. This was the first case in Japan of certification being obtained based on aerial surveying data, and utilizing publicly disclosed data from local governments can drastically reduce monitoring costs.

# **Preservation of Natural Capital**

The notion of preserving natural capital closely associated with its business activities constitutes a very important theme of the Group amid a scenario where sustainability of natural capital is being undermined by intensifying environmental issues such as

climate change and loss of biodiversity worldwide. By taking on these challenges from multiple angles, the Group aims to preserve natural capital while simultaneously helping to form a circulation-oriented society through such initiatives.

# 1 Environmental Management

# NIPPON PAPER GROUP Environmental Vision 2050, NIPPON PAPER GROUP Environmental Targets 2030

The Group established the NIPPON PAPER GROUP Environmental Charter, and practices environmental management that contributes to the formation of a circulationoriented society by working from a long-term perspective to reduce its environmental impact, promote resource circulation, preserve biodiversity, and respond to climate change. The Group has established its ideal state in 2050, and is making a full Groupwide effort toward the Environmental Targets 2030 which were established to achieve it.

Now		2030	2050	S P in
Environmenta	al Targets 2030	Path to Sustainable Future		Environme Sustainab
Expand recycling (	wastepaper food o	containers, etc.)	$\longrightarrow$	Create and c
Maximize forest va (improve CO <sub>2</sub> fixation eff		lantation areas by 30% vs. 2013 level)		
Reduce GHG emis	sions (Scope 1+2	!) (54% reduction vs. FY2014/3*)	$\rightarrow$	Carbo
Reduce environme (final waste disposal v		tion sites in Japan of 2% or less)	$\rightarrow$	Minim

\* Emissions related to production except for the Energy Business field

# 2 Response to Climate Change

Climate change is a social issue the world is confronting and the NIPPON PAPER GROUP's basic policy under the 2030VISION is to "respond to the rapidly changing social landscape including greenhouse gas (GHG) emissions reduction and environmental issues" as the Group moves forward on measures to mitigate and adapt to climate change, centering on reducing GHG emissions.

endorsed in 2021, the Group is conducting multiple scenario analyses assuming a rise in temperature, setting indicators and targets, and working on countermeasures to reduce risks and seize opportunities that leverage its strengths. The Board of Directors of Nippon Paper Industries engages in oversight of business execution, enlisting reports it receives on these activities from the Risk Management Committee and the executive officer in charge of GHG emissions reduction and promotion of environmental management.

Based on the Task Force on Climate-related Financial Disclosures (TCFD) recommendations that the Group

# Information Disclosure Based on the Task Force on Climate-related Financial Disclosures (TCFD)

# Risks and Opportunities as of 2030 (Some excerpts are shown below)

	τ	er of Disk	Discourses with laws of an Eisensid Disco	Financial Impact	
	Type of Risk		Phenomena with Impact on Financial Plans	1.5°C Scenario	4°C Scenario
Transition Introduction of carbon pricing,		Introduction of carbon pricing,	Rising carbon prices	High*	Low*
risk	Regulatory .		Increasing capital investment expenses for fuel conversion and energy saving	High	Low
	Increase of catastrophic     Stoppage in the delivery of supplies and products as logistic	Stoppage in the delivery of supplies and products as logistics networks are cut off	Market and Park	18.4	
Physical	Acute	disasters	Production stoppage due to damage at production sites	Medium-High	High
risk	Chronic	Rising temperatures and change of rainfall patterns, etc.	Increased price of forest resources and other plant-based materials due to frequent forest fires     and a decline in plant growth	Medium	High

\* Carbon price impact - Low: Less than ¥10.0 billion; Medium: ¥10.0 billion to ¥50.0 billion; High: ¥50.0 billion or more (qualitative evaluation except for carbon price). Carbon pricing adopts IEA's Net Zero Emissions scenario

Type of	Dhannana with Issant an Financial Dhan	The Carus is Ofree after	Market Growth	
Opportunity	Phenomena with Impact on Financial Plans	The Group's Strengths	1.5°C Scenario	4°C Scenario
Introduction	Storage batteries will spread, and demand for raw materials for storage batteries will increase	CMC technologies and production facilities	Significant expansion	Expansion
	Demand for cellulose nanofiber (CNF) will increase due to the need to reduce the weight of automobiles, etc.	CNF technologies and production facilities		
of carbon pricing, etc.	Demand for forest absorption credits will increase     Ompany-owned forests in Japan     Elite tree seedling business     Forest management, breeding and proliferation technologies		Significant expansion	Stable
	$\bullet$ Demand for chemical raw materials using wood-derived $\text{CO}_{\text{z}}$ will increase	<ul> <li>Biomass-derived CO<sub>2</sub> supply infrastructure (recovery boilers)</li> <li>Chemical CO<sub>2</sub> fixation and utilization technology</li> </ul>	Significant expansion	Stable
Changes in market needs	Demand for biomass materials and lignin products will increase as the need for paperizing increases due to decarbonization	Woody biomass material development technology     Technologies to extract and utilize lignin     Technology for recycling unused wastepaper	Significant expansion	Expansion
	Demand for domestic wood will increase     Demand for elite tree seedlings will increase due to increased reforestation     area in Japan	Company-owned forests in Japan     Domestic wood procurement network     Forest management, breeding and proliferation technologies	Expansion	Significant expansion
	Demand for sustainable aviation fuel will increase	Technology for producing bioethanol from wood resources     Multiple kraft pulp manufacturing facilities	Expansion	Expansion





Sustainable Society Where Nature and People Can Coexist

tal Vision 2050 Future Vision

circulate resources

on neutrality

mum impact



NIPPON PAPER GROUP ESG Databook 2024

# Governance for Environmental Management Promotion

The Group has established the NIPPON PAPER GROUP Environmental Committee, chaired by the General Manager of the Technical & Engineering Division, who is also the executive officer in charge of GHG emissions reduction and promotion of environmental management at Nippon Paper Industries. The committee deliberates important matters concerning environmental management such as managing and evaluating the appropriate implementation of the NIPPON PAPER GROUP Environmental Targets 2030, and reports to the Board of Directors of Nippon Paper Industries through the Risk Management Committee ( $\rightarrow$  P.60).



### NIPPON PAPER GROUP Z ESG Databook 2024

# [Reduce GHG Emissions]

Reducing GHG emissions is a pressing matter for the Group in response to climate change issues as the paper pulp industry is an energy-intensive industry and is highly vulnerable to transition risks associated with the introduction of carbon pricing, energy policies and other such factors. The Group is working to reduce GHG emissions through fuel conversion, energy saving, and reorganization of production structures. Meanwhile, since these initiatives are progressing steadily, the reduction scenario of the 2030VISION was brought forward in May 2023 and the FY2031/3 target was revised to a 54% reduction in GHG emissions (Scope 1+2) compared to FY2014/3\*. Going forward, the Group will continue to reduce transition risk by further accelerating its decarbonization measures in areas such as fuel conversion and energy saving, and also by reorganizing the Paper Business production structure in an integrated manner.

 $^{\star}$  Emissions related to production except for the Energy Business field

### FY2024/3 GHG Emissions by Scope Category

Scope 1+2 <sup>*</sup>	5.29 million t-CO <sub>2</sub>
Scope 3	6.13 million t-CO <sub>2</sub>

\* Emissions related to production except for the Energy Business field

# [Participation in the GX League]

The Company takes part in activities of the GX League, which serves as a forum for facilitating cooperation of a coalition of companies with government and academia in taking on challenges of green transformation (GX), through its participation in efforts involving rule formation and a voluntary green transformation emissions trading system (GX-ETS\*). Going forward, the Company will actively persist in helping give rise to carbon neutrality and promoting economic and social transformation through the GX League.

\* Reduction targets: 54% reduction in direct emissions and 5% reduction in indirect emissions by FY2031/3 (participating entity: Nippon Paper Industries; base year: FY2014/3)

# [Fuel Conversion Initiatives]

Since the latter half of FY2022/3, the Group's earnings have been substantially affected by rising prices of raw materials and fuel worldwide, and surging prices of coal in particular. The Group is working to maximize production efficiency by reorganizing the Paper Business production structure and moving ahead on operations limiting the use of coal, such as fuel conversion, by utilizing the know-how it has accumulated until now in boiler technology using wood resources and waste materials as fuel.

# Initiatives to Reduce Coal Consumption

Initiatives ->	Issues ->	Countermeasures
<ul> <li>Fuel conversion (transfer to biomass, waste and purchased electricity)</li> </ul>	Address change in operating methods accompanying fuel conversion, facility modifications	Utilize accumulated boiler technology know-how
Coal boiler power limitation, utilized schedule of maintenance outages     →	Stable procurement of fuels other than coal $\rightarrow$	Utilize the Group's internal procurement network and maximize use of black liquor

Coal Consumption\*

161

127

125

(10.000 tonnes)

200

150

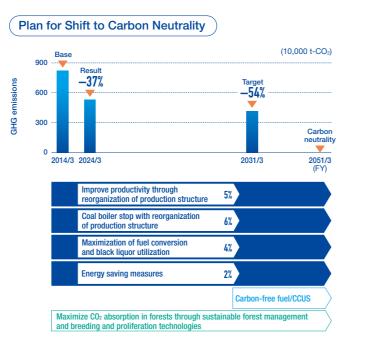
100

50

# [Energy Saving Initiatives]

Energy saving is an incredibly important measure in energyintensive industries. The Group has been working on energy saving measures from the perspectives of both facilities and operational management. This has involved setting a target for achieving improvement in total energy consumption per unit of production by at least one percent relative to the previous year, and creating a database of energy-saving renovations.

Moreover, the Group's paper mills have also been addressing the issue of water conservation in seeking to save energy, given that such facilities incur energy loss associated with their large volume of water use in production processes for the sake of maintaining quality. The Group consistently takes on the challenges of introducing new technologies with the simultaneous aims of saving water and energy, while also maintaining quality.



Nippon Paper Industries

(amount consumed internally

2026/3

2031/3 (FY)

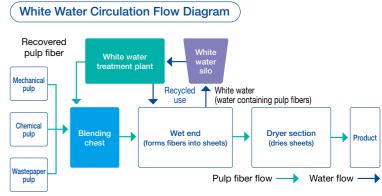
# 3 Reduction of Environmental Burden

# [Water Resources Management]

The Group works to reduce the amount of water used and to reduce water pollutants in order to continually use water resources. Although the Group began analyzing water-related risk in FY2024/3. it has determined that such risk is low at its

# -Water Conservation through Circulation of White Water

The Group's paper mills collect water containing fine pulp fibers generated in the wet end of the papermaking process, called white water. The recovered white water is separated into pulp fibers and water in a treatment plant, after which the pulp fiber is returned to the blending chest, while the water is circulated back to the wet end for reuse, thereby reducing the amount of water used. Water conservation not only reduces water consumption, but also leads to energy savings in equipment as a side effect.



# [Water Risk Evaluation]

In seeking to formulate appropriate measures to address water risk, the Group accordingly performs assessments to identify risk that includes those associated with water supply and flood frequency at major production sites both in Japan and overseas.

During the fiscal year, the Group performed water risk evaluation (encompassing physical, regulatory, and reputational risk) at a total of 64 locations, consisting of 45 sites in Japan and 19 sites overseas. The evaluation was performed for individual

# [Waste Reduction]

Having established a target of keeping its final disposal volume of industrial waste from production sites in Japan to 2% or less by FY2031/3, the Group has been working to review production processes and promote the effective use of boiler ash for civil engineering materials and other purposes. The Group not only reduces waste within the Group, but also contributes to reducing waste generated in the regions by accepting regional waste as fuel.

# -Effective Utilization of Local Waste

At the Company's Nakoso Mill, waste generated in neighboring areas is actively used as fuel. This waste includes shiitake mushroom beds and rubber chips from artificial turf. The use of waste as fuel allows the Nakoso Mill to reduce its use of fossil fuels. The local production and consumption of fuel has not only contributed to reducing GHG emissions from the Nakoso Mill, but it has also helped to reduce waste generated in local areas. As a result of these initiatives, the Company received the Special Prize at the 7th Fukushima Industrial Awards sponsored by Fukushima-Minpo Co., Ltd. in 2022.



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production sites within Japan and overseas. Going forward, the Group will carry out appropriate countermeasures such as establishing targets for the usage of water resources after having conducted more detailed analysis and evaluation.



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watersheds using the WWF Water Risk Filter risk evaluation tool in seeking to identify water issues in regions where the Group's main production sites and business offices are located. Findings of the evaluation indicated that none of the locations are subject to substantial water risk at this point in time, with all 45 of the sites in Japan and 5 of the sites overseas constituting low risk, and the remaining 14 sites overseas classified as medium risk.



# 4 Preservation of Biodiversity

The Group's business activities greatly depend on the natural world, which nurtures biodiversity, and at the same time those activities affect the natural world in many ways. That is why the Group has established its Basic Policy on the Preservation

# [Preservation of Biodiversity in Forest Management]

Forests possess public interest functions such as CO<sub>2</sub> absorption and fixation, ecosystem maintenance, water resource preservation and disaster prevention. The Group aims to procure sustainable wood resources while also maintaining and

# Information Disclosure Based on the Taskforce on Nature-related Financial Disclosures (TNFD)



of Biodiversity and has been working to achieve harmony in its business activities that involve continuously using wood resources, which are a main raw material, and plentiful water resources, and reducing environmental impact.

improving the public interest functions by working to preserve biodiversity in cooperation with various stakeholders in its own forests in Japan and overseas.



### Overview

NIPPON PAPER GROUP procures raw materials and fuel such as coal and woody chips and pulp from sources in Japan and overseas, and also produces and sells building materials, paper products, chemical products and other such items enlisting numerous water resources in its manufacturing processes.

In recognizing that its direct operations (manufacturing) and upstream supply chain (procurement) depend on and affect natural capital and biodiversity, the Group engages in analysis and evaluation using the LEAP approach\*1.

During the fiscal year, the Group discloses information on locating (L) its interface with nature and evaluating (E) its dependencies and impacts on nature.

# Governance

The Group has established a governance structure for contending with natural capital and biodiversity similarly to the way it addresses climate change issues.

### Strategy

In FY2024/3, the Group enlisted the ENCORE\*2 tool in performing analysis regarding its direct operations (paper product manufacturing) and its upstream supply chain (coal, forest, and wood product manufacturing). The analysis led to the following conclusions with respect to the Group's very substantial dependencies on ecosystem services and its impacts on natural capital.

# Dependencies on Ecosystem Services

	Ecosystem Services	Dependencies
	Fibers and other materials	Materials derived from plants and animals, etc.
Supply	Groundwater	Groundwater
	Surface water Surface a	Surface and above-ground water
	Climate control	Long-term storage of CO <sub>2</sub> in soils and oceans, and regulation of temperature, humidity, and wind speed using vegetation
Adjustment	Flood and storm protection	Protection from floods and storms using vegetation
	Mass stabilization and erosion control	Stabilization of coastlines and sand dunes, etc., and prevention of erosion using vegetation

Impacts on Natural Capital

	Impacts	Specific Factors	
Inputs	Water use	Examples include volume of groundwater consumed, volume of surface water consumed, etc.	
	Terrestrial ecosystem use	Examples include area of agriculture by type, area of forest plantation by type, etc.	

None of the categories are classified as being subject to very high emissions

\*1 The LEAP approach is a process proposed by the TNFD for systematically evaluating nature-related risks and opportunities based on scientific evidence. A key distinctive aspect of the approach is its four sequential steps of: 1) Locate your interface with nature, 2) Evaluate your dependencies and impacts on nature, 3) Assess your nature-related risks and opportunities, 4) Prepare to respond to nature-related risks and opportunities and to report on your material nature-related issues.

\*2 The Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE) analysis tool makes it possible to identify high impacts and dependencies on the natural environment.

# 5 Promotion of Resource Circulation

The Group will promote the circulation of resources by simultaneously addressing customer needs for replacing plastic with paper and the recycling of paper products amid rising awareness of environmental issues, which involves recovered paper utilization technology and know-how in the realm of raw materials for paper, while also drawing on its nationally established wastepaper procurement network. The Group will proceed with development of new styles of business while

In October 2022, the Company began operating recycling facilities for paper containers such as paper cups and paper cartons for food and beverages at its Fuji Mill. These facilities are capable of producing high-quality, intensely white recycled pulp. Taking advantage of these characteristics, the Company aims to use this pulp as a raw material for paper in a wide range of fields, including paper, paperboard, and household paper.

Moreover, the Company collaborates with customers and local governments in conducting demonstration tests for collecting used paper cups at events and other forums, collecting paper cups from the offices of companies that support paper cup recycling, and engaging in collection and recycling activities for difficult-to-treat wastepaper. Through these efforts, the Company utilized 4,933 tonnes of unused, difficult-to-treat wastepaper in FY2024/3.

# -Paper Cup Recycling through Three-Company Collaboration with Japan Airlines and Tokan Kogyo

Since December 2022, the Company has been lending its cooperation to an initiative for recycling paper cups and other such items together with Japan Airlines Co., Ltd. (hereinafter, "JAL"). Under the initiative, JAL Group appropriately sorts and collects paper cups and other such items used during its in-flight services of certain domestic flights, and the Group establishes unique routes for transporting, collecting, and packing such items. At first, the initiative was limited to recycling of containerboard and other such materials. In June 2024, however, it was expanded to achieve Japan's first horizontal recycling\*1 of paper cups back into paper cups\*2 enlisting a three-company partnership also with paper cup manufacturer Tokan Kogyo Co., Ltd.

\*1 According to the Company's research

\*2 This involves using recycled paper including used paper cups among other raw materials.

# -Project for Upcycling Used Paper Containers Centered on choito®

In February 2024, the Group launched the choito® brand of fabric products that use paper varn made partly from used paper containers for food and beverages. Through the brand, the Group ultimately provides towels, aprons, and other such fabric products made using paper yarn created from high-guality recycled pulp produced at the Fuji Mill from used paper containers that have been collected. The Group aims to help expand the recycling of frequently discarded paper containers by promoting collaboration with many operators through this project.

# - Recipient of Environment Minister's Award for Initiative on Voluntary Collection and Recycling of Paper Containers in Partnership with Residents of Hamamatsu City

Since April 2021, the Company has been recycling yogurt cups, paper cups, and other such paper containers for food and beverages, enlisting the support of Hamamatsu City. Under this recycling initiative, the Company's mills enlist used paper containers as raw material for paper upon having gathered such containers from collection boxes installed at sites such as the Ecohama facility for raising environmental awareness located in Hamamatsu City. The Company engages in the initiative in conjunction with Hamamatsu Green Wave Co., Ltd. (replaced with JFE Environment Technology Co., Ltd., effective from February 2024) and NPO Ecolife Hamamatsu. This initiative raises awareness of recycling among general consumers, reduces incineration waste, and helps facilitate CO<sub>2</sub> fixation through long-term recycling of wood resources.

The Company received the Environment Minister's Award of the FY2023 3Rs (Reduce, Reuse, and Recycle) Promotion Merit Awards (hosted by the 3Rs Promotion Council) in recognition of these efforts.

# -Alliance with Nihon Tetra Pak to Increase Rate of Recycling Paper Cartons for Beverages

In June 2024, the Company entered into an agreement to engage in an extensive alliance with Nihon Tetra Pak K.K. to explore and undertake initiatives for increasing the rate of recycling paper cartons for beverages. Through these efforts to increase the rate of recycling, the Group aims to enhance the value of paper cartons for beverages and help achieve a circular economy in this field.

### NIPPON PAPER GROUP 7 ESG Databook 2024

contributing to achieving sustainable use of natural capital and building a circulation-oriented society. To such ends, the Group will engage in initiatives that entail utilizing unused, difficult-to-treat wastepaper while also establishing a horizontal recycling and upcycling scheme through food and beverage containers, etc., by expanding its system for stable procurement of wastepaper and constructing a sorted collection recycling system.

Recycling facilities for paper containers for food and beverages (Fuji Mill)

choito® apron created in partnership with UCC Coffee Professional Co., Ltd.



Recycled paper cups (image provided by JAL)





# **Human Capital**

NIPPON PAPER GROUP not only focuses on developing and retaining human resources, but also actively seeks to ensure appropriate allocation of personnel including that of shifting employees to growth businesses. This approach encourages growth for both employees and the Group. Furthermore, the Group will seek to achieve its Vision stipulated under the Group Mission of instilling pride in employees by improving employee engagement by promoting organizational development that enables diverse work styles and allows diverse human resources to maximize their potential.

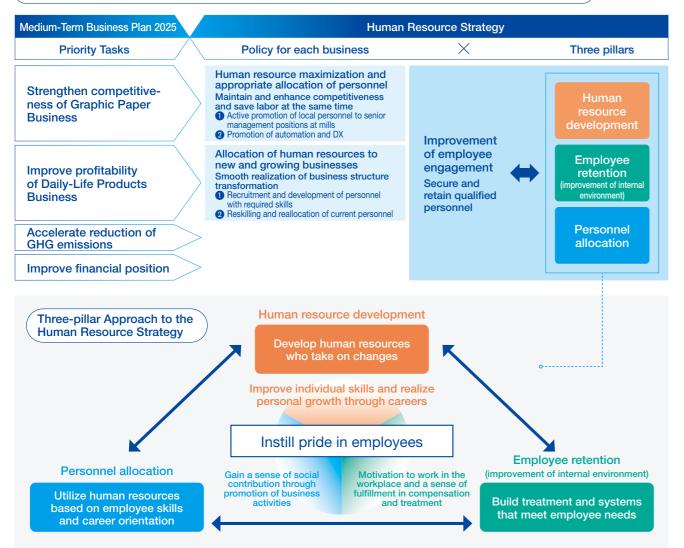
# Linking Business Strategy and Human Resource Strategy

The Company articulates the basic policy of its human resource strategy by business segment, and accordingly takes on the priority tasks established in the Medium-Term Business Plan 2025.

To strengthen competitiveness of the Graphic Paper Business, which has been set forth as a priority task, the Company seeks to maintain and enhance competitiveness and save labor at the same time based on a policy of human resource maximization and appropriate allocation of personnel. For the priority task of improving profitability in the Daily-Life Products Business, the Company has set allocation of human resources to new and growing businesses as a basic policy for ensuring smooth realization of business structure transformation.

Having furthermore set the notion of improving employee engagement as another basic policy in its human resource strategy, the Company seeks to secure and retain qualified human resources who facilitate the Company's business strategy through various personnel initiatives.

# (Human Resource Strategy Linked to Priority Tasks Set Forth in the Medium-Term Business Plan 2025



# Approach to Human Resource Strategy

The Company seeks to improve employee engagement and implements various measures based on the human resource strategy's three pillars of human resource development, employee retention (improvement of internal environment), and personnel allocation for instilling pride in employees. In the near future, the prospect of securing human resources is likely to become increasingly difficult due to a

[Securing Personnel]

The Company believes that securing human resources is its foremost challenge, premised on the notion that its personnel serve as the driving force behind its prospects of accelerating business structure transformation, as set forth in the Medium-Term Business Plan 2025, and achieving objectives of the 2030VISION. Whereas the Company's recruitment efforts thus far have focused on hiring new graduates (high school, technical college, university, and graduate school) to serve as both career-track employees and mill workers, it is also working to expand its recruitment channels premised on the need to secure a more diverse range of talent in order to accelerate the business structure transformation.

Specifically, the Company has been redoubling efforts to recruit mid-career professionals with work experience from outside the Company, rehiring employees who had previously left the Company, and introducing an employee referral program. In FY2024/3, the Company brought in 55 mid-career hires for career-track positions, which is about the same number as its new-graduate hires for career-track positions. Moreover, the Company's recruitment efforts in FY2024/3 included the launch of its global application recruitment program for hiring internationally-minded students with sound foreign-language proficiency to serve as candidates for overseas assignments. As of April 1, 2024, four people have joined the Company under that program.

The Company furthermore provides opportunities to help

# [Human Resource Development]

The Company is working to develop human resources who take on changes to promote business structure transformation and yield results from it. Over recent years in particular, the Company has been redoubling its efforts to expose employees to different perspectives through a variety of experiences with the aim of prompting employees to gain a sense of the Company's transformation and embrace challenges.

Specifically, the Company has been implementing initiatives that include its: in-house side jobs system for enabling employees to take on challenges in other divisions, reskilling education (self-directed recurring program) for employees who have been subject to internal transfer to new jobs in fields in which they have no experience, establishment of certification incentive programs and certification allowances to encourage employees to gain qualifications, and selective employee development initiatives (career path transition program) for locally hired mill employees, with the aim of ensuring future sustainability of mill operations.

## Innovative Thinking Training Curriculum

Schedule	Day 1 (July 2023)	Intermediate tasks	Day 2 (Januar
Descrip- tion	In-person lecture	Enrollment in distance learning and group work	In-person le
	Session 1 >> Overview of innovative thinking	(1) Enrollment in distance learning JMAM MBA series Innovative Thinking Course	<ul> <li>Session 2</li> <li>Developing to that spur innovation</li> </ul>
		<ul> <li>(2) Creating scenarios for individual mills</li> <li>Each participant creates an innovation scenario for his or her own mill together with other team members</li> </ul>	

Source: Keio Marunouchi City Campus (Keio MCC) website: https://www.keiomcc.com/

# ,

declining labor force population and greater workforce mobility. As such, the Company is swiftly working to expand the job responsibilities of human resources with operational skills, while also engaging in re-training and reallocation efforts with respect to personnel capable of launching new businesses and conducting mass production of new products.

students engage in self-guided career development. For instance, the Company offers science and engineering students five-day technical internships at its Ishinomaki Mill, Fuji Mill, and Iwakuni Mill in order to enable them to gain practical experience in fields such as development and process management, energy utilities management, and plant engineering. The Company also holds open house events to help students gain an understanding of biomass products and business models at the Research & Development Division (Kita-ku, Tokyo).

In FY2025/3, the Company will continue its efforts to maintain and expand its recruitment channels to secure diverse human resources, while also considering options for employment of foreign nationals at its manufacturing sites amid the prospect of a declining labor force population.





From July 2023 through to January 2024, the Company also held training on innovative thinking for technical, engineering, and administrative line managers at its mills (manager-level employees). The workshops were designed to enhance cognitive and implementation capability of leaders who are tasked with identifying business prospects and aligning such opportunities with market needs while enlisting cooperation of internal and external stakeholders.

In FY2025/3, the Company also intends to promote development of its employees capable of holding overseas postings and DX professionals, in addition to the aforementioned initiatives. With respect to overseas employee development, the Company plans to enhance its overseas company dispatch course (trainee system) by assigning participants to Group companies overseas mainly for the purpose of employee development. For development of its DX professionals, the Company plans to implement new educational programs that enable participants to improve digital literacy and develop standardized skills.

# ary 2024)

ecture 2 ≫ teams



Training on innovative thinking

# [Employee Retention]

The Company needs to make a concerted effort to secure and retain human resources amid a situation where recruiting new employees poses challenges associated with the declining labor force population and greater workforce mobility. As such, the Company is proceeding with efforts to establish personnel systems and internal environments that allow for diverse work styles aligned with career development aspirations of individual employees given the increasingly diverse nature of values among employees in developing their careers.

Specifically, the Company has introduced arrangements that include a flextime system with no core hours, a system for taking annual paid leave in hourly increments, and a system to work from home. Meanwhile, the Company also reviewed its performance evaluation and pay raise scheme to ensure that employees who have taken childcare or nursing care leave do not become subject to diminished prospects of career advancement.

Moreover, the Company takes into account the needs of its career-track employees subject to job transfer as part of their career development trajectory in cases where such employees who assume childcare and nursing care responsibilities face limitations in terms of where they are able to work. In seeking

# [Appropriate Allocation of Personnel]

In seeking to achieve objectives of its Medium-Term Business Plan 2025 priority tasks to "strengthen competitiveness of Graphic Paper Business" and "improve profitability of Daily-Life Products Business," the Company actively appoints talented human resources who have accumulated advanced skills in existing businesses to the launch of new businesses and the mass production of new products.

In FY2024/3, the Company launched the operation ahead of schedule for the household paper manufacturing facilities installed within its Ishinomaki Mill as a result of reassignment of personnel who had been engaged in the Mill's Graphic Paper Business to its Household Paper Business.

The Company is focusing its efforts to rapidly select and develop non-management track employees (locally hired mill

Indicators and Targets Associated with Human Resource Development and Employee Retention (Improvement of Internal Environment)

The Company has established indicators and targets for human resource development and employee retention (improvement of internal environment), aimed at promoting diversity and otherwise improving employee engagement, as outlined below. In an aim to achieve active participation of

to create environments conducive to enabling such employees to continue their careers with peace of mind, the Company is accordingly considering possibilities for introducing a Regional Career-Track Employment System whereby such employees may opt to have their work assignments limited to specific work locations for a certain period of time.

In further improving its engagement with junior employees, the Company is considering initiatives for communications between general managers and junior career-track employees assigned to other divisions. The Company will also persist in providing and arranging opportunities for in-house communication with the aim of ensuring that its employees gain a sense of the breadth of the Group's fields of business along with the Group's unified efforts toward achieving change and the business structure transformation.

In addition to these systems and initiatives, the Company also established a career and life event consultation desk operated by external consultants in July 2024, with the aims of facilitating career autonomy and preventing situations where employees feel compelled to leave their jobs due to factors such as childcare and nursing care concerns.

employees) who hold promise of serving as key contributors to the mill. The Company is accordingly selecting such employees to serve in line manager roles traditionally assumed by career-track employees. Through these efforts, the Company will construct a framework that facilitates reallocation of career-track employees, enlisting a focus on growth business and new business.

Furthermore, the Company seeks to utilize and appropriately allocate its human resources in a manner transcending boundaries of Group companies going forward. To such ends, it is beginning to consider options that entail standardizing fundamental working conditions including holiday, vacation and employee benefit plans among the main Group companies.

diverse human resources and realizing diverse work styles, the Company will implement personnel initiatives based on the three pillars of its human resource strategy in working toward achieving such targets.

			Results			
	Indicators	Targets	FY2022/3	FY2023/3	FY2024/3	[Reference] Average of Last 3 Years
Retenti	on rate after 10 years of employment (%)	80% or higher	60.3	63.4	50.0	58.4
Ratio of	f female career-track hires (%)	40% or higher (by FY2026/3)	39.6	48.8	36.5	40.9
Total working hours per year (hours)		1,850 hours/year or lower	1,905	1,884	1,872	1,887
Ratio of	f annual paid leave taken (%)	70% or higher	73.8	79.0	80.2	77.6
Ratio of	f diversity promotion system usage (%)*	70% or higher	97.8	93.2	84.6	91.9
	Ratio of flextime system usage (%)	_	42.1	41.2	43.2	42.2
(Break- down)	Ratio of system for taking annual paid leave in hourly increments usage (%)	_	9.2	13.3	18.0	13.5
	Ratio of system to work from home usage (%)	_	96.0	83.4	71.4	83.7

\* The ratio of diversity promotion system usage does not correspond to the total of usage rates of the individual systems because the ratio of diversity promotion system usage constitutes the ratio of head office employees who have used at least one of the systems (flextime system, system for taking annual paid leave in hourly increments, system to work from home) during the current fiscal year.

# Improvement of Employee Engagement

The Company defines its ideal of engagement with employees as "a relationship in which both employees and the Company can grow together." Additionally, the Company has been administering employee engagement surveys regularly since FY2020/3 in seeking to further reinforce this relationship. The survey results are reported to general managers and executives and are also enlisted in

# Overview of FY2024/3 Employee Engagement Survey Survey subjects: Employees working at Nippon Paper Industries Co., Ltd.

Number of survey subjects: 4.982 employees; 98.3% response rate Response period: November 27 (Monday) to December 18 (Monday), 2023

### **Overview of Survey Results** (Perceptions of employees who responded to the survey)

# Strengths

- · Robust support actions from managers to their
- subordinates High degree of operational coordination among
- workplace members
- · Substantial awareness of change and improvement at workplace
- Employees tend to have high expectations and satisfaction levels relative to immediate aspects of employment such as relationships with managers and workplace conditions

# Issues

- Low levels of satisfaction with respect to financial standing
- and other such corporate fundamentals • Concerns regarding business growth potential and future
- viability, and tendency among employees to lack confidence
- in top management • Perception that appropriate hiring and placement practices
- are insufficient
- Employees have many grievances and concerns regarding aspects of the corporate realm

# **Occupational Safety and Health**

# [Basic Stance]

In order to instill pride in employees, it is necessary to ensure the safety and health of employees at each of the Group's locations and to maintain 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.

NIPPON PAPER GROUP Safety and Disaster Prevention

# [Initiatives for Preventing Work-related Accidents]

Guided by its mission of ensuring that nobody is injured within the premises of its mills, the Group works closely with labor unions and partner companies to prevent work-related accidents. Top management conveys this mission to employees through lectures during the new-year period, visits to mills, in-house newsletters, and other means.

Moreover, the Group implements its own system (NPSS\*) for continuously pursuing occupational safety and health

\* Nippon Paper Occupational Safety and Health Management System

formulating and implementing measures for improving employee engagement, taking the advice of external consultants into account. As such, this facilitates efforts that involve enhancing communication within the workplace. improving the working environment, and achieving smooth transformation of the business structure.

# Guidelines for Immediate Action to Be Taken **Based on Survey Results**

Promoting dialogue within the workplace in aiming to build a foundation for improving employee engagement

### **Specific Initiatives (Examples)**

### (1) Lectures for HR personnel

The Company will provide education to personnel departments of the head office and mills from the perspective of facilitating improvement activities of respective workplaces on methods for interpreting and analyzing results, and formulating and implementing action plans

### (2) Survey results individually reported to all general managers and factory supervisors

Personnel departments will provide individual reports regarding engagement scores, strengths and issues of each workplace.

### ③ Establishment of model sites for dialogue to be extended laterally to other locations

The Company will set the stage for ensuring that dialogue is effectively promoted at each site by selecting model sites and conducting preliminary coaching skills training and engaging in workplace dialogue for line managers. The Company subsequently plans to extend insights and methods gleaned from such initiatives to other sites

### (4) Communication between general managers and junior career-track employees of other divisions

The Company will ensure that its junior career-track employees gain an overall understanding of management by exposing them to initiatives of other divisions. It will furthermore hasten its potential for retaining them by ensuring that they gain a sense of progress being made in carrying out the business structure transformation

Committee, which is chaired by the General Manager of the Technical & Engineering Division, supervises the Group's occupational safety and health and disaster prevention activities and reports on these to the Risk Management Committee. The Group has established a communication system between the mills and the head office as well as the divisions within the head office in the case of a disaster. The Group has also established and operates a system to report necessary information to NIPPON PAPER GROUP Safety and Disaster Prevention Committee and top management.

management activities at the organizational level. By doing so, the Group strives to improve safety and health levels through the prevention of occupational accidents, promotion of workers' health, and creation of comfortable work environments.

Additionally, in 2020, the Company established a mediumterm management plan centered on safety initiatives (2020-2025) as part of efforts to construct a foundation for preventing work-related accidents.

Gro

# **Intellectual Capital**

NIPPON PAPER GROUP is cultivating forests and developing a range of businesses that fully utilize wood resources, while also taking on challenges such as building a circulation-oriented society and reducing GHG emissions through its business activities.

The Group's strength lies in its ability to simultaneously generate sustainable growth as a company and contribute to solving social issues. This strength is supported by a wide range of technologies accumulated over many years of research and development since the Group was founded.

Strengths of Intellectual Capital	<ul> <li>Accumulation and application of a wide range of technologies</li> <li>Internal and external collaboration in R&amp;D</li> <li>IP strategies that maximize the value of intellectual capital</li> <li>Technological capabilities to tackle social issues</li> </ul>	R&D expenses <b>45.6</b> billion (FY2024/3)
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# Accumulation and Application of a Wide Range of Technologies -Intellectual Capital Supporting the Three Circulations

# **Circulation of Sustainable Forest Resources**

The Group has established technologies to efficiently and systematically cultivate and utilize forests-its basic management resource. In Japan, the Group has succeeded in developing propagation technology for "elite trees" of cedar, Japanese cypress and pine. Elite trees demonstrate superior growth and CO<sub>2</sub> absorption, also limiting pollen content to less than half that of normal trees. Elite trees are securing access to domestic raw materials and helping to solve various issues faced by the forestry industry by reducing afforestation costs. Overseas, the Group has achieved a world-first with the start of commercial planting of superior trees using selective breeding technology based on genomic information. This technology can reduce the time needed for tree breeding to less than half that for conventional methods.

# Circulation of Wood Resources Used for Various Purposes with Technological Capabilities

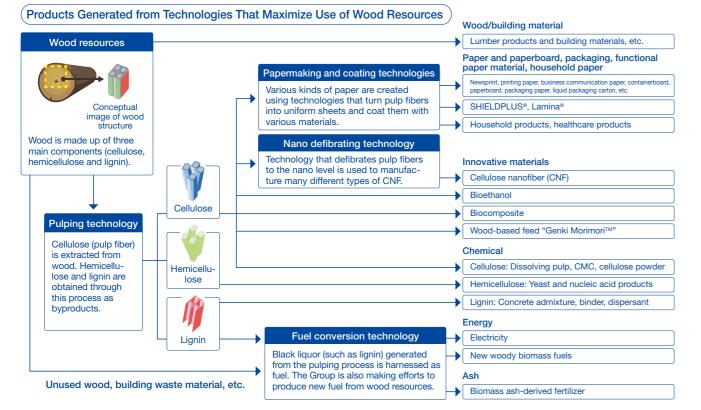
The Group develops and sells a wide range of products. backed by the use of pulping technology, papermaking and coating technologies, nano defibrating technology and fuel conversion technology, all of which were developed in the papermaking process.

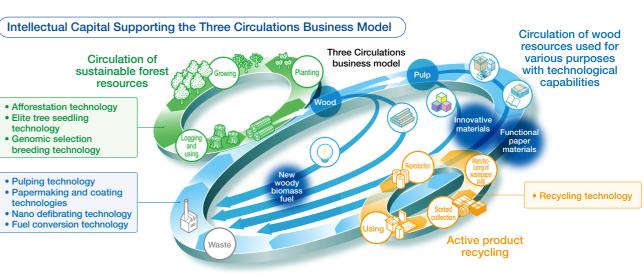
# Active Product Recycling

The Group has collected and reused wastepaper for many years, and it is now expanding the scope of recycling with the development of new technologies. These technologies are enabling the upcycling of paper cups into fabric products and the recycling of paper cartons with aluminum coatings.

→ P.26 Expansion of the elite tree seedling business for forestry and use of company-owned forests

# → P.31 Promotion of Resource Circulation





# Internal and External Collaboration in R&D

In addition to the Research & Development Division headguartered in Tokyo, the Group has research and development laboratories at the Fuji Mill, Iwakuni Mill and the Higashimatsuyama Mill. The Research & Development Division works closely with production departments to rapidly progress labstage research to the prototype stage and the mass production system. In many cases, personnel who have gained experience in research laboratories are transferred to sales and production departments. Using this three-way collaboration between sales, research and production, the Group can identify customer needs and efficiently reflect them in production.

The Group has also established a Business Transformation Promotion Office as a cross-functional organization to accelerate open innovation both internally and externally. Information is shared regularly among the general managers of each division, associated department heads and the heads of technical departments at mills, with close collaboration supporting rapid decision-making. With respect to sales, the NPG Products Promotion Center was established in FY2023/3 to lead efforts to expand sales of newly developed products. In this way, the Group works to expand Groupwide product sales and develop new businesses through efforts that cross existing business divisions.

# **IP Strategies That Maximize the** Value of Intellectual Capital

To protect the Group's business and the results of its R&D activities while also contributing to the development of technologies that help solve social issues, the Group's research and development departments and the Intellectual Property Department work closely together, regularly studying research results to strengthen patent applications and rights in growth fields and new business fields. With overseas business expansion in mind, the Group is also focusing on foreign patent applications.

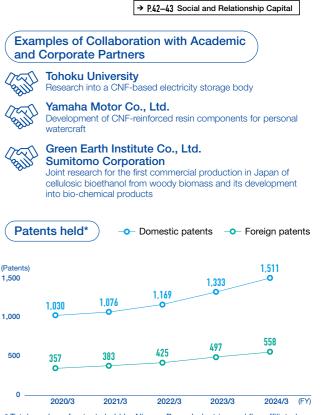
To ensure the Group does not infringe the intellectual property rights of other companies in business development, the Group works with related divisions to examine the intellectual property rights of other companies, accurately identifying the scope of rights to avoid infringement. The Group is also looking into using AI to improve the efficiency of intellectual property operations.

# [Internal Collaboration]

In the past, the Group concluded separate contracts for each ioint research project within the Group. By streamlining information management rules, the Group has created an environment that more rapidly facilitates joint research. This has spurred a steady increase in joint projects within the Group.

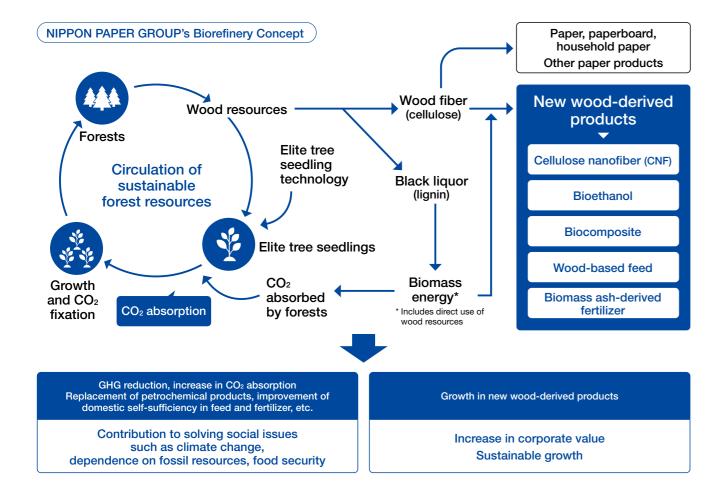
# [External Collaboration]

With the Group's research activities expanding beyond paper into a range of other areas, more businesses are finding it difficult to translate research results into products through partnerships within the Group alone. The Group is therefore collaborating with academic and corporate partners to leverage its research outcomes into new products and services.



\* Total number of patents held by Nippon Paper Industries and five affiliated companies (Nippon Paper Crecia, Nippon Paper Papylia, Flowric, Nippon Paper Lumber, Sakurai)

# Technological Capabilities to Tackle Social Issues -NIPPON PAPER GROUP's Biorefinery Concept-



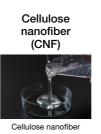
Modern life is supported by products made from fossil resources such as oil and coal. Oil refining uses technology to produce materials such as fuels, paints and plastics from fossil resources. Over the years, this technology has improved our lives, making them more convenient. However, the technology has also led to a number of issues-CO<sub>2</sub> emitted from the burning of fossil resources causes climate change; petroleum-derived plastics and other products are not biodegradable, negatively impacting the ecosystem when released into the natural environment; and fossil resources are finite and may become scarce in the future.

A biorefinery, which manufactures fuels and products from plants and other biomass instead of fossil resources, can help resolve these issues. NIPPON PAPER GROUP is harnessing its technological capabilities cultivated over many years to establish a biorefinery powered by woody biomass resources obtained from its extensive forests. In the papermaking process, wood fiber (cellulose) is first extracted from wood chips (pulping). Through pulping, half of the wood chips become black liquor containing lignin. Black liquor has long been used as biomass energy in the papermaking process.

NIPPON PAPER GROUP develops and manufactures new products using cellulose and lignin from wood chips and utilizes biomass energy from the black liquor in production processes. These products help to solve social and environmental issues by tackling climate change and promoting the shift to non-plastic options by replacing petrochemical products with wood-derived products. The Group is also developing products for food and feed applications that take advantage of the characteristics of cellulose, helping to reduce food losses and increase food self-sufficiency.

The Group's biorefinery concept also includes the creation of forest resources. By using elite trees and proprietary tree breeding technology, the Group aims to significantly improve forest productivity, including for company-owned forests in Japan and overseas. It also promotes stable procurement and quality improvement of woody biomass raw material, as well as contributes to solving various social issues by increasing CO2 sinks and revitalizing the forestry industry. A key objective of the biorefinery concept is to generate sustainable growth while also solving social issues by expanding applications for woody biomass resources and accelerating the Group's business structure transformation.

# **New Wood-derived Products** - "Aratana Katachi<sup>™</sup>"\*1 (New Shape) Made fro



Bioethanol

Bioethanol production process (from left to right: wood chips, pulp,

saccharification and fermentation

culture medium, bioethanol)

The CNF Cellenpia® series is an innovative mat defibrates the cellulose extracted from wood re applications, the Company is working with Yam nents made from CNF-reinforced resin for pers research with Tohoku University into a CNF-bas of food and cosmetics applications is steadily been established using mass production facilit Company developed microfibrillated cellulose (I material as CNF. In the manufacturing process, can be easily changed and set. The Company through on-site manufacturing, making it suitab the agricultural and civil engineering fields. The CNF by developing new markets, including over

Bioethanol is ethanol obtained from biomass an and bio-chemicals. In February 2023, the Comp Corporation and Green Earth Institute Co., Ltd. commercial production of cellulosic bioethanol develop bio-chemical products\*3. Leveraging the technology, which can handle 10.000-tonne ba to be the first producer in Japan of bioethanol d and is targeting output of tens of thousands of



Biocomposite is a new composite material mad from wood resources, and have moldability similar use of plastic and GHG emissions. The Compa provide a stable supply of high-quality cellulose industry to improve the performance of biocom markets for biocomposite, aiming to spur uptak goods, containers, building materials, home app

"Genki Morimori<sup>TM</sup>" is a new type of feed made is used to remove lignin from the wood, leaving accumulated evidence on the functionality of ce increased milk yield, improvement in breeding, and sales of "Genki Morimori™" started in 2022 self-sufficiency in livestock products by eliminat

"Genki Morimori™

Wood-based feed

### Biomass ash-derived fertilizer



Biomass ash contains potassium and other cor fore seen as a promising stable source of dome imports for most of its fertilizer ingredients. In Ja scale sales of fertilizer containing biomass ash tion facilities. The Company plans to provide sa fertilizer users via the Domestic Fertilizer Resour Ministry of Agriculture, Forestry and Fisheries (M

\*1 "Aratana Katachi<sup>TM"</sup> (New Shape): Concept for development of new wood-derived products that provide new value utilizing technology that expands the use of pulp \*2 SAF: Sustainable Aviation Fuel. A fuel that can be used in the same way as conventional fuel and reduces GHG emissions \*3 Selected as an R&D theme for Research and Development of Technologies to Promote Biomanufacturing by New Energy and Industrial Technology Development Organization (NEDO)

# Roadmap for New Wood-derived Products

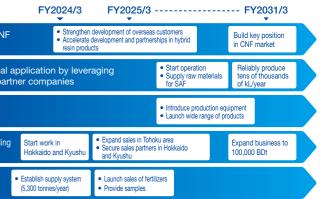
- Target combined sales of ¥65.0 billion from new businesses by FY2031/3\*

	Initiatives	
Cellulose nanofiber (CNF)	Expand applications and develop markets     Increase customers and sales regions	Increase in CNI adoption
Bioethanol	Establish technology for mass production     Develop various applications and markets	Target practical strengths of pa
Biocomposite	Improve functionality     Develop promising markets	
Wood-based feed	Expand supply area	Consider expandin production sites
Biomass ash- derived fertilizer	Optimize methods of use     Develop markets	

\* New wood-derived products constitute a part of new businesses

Target Social Issues
Replacement of petrochemical products Reduction of food losses by adding to food
Reduction of GHG emissions Realization of domestic clean energy
Replacement of petrochemical products
Stable supply of feed Improvement of Japan's food self-sufficiency
Stable supply of fertilizer raw materials Improvement of Japan's food self-sufficiency

Strengthen collaboration with other companies and research institutions and leverage existing distribution channels to accelerate business startup



# **Manufactured Capital**

NIPPON PAPER GROUP creates a wide range of products at production sites in Japan and overseas that make full and effective use of wood resources. These sites are also improving the Group's competitiveness by providing a stable supply of products, realizing optimal transportation costs to consumption areas and reducing greenhouse gas GHG emissions.

The Group is working to transform its business structure by applying the technologies, human resources and utilities developed in the papermaking process to growth areas, particularly the Daily-Life Products Business.

Strengths of Manufactured Capital

• Diverse production sites Environmentally-friendly production and transportation systems

 Shared Group human resources and know-how



# [Diverse Production Sites]

NIPPON PAPER GROUP's goal for 2030 is to "realize sustainable growth as a comprehensive biomass company shaping the future with trees" by developing its business using a business model based on wood resources.

The Group has the technologies to utilize pulp extracted from

wood chips for a wide range of applications. Technologies the Group has developed over many years in the paper industry are utilized at diverse production sites. Operating multiple production sites also mitigates the risk of production stoppages and opportunity losses due to natural disasters and other events.

# [Environmentally-friendly Production and Transportation Systems]

The manufacturing process uses energy and water and generates air pollutants from boiler combustion. Wastewater and waste containing water pollutants are also generated, so the Group has introduced facilities and technology to remove these substances, reducing environmental impact.

As many of the Group's domestic production sites are located in coastal areas or near major urban areas, products can be rapidly transported for shipment to consumption areas. This

# -Al-driven Vessel Scheduling Optimization System

In June 2023, Nippon Paper Industries became the first company in the paper industry to introduce and start operation of an algorithm (AI)-driven vessel scheduling optimization system for wood chip vessels, developed by ALGO ARTIS CORPORATION. The system formulates the various constraints, risks and costs associated with vessel scheduling and uses Al embedded with the experience and know-how of ship scheduling experts to rapidly and automatically create optimized vessel schedules. This allows the Company to optimize basic transportation plans and promptly revise plans in response to daily changes in conditions, thereby reducing marine shipping costs and GHG emissions by improving the efficiency of wood chip vessel operations.

reduces GHG emissions and logistics costs, helping to improve the Group's competitiveness.

In addition, utilizing the Group's domestic and overseas procurement networks, woody raw materials are procured from various countries and regions to ensure access to stable resources. The Group is also promoting digital transformation (DX) to increase the efficiency of raw material transportation from suppliers in Japan and around the world, helping to streamline and reduce manpower.





# [Shared Group Human Resources and Know-how]

New technology introduced at the Group's productions sites and lessons learned (safety, quality, operational) from major accidents are rapidly rolled out across the Group to maintain and improve its advanced technological capabilities and know-how. At

# **Production Structure Reorganization**

# Responding to the Accelerating Decline in Demand for Graphic Paper

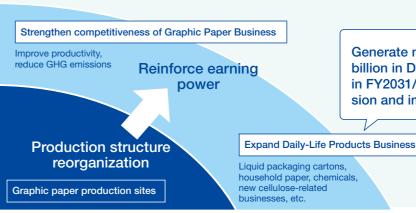
The decline in demand for graphic paper has accelerated further, contracting 33% in the five-year period from FY2019/3 to FY2024/3

To address this accelerating drop in demand, the Group is working to reduce costs and maintain and increase sales volume through the development of environmentally-friendly products and strategic exports.

In the Paper and Paperboard Business, the Group has reduced costs by roughly ¥25.0 billion in the three years from FY2022/3 to FY2024/3. It will continue to reduce costs by improving operational efficiency, saving energy and reducing coal consumption.

# [Direction of Production Structure Reorganization]

The Group is considering combining graphic paper production sites into around three locations by FY2029/3. Consolidating these production sites will improve productivity and reduce GHG emissions. Other goals are to increase the competitiveness of the Graphic Paper Business and to strengthen the earning power of

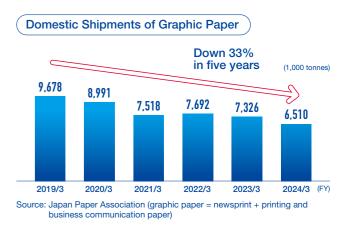


# -Nippon Paper Crecia Expands Paper Machine Capacity for Household Paper

Nippon Paper Crecia has started operation of new paper machines for household paper, using the former sites of decommissioned paper machines at Nippon Paper Industries' Fuji Mill and Ishinomaki Mill and making effective use of associated utilities and other assets. To ensure stable operations from startup, on-the-job training was provided to personnel at each household paper production site, primarily those who worked on the decommissioned machines, to give them new operating skills.

An integrated production system was also established at the Ishinomaki Mill utilizing excess capacity in its pulp manufacturing facilities, which has realized reduction of GHG emissions and profitability improvement.

production sites, the Group is working to raise front-line capabilities by using a bottom-up approach through proposal activities (raising awareness among on-site operators), streamlining the workforce and promoting DX.



the entire Group by harnessing resources cultivated in the business, such as human resources, pulp and utility supply capacity and supply chains, to expand growth areas, mainly in the Daily-Life Products Business.

Generate net sales of more than ¥650.0 billion in Daily-Life Products Business in FY2031/3 through business expansion and improved profitability



Data

# **Social and Relationship Capital**

During its 150 years in business, NIPPON PAPER GROUP has built partnerships with a wide array of stakeholders, including customers, business partners, and national and local governments. It will further strengthen these relationships to expand its business, create new business opportunities and develop markets.

It also gathers feedback from these stakeholders through communication activities and information disclosure to reflect their opinions in its corporate activities.

Through improved collaboration and proactive dialogue, the Group will strengthen and expand relationships with diverse stakeholders, aiming to further increase corporate value through organic linkages with its other management capital to generate synergies.

Strengths of Social and Relationship Capital

- Partnerships with diverse stakeholders across industry, government and academia
- Relationships with local communities at each business site

Initiatives to Strengthen Relationships with Major Stakeholders and Value Created (Outcomes)





Stakeholder Expectations	Initiatives to Strengthen Relationships with Stakeholder
<ul> <li>Better job satisfaction</li> <li>Providing opportunities to develop and demonstrate skills</li> <li>Respect for diversity</li> <li>Ensuring occupational safety and health, etc.</li> </ul>	<ul> <li>Development of personnel syste and working environments that enable diverse work styles</li> <li>Personnel request surveys/ interviews</li> <li>Employee engagement survey</li> <li>Labor-management conferences</li> <li>Internal whistleblower system, end</li> </ul>
Local Communities	and Governments
Stakeholder Expectations	Relationships with Stakeholder
<ul> <li>Initiatives to solve environmental and social issues</li> <li>Coexistence with local communities</li> <li>Job creation</li> <li>Coordination with public policy</li> <li>Compliance with laws and regulations, etc.</li> </ul>	<ul> <li>Regular, constructive dialogue</li> <li>Local community coexistence activities and social contribution activities</li> <li>Employment briefings</li> <li>Participation in initiatives by indu- government and academia, etc.</li> </ul>
Shareholders and l	
Stakeholder Expectations	Initiatives to Strengthen Relationships with Stakeholder
<ul> <li>Increase in corporate value</li> <li>Appropriate return of profits</li> <li>Appropriate disclosure, etc.</li> </ul>	<ul> <li>Annual general meeting</li> <li>Operating results briefings</li> <li>Presentation of forest resources w</li> <li>Annual securities reports</li> <li>Meetings with individual investors</li> </ul>
-Helping to Address the "Lo With Japanese society facing a short transportation sector, NIPPON PAPI stakeholders to improve logistics eff fulfill its responsibilities as a supplier logistics downtime by reviewing ship tion with logistics company partners rapidly to customer delivery request round-trip transportation with other tics operations with other companie	rtage of capacity in theNER GROUP is working withSiciency in its operations tote. The Group is reducinggoping practices in coopera-Land by responding moreHs. It is also promotingtiindustries and joint logis-d

shipping with Daio Paper Corporation to step up its modal

shift in logistics.

nen holders	Key Management Capitals	Outcomes
systems that / rvey rences rem, etc.	Human Capital Intellectual Capital Manufactured Capital	<ul> <li>Value enjoyed by NIPPON PAPER GROUP &gt;</li> <li>Improved employee engagement</li> <li>Accumulation and transfer of technology and know-how, etc.</li> <li>Value provided to employees &gt;</li> <li>Increased opportunities for personal growth</li> <li>Maintaining safe and secure work environment, etc.</li> </ul>

n olders	Key Management Capitals	Outcomes
		< Value enjoyed by NIPPON PAPER GROUP >
ue	Natural Capital	<ul> <li>Recruitment of long-term, reliable human resources</li> </ul>
industry	Human Capital Intellectual Capital	<ul> <li>Feedback reflected in legal affairs risk management, etc.</li> </ul>
		< Value provided to local communities and governments >
industry, etc.	Manufactured	Alleviate climate change
elo.	Capital	<ul> <li>Display the functions of forests to enhance public interest.</li> </ul>
		Revitalization of local industry, etc.

en olders	Key Management Capitals	Outcomes
		< Value enjoyed by NIPPON PAPER GROUP >
		Increased trust in capital markets
ces value	Financial Capital	► Improved credit ratings, etc.
stors, etc.		< Value provided to shareholders and investors >
		Continuous payment of stable dividends

# -Working with Partners to Preserve Biodiversity

Nippon Paper Industries has been working with the Wild Bird Society of Japan since 2010 to preserve biodiversity by protecting Blakiston's fish owl, which is listed as a critically endangered species (CR) on the Ministry of the Environment's Red List of Threatened Species. In company-owned forests in Hokkaido, the Company has established a shared conservation area and conducts forestry operations based on a standard that balances timber production with the conservation of Blakiston's fish owl habitats. Using data obtained through collaboration with the Wild Bird Society of Japan, the standard was revised in February 2024 to further improve compatibility between timber production and habitat protection. the Gro

Mission

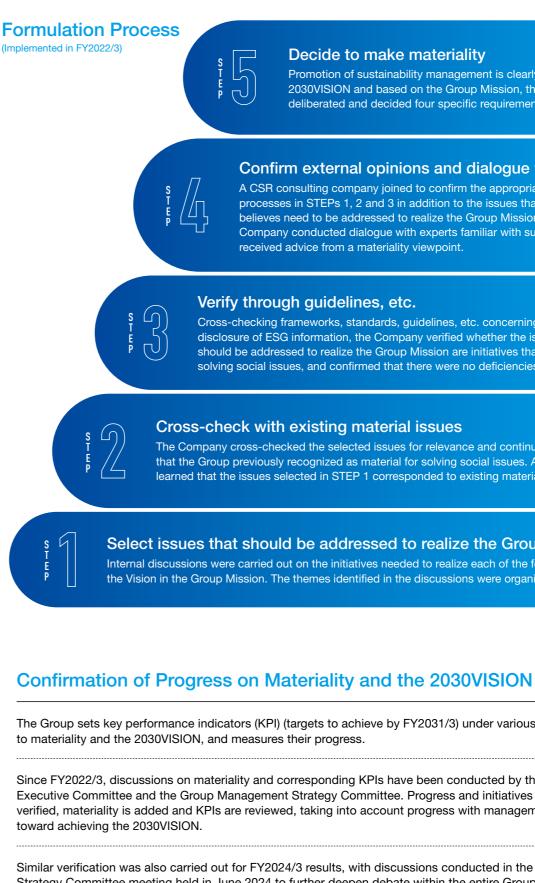
# Important Issues (Materiality) to Realize the Group Mission

NIPPON PAPER GROUP has clearly identified material issues in order to meet the four requirements of its Vision included in the Group Mission, as it addresses changes in the surrounding environment and is also promoting sustainability management in which it pursues social and environmental sustainability alongside corporate growth.

# Mission

# NIPPON PAPER GROUP aims to contribute to better living and cultural progress everywhere it does business.

	A Corporate Group That Meets the Following Requirements and is Sustainably Needed by Society	NIPPON PAPER GROUP's Materiality	Reasons for Selection and Contributions to SDGs
	Drive social sustainability through our business	<ul> <li>Achieve the following through the value chain:</li> <li>Response to climate change</li> <li>Utilization of sustainable forest resources</li> <li>Preservation of biodiversity</li> <li>Reduction of environmental burden</li> <li>Promotion of resource circulation</li> <li>Respect for human rights</li> </ul>	Through business activities based on forest resources, which are natural capital, the Group will work to consider the environment and society throughout the entire value chain, thereby achieving sustainable growth as a "comprehensive biomass company shaping the future with trees."
ion	2 Delight our customers	<ul> <li>Response to changes in the social environment (consideration for the environment, healthcare, etc.)</li> <li>Stable supply of products, enhanced safety</li> </ul>	Understanding changes in society and customer needs, and continuing to provide the products that people want will contribute to better living and cultural progress everywhere. The Group aims to be customers' company of choice by ensuring product safety and quality, and by providing a stable supply.
Vision	<b>3</b> Instill pride in employees	<ul> <li>Realization of diverse work styles</li> <li>Active participation of diverse human resources</li> <li>Promotion of occupational safety and health</li> </ul>	All business activities are supported by people. Through workplace creation where diverse human resources can work cheerfully and with pride, it maximizes the ability to create value and leads to corporate growth. $\underbrace{\texttt{Support}}_{\texttt{eq}} \texttt{Support}_{\texttt{eq}} S$
	4 Give back to society	<ul> <li>In addition to business growth achieved through activities 1 to 3 above, the Group will realize the following:</li> <li>Promotion of business structure transformation</li> <li>Enhancement of corporate governance</li> <li>Coexistence with local communities and society</li> <li>Communication with stakeholders</li> </ul>	To realize the Group Mission, generating stable profits is a prerequisite, and to do that, stronger corporate governance is indispensable. Along with boosting the transformation of the business structure, through stakeholder dialogue NIPPON PAPER GROUP aims to become a corporate group that is needed by society.



Similar verification was also carried out for FY2024/3 results, with discussions conducted in the Group Management Strategy Committee meeting held in June 2024 to further deepen debate within the entire Group. As a result of the discussions, while moving ahead on initiatives for FY2025/3, the Group reviewed KPIs for corresponding materiality.

Going forward, deeper discussion will be held throughout the Group on important management themes.

# Decide to make materiality

Promotion of sustainability management is clearly stated in the 2030VISION and based on the Group Mission, the Board of Directors deliberated and decided four specific requirements of the Vision.

# Confirm external opinions and dialogue with experts

A CSR consulting company joined to confirm the appropriateness of the processes in STEPs 1, 2 and 3 in addition to the issues that the Company believes need to be addressed to realize the Group Mission. Furthermore, the Company conducted dialogue with experts familiar with sustainability and received advice from a materiality viewpoint.

Cross-checking frameworks, standards, guidelines, etc. concerning the appropriate disclosure of ESG information, the Company verified whether the issues it believes should be addressed to realize the Group Mission are initiatives that contribute to solving social issues, and confirmed that there were no deficiencies.

The Company cross-checked the selected issues for relevance and continuity with the issues that the Group previously recognized as material for solving social issues. As a result, it was learned that the issues selected in STEP 1 corresponded to existing material issues.

# Select issues that should be addressed to realize the Group Mission

Internal discussions were carried out on the initiatives needed to realize each of the four requirements of the Vision in the Group Mission. The themes identified in the discussions were organized as materiality.

The Group sets key performance indicators (KPI) (targets to achieve by FY2031/3) under various themes responding

Since FY2022/3, discussions on materiality and corresponding KPIs have been conducted by the Management Executive Committee and the Group Management Strategy Committee. Progress and initiatives for each target are verified, materiality is added and KPIs are reviewed, taking into account progress with management's execution

# Realizing the Group Mission: Sustainable Value Creation Important Issues (Materiality) to Realize the Group Mission

Progress of Initiative Themes for Materiality and the 2030VISION

Vision	Materiality (Important		030VISION	Key Performance Indicators (KPI) to Achieve by FY2031/3	Main Progress and Initiative Status in FY2024/3	Integrated Report 2024	Contributions													
	Management Issues)	Basic Policies	Themes	Scope NIPPON PAPER GROUP Nippon Paper Industries		Related Pages	to SDGs													
			Expansion of growing businesses	Net sales target of ¥1,300.0 billion, of which Daily-Life Products Business has 50% or more • Investment of approximately 80% of the strategic investment budget of ¥350.0 billion in growing businesses	<ul> <li>Daily-Life Products Business net sales: ¥436.8 billion (accounting for 37% of overall net sales)</li> <li>Strategic investment in FY2022/3–FY2024/3: ¥114.8 billion (of which 93% was allocated to growing businesses)</li> </ul>	→ P.66-67														
GIVE DACK b	Promotion of business structure	Reallocate management resources to	management	management		management	management	management resources to	management	management	management	management	management resources to	management resources to	Reallocate management resources to	Early positive contribution from new businesses and innovative materials	Expansion of new uses of cellulose and commercialization of innovative materials Net sales target of ¥65.0 billion for new businesses (including expansion of biomass products) • Target commercialization of CNF by establishing a mass-production structure and manufacturing technologies • Promote and expand sales of cattle feed ("Genki Morimori™") • Launch new businesses using pulp manufacturing facilities	<ul> <li>CNF-reinforced resin Cellenpia<sup>®</sup>PLAS was adopted by Yamaha Motor Co., Ltd. for its personal watercraft</li> <li>Began biocomposite sample work with Mitsui Chemicals, Inc.</li> <li>Started considering production of cellulose cattle feed at multiple plants</li> </ul>	→ P.38-39	9 menemeration 16 net data 17 research 17 research 17 research 17 research 16 net data 16 net data 17
	transformation	growing businesses	Reformation of structure of foundation businesses	Stronger competitiveness of the Paper and Paperboard Business <ul> <li>Concentrate graphic paper production sites to about three locations</li> </ul>	<ul> <li>Advanced maintenance and expansion of sales volume with development of environmentally-friendly products (N.Polaris43Mocha, etc.)</li> <li>Advanced cost reductions through energy saving and other measures (actual cost reduction in FY2022/3–FY2024/3: ¥26.3 billion)</li> </ul>	$\rightarrow P.41$ $\rightarrow P.66-68$	<b>&amp;</b>													
			Expansion in overseas markets	Overseas net sales ratio of 30% or more • Increase net sales and strengthen profitability in overseas business	<ul> <li>Overseas sales ratio: 27%</li> <li>Opal is strengthening profitability by restructuring its Maryvale Mill and expanding its Packaging Business</li> </ul>	→ P.65 → P.69														
	Response to climate change GHG reductions		GHG reductions	Reduction of GHG emissions through energy saving measures and fuel conversion           • Reduce GHG emissions (Scope 1 + Scope 2) by 54% compared with FY2014/3           • Use non-fossil energy in 60% or more of total energy used           • Improve total energy intensity in production and logistics by 1% year on year	<ul> <li>GHG emissions (Scope 1 + Scope 2) Reduction by 37% compared with FY2014/3</li> <li>Ratio of non-fossil energy usage 47% of total energy usage</li> <li>Nippon Paper Industries total energy intensity in production (compared with 2022): Paper Business +5.3%, Paperboard Business -1.5%, Logistics +2.0%</li> </ul>	→ P.27-28														
				Response to climate change initiatives	Participated in GX League	→ P.27-28														
				Preserve forest resources, strengthen supply chains and construct a business model for the revitalization of the forestry industry in Japan <ul> <li>Construction of a production system for 10.0 million elite tree seedlings/year for forestry</li> <li>Initiatives to create 200,000 t-CO<sub>2</sub> of J-Credits</li> </ul>	<ul> <li>Started closed seed plantation in Akita Prefecture, expanded the closed seed plantation in Tottori Prefecture</li> <li>Elite tree seedling production capacity increased to 1.6 million/year</li> <li>Prepared project certification, aiming to secure J-Credits equivalent to 200,000 t-CO<sub>2</sub> for company-owned forests in Japan by FY2028/3</li> </ul>	→ P.24-26														
	Utilization of sustainable forest resources Preservation of biodiversity	Respond to the rapidly changing social landscape,	Pursuit of green strategies	Improvement of forest productivity and expansion of CO <sub>2</sub> fixation amount by using breeding and proliferation technologies • Improve CO <sub>2</sub> fixation efficiency in overseas plantation areas by 30% compared with 2013 • Secure plantation areas, mainly in Asia	<ul> <li>AMCEL started commercial planting of clones developed by DNA marker selection and breeding technology (world first)</li> <li>NPL RESOURCES ASIA CO., LTD. is developing new afforestation business, mainly in Vietnam, Thailand and Malaysia</li> </ul>	→ P.25-26	6 min mail astactors 7 estences in 1/													
Drive social sustainability			(r Respond to the rapidly changing social landscape,	Respond to the rapidly changing social landscape,	the rapidly changing social landscape,	(maximize forest value)	(maximize forest value)	(maximize forest value)	Acquisition and maintenance of forestry certification for all company-owned forests in Japan and overseas	Maintained forestry certification (FM) for the total area of the domestic and overseas company-owned forests of Nippon Paper Industries     and overseas plantation subsidiaries	→ P.24									
hrough our ousiness						the rapidly changing social landscape,	the rapidly changing social landscape,	the rapidly changing social landscape,						Display public interest functions through appropriate management of company-owned forests in Japan <ul> <li>Display public interest functions through preservation of water resources and other resources</li> </ul>	Conducted forest preservation activities with Coca-Cola Bottlers Japan Inc. in the Sugenuma watershed area (Sugenuma company-owned forest, Gunma Prefecture)	→ P.29-30				
										Preservation of biodiversity	<ul> <li>Began assessment of dependence on ecosystem services and impact on natural capital in preparation for TNFD disclosure</li> <li>Registered Ho-oh company-owned forest as a site of Nationally Certified Sustainably Managed Natural Sites, contributing to achieve "30by30"</li> </ul>	$\rightarrow$ P.30 $\rightarrow$ P.43								
	Reduction of environmental burden	including GHG emissions reduction and environmental	Reduction of environmental burden	Reduction of environmental burden generated in the manufacturing process           • Reduce air pollutants by 15% and water pollutants by 15% compared with FY2019/3           • Keep final disposal volume of industrial waste materials at domestic production sites at 2% or lower	<ul> <li>Reduction rates at production sites in Japan (compared with FY2019/3): S0x 33%, N0x 28%, dust 18%, C0D/B0D 36%, SS 16%</li> <li>Final disposal volume of industrial waste materials: 1.8%</li> </ul>	→ P.27-29														
	Promotion of resource circulation	issues	Promotion of recycling	Promotion of recycling of resources     Expand the system for stable procurement of wastepaper     Build a sorted collection recycling system, utilize 12,000 tonnes/year of unused, difficult-to-treat     wastepaper     Build a horizontal recycling scheme for paper containers used for food and beverages	<ul> <li>Installed shredding and cleaning machines for paper beverage containers at Group companies and promoted treatment of used paper cups</li> <li>Conducted a demonstration test of horizontal recycling from paper cups to paper cup base paper in collaboration with Japan Airlines Co., Ltd. and TOKAN KOGYO CO., LTD. in June 2024</li> <li>Started collaborating with Nihon Tetra Pak K.K. in paper carton recycling from June 2024</li> <li>Promoted recycling through high-value-added utilization of used paper cartons, etc.</li> </ul>	→ P.31														
	Respect for human rights		Respect for human rights	Implementation of human rights due diligence	<ul> <li>Expanded the scope of human rights issue assessments to major suppliers of raw materials in the Paper and Paperboard Business to reduce risks in the raw material supply chain</li> <li>Conducted surveys on human rights issues at contractors of mills in Japan to address mill-related risks</li> </ul>	→ P.62-63														
	Response to changes in the social environment	-		-	-	-	-								Pursuit of green strategies (expand biomass products)	Expansion of biomass products • Address the demand for deplasticization (expand products for trend to replace plastic with paper)	Expanded adoption of School POP® (strawless paper cartons for schools) to 18 prefectures	→ P.69		
Delight our customers	Stable supply		Stable supply of	Engagement in stable production, response to natural disasters (strengthen BCP)	<ul> <li>Promoted building a framework to prepare for natural disasters and unexpected production troubles</li> <li>Carried out priority investment in power and recovery and fiberlines for mills for the purpose of operational stability</li> </ul>	→ P.60-61														
	Stable supply of products, enhanced safety		products Product safety and	Assurance of stable transportation and response to logistics issues	Implemented initiatives to optimize logistics and improve productivity in accordance with government guidelines	→ P.40 → P.43														
			quality control	Improvement of the product safety management structure	<ul> <li>Developing internal systems to comply with the revised Food Sanitation Act</li> <li>Developing internal systems in light of current trends in quality control</li> </ul>	→ P.61	669													
	Realization of diverse work styles		Enhancement of ease	Enhancement of employee engagement, including promotion of diversity	Total working hours: 1,872 hours/year															
	Active participation	Reallocate management	of working and job	Total working hours of 1,850 hours/year or lower     Retention rate after 10 years of employment in FY2031/3 of 80% or higher	Retention rate of employees who joined the Company in FY2014/3: 50.0%	→ P.32-35														
Instill pride in employees	of diverse human resources	resources to growing	satisfaction Maximization of	Ratio of female career-track hires to be 40% or higher by FY2026/3	Ratio of female employees among new graduates in career-track recruits for FY2025/3: 36.5%		10 HERCED 10 HERCED 16 AND HERCED													
	Promotion of occupational safety and health	businesses	utilization of human resources	Assurance of safety and hygiene for working people • Serious disaster cases of 0/year	Serious disaster cases: 1	→ P.35														
	Enhancement of corporate governance	Stronger function	s of the Board of Directors	Improvement of effectiveness of the Board of Directors	Briefed Board of Directors on progress with the Medium-Term Business Plan on a quarterly basis, thus increasing the opportunities to discuss medium- to long- term management issues and actions	→ P.52-56	Q X65377. MONING 16 PAGE ASING													
Give back to society	Coexistence with local communities and society Communication	Assurance of trar management	isparency in corporate	Public and fair disclosure of Company information	Environmental risk communication: 20 cases (production sites in Japan)     Meetings between outside directors and institutional investors: 1 time	→ P.57-59 → P.77	17 Animarka													

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