

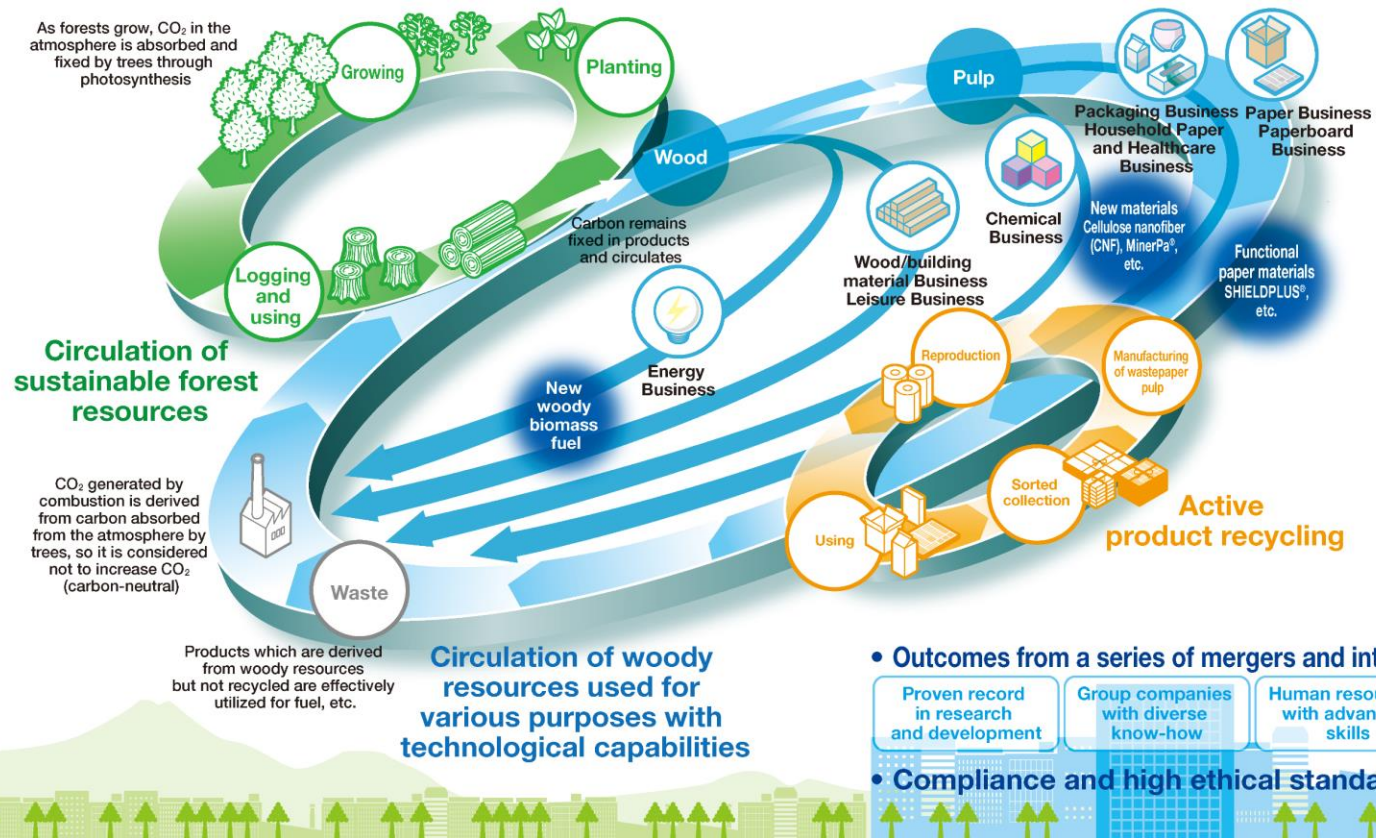
1ST HALF FY2022/3 MANAGEMENT BRIEFING

November 5, 2021



Aiming to be a "comprehensive biomass company"

The Nippon Paper Group is a company group that consists of multiple businesses which generate stable profits and realize better living and cultural progress. It achieves this by using diverse technologies and know-how to maximize the use of renewable woody resources. This provides a wide range of products that help form a circulation-oriented society, supporting profit growth.



Achieving both "business growth" and "contribution to the construction of a recycling-oriented society" by strengthening "the Three Circulations" leveraging the characteristics of woody resources.



Basic strategy

Accelerate the transformation of the business structure

Key issues

- Reallocate management resources to the Growing Business
- Accelerate enhancing profitability of the New Business
- Reinforce the competitiveness of the Foundation Business

Financial Targets

• Net Sales	FY2026/3	1,100 billion yen
• Operating Income	At an early stage	40 billion yen or more
• EBITDA	Stably	100 billion yen
• D/E ratio	FY2026/3	1.5 to 1.6 times
• ROE	FY2026/3	5.0 % or more



Sales and operating income by segment

(¥billion)

	FY2021/3 Results		FY2022/3 Initial Plan		FY2022/3 Revised Forecast		Medium Term Business Plan 2025 Targets	
	Net sales	Sales Profit	Net sales	Sales Profit	Net sales	Sales Profit	Net sales	Sales Profit
Paper and paperboard	568.3	2.5	535.0	1.5	535.0	(4.5)	490.0	5.0
Daily-life products	317.9	7.9	380.0	11.0	380.0	6.5	460.0	27.5
Energy	33.4	6.9	30.0	4.5	30.0	2.5	45.0	4.0
Wood Products and Construction Related	59.9	6.5	55.0	6.5	55.0	6.5	75.0	65
Others	27.8	1.4	30.0	1.5	30.0	3.0	30.0	2.0
Acquisition-related expenses	-	(6.0)	-	-	-	-	-	-
Energy conversion	-	-	-	-	-	-	-	(5.0)
Total	1,007.3	19.2	1,030.0	25.0	1,030.0	14.0	1,100.0	40.0

In FY2022/3, it will be difficult to achieve the initial plan due to rising raw material and fuel prices.

- **Immediately formulate and implement measures to return to the track of achieving the medium term business plan**
- **Rapid shift to a business structure resilient to changes in the external environment**

Key themes to achieve the Medium-Term Business Plan 2025

Strengthen the base of Paper business	<ul style="list-style-type: none">◆Steadily optimising production structure.◆Thorough cost reduction◆Sales price revision
Expand businesses in growth Areas Achieve early commercialization of new businesses	<ul style="list-style-type: none">◆Providing valuable products to customers and society◆Development and sales expansion of eco-friendly products◆Expand markets of various biomass products such as CNF
Establishment of stable supply system (Strengthen BCP)	<ul style="list-style-type: none">◆Being more resilient to natural disasters◆Secure multiple production sites for main grades
Response to climate change GHG reductions	<ul style="list-style-type: none">◆Use less coal through energy saving and non-fossil fuel use◆Actively participating in global frameworks such as TCFD◆Participation in cutting-edge initiatives such as CCUS
Promotion of recycling	<ul style="list-style-type: none">◆Maintaining existing wastepaper recycling system◆Taking on the challenge for utilizing hard-to-recycle wastepaper, such as paper containers
Green strategy	<ul style="list-style-type: none">◆Leveraging forests as CO₂ absorption sources◆Revitalization of forestry and stable supply of wood resources



Initiatives for FY2022/3 : Paper Business

- **Closed pulp and paper production at Kushiro Mill as planned.**
- **Announced price revisions in response to soaring raw material and fuel prices.**

Initiatives to optimize the production structure

◆ Reduced production capacity by approximately 500,000 tonnes

- Withdrawal from pulp and paper business at Kushiro Mill (production terminated in August 2021)
- The N6 paper machine at Ishinomaki Mill is scheduled to be shut down at the end of May 2022.

※ Released in May 2021



- Maximize use of existing facilities to maintain operating rates and ensure cost competitiveness.

Announced the implementation of price revisions

- **Products : Overall printing paper, communication paper, and industrial papers**
- **Markup: 15% or more in each grade**
- **Effective from shipment date as of January 1, 2022 and after**

- Reason for implementation
 - Soaring raw material and fuel prices
 - Rising logistics costs
 - Increase in labor expenses due to labor shortage (e.g. construction cost)



- Accelerate initiatives to reduce GHG emissions and provide products with little burden on the environment

Strengthen sales of paperboard and industrial papers

◆ Established a new joint venture with Mitsubishi Corporation Packaging Ltd.

Mitsubishi Corporation Packaging

- Trading company with a variety of procurement and sales destinations
- Strengths in the downstream fields

Nippon Paper Trading

- Agency with product development capabilities and customer service capabilities
- Strengths in the upstream fields

- By leveraging the business foundations of both companies with the Group's strengths, we will provide environmental value and reform logistics, and enhance services and functions.

Development of new products that meet the needs of customers and society

◆ "Waterproof liner" is put into first practical use as part of the fresh fish transportation package of Nippon Suisan Kaisha, Ltd.

○ Main features of Waterproof liner

- Multi-function containerboard with waterproof, wet and oil resistance properties
- Approximately 96% reduction in fossil-derived raw materials compared to polystyrene foam containers of the same size
- Compared to styrene foam containers with the same internal dimensions, the outer dimensions are smaller, enabling a 30% reduction in loading space and improved transport efficiency.
- Recyclable as wastepaper after use



Image of transporting fresh fish using Waterproof liner



Strengthen sales of filling machines and cartons, development of new products

- ◆ Development of new filling machines and new systems and expand sales by strengthening cooperation with Shikoku Kakoki Co., Ltd.
- ◆ Operation of the latest flexo printing press (October 2021)
- ◆ Successive adoption of new containers such as strawless school milk containers “SchoolPOP®” and “SPOPS® Hygiene”



Tomoe Milk Industry Furusato Milk

Further expansion of business base

- ◆ Acquired a portion of shares in Elopak ASA (June 2021)
 - Deepen cooperative relationships with Elopak ASA to expand business by mutually leveraging strengths in paper containers and filling machines
- ◆ Effective use of our own liquid packaging boards
 - Strengthen the foundation as a total system supplier by strengthening cooperation with domestic liquid packaging boards production mills and Nippon Dynawave Packaging (NDP)

Expand business by developing products that meet consumer needs.

◆ Penetration of long-lasting rolls progresses

- All toilet-roll products have been shifted to “long lasting rolls” from April 2021.



- Continue to promote products development that meets consumer needs and differentiation with unique technology

◆ Expansion of towel paper business

- Revamp existing tissue converting machine and introduce new box type paper hand towels to the market.
- Introducing new paper hand towel converting machines.
- Utilize distribution channels of Try-Fu Co., Ltd. and Nippon Paper Crecia Co., Ltd. to promote sales of both companies' products

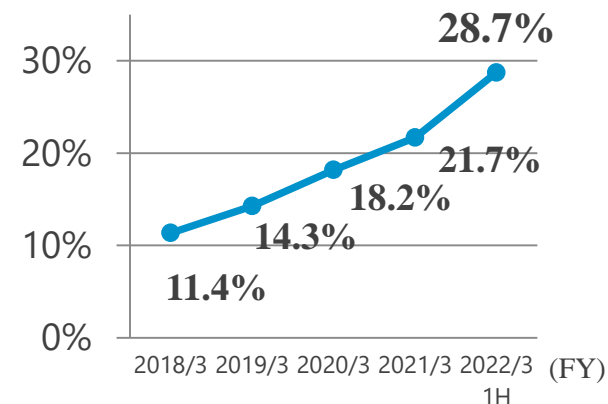
◆ Gain the benefits from integration of sales function with Try-Fu Co., Ltd.

Enhance cost competitiveness

◆ Expanding usage of internally-made pulp within our Group

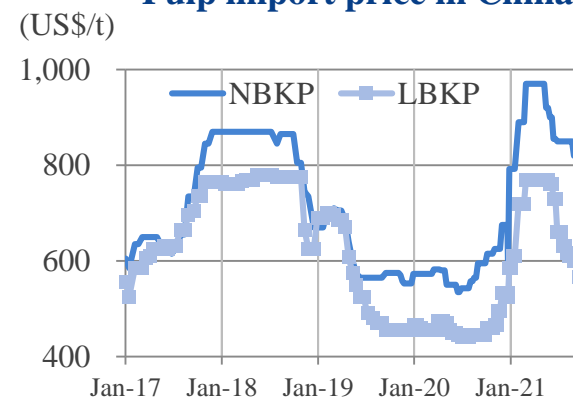
- Maximize the use of the group's resources

Trends in long-lasting rolls share



- Research by Nippon Paper Crecia
“Long-lasting rolls ” is defined as a single 75m or more and double 37.5m or more (excluding Premium 4R)

Pulp import price in China



Source: RISI



◆ 2021 Overview

- In 1st Half, impact of COVID-19 and operational challenges resulted in lower-than-expected earnings
- With a recovery in domestic demand and higher export prices, 2nd Half earnings are expected to improve, and full year earnings are also expected to improve year-on-year
- Value creation initiatives are progressing as planned

2021 sales volume (YOY)	Q1	Q2	2 nd Half fcst.	Full Year fcst.
Copy paper	-5.2%	+8.3%	+8.0%	+4.5%
Corrugated box (Australia)	-3.0%	-0.4%	+2.5%	+0.5%

◆ 2022 Outlook

- Opal aims to achieve a positive operating income in 2022 in line with the Mid-Term Business Plan 2025
- Cost reduction through value creation is being carried out as planned
2021 outlook: A\$18 million
2022 outlook: A\$25 million (A\$43 million in total)
- Packaging demand has been recovering from the impact of COVID-19
- Opal has won a new large-lot contract for copy paper and continues to promote its sales in Australian domestic market
- Rising ocean freight cost is a concern



CNF Lineup

Manufacturing base	Type	Main fields	Policy
Ishinomaki mill	TEMPO-oxidised CNF	General industrial applications	<ul style="list-style-type: none"> • Full operation of production facilities • Overseas sales expansion
	Metal ion carrying modified cellulose	Paper products, non-woven fabrics, etc.	
Gotsu mill	Carboxymethylated CNF	Food and cosmetics, etc.	
Fuji mill	CNF Reinforced Plastic	Structural materials (Automobiles and home appliances, etc.)	

Accelerate application development and search for new characteristics

◆ Expanded the demonstration production facility for CNF reinforced resin (Fuji Plant)

- More than over 50 tonne-annual production of CNF reinforced resin masterbatch
- Expanding the provision of samples of CNF reinforced PA6 and CNF reinforced PP

◆ Discovering the energy storage effect of CNF in a Joint research with Tohoku University

- New characteristics discovered through external collaboration with other companies, universities and other research institutions
- Started to develop an energy storage material that takes advantage of the characteristics of the energy storage effect.



CNF reinforced resin kneading facility



Expand sales by strengthening cooperation with customers

- ◆ Sales value of paper containers (molded products) for food application increased by 24% of the previous year (1H FY2022/3)
 - Demand for paper packaging increased due to growing interest in less plastic
 - The number of new adoptions increased by taking advantage of our extensive lineup of packaging paper and white paperboards

◆ Main examples of adoption

- Paper packaging and pulp molding were jointly developed with Toshimaya Co. and adopted for the new packaging of Hato Sable, using Machine-glazed kraft paper and One-side-coated duplex board.



Toshimaya Hato Suble

More paper products in the flexible packaging market

◆ SHIELDPLUS® series is launched at Jujo Thermal

- Aiming to establish a position in the flexible packaging market at an early stage by offering a wide range of paper products for packaging applications, including new products



Lumber Business (Nippon Paper Lumber)

◆Expand domestic lumber sales

- Due to the increasing demand of lumber in US and China, the surge in prices of imported lumber products and shortages of lumber continues. We will promote a shift to domestic lumber products.
- We will work to further increase sales of domestic lumber, as revision of the law is expected to provide the positive effects of promoting the use of lumber not only in public buildings but also in general buildings.

◆Expand the fuel supply business for biomass power plants

- The volume of wooden fuel handled is expected to rise by 13% year on year in FY2022/3 due to an increase in biomass power plants.

Aiming to achieve an annual handling volume of one million m³ of domestic log by maximizing the use of a domestic lumber procurement network

Energy business


◆Construction of the Yufutsu Biomass Power Plant is on schedule (operation is planned to start in January 2023)

◆Expand sales in the wholesale electricity market and participate in demand response (DR)

Strengthening Response for Natural Disasters

◆ Increase in natural disasters in recent years

Major Phenomena	Major Impact	
Jul. 2020 "the torrential rain in July 2020"	Yatsushiro Mill	Interrupted all production facilities due to rising turbidity of water intake from the Kuma River.
	Gotsu Mill	Interrupted all production facilities due to rising level of water in the Gonokawa River
Feb. 2021 "Offshore Fukushima Earthquake"	Iwanuma Mill	Suspension of all production facilities due to collapse of some walls and tops, etc.



Mill	Main measures
Iwanuma Mill	Implemented building strength countermeasures, such as changing the roofing material and reducing the weight
Gotsu Mill	Intake facility submergence countermeasures are being implemented, such as sealing the pumping room at the water source.
Yatsushiro Mill	Strengthen measures to clarify operating procedures for water facilities in the event of water quality deterioration

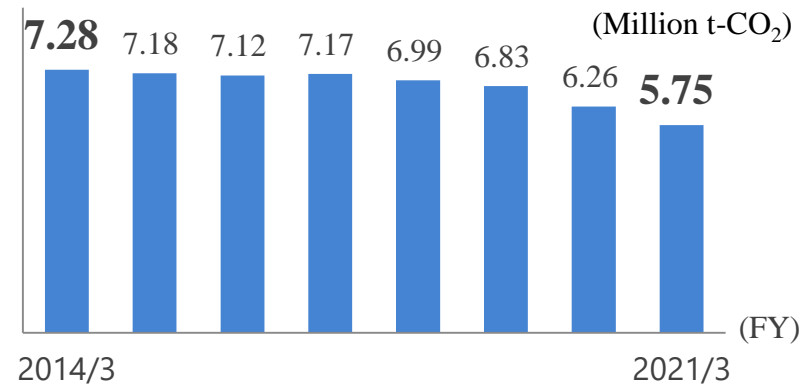
◆ Future Initiatives to Continue Product Supply

- Promoting multiple production bases for major products
- Pursuing strategic inventory allocation in addition to equipment support according to the risk of each site

◆ Reduced GHG emissions by 21% in FY2021/3 compared with FY2014/3

- Reduced by 21% in FY2021/3 compared with FY2014/3 due to systematic investment in energy saving equipment and promotion of fuel conversion
- Review the energy mix toward FY2031/3, including efforts to reduce coal consumption through the use of non-fossil fuels such as woody biomass and establishment of boiler low-load operation technology

Trend in GHG Emissions (Domestic)



Reduce annual coal consumption to 1 million tonnes in FY2031/3

(FY2022/3 estimate : Approximately 2million tonnes)

* Total for Scope 1 and Scope 2

* Scope: Consolidated and non-consolidated Group companies in Japan subject to the Act on Rationalization of Energy Use

◆ Consigned business for NEDO study on energy-saving CO₂ separation and recovery

- Jointly with Takuma Co., Ltd., to conduct efficient CO₂ separation and recovery techniques and investigate issues related to commercialization

Aiming for practical application of CCUS techniques and realization of a circulation-oriented society

* NEDO: New Energy and Industrial Technology Development Organization

* CCUS(Carbon dioxide Capture, Utilization and Storage): CCSs are used to recover CO₂ discharged from power plants and plants from other gases and to store and inject them deeper into the ground. CCUs are also used to make effective use of CO₂ that has been separated and stored.



Active product recycling contributes to solving social issues.

- ◆ Decided to install waste recycling facilities of paper containers for food and beverage applications.

○Current status

- Used paper containers do not suit for recycling because they are a composite material of paper and plastic and food residue adheres to the container
- No collection system because it is not subject to recycling

- Most of them are incinerated as general waste
- High market demand for the recycling of paper containers

- Expected to be able to efficiently produce recycled pulp from composite materials by introducing new facilities

◆ Outline of Waste Recycling Facilities

Location	Nippon Paper Industries' Fuji Mill
Start of operation	Sep. 2022 (planned)
Production capacity	8,000 tonnes per year

○Future Policies

In cooperation with our partner companies,

- Promote constructing a scheme for the separation and collection of paper cups and cartons
- Challenge "horizontal recycling," in which paper cups are recycled as paper cups
- Promote material and chemical recycling of plastic parts, and aim to recycle paper containers without incineration
- Aiming to stably collect 12,000 tonnes of recycled paper containers per year in 2030



Initiatives to utilize forests as CO₂ absorber

◆ **Target: Increase CO₂ fixation efficiency rate by 30% in overseas afforested areas by FY2031/3.**

- Promoting the development of new clones at Amcel to further improve CO₂ fixed efficiency
- Developing afforestation business in Asia, including technological assistance.
- Promoting collaboration with government and other forest owners on establishing methods for evaluating CO₂ fixed quantities and crediting



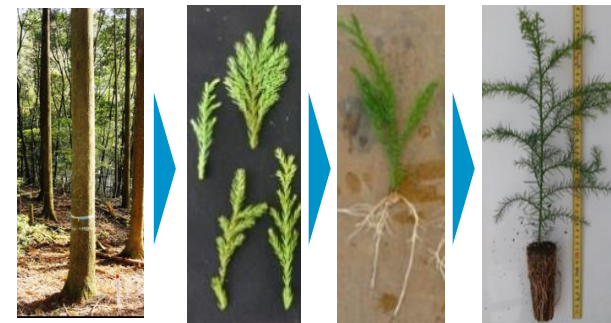
Revitalizing domestic forest industry and stable supply of woody resources

◆ **Expanding seedling production business to various regions**

- Promoting the use of superior trees for afforestation in company-owned forests
- Collaboration with the Forestry Agency, local governments, seedlings associations, and seedling producers
- Contributing to the revitalization of local forest industries

◆ **Utilization of company-owned forests as a field for forestry revitalization**

- Developing advanced forestry technologies and promoting the formation of large-scale forestry business complexes in collaboration with other forest owners



Established tree grafting technologies

Appendix



◆ Launched a business model that recycles liquid packaging carton with aluminum

- Developed and began selling construction materials based on PolyAl (*)
- Contributing to the construction of circulation-oriented society, by developing and proactively marketing products made from PolyAl.
- PolyAl: A mixture of polyethylene and aluminum generated when separating liquid packaging carton with aluminum. Due to the technical difficulties of recycling, it was used as RPF or disposed as waste.

◆ Has established the wastepaper recycling system in a partnership with Yatsushiro city.

- Aiming for stably procuring resources and building a comprehensive wastepaper recycling system.
 - Collection object

Newspapers, magazines, cardboard, paper containers and packaging, and liquid packaging cartons

Signed a “Memorandum of Understanding on Collaboration for Building a Sustainable Society” with Coca-Cola (Japan) Co., Ltd.

- Over the roughly 10-year period to 2030, the companies will draw on their respective expertise to implement activities contributing to the realization of a sustainable society.

○ Main activities

- Resource Recycling and Conservation
 1. Forest conservation
(Preservation of water replenishment functions)
 2. Effective use of paper materials, including beverage packaging
 3. Efforts to reduce CO₂ emissions
- Community development)
- Respect for diversity



Obtained Two Eco Rail Mark Certifications, for its Products and as a Company

- In the paper business, we have long been engaged in a modal shift, modal shift rate and rail utilization rate for on-land transportation have been maintained at a high level.
- Going forward, continuing to pursue a logistics network with lower environmental impact.





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

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