

Message from the President

Pursuing Its Ultimate Goal of Realizing a Sustainable Society, the Nippon Paper Group Will Realize Its Vision Together with All of Its Stakeholders.

Toru Nozawa
President and Representative Director
Nippon Paper Industries Co., Ltd.

Group Mission

MISSION

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

VISION

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

VALUES

Challenge: Embrace new challenges
Fairness: Be fair
Teamwork: Champion teamwork

SLOGAN

Shaping the future with trees

I would like to express my deepest condolences to all of the victims and their families who have been affected by COVID-19 as well as show my gratitude and sincere respect for the healthcare workers who have worked arduously during such challenging times.
I would also like to extend my sincere sympathies to those who were affected by the torrential rain in July 2020.

01 Taking a Proactive Stance toward Unforeseen Events

Ever since the emergence of fears over the spread of COVID-19 in Japan and overseas, the Nippon Paper Group has been accumulating information on this infectious disease and established an infection prevention headquarters, chaired by myself as the president and representative director. Through this headquarters, we have implemented measures, in accordance with policies of the Japanese and local governments, to prevent Group employees from contracting the disease and to fulfill our responsibility of supplying products by continuing to operate our business. In regard to the consequences of the torrential rain in July 2020, we drew on our extensive experience to work unstintingly toward ensuring the safety of our employees and minimizing its impact on product deliveries.
While the first half of FY2021/3 centered on the spread of COVID-19 and a spate of natural disasters, we have continued to provide stable supplies of products and maintained our supply chain through the sincere efforts of our employees.

Key Measures in Response to COVID-19

- Conduct thorough daily health checks by each employee (checking body temperature prior to arriving at work, encouraging employees to stay home when they develop a fever or are feeling under the weather, etc.)
- Ensure that employees wash their hands, disinfect their hands and fingers, and wear a mask
- Encourage employees to work from home or avoid crowded commuting hours
- Prohibit business trips within Japan and to overseas
- Avoid the Three Cs (Closed spaces, Crowded places, and Close-contact settings)
- Flexibly procure funds (ensure liquidity on hand of approximately ¥100.0 billion)

02 Reflecting on My First Year as President

While my basic approach to management has not changed since my days as the general manager of the Corporate Planning Division, I truly believe the world looks a whole lot different from where I stand now. Since taking over the reigns as president of Nippon Paper Industries Co., Ltd., I have been reminded of the fact that the sustainability of a company hinges on its various stakeholders.

In terms of our FY2020/3 results, we achieved a 78% increase in operating income over the previous fiscal year. On the whole, I believe we succeeded in meeting the FY2020/3 targets laid out in our Sixth Medium-Term Business Plan for our domestic Paper and Paperboard Business and other businesses in Japan.

Conversely, we were not able to achieve the targets for our overseas businesses due to the impact of the trade dispute between the United States and China and other factors. While we were able to record brisk results for both functional films and functional resins, our results in the Chemical Business fell below our targets due to the deteriorating market for dissolving pulp and other factors. I would like to see improvements in these areas as soon as possible.

Further, as a result of severe equipment failures that led to the shutdown of a couple of mills, in FY2020/3 we were unable to reach our targets for cost improvements in the Paper and Paperboard Business. We find this extremely unfortunate and therefore will place priority on repairing our boilers, power generators, and a series of pulping facilities, which represent the lifeline of our mill operations, as well as working to respond in a timely manner before operations are affected through the determination of the operating sites.

Meanwhile, we have continued to conduct capital investment in our growth businesses, an initiative we began undertaking as part of our Fifth Medium-Term Business Plan, and these efforts began to gradually bear fruit in FY2020/3.

A prominent example of this is in the Household Paper and Healthcare Business. Our Fuji Mill (in Shizuoka Prefecture) has been currently undergoing the transformation of its business from printing paper to household paper. The installation of our second paper machine at Crecia-Kasuga Co., Ltd. on the site of the Fuji Mill, alongside our first paper machine installed in 2018, through a merger between Nippon Paper Crecia Co., Ltd. and Kasuga Paper Industry Co., Ltd., has enabled us to respond to the growing demand for household paper as a daily necessity.

While our outlook for the future remains uncertain due to the impact of COVID-19, we will continue to implement various measures toward achieving the Group’s target operating income of ¥50.0 billion.

Moreover, our EBITDA in FY2020/3 was ¥97.7 billion. I believe an EBITDA of ¥100.0 billion or more would allow us to repay our loans payable while investing certain amounts in future growth, as well as enabling us to fulfill the expectations of all stakeholders, including shareholders, customers and business partners, and employees. We are in fact nearing that level. Moreover, we will continue to generate stable cash flows as we move forward.

Major Investments in Growth Areas

	Details		Amount	Year of Completion
Packaging	Installation of dry pulp machine, etc.	Nippon Dynawave Packaging Company, LLC	¥14.4 billion	FY2021/3
Household paper and healthcare	Expansion of healthcare processing machines	Nippon Paper Crecia Co., Ltd.’s Kyoto Mill	¥2.0 billion	FY2020/3
	Establishment of paper machine No. 1	Crecia-Kasuga Co., Ltd.	¥6.1 billion	FY2019/3
	Establishment of nonwoven manufacturing facility	Nippon Paper Crecia (within Nippon Paper Industries’ Fuji Mill)	¥4.6 billion	FY2020/3
	Establishment of paper machine No. 2	Crecia-Kasuga Co., Ltd.	¥8.0 billion	FY2021/3
Chemical	Enhancement of production of SUPERCHLON® No. 1	Nippon Paper Industries’ Iwakuni Mill	¥1.7 billion	FY2019/3
	Enhancement of production of SUPERCHLON® No. 2	Nippon Paper Industries’ Iwakuni Mill	¥2.4 billion	FY2022/3
	Upgrading of CMC manufacturing facility	Nippon Paper Industries’ Gotsu Mill	¥4.7 billion	FY2021/3
Energy	Yufutsu biomass power generation facility		¥34.1 billion	FY2023/3

(The projects listed above were completed or resolved to be undertaken during the Sixth Medium-term Business plan.)

03 Our Ongoing Growth: Adapting to Changes in Society

Society’s focus on the global environment as well as on health and hygiene has been increasing in recent years. While the emergence of COVID-19 has certainly had an impact in one sense or another, I realize, it seems as though new forms of value that center on the environment, rather than economic gains, are coming to the forefront particularly among the younger generation.

I believe a paradigm shift—global changes in society—is taking place and ascertaining such a shift will lead to new business opportunities.

We have already begun setting our sights on such opportunities, including the commercialization of our long-length toilet paper rolls as one of our main products. We are aggressively marketing and promoting the sales of Nippon Paper Crecia’s SCOTTIE® four-roll, triple-length flower pack, which offers the same length for one-third the volume of conventional toilet paper rolls and thereby occupying limited space, in addition to its environmental features, such as the reduction of CO₂ emissions through improved transportation efficiency and reduced use of packaging materials.

04 Envisioning the State of the Paper Business beyond the Next Decade

Among the Nippon Paper Group's range of businesses, the biggest challenge in terms of its operating environment is paper for use as an information medium. When COVID-19 materialized this spring and everyone was required to stay home, we witnessed an instant spread of information and communication technology (ICT), which spurred a severe decline in demand for graphic paper such as newsprint and printing paper. I feel that this has sped up the decline in demand, which had already been taking place due to the impact of the aging of Japan's society and digitization, by two to three years.

We will continue with our steadfast approach of contributing to the growth of society through the stable supply of our products. However, we will need to respond in an even timelier manner in the years ahead, and therefore we are currently working to map out our vision beyond the next 10 years. Guided by this vision, which we are drawing up together as a group, we will examine our approach going forward and take the appropriate measures as necessary.

05 Accelerating the Transformation of Our Business Structure

While addressing the issues in our Paper Business, we will adapt to the pace of changes taking place in society and continue with our ongoing efforts to transform our business structure. The key to achieving this is the development of our overseas business and the creation of new businesses and products.

In May 2020, we consolidated the newly established Opal into the Group to form an integrated Packaging Business. Comprising the business units of Paper Australia Pty. Ltd. and Orora Limited, this integrated structure has widened our potential for future expansion as a comprehensive manufacturer of packaging materials. While our debt has increased for the time being due to this acquisition-related expense, we will be firm in our approach of investing in growth areas while taking financial discipline into account.

I am firmly convinced that the development of our overseas business is indispensable to our growth as a corporate group. Our global network continues to expand with business sites in the United States, Europe, Asia, and Oceania. As we proceed forward, we will take a proactive stance to continue to expand our operations while assessing the global trend toward environmental conservation.

In addition, we need to create new businesses and products that cater to society's increasing focus on the environment. As outlined in our vision under the Group Mission, how we reflect our accurate understanding of customer needs in our products and businesses is critical.

We have seen the increasing adoption of SHIELDPLUS® and CELLENPIA®, which we have continued to promote to date. These products have already advanced from their stage of development toward their commercialization, to provide new value together with customers to society.

We will continue to firmly invest in growth areas.



06 Leveraging the Group's Strengths over the Long Term: Woody Biomass Technology and Recycling Technology

Amid the impact of climate change and the spread of infectious diseases, it is imperative that we fully and effectively utilize wood resources more than ever to tackle such global issues from a long-term perspective. As wood resources can be generated on their own, we are producing a variety of products derived from cellulose and other ingredients. They also offer biodegradable and recyclable benefits after their use.

The Group's strengths lie in its accumulation of afforestation technology and technology for manufacturing an array of pulp from wood. We also possess technology for effectively utilizing wood ingredients.

Additionally, we have been developing the unique technology and accumulating know-how for selecting and cultivating superior trees that grow faster among the same species and for mass producing superior seedlings derived from selected trees and utilizing these technologies for afforestation operations overseas. The application of these technologies can expand the fixed volume of CO₂, thereby helping mitigate climate change.


Our recycling technology is also our strength. In addition to recycling newspaper, printing paper, and containerboards, we recycle paper cartons into household paper and used paper cups into containerboards. We are also pioneering technology for utilizing difficult-to-process wastepaper.

We believe that the Group's business model, which pursues the recycling of biomass, is itself friendly to the environment. As we look ahead, the strengthening of our research and development system will be critical for expanding the potential of biorefineries.

07 Realizing Our Philosophy will Help Realize a Sustainable Society

The Group will draw on its strengths based on the utilization of wood resources while restructuring its businesses with significant energy consumption and reducing greenhouse gases. In regard to specific targets, we will continue to promote our slogan of “shaping the future with trees” and contribute to the global mission of realizing a low-carbon society as we strive to “drive social sustainability through our business,” one component of our vision.

In 2004, the Company participated in the United Nations Global Compact and declared its support for 10 principles covering four fields. We believe that our initiatives for realizing the Group Mission align with the objectives of the compact.



We will help realize a low-carbon society through the transformation of our business structure.

08 Utilizing Human Resources and Our Safety-First Approach

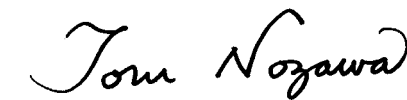
When I was appointed president, I expressed my desire to make the most of our human resources with diverse values. In that respect, I feel that “instill pride in employees,” one component of the vision of the Group Mission, is very important. Although it will not be an easy task, amid the increasing need for diverse work styles, we must establish a framework that allows our employees to take joy in the work they do.

Moreover, because we operate a manufacturing business, safety is of the utmost priority. Based on our mission of “realizing zero work-related accidents within our mills,” we will ensure that all employees working at our mills are fully aware of the risks involved in our day-to-day operations.

09 Message to Stakeholders

During this past year, I endeavored to accelerate the pace of management decision-making by conducting one-on-one meetings with the general managers of various divisions and presidents of main Group companies for about one hour each month.

As a comprehensive biomass company that shapes the future with trees and pursues the establishment of biorefineries, we are currently formulating a concrete growth path for the Group 10 years into the future and seek to realize the vision we have set forth under our Group Mission together with all of our stakeholders. I ask everyone for their continued understanding and support going forward.



Toru Nozawa
President and Representative Director,
Nippon Paper Industries Co., Ltd.

Paper Business



Takeo Konno

Managing Executive Officer
General Manager,
Sales Management & Planning Division
Nippon Paper Industries Co., Ltd.

In the face of the diminishing market for graphic paper, we will differentiate ourselves from our competitors in terms of both quality and service with the aim of ensuring that our products are the definitive choice of customers. We will also pursue environment-friendly features in our innovative materials to create new demand for paper products that will ensue after the containment of COVID-19.

OUR VISION

We will pursue new applications for paper while establishing a stable earnings structure in light of declining demand.

Our Strengths

- Production bases throughout Japan and a nationwide sales and distribution network
- Technological capabilities for creating new products
- A broad product lineup and responsiveness to user needs

Our Challenges

- Improvements to production and logistics efficiency
- Sales price stabilization
- Realization of stable operations and further cost reductions

Our Opportunities

- Advantages of paper in contributing to the global environment
- Expansion of sales in overseas growth markets
- Coexistence with electronic media

Our Threats

- Declining demand for print media as a result of shift to electronic media, the impact of COVID-19, and other factors
- Fluctuations in raw material and fuel prices
- Increased demand for imported paper due to foreign exchange rate fluctuations

The decline in consumption of printing and business communication paper will continue due to diminishing demand for publications spurred by such factors as the shift to electronic media, the decline in print media due to the impact of COVID-19, and shrinking demand for advertisements. With this in mind, we will envision our business environment 10 years from now and proceed with initiatives accordingly. Regardless, as paper is both highly recyclable and biodegradable, it has the ability to help resolve global environmental issues. As such, we will step up our efforts in biodegradable paper straws and paper with barrier properties with the aim of continuing to expand the possibilities of paper.

Reorganizing Our Production Structure and Realizing the Effects

We swiftly moved ahead with the reorganization of our production structure to accommodate the shrinking paper market and the resulting decline in demand. While appropriately taking into account the quality standards expected by our customers, we were able to steadily redistribute product grades across production sites and successfully shut down eight paper machines by the end of 2019 according to schedule. Through the completion of our production structure reorganization, we will aim to realize an ¥11.0 billion improvement in operating income through reductions in fixed costs and other measures while working to strengthen cash-generation capabilities, improve production efficiency, and maintain product prices.

In addition, we are working to optimize our supply chain as a part of our plan to reduce overall production and distribution costs.

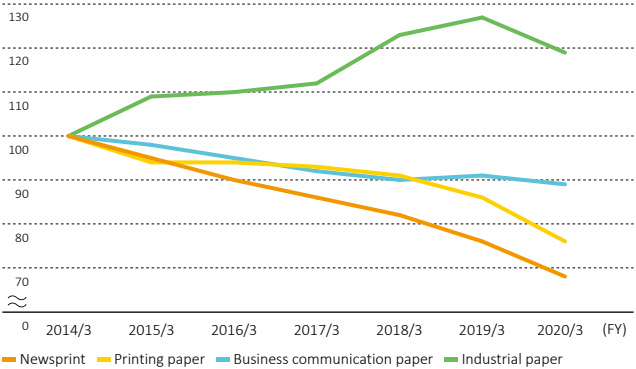
Promoting the Use of Paper (Let Paper Do What It Can Do)

With the use of paper gaining more and more attention worldwide due to marine plastic pollution, one of our most important strategies going forward is to develop new products in line with this global trend. Accordingly, we have established two new sections, the Paperizing Promotion Office and SHIELDPLUS Marketing and Sales Office and moved ahead with the launch of our paper straws, SHIELDPLUS®, and Lamina®. We will gear our efforts toward boosting demand for paper by making the utmost use of our technologies and insight cultivated through paper production and developing and proposing paper products in new domains to cater to the needs of customers.



Left: Paper straw
Right: SHIELDPLUS® products

Sales by Product Type (FY2014/3 = 100) (Nippon Paper Industries Co., Ltd.) (%)



Conversion to Use of Paper Materials

Plastic cups	▶ Barrier paper cups
	SHIELDPLUS® barrier packaging materials
Flexible packaging / plastic containers	▶ Lamina® heat-sealable paper / paperboards
Polyethylene containers / plastic bottles	▶ Paper cartons
Plastic trays and containers	▶ Paper trays
Styrofoam	▶ Functional cardboard paper
Plastic straws	▶ Paper straws
Plastic cushioning	▶ Paper cushioning

Paperboard Business



Satoru Muto

President,
Nippon Tokai Industrial Paper Supply Co., Ltd.

With the goal of continuing to generate profits down the line, we will strive to steadily capture demand in the e-commerce domain, which is anticipated to grow even further with the impact of COVID-19. We will also focus on expanding export sales in view of the synergistic effects generated through our business integration with Opal, while bearing in mind the supply–demand balance in the domestic market.

OUR VISION

We will accurately cater to users’ needs and meet increasing demand for containerboards through unique, differentiated products.

Our Strengths

- Well-balanced deployment of mills across Japan
- Secure delivery (with a great deal of care)
- Possession of linerboard machines using self-manufactured softwood kraft pulp
- Reinforced research and development system integrated with sales department

Our Challenges

- Securing of sales volume
- Price maintenance
- Optimization of sales expenses

Our Opportunities

- Solid domestic demand for containerboards
- Promotion of exports to growing Asian market through integration with Opal
- Development of products utilizing new materials and new technologies

Our Threats

- Deterioration of supply–demand balance
- Sluggish market growth in the wake of COVID-19
- Soaring raw material and fuel prices
- Increasing logistics costs

Demand for containerboards is difficult to forecast at the moment due to the impact of COVID-19 and other factors. However, we will work to accurately capture domestic demand and proceed with the development of new products utilizing new materials by integrating the sales divisions and the Research and Development Division into a single unit. We will also strive to identify new growth strategies through our alliance with Opal and open up new sales channels, particularly in the Asian market.

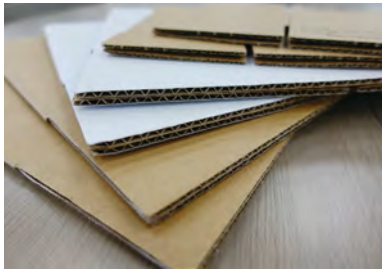
Harnessing Our Strengths as the Largest Specialized Containerboard Manufacturer in Japan

As the largest specialized manufacturer of containerboards in Japan, we will leverage our production sites across Japan and maintain stable supplies and secure deliveries. In addition, we will pursue higher standards for our proposal-based sales by engaging with customers to ensure that we are able to accurately capture demand for containerboards in Japan, which is projected to grow even further going forward. In doing so, we will continue to aim to be a company that is selected by customers.

In regard to exports, while bearing in mind the supply–demand balance in the domestic market, we will draw on the strengths of our alliance with Opal to secure new customers and actively engage in other measures to promote sales in China and countries in Southeast Asia.

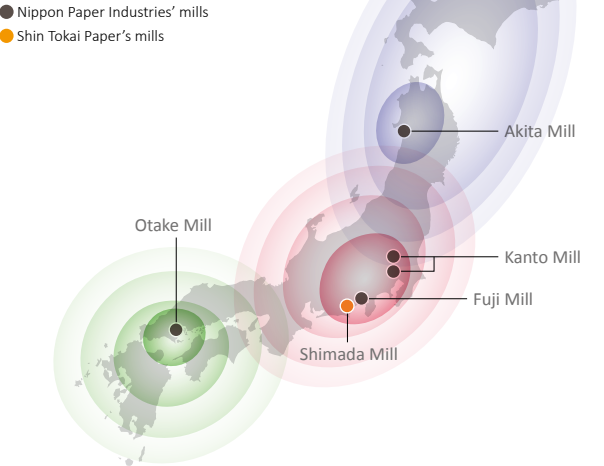
Directing Our Attention to the Development of New Products

We must continue to develop new products going forward in response to the global trend toward using less plastic and using more paper. In our Paperboard Business, the Nippon Paper Group’s Research and Development, production, and sales divisions and Group companies will unite as one to launch new, differentiated, and high-value-added products. Moreover, we will explore ways to strengthen our ties with containerbox manufacturers from a variety of angles.

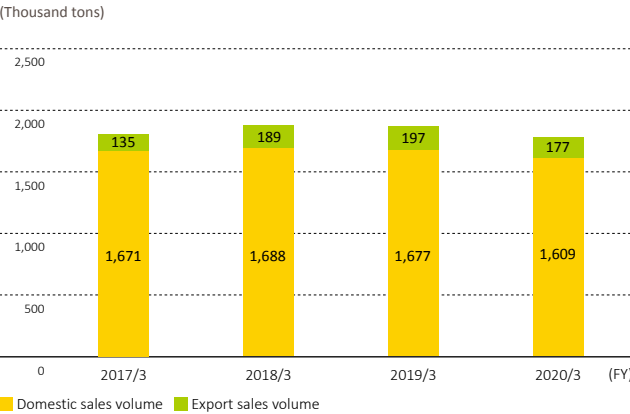


Containerboards

Production Network and Supply Coverage



Sales Volume of Containerboards



Packaging Business



Yasuhito Obayashi
Managing Executive Officer
General Manager,
Paper-Pak Sales Division
Nippon Paper Industries Co., Ltd.

In FY2020/3, net sales climbed 6% over the previous fiscal year on the back of higher sales of new filling machines and other products. We also concluded a capital and business alliance with Shikoku Kakoki Co., Ltd., the leading manufacturer of filling machines in Japan. In FY2021/3, we will step up the pace of our development and launch of new cartons and filling machines in preparation for after the containment of COVID-19.

OUR VISION

We will establish a global, first-class business capable of improving and changing the eating habits of people across the globe.

Our Strengths

- A comprehensive system supplier providing packaging boards, cartons, and filling machines
- Development capabilities for domestically produced high-speed filling machines utilizing capital and business alliance with Shikoku Kakoki Co., Ltd.

Our Challenges

- Development and sales of new cartons and filling machines (domestic and overseas)
- Development of environment-friendly and functional packaging (by leveraging the strengths of the Nippon Paper Group)

Our Opportunities

- Expansion of existing value-added carton market
- Greater demand for paper cartons through shift away from the use of plastics
- Demand for production facilities that promote labor-saving through IoT technologies led by the decrease in working population

Our Threats

- Market contraction due to demographic changes led by aging population and declining birth rate, and unforeseen events such as COVID-19 and climate change
- Intense competition due to entry of other companies into paper carton market

Amid the shrinking domestic beverage market stemming from population decline and intensifying competition brought about by the entry of domestic and overseas manufacturers into the paper carton market, we will develop a unique system capable of speeding up sales of new environment-friendly products. Moreover, with the aim of improving the productivity and workability of our customers, we will promote sales of new filling machines equipped with IoT functions that help our customers surely perform maintenance work.



Left: Strawless paper cartons for school lunches
Right: SPOPS® replaceable containers

● Launching a Series of New Cartons and Promoting Sales

In the chilled beverages domain, we are concentrating our efforts on the sale of our varied lineup of new filling machines attuned to the needs of customers. In FY2021/3, we introduced our new “Pure-Pak® Sense” carton with an attached closure and released it on the market. In addition, we developed and began sales of our “NP-PAK-mini School POP” strawless paper carton for school lunches.

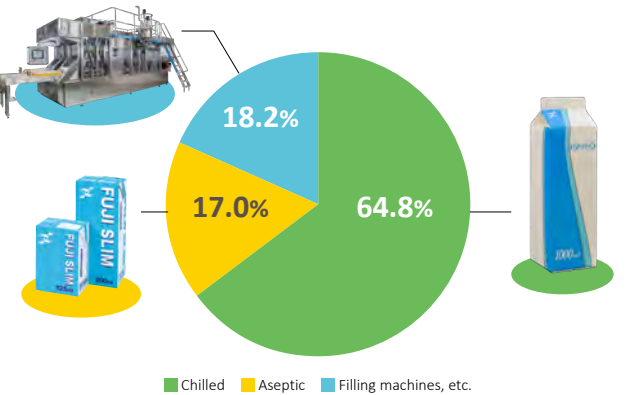
In the field of aseptic beverages, we developed our NSATOM® multifunctional aseptic filling system for paper cartons with attached closures, which is slated to be launched in FY2022/3. In fields other than beverages, we commenced sales of SPOPS® replaceable containers for shampoo.

● Our Measures for Post-COVID-19

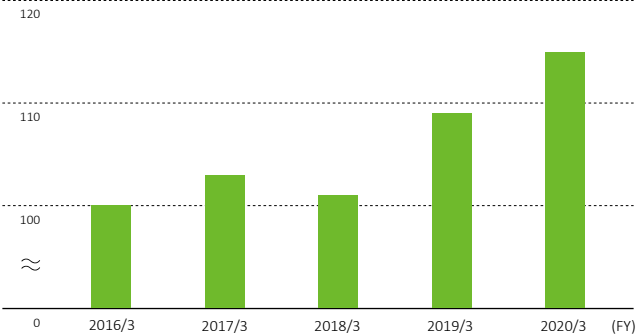
Going forward, the beverage container market is expected to experience a further increase in demand for environment-friendly, high-sanitary, and multifunctional products. We will strive to help improve the eating habits of people across the globe through the utilization of our highly sanitary and functional paper carton system.

In 2019, we concluded a capital and business alliance with Shikoku Kakoki, which will shift the development of our new filling machines and new products into high gear. In the carton business, amid the diversification of beverages and the shortening of product cycles, we will put in place an efficient structure that enables small-lot production for a wide variety of products. In the maintenance business, we will establish a structure that generates new solutions through the use of the IoT, with the objective of boosting our customers’ productivity.

Net Sales by Product (Nippon Paper Industries Co., Ltd.) (%)



Net Sales of Domestic Paper Carton Business (FY2016/3 = 100) (%)



Household Paper and Healthcare Business



Kazufumi Yamasaki

President and Representative Director,
Nippon Paper Crecia Co., Ltd.

We will work together as one to develop new products in response to changes in customers’ lifestyles and promote our business activities. We also aim to develop the business into a key contributor to the Group’s business restructuring.

OUR VISION

We will provide valuable products and brands that contribute to healthy and clean lifestyles.

Our Strengths

- Beloved and trusted brands
- Unique long-length toilet paper rolls
- Healthcare products that utilize CNF
- Highly competitive mills

Our Challenges

- Swift launch of new production facilities
- Enhancement of logistics efficiency to contribute to the global environment
- Development of products that accommodate changes in people’s lifestyles
- Use of more pulp and packaging paper procured within the Group

Our Opportunities

- Higher awareness of hygiene worldwide
- Global shift from the use of plastics to biomass resources
- Aging population
- Rapidly growing e-commerce market

Our Threats

- Intensifying competition triggered by the reinforcement of facilities by competitors of household paper
- Rising pulp prices and global concerns over stability of pulp supply
- Intensifying competition in growing healthcare market

In light of the increasing awareness of hygiene owing to the impact of COVID-19, we will press forward with the supply of tissues, toilet paper rolls, paper towels, cleaning wipes, wet tissues, and other products that enable customers to enjoy healthier and cleaner lifestyles. Further, we will bolster our supply structure by achieving early commercialization of our state-of-the-art paper machines, and will draw on our triple-length toilet paper rolls and other proprietary products to differentiate ourselves from our competitors.



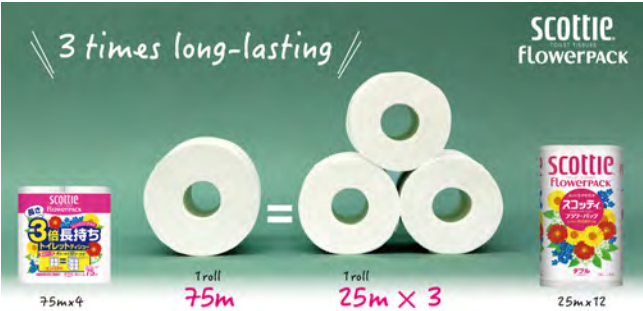
Left: SCOTTIE fine Four-roll, triple-length Kitchen Paper Towel
Right: SCOTTIE® Four-roll, triple-length flower pack

Strengthening Our Competitiveness by Installing New Paper Machines

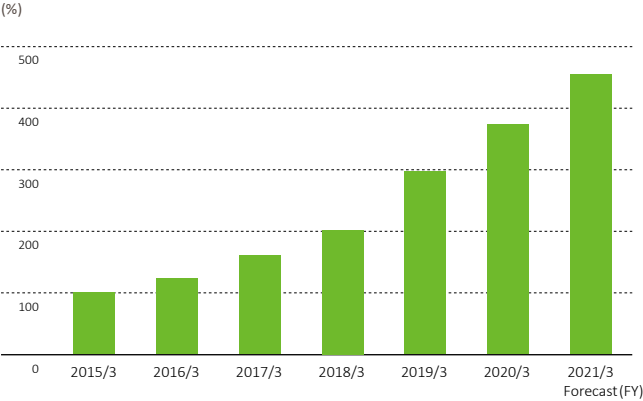
In May 2020, our affiliated company, Crecia-Kasuga Co., Ltd., launched its second paper machine, the most advanced machinery for household papers. Also we are aiming to enhance the supply system for long-length toilet paper rolls, which are now increasing in demand. Located in Shizuoka Prefecture, adjacent to the Tokyo metropolitan area, Crecia-Kasuga has high cost advantages due to its ability to capitalize on the utilities of Nippon Paper’s Fuji Mill. We will work to further strengthen our competitive edge by running the new second machine at full capacity as early as possible, as well as promoting comprehensive improvements to our processing system at the four mills of Nippon Paper Crecia Co., Ltd.

Promoting Sales of Long-Length Products That Contribute to Lower CO₂ Emissions

Our long-length products are easy to carry and reduce the hassle of locating storage space and replacement due to their compactness and offer a range of other merits for customers. They also contribute to the global environment by means of less use of packaging materials and lower CO₂ emissions through more-efficient distribution. Our long-length products benefit not only consumers, distributors, and manufacturers but also the global environment. We will work unstintingly to supply them to more households while continuing to develop products that help conserve the global environment.



Net Sales of Long-Length Products (FY2015/3 = 100)



Chemical Business



Kazunori Itaya
Executive Officer
General Manager,
Chemical Sales Division
Nippon Paper Industries Co., Ltd.

We will proceed with the development of new products that reflect the needs of customers by integrating our research, production, and sales while we maintain close ties with them. By leveraging such unique products to create new value, we will expand sales and tap into new markets.

OUR VISION

We will provide unique products in global niche markets.

Our Strengths

- A diverse lineup of wood-based products
- A group of unique products in niche markets
- Product development tailored to user needs

Our Challenges

- Enhancement of cost competitiveness of pulp products
- Development of applications for yeast culture products and expansion of sales thereof
- Development of applications for wood-based products
- Stabilization of earnings in functional film business

Our Opportunities

- Growth in demand for renewable resources due to re-evaluation of their value
- Growth of global automobile market
- Increase in demand for textiles with rise in global population
- Shift toward making plastic parts out of mono-materials
- Rise in demand for high-performance films

Our Threats

- Shrinking Japanese market
- Incursion of overseas manufacturers
- Obsolescence of existing technologies

Through the supply of renewable materials leveraging our abundance of wood-based products, we will help realize a resource-circulating society and promote sales of our products in overseas markets. We will also strive to stabilize earnings in our functional film business, despite the short life cycles of functional films, and bolster the supply of functional resin for use in packaging film ink and adhesive materials for automotive use, for which the market continues to grow.



Left: Application of dissolving pulp
Center, Right: Application of CMC

Reinforcing the Production Capacity of Functional Coating Resin

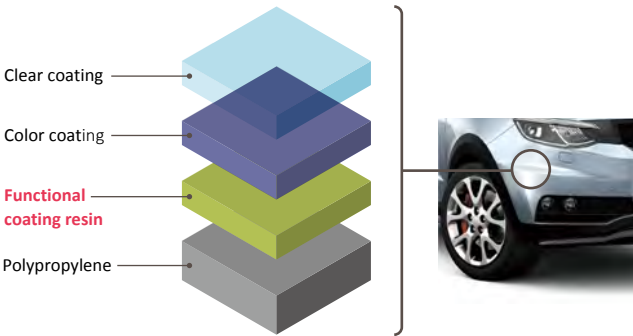
Functional coating resin is growing in demand for its use as an adhesion promoter for polypropylene (PP) substrates, which are utilized in the exterior components of automobiles to reduce weight, as well as for its use as an adhesive for film inks. Looking ahead from an environmental perspective, we anticipate increased use of PP substrates—recycling-oriented mono-materials that are inexpensive and easy to process—and greater demand for functional coating resin—an indispensable material for adhesion on PP substrates. With the aim of addressing such growing needs, we are reinforcing our supply structure and expanding our production facilities.

Boasting an Extensive Lineup of Wood-Based Products

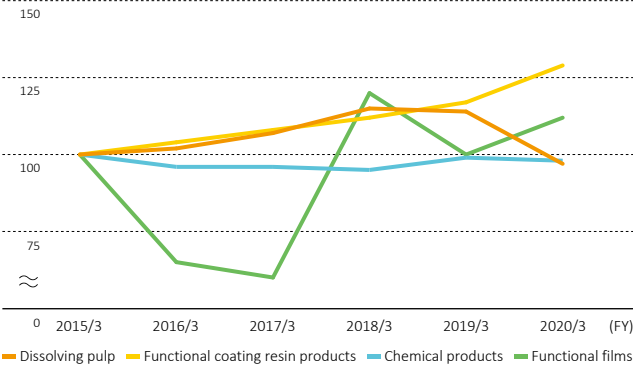
The Chemical Business boasts a portfolio consisting of various wood-based products. One such product is dissolving pulp, for which we will deliver high-quality products attuned to the needs of customers and differentiate ourselves from our competitors. Lignin is another wood-based product and a by-product of the pulping process—which is widely used as a binding agent and dispersant. By making use of our proprietary technologies, we will upgrade the quality of lignin and offer it for use in a wide range of fields as a high-performance dispersant.

Moreover, the expansion of our production facilities for carboxymethyl cellulose (CMC) water-soluble polymer is progressing as planned, and we will proceed with the introduction of highly functional new brands, in addition to existing products for lithium-ion batteries. We will also promote the use of powdered cellulose (KCF) in a wide array of products, including food applications and reinforced plastic, and strive to boost its sales.

Application of Functional Coating Resin



Net Sales by Product (FY2015/3 = 100) (Nippon Paper Industries Co., Ltd.) (%)



Energy Business



Mitsuhiro Sugino
Executive Officer
General Manager,
Energy Business Division
Nippon Paper Industries Co., Ltd.

In the face of the increasing global trend toward reducing CO₂ emissions, we are experiencing significant changes in our business. By responding appropriately to the national energy policy, we will reinforce the biomass power generation business as well as continue to promote the sale of surplus electricity generated at our in-house facilities

OUR VISION

We will generate stable, long-term earnings by expanding businesses utilizing renewable energy.

Our Strengths

- Power generation technology developed through paper manufacturing
- Power generation capacity of 2,000 MW
- Bases in favorable locations throughout Japan
- Global procurement network for wood resources and knowledge of biomass fuel

Our Challenges

- Stabilization and strengthening of existing electric power generation business
- Establishment of biomass mono-firing technology
- Ongoing promotion of power generation and fuel businesses

Our Opportunities

- Feed-in tariff (FIT) fixed-price system to promote renewable energy
- Global trend toward reducing CO₂ emissions

Our Threats

- Soaring prices of biomass fuel
- Falling sales prices of electricity
- Changes to the nation's energy systems
- Impact of COVID-19

Biomass fuels are garnering attention due to the trend toward reducing CO₂ emissions. While advancing in harmony with trees, the Group will steer the biomass power generation business forward by harnessing the strengths of its wood resource procurement system.

At Nippon Paper Ishinomaki Energy Center Ltd., we are working to reduce CO₂ emissions and stabilize earnings while further increasing the biomass co-firing ratio.



Left: Ishinomaki Hibarino power plant
Right: Yufutsu Energy Center (CG rendering of completed center)

Expanding the Scale of Our Biomass Mono-Firing Business

Located on the premises of Nippon Paper's Hokkaido Mill (Yufutsu), the Yufutsu Energy Center, LLC is slated to become one of the largest biomass mono-firing businesses in Japan, boasting a power generation capacity of 75 MW. Construction of the new facility began in March 2020 and is progressing as planned. It is scheduled to commence operations in January 2023.

Suzukawa Energy Center Ltd. commenced operations in 2016 using coal as fuel, but from the perspective of the environment, we decided to convert from a coal-firing system to a biomass mono-firing system. Fuel storage renovation began in December 2019, and construction is proceeding smoothly toward the launch of our biomass mono-firing system in April 2022.

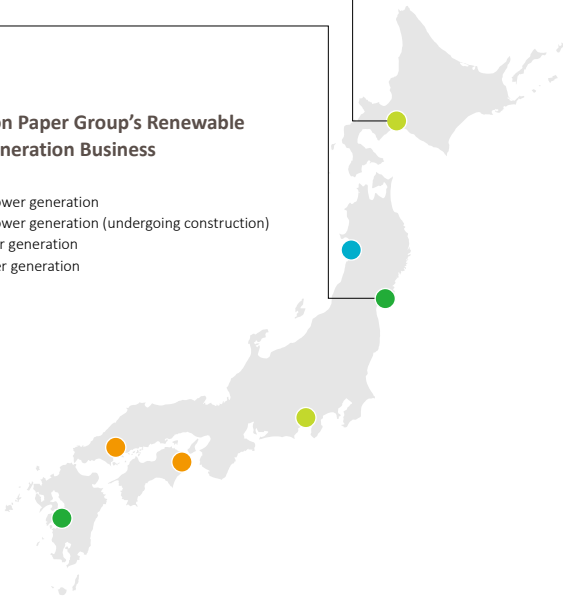
Furthermore, we are currently conducting environmental assessments on the possibility of installing an additional biomass mono-firing system at our Iwakuni Mill.

Expanding the Sales Volume of Renewable Energy

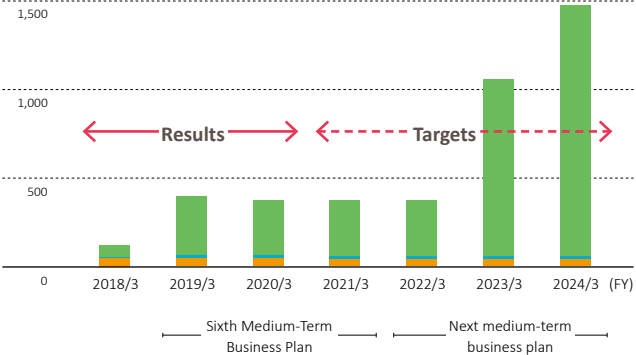
FY2021/3 is the final year of our Sixth Medium-Term Business Plan and has been regarded as a period for laying the groundwork for the expansion of the biomass mono-firing business. Looking ahead, the aforementioned Suzukawa Energy Center is slated to commence operation of its biomass mono-firing business in April 2022, with an annual power generation capacity of around 600 GWh, while the Yufutsu Energy Center is scheduled to begin operating in January 2023 with a power generation capacity of approximately 500 GWh. Accordingly, our renewable energy sales volume is projected to grow to nearly 1,500 GWh annually in FY2024/3.

The Nippon Paper Group's Renewable Energy Generation Business

- Biomass power generation
- Biomass power generation (undergoing construction)
- Solar power generation
- Wind power generation



Sales of Electricity Generated through Renewable Energy (GWh / year)



Wood Products and Construction Related Business



Kunihiko Hayama

President and Representative Director,
Nippon Paper Lumber Co., Ltd.

As the leading trading company of wood products in Japan, Nippon Paper Lumber Co., Ltd.'s day-to-day operations consist of collection of wood resources, management of Company-owned forests, and sales of lumber products from Japan and overseas. Through the concerted efforts of our small team of approximately 200 employees, we will continue to improve profitability by responding accordingly to the drastic changes occurring in our operating environment, taking full advantage of our opportunities, and mitigating risks.

OUR VISION

We will firmly entrench our position as the leading provider of domestic lumber.

Our Strengths

- Leading procurement network and infrastructure for paper materials and domestic lumber in Japan

Our Challenges

- Establishment of a procurement network to address increased demand for wood fuel

Our Opportunities

- Growing demand for wood fuel in line with increase in biomass boilers

Our Threats

- Declining consumer sentiment for housing purchases owing to the impact of COVID-19

We possess a sales network that can provide various products for lumber, energy, and a wide range of other uses. The feed-in tariff (FIT) fixed-price system for renewable energy and other energy policies implemented by the national government are generating new opportunities for wood-related businesses. By centering our attention on the upstream process of wood distribution and financial and human resources, we will reinforce our procurement system of wood fuel in Japan and overseas.



Left: Domestic lumber
Right: Nippon Paper Industries' Asahikawa Mill, which supplies significant amounts of wood chips

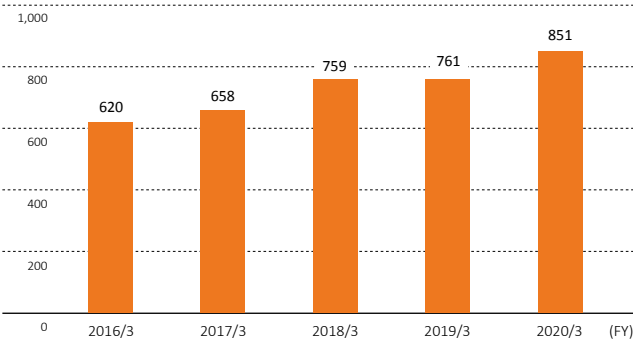
Adapting in Harmony with New Ways of Living

Against a backdrop of significant changes to our lifestyle patterns expected as a result of the impact of COVID-19, we anticipate the arrival of new approaches to living, working, and studying as various generations embark on new ways of living. We embrace wood products—a recyclable material that heals the human senses—as a core business and believe that adapting appropriately to these changes is imperative for our continuous growth.

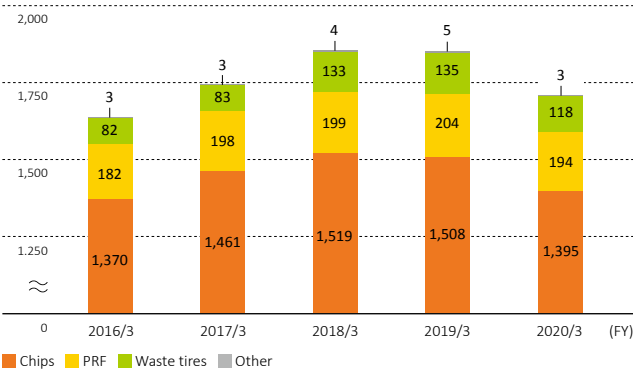
With the implementation of the feed-in tariff (FIT) fixed-price system for renewable energy, demand for wood fuel is surging as business operators in other industries are tapping into the biomass power generation business.

We have identified the growth of our domestic wood-related business, a strength of Nippon Paper Lumber, and the increased supply of wood fuel used in biomass power generation as key challenges. In Japan, we will leverage our existing infrastructure while continuing to forge ahead with the diversification of our domestic procurement sources. Overseas, we will continue to ensure the stable procurement of palm kernel shells (PKSs) through the development of suppliers. We will be adaptable in our approach and swift with our decision-making toward continuing the expansion of our operations.

Handling Volume of Domestic Lumber (Nippon Paper Lumber Co., Ltd.)
(thousand m³)



Handling Volume of Fuel (Nippon Paper Lumber Co., Ltd.)
(t)



The Nippon Paper Group’s Overseas Business Development

Leveraging the Strengths of Opal to Accelerate the Growth of the Packaging Business

Hiroya Kakehashi
General Manager,
Corporate Planning Division
Nippon Paper Industries Co., Ltd.



Significance of the Overseas Business to the Nippon Paper Group

Amid the expected decline in domestic demand for paper, the Nippon Paper Group adopted “expand businesses in growth areas and achieve early commercialization of new businesses” as one of the themes of its Sixth Medium-Term Business Plan, and is currently working to realize this goal. The overseas business has the advantage of being able to benefit directly from population and economic growth in the various regions in which it operates. In light of the increasing focus on the environment and the impact brought about by spread of COVID-19, the use of paper is regaining recognition around the world for its recyclable and biodegradable features. We

also believe that, as a group that is transforming its business structure, the overseas business plays a significant role in helping advance the rising trend to “paperize” overseas and the associated business growth. Moreover, as we can expect the creation of synergistic effects with the range of businesses we are already engaged in domestically and overseas, we will concentrate our efforts on growing our overseas business particularly within Southeast Asia, as well as in other regions in Asia, Oceania, and elsewhere in the Pacific Rim, where we anticipate continuous growth in demand.

Acquisition of Orora Limited’s Paperboard and Fiber Based Packaging Business in Australia and New Zealand

On April 30, 2020, Nippon Paper Industries Co., Ltd. finalized the acquisition of Orora Limited’s paperboard and fiber based packaging business in Australia and New Zealand. We incorporated the acquired business and Paper Australia Pty. Ltd., which operates the Paper and

Paperboard Business, into the newly established group, “Opal.” Opal was launched in May 2020 to steer the Packaging Business forward in Oceania.

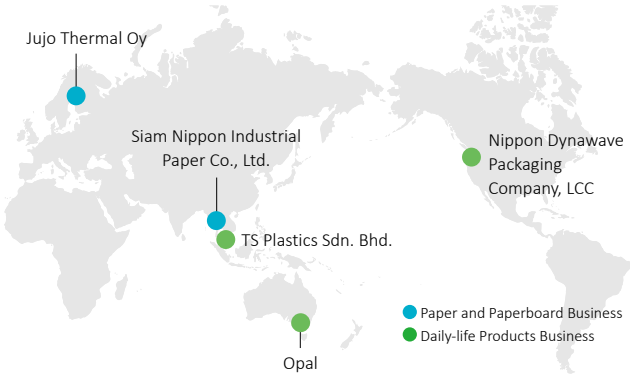
The global spread of COVID-19 has had a significant impact on the economy of Oceania as well. Nonetheless, as a region consisting of developed countries that continue to experience gradual population growth and high demand for packaging materials used in the export of fruits, vegetables, meat, and other products, Oceania is a highly attractive market for the development of our Packaging Business. In addition, the ability to establish an integrated production process encompassing all stages, from the production of base paper to the sale of containerboxes, brought about by the establishment of Opal is highly advantageous from the perspectives of expanding our value chain and stabilizing earnings. Further, we believe we can

enhance our profitability by pursuing synergistic effects through Opal in such capacities as cost reductions and increased efficiency, which intersect with Paper Australia Pty. Ltd. Until recently, the business portfolio of the Group’s paperboard business was limited to the manufacture and sale of base paper, or upstream processes along the value chain. However, the acquisition of Orora’s business has allowed us to make a full-fledged entry into the manufacture and sale of containerboard products, or downstream processes, and this has expanded our possibilities for further business growth. Looking ahead, we will step up the growth of the Group’s containerboards, craft paper, and other packaging materials.

Expansion of the Overseas Business across the Globe

The Group is rolling out a variety of businesses in not only Oceania, but in all corners of the globe. In North America, Nippon Dynawave Packaging Company, LLC manufactures paperboard for use in milk cartons and other types of liquid packaging cartons, and is working to continue to improve the functionality of its products in response to the diversifying needs of customers. In Europe, Jujo Thermal Oy produces thermal paper for use in labels, receipts, and many other applications. Jujo Thermal also engages in the development of SHIELDPLUS® high-barrier packaging materials that prevent the penetration of moisture and leakage of aroma. Moving ahead, we will develop Jujo Thermal into a new pillar of earnings for the Group by setting our sights on the increasing global trend of eliminating plastic and using more paper. In Asia, we are steadily growing our business by harnessing such capabilities as the machine glazed Paper Business of Siam Nippon Industrial Paper Co., Ltd. in Thailand. In Malaysia, we acquired TS Plastics Sdn. Bhd., which develops flexible packaging materials, in March 2019. We will continue to expand our business in this economically thriving market as we pursue synergies

through the combination of TS Plastics’ technological know-how and customer base in the flexible packaging field and the Group’s strengths in technological development, sales, and other areas. The Group will continue to take advantage of its know-how in wood resources in a variety of fields with the aim of enhancing its corporate value over the medium to long term. As for overseas, we will continue to look to actively expand our business by identifying regions and businesses with potential for growth.



Research and Development: The Backbone of the Nippon Paper Group’s Business

Shaping the Future of the Nippon Paper Group by Reinforcing R&D and Collective Efforts

Takashi Ochi
Executive Officer
General Manager,
Research and Development Division
Nippon Paper Industries Co., Ltd.

Mission of the Research and Development Division— Strengthening of Existing Businesses, Expansion of Businesses in Growth Areas, and Promotion of New Businesses

With its sights set on “shaping the future with trees”—the slogan of the Nippon Paper Group—the Research and Development Division is forging ahead with activities in afforested land, pulp and paper, biomass use, and other areas, with the aim of maximizing the use of trees. We adopted “reorganize the production structure of the Paper Business and make maximum use of in-house facilities” and “expand businesses in growth areas and achieve early commercialization of new businesses” as the themes for our Sixth Medium-Term Business Plan, and are examining ways in which we can contribute to realizing these goals from an R&D perspective.

We believe there is still ample room for improvements in reducing costs in the paper and other existing businesses, such as the recent implementation of new technology for pigments used on coated paper. To effectively develop new products, we conduct pilot tests in our laboratory and examine the data, implement tests on production lines, and conduct commercial printing tests to check for quality. All of these processes are conducted in a timely manner. In our R&D

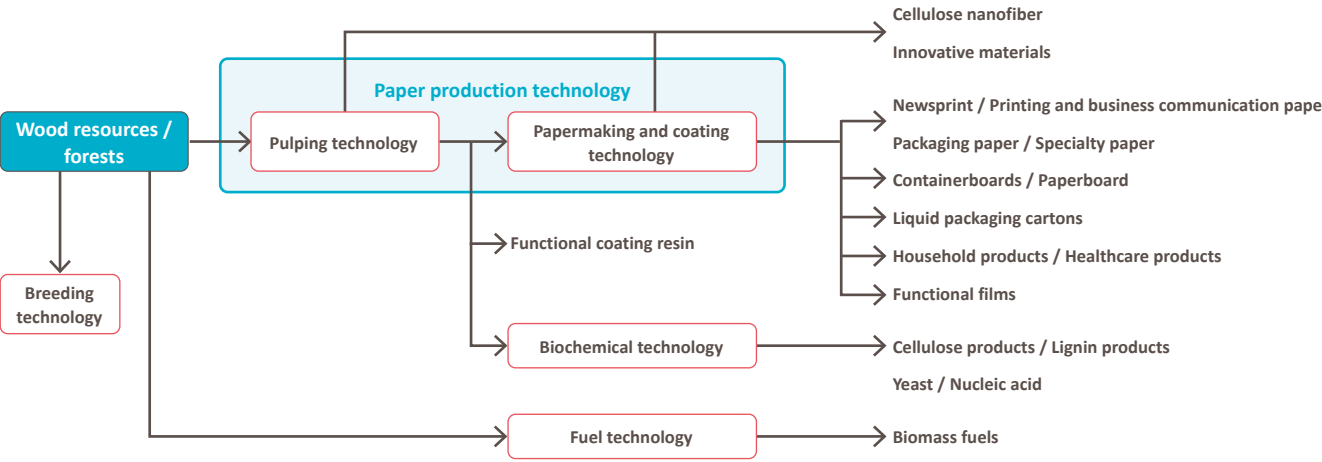
efforts for paper, we strive to create products tailored to the needs of customers centered on the three “Es”, or ecology (environmental friendliness), economy (sense of good value), and efficiency (productivity and workability).

In recent years, we have invested a significant amount of resources into our human resources and carried out other expenditures in growth areas and new businesses for the early establishment of high-earning businesses. While global awareness in the reduction of CO₂ emissions and other efforts to combat climate change continues to grow, we expect paper—a recyclable material that reduces the use of fossil resources—to have a positive impact on resolutions to such environment-related issues. Moreover, Nippon Paper will be fully committed to its R&D in such growth areas as the Packaging, Household Paper and Healthcare, and Chemical Businesses by embracing its Group Mission of aiming to contribute to better living everywhere it does business.

Strengths in R&D— Accumulation of Wide-Ranging Technologies and Know-How and Groupwide Collaboration

Among the strengths of the Nippon Paper Group is its accumulation of technologies and know-how through years of R&D and development of businesses in a wide range of fields. To date, we have developed new products encompassing bulky paper, functional paper, liquid packaging cartons, functional coating resin for automotive, cellulose and lignin products, functional films for smartphones, adult diapers, and wood fuel. While it may seem as though these products are not related to each other, they all represent our efforts to expand the scope of research through our papermaking technology. With the aim of continuing to hone our strengths, in 2017 we merged the R&D functions of the Chemical Business and Paper Packaging Business into the Research and Development Division.

I am a firm believer in not creating walls between our various sections. As such, we strongly promote the cooperation and sharing of information on research-related topics between sections. Our research-related collaboration has been as strong as ever, exemplified by the developments of Minerpa®—a hybrid compound of pulp and inorganic materials derived from the combination of pulping technology and synthetic technology for inorganic pigments—and of cellulose nanofiber (CNF)-reinforced resin, which is generated through the combination of CNF technology and automotive functional coating resin technology.



Development of New Products and Technology

In recent years, one of the new products we have had our eye on is CNF. CNF has been the focus of manufacturers across the globe. We have been nurturing the technology for developing and commercializing various types of CNF. The CNF produced at our Gotsu Mill is steadily being adopted in cosmetics and food applications due to its thickening effect and unique texture, as well as its exceptional ability to retain water and shape. The CNF produced at our Ishinomaki Mill is being used in concept tires on automobiles, and we will look to

expand its industrial applications going forward. In addition, we incorporate metal ions into CNF intermediates to develop modified cellulose that realizes anti-virus, disinfectant, and odor-eliminating effects for nonwoven and paper products.

SHIELDPLUS®, an eco-friendly product that has a barrier-coating layer on top of base paper using water-based coating technology for papermaking, features oxygen and water vapor barrier properties as well as flavor barrier properties, and is friendly to the environment.

Research and Development: The Backbone of the Nippon Paper Group’s Business

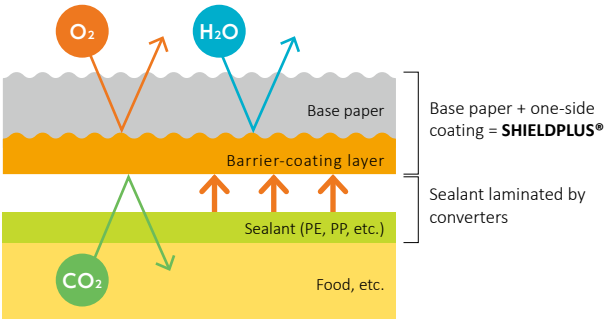
We have enhanced the lineup of SHIELDPLUS® products by refining its barrier properties according to various applications, a move well received by many, particularly those in the food industry. Currently, we are working to optimize the quality of our manufacturing processes by exchanging information with each user.

Minerpa® offers deodorizing, flame-proof, and radiation-shielding effects according to the type of inorganic material applied to the surface of pulp fiber. We provide samples of Minerpa® in a range of forms, including sheets, molds, and flakes, in line with the customer’s needs, and are working toward its adoption.

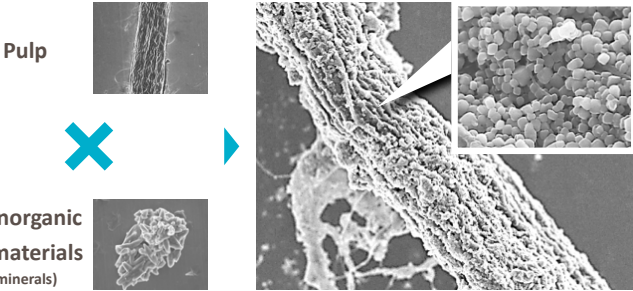
Moreover, in terms of plant-breeding techniques, in which we have continued to conduct research, we are dedicating our efforts toward

their further advancement in response to rising environmental awareness worldwide. We are engaged in producing and fostering trees that have excellent properties of effectively absorbing and fixing CO₂, as we are focusing on the selection and development of trees with strong potential for fast growth in afforested areas in Brazil and on cross-breeding among them. Looking ahead, we will proceed with research on ways to estimate growth potential and pulping properties at an early stage and utilize them on the finest trees we have selected. As for rooting technology, on which we have focused our efforts to date, we have received exceptional ratings for our production of low-pollen Japanese cedar trees.

Composition of Packaging Material Utilizing SHIELDPLUS®



Microscopic Image of Minerpa®



Acceleration of the Pace of Our Development through External Ties

Concerning our development activities in the Paper Business, we have been able to complete almost the entire process, from research to commercialization, in-house. However, regarding the development of products in growth areas and new businesses, while we have succeeded in the in-house development of materials, we have encountered such hurdles as the inaccessibility of processing technology and equipment to commercialize products, an inability to meet customers’ different processing criteria, and a lack of information on the industries into which we seek entry. Recognizing this fact, we are joining forces with other companies, universities, government agencies, and other organizations to equip ourselves with the

technology we lack and fast-track the development of our products. We are also making use of the knowledge of those outside of the Company by directly interacting with customers and identifying their needs as well as utilizing business-matching services that connect solutions to needs. On the other hand, the strengthening of external ties brings up the key issue of intellectual property management. While bearing in mind the development of a robust patent network, through which our competitors would be unable to mimic our products, we are taking into consideration confidentiality agreements and loyalty balance when commercializing our products.

Invigoration of Our R&D—
Nurturing of Young Researchers at Their Own Discretion

At Nippon Paper, we institute research plans once a year to select new themes and decide on the continuation of existing themes for research. The theme-selection process entails aggregating the themes of priority within the Research and Development Division and themes proposed by the headquarters and mills, and then determining the order of importance for selecting themes of the highest significance to the Company. While each researcher sets his or her own goals according to a given research plan, we are considering the idea of allowing them to spontaneously engage in the research of their own choosing in order to enhance their level of motivation from a human resource development perspective.

With our younger researchers, we assign specific themes and customers at an early stage and provide them with ample opportunities to attend test productions at mills, present explanations to management, accompany sales visits to customers, and receive hands-on

experience, in order to have them acquire a greater sense of responsibility. We also regularly hold a research review meeting for them within our division and let them participate alone in workshops and exhibitions overseas. Individual participation requires them to plan and propose business trips, gather information on-site, prepare and present reports, and conduct other activities on their own, which we believe will also benefit them in their subsequent duties. In our small group activities, our younger researchers can develop new, innovative products through the evolution of their own ideas. They are able to manage projects at their own discretion, play a leading role on the team, direct the flow of the project, and follow up with his or her team members. For example, our paper straws, which we released in the previous fiscal year, were launched ahead of schedule thanks to the ideas that were contributed in small group activities.

Pursuit of the Potential and Technologies for the Use of Wood-Based Resources

Wood resources are a sustainable resource that can be produced by planting and cultivating trees. They provide the Company with significant potential for contributing to the realization of a better environment and living. While wood-based resources cannot serve as an alternative to every material in the world, we believe that proceeding with our R&D efforts to realize the potential of these resources and technologies for their use will result in significant contributions to

society. We will continue to unite as one and move forward with our research activities so that we can create new value through the exchange of technologies and insight among all of our research institutes and researchers based on the mindset that the future of the Nippon Paper Group rests in the hands of the Research and Development Division.

