

Oji Group

Integrated Report 2023

Fiscal year ended March 2023





Sarufutsu company-owned forest in Hokkaido, Japan

Management Philosophy

Creation of Innovative Value

Innovation is essential for the Oji Group to make a big leap forward. Changes must take place in the research and technological development leading up to revolutionary new products. At the same time, our organizational systems and the behaviors of each and every employee need to be transformed. We will promote “challenging manufacturing” based on novel ideas and fulfill society’s latent needs.

Contribution to the Future and the World

The Oji Group comprises a diverse range of businesses. We have grown into a global corporate group, with an overseas sales ratio of over 30%. The Group will continue to provide innovative value to all countries, regions, and societies and create a new future through proactive global expansion in Asian and other countries.

Harmony with Nature and Society

Sustainable resource circulation based on forest resources is the foundation of the Oji Group. We will advance our initiatives such that the business activities themselves contribute to a sustainable society. The initiatives include using vast areas of company-owned forest in and outside Japan for multiple purposes and seeking measures to reduce the environmental burden at manufacturing sites.



Corporate Slogan

“Beyond the Boundaries”

This slogan expresses the Oji Group’s commitment to actively go beyond the “boundaries” of business domains, countries, and the respective capabilities of individual employees to contribute to the future, society, and the world, as well as the determination of all Group members to maximize corporate value as a truly global company.

Purpose

Grow and manage the sustainable forest,

Develop and deliver the products from renewable forest

And

Oji will bring this world a brighter future filled with hope

The forest grown and managed sustainably not only absorbs and fixes carbon dioxide, but also mitigates floods, cultivates water sources such as water purification and prevents natural disaster in addition to its contribution to biodiversity, healing and health enhancement of people.

The products derived from wood utilizing forest resources are made of renewable materials and able to substitute for plastic, films and fuel derived from fossil resources.

Oji Group will confront global warming and environmental issues, and bring this world a brighter future filled with hope by growing and managing the sustainable forest and by developing and delivering the products utilizing renewable forest resources.

Regarding the Issuance of Integrated Report 2023

We started publishing the Oji Group Integrated Report in 2019 to present financial and non-financial information concerning the Group in an easy-to-understand manner to all of our stakeholders. We would like to convey a narrative of value creation in which we aim, under the Long-term Vision for FY2030, to achieve a shift from growth to evolution and enhancement of corporate value through efforts on environmental issues, product development, and profit improvement.

The Oji Group has marked the 150th anniversary of its foundation. Through this Integrated Report, we will further deepen communication with our stakeholders and strive to make another leap forward in the next 150 years.

Editorial Policies

When preparing this Report, reference was made to the following.

- **The ten principles in four areas found in the United Nations Global Compact**
- **International Integrated Reporting Framework** (International Integrated Reporting Council)
- **GRI Standards** (Global Reporting Initiative)
- **Guidance for Collaborative Value Creation** (Ministry of Economy, Trade and Industry)
- **Task Force on Climate-related Financial Disclosures (TCFD)**

Ensuring Reliability

To ensure the reliability of this report, FY2022 figures marked with a star (★) have been assured in accordance with the International Standard for Assurance Engagements (ISAE) 3000 and ISAE 3410 by KPMG AZSA Sustainability Co., Ltd.

Scope of Coverage of this Report

In general, this report covers Oji Holdings, 196 consolidated subsidiaries, and 21 equity-method affiliates (as of March 31, 2023). In cases where coverage differs, this is indicated.

Reporting Period

The reporting period is from April 1, 2022 to March 31, 2023 (except for lost time injury frequency rate, and environmental data for certain overseas sites, for which the period is from January 1, 2022 to December 31, 2022). With the exception of numerical data, however, activities carried out from and after April 2023 are also referenced.

Disclaimer Regarding Forecasts and Other Forward-looking Statements

Forecasts and other forward-looking statements in this report represent projections by Oji Holdings based on information available at the time of publication and reasonable judgments and therefore contain uncertainties. Actual results may differ substantially due to various factors.

This Report is Printed on Forest Certified Paper

The report's cover is printed on Oji F-Text's OK Muse Gulliver Gloss CoC (157.0 g/m²), while the main body of the report is printed on Oji Paper's OK Pixeed 01 EF (80.0 g/m²). These products are made with raw materials from responsibly-managed FSC™-certified forests, renewable resources, and other managed supply sources (FSC™C005431, FSC™C014119).

Communication Map



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Cover Art: *Manatsu no Mori no Nigiwai [Liveliness of a Midsummer Forest]*

Hiroo Isono (1945-2013)

We commissioned Mr. Hiroo Isono, a master painter who worked with a lifelong theme of “forests of life,” to create 28 paintings using our Oji Forests in Japan and overseas as motifs. We used the paintings to publish the *Oji no Mori no Nakamatachi Calendar [Calendar of Friends in Oji Forest]* series for a period from FY1999 to FY2002.

The setting of this report's cover art, titled *Manatsu no Mori no Nigiwai [Liveliness of a Midsummer Forest]*, is a company-owned forest in Yonago City, Tottori Prefecture. It depicts the lively manner various animals spend a midsummer season in the forest, where a cool babbling sound of a brook is almost heard.

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History of the Oji Group's Value Creation

In February 2023, the Oji Group marked the 150th anniversary of its foundation. Since its founding in 1873, the Group has been growing through the expansion of business fields. While keeping abreast of the trends of the times, we have tackled changing social needs and evolved our business structure. In recent years, aiming for contribution to a sustainable society, we have been actively rolling out the technologies cultivated in our domestic business to the global market.

1 Period of Foundation 1873-1909

Birth of the Modern Paper Manufacturing Industry

The origin of the Oji Group dates back to the establishment of Shoshi Kaisha, a paper manufacturing company, advocated by Eiichi Shibusawa, the founder of the modern Japanese economy. Shoshi Kaisha was established in 1873, based on Shibusawa's belief that "paper and printing businesses are the source of civilization." This company would eventually become Oji Paper and would underpin the growth of industry throughout the whole of Japan.

Eiichi Shibusawa (from the collection of the Shibusawa Memorial Museum)



Main gate of Oji Paper Oji Mill (from the collection of the Paper Museum)

3 Period of Development 1946-1972

Efforts toward New Technologies

Amid Japan's post-War reconstruction, with a view to producing high-quality paper quickly and in large quantities, we turned to a continuous digester, which was unproven at that time but highly productive. We introduced the equipment at the Kasugai Mill. We also developed technology for removing ink from old newspaper, opening up major paths for the use of recovered paper.



#1 machine at Kasugai Mill



Kasugai Mill in the 1960s

2 Period of Establishment 1910-1945

Establishment of Domestic Supply Structure

To meet burgeoning demand for paper, we ventured to Hokkaido in search of the forests, water, and the vast land resources needed for paper manufacturing. We brought together the very best of technologies and opened the Tomakomai Mill. In doing so, we established a domestic supply structure for newsprint, breaking free from reliance on imports.



Tomakomai Mill (from the collection of the Paper Museum)



Hydroelectric power plant built at Waterfall Nassou on the shore of Lake Shikotsu

4 Period of Great Change 1973-1999

Paper Diversification and Response to Environment

The growing abundance of people's lives brought major changes in their lifestyles. Expectations of paper grew, and we developed new products, such as boxboard, thermal paper, and household paper, one after the other. We also began expanding globally in search of raw materials for paper manufacturing and new markets. On the other hand, we also placed efforts into countermeasures against pollution at our paper mills.



High-grade boxboard



Sales of toilet rolls, tissue paper, and paper towels began in the 1970s

5 Period of Restructuring 2000-

Shift in the Business Structure and Further Global Deployment

Paper production volume has been declining since 2008. Amid the contraction of the domestic market, we pressed ahead strongly with our overseas expansion, focusing on Southeast Asia. Our overseas sales ratio is now close to 40% (FY2022). Issues of a global scale, including global warming countermeasures and marine plastics, have emerged, and "breaking free from fossil materials" and "sustainability" have become key themes. Taking maximum advantage of the paper manufacturing technologies we have cultivated over our long history, in recent years, we have been focusing our efforts on the development of new materials derived from wood.



Bioethanol



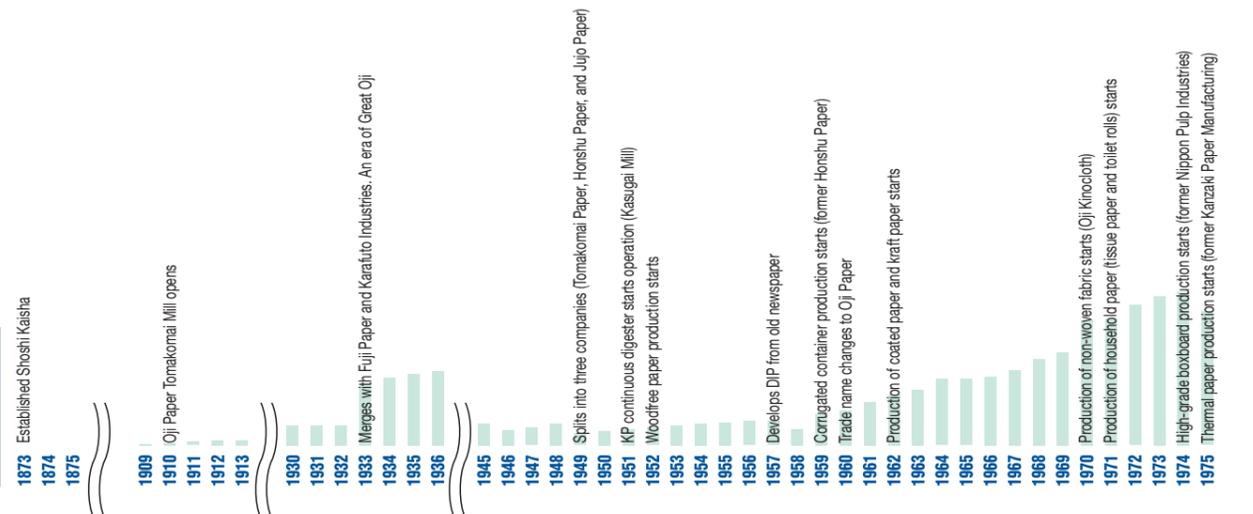
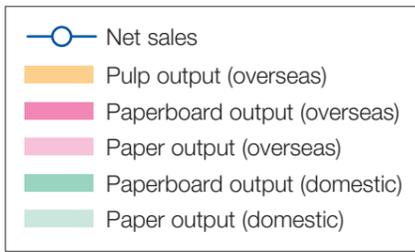
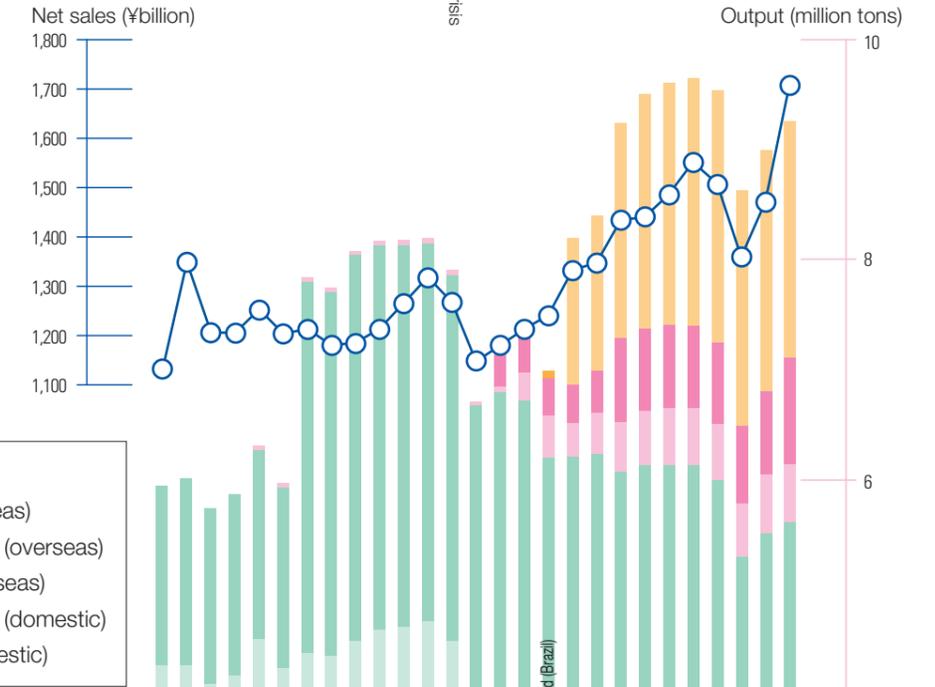
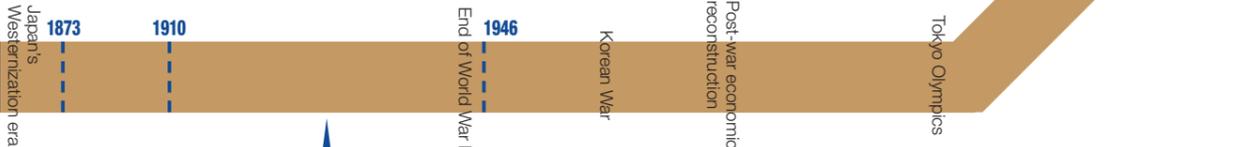
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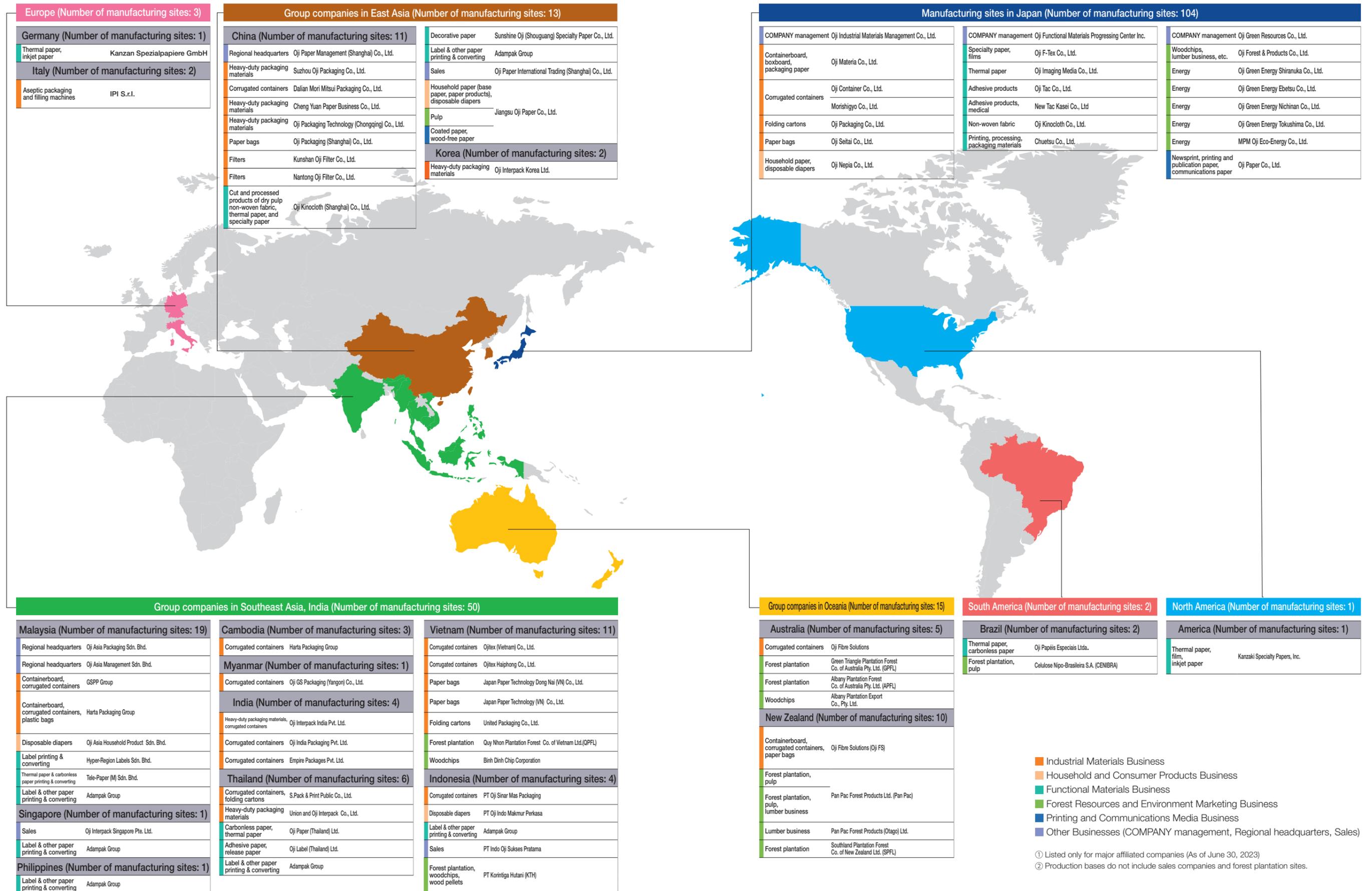
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Jiangsu Oji Paper Nantong Mill



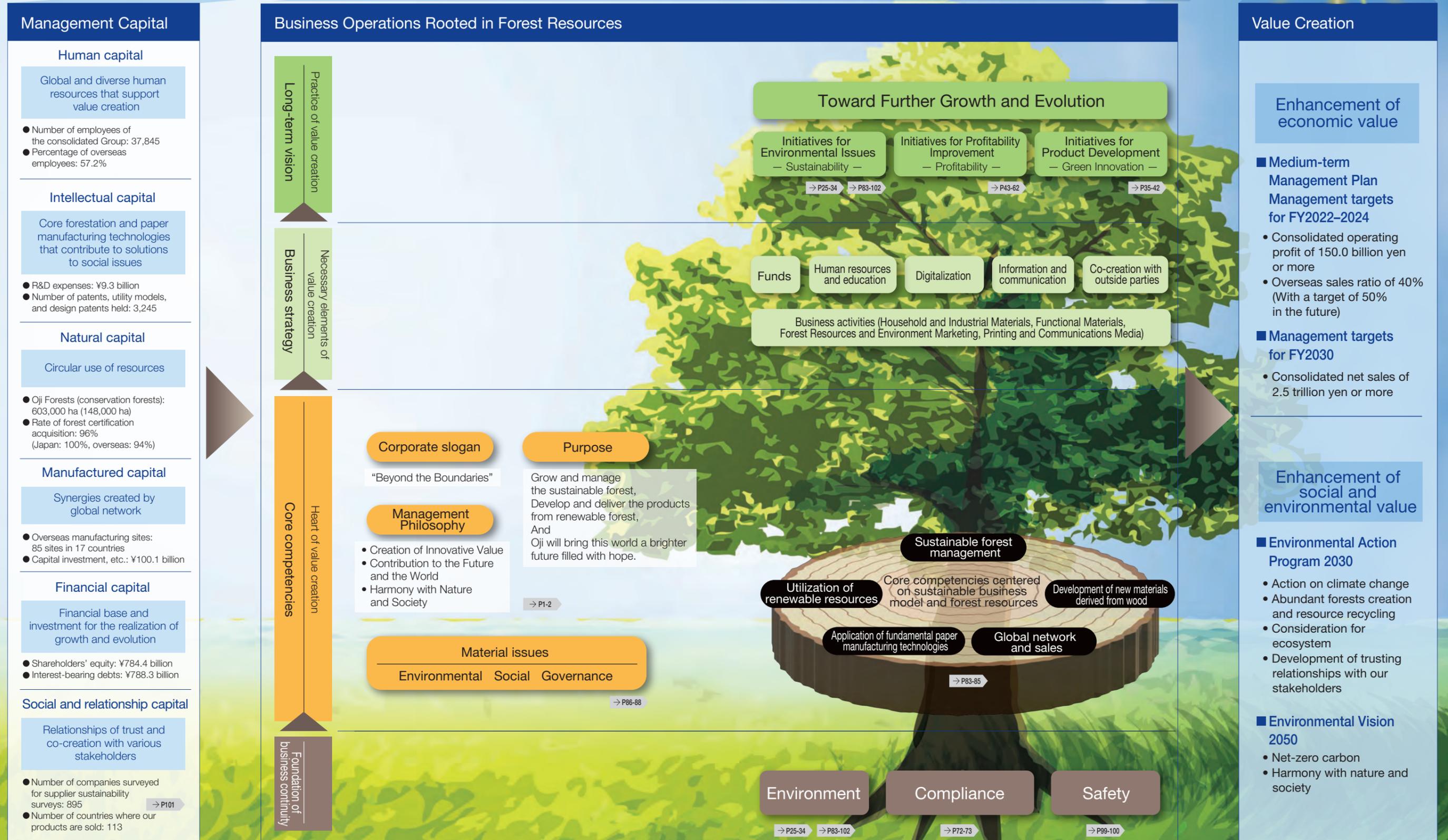
Major Affiliated Companies Distribution Map



Value Creation Process

The Oji Group conducts business operations that are rooted in forests, at the heart of which are our core competencies centered on our sustainable business model and forest resources. We will conduct business activities that reflect our Management Philosophy, Purpose, and material issues and take action on various measures based on our Long-term Vision while cultivating the necessary elements as appropriate. In addition to making a further leap "Toward Further Growth and Evolution," we will engage in value creation for the realization of a brighter future filled with hope.

Toward a brighter future filled with hope



Message from the President



“Growing Forests,
Utilizing Forests”
We Will Continue Our Untiring
Challenge for the Next 150 years.

Over the past 150 years, the Oji Group has traveled a path of repeated innovation to meet the needs of the times. Moving forward, we will strive to develop our business rooted in forest resources as we continue with our challenge of realizing a brighter future filled with hope.

Representative Director of the Board, President and
Group CEO, Oji Holdings Corporation

Hiroyuki Isono

On the 150th Anniversary of Oji's Foundation

The Oji Group has traveled a long road since Eiichi Shibusawa advocated the establishment of Shoshi Kaisha based on his belief that domestic production of modern paper was necessary for the development of Japan's cultural progress, in February 1873. In February this year, we turned 150 years old. A comparison of our early years with today shows the great progress that we have made in those 150 years. Annual production has increased about 50,000-fold, from approximately 200 tons in 1876 to around 10 million tons (including production of pulp for sale), and we now have some 37,000 employees, which is about 100 times more than the 374 of those early days. These achievements are, I believe, the fruit of the support and cooperation we have received over those many years from our stakeholders. They are also due to the tremendous efforts of our predecessors, which cannot be adequately described in words.

The Oji Group of today owes its very existence to the way in which Eiichi Shibusawa overcame the hardship of those initial years and carried through on his determination. In his memoirs, Shibusawa described the complications and struggles they faced in getting the business up and running after the equipment had been installed and the construction of the mill had been completed in June 1875.

“When we attempted to make paper, the machines would move, but sheets were keep breaking. Hardly any paper was produced. A few months later, in August or September, we were finally able to produce paper continuously, but that paper was thick and coarse, and the company's losses snowballed. I have no doubt that anyone who witnessed that state of affairs would have thought that there could be no hope for the company's prospects. However, ... though the business may have been small, we were almost the first company to start up a manufacturing business in Japan by importing machinery and even employing technicians from overseas. If, by some misfortune, this company were to fail, ... it would surely deal a major blow to the future advancement of Japan's manufacturing industry. If, just as Japan was importing European culture and attempting to start up commerce and manufacturing in a significant way, Shoshi Kaisha, tasked as the pioneer of that movement, were to falter, it would be many years before Japan would venture into the manufacture of machinery. No matter the anguish and complications, there was no way that we could stop the business once it had been announced and underway. I was not willing to give up partway through the job that I had set my heart on achieving. I wanted to carry through, no matter what. Even as the losses accumulated before our eyes, we still had machinery. We also had raw materials. Our product was undoubtedly one for which demand

Message from the President

continued to grow day by day. And so, collecting our minds and dedicating ourselves to our goal, in October, we were able to produce white paper, and by December, we were even able to attempt making newsprint. Then, on December 16, 1875, we proceeded to hold a ceremony to mark the opening of our business.”

The importance of not quitting easily and of “carrying through” with strong determination is something that we will continue to pass on.

To give an overview of the current state of the Oji Group, I have already mentioned our production volumes and the size of our workforce, but it is not only in terms of scale that we have expanded. The nature of our business and the regions in which we operate have also changed and expanded greatly with the times. The nature of our

Net sales	¥1,706.6 billion (of which, overseas net sales:37.6%)
Operating profit	¥84.8 billion
Number of employees	37,845 (of which, overseas employees:21,653)
Number of consolidated subsidiaries	196 (of which, overseas companies:104)

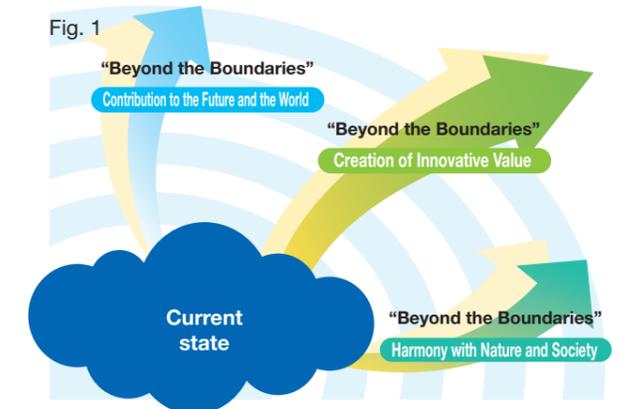
business began with the Printing and Communications Media Business, which includes paper for books and newspaper. Today, we have expanded into the Household and Industrial Materials Businesses, which includes packaging materials, household paper, and disposable diapers, the Functional Materials Business, which includes specialty papers, thermal paper, adhesive products, and film, and the Forest Resources and Environment Marketing Business, which includes the maintenance and management of our forest plantations and the manufacture and sale of pulp and renewable energy. In the years ahead, we will continue to apply the core forestation and paper manufacturing technologies that we have cultivated over many years to the creation of new value that will solve social issues. Today, supporting the lives of our customers all over the world and addressing environmental issues of a global scale have become major themes for the Group. In terms of the regions in which we operate, our major manufacturing sites are now found in 17 countries around the world, and over half of our total workforce are of nationalities other than Japanese. Most recently, overseas companies that we have welcomed into the Oji Group include the Adampak

Group, which prints and converts advanced-function labels in Southeast Asia and China, in September 2022, and IPI S.r.l., which manufactures and sells processed paper for aseptic liquid packaging cartons and filling machines in Italy, in May 2023. We have great expectations of the outstanding sales management methods of the Adampak Group. IPI S.r.l. brings to the Oji Group a sales network that spans not only Europe but also Africa and Latin America. Our 150 year history is a history of adaptation and transformation. There are many things that we can learn from our new members and many things that their joining us will make possible. For this reason, we will actively strive for interaction among our various businesses, both in Japan and overseas, to elevate the comprehensive capabilities of the Oji Group as a more global enterprise.

**Toward the Next 150 Years—
Long-term Vision**

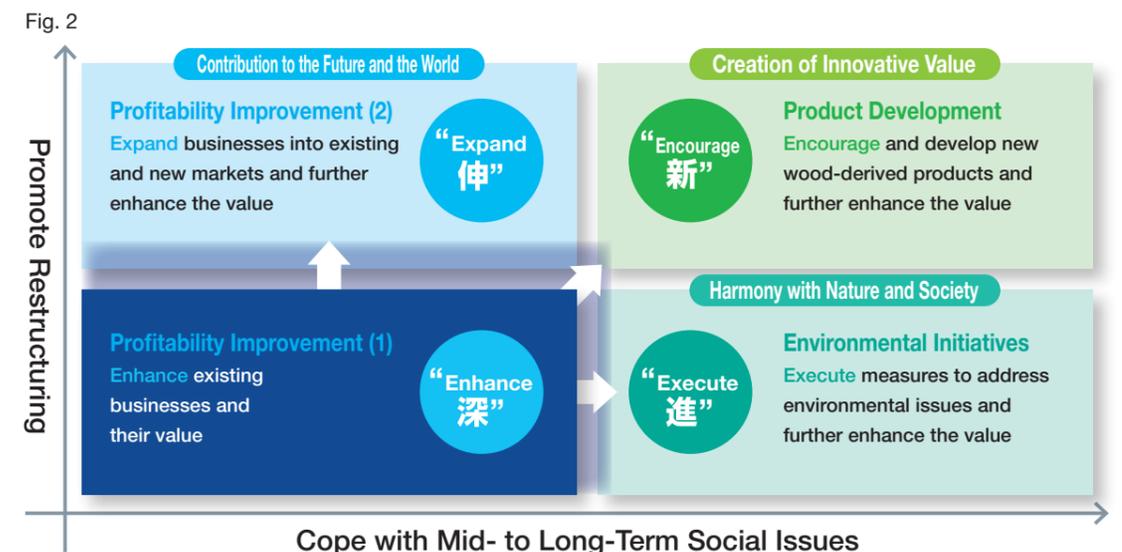
In discussing our steps toward our next 150 years, we will consider how we can create social, environmental, and economic value to accomplish a further leap forward. It will not be enough to continue activities that are merely an extension of what we are doing today. Last year, we formulated our Long-term Vision for looking to the future and demonstrating “true value” as a company.

The Oji Group’s corporate slogan of “Beyond the Boundaries” expresses our strong commitment to go beyond the boundaries of business domains, countries, and the respective capabilities of individual employees to contribute to the future, society, and the world as a truly global company. With this approach, we will aim toward the three directions of “Contribution to the Future and the World,” “Harmony with Nature and Society,” and “Creation of Innovative Value” declared in our Management



Philosophy (Fig.1). To put this another way, through our active global expansion, we will support the lives of our stakeholders around the world, develop initiatives to contribute to a sustainable society, and continue our innovative manufacturing to meet the latent and manifest needs of the times. Our Long-term Vision for FY2030 is a clear expression of our concrete strategies to achieve this.

In the Long-term Vision, we have set a central theme of “Toward Further Growth and Evolution.” To use the analogy of a living creature, “growth” refers to new life growing and becoming larger, but beyond that lies deterioration and, eventually, the end of that life. It is the same for companies. The business environment is constantly changing, and there is no market that will continue to expand forever. If a company continues to chase growth in the same business category, it will eventually reach its limit. That is where “evolution” comes in. Just as living creatures evolve into new species and adapt to the environment through gradual change over many generations, companies must also change and improve their capabilities themselves and advance into new fields to suit the times. Without “evolution,” there will be no “next 150 years” for the Oji Group.



Message from the President

Under this theme of “Toward Further Growth and Evolution,” we will promote our three basic policies of “Initiatives for Profitability Improvement,” “Initiatives for Environmental Issues,” and “Initiatives for Product Development.” The matrix below indicates the relationship between the three elements of the Management Philosophy and these three basic policies (Fig.2). The first basic policy, “Initiatives for Profitability Improvement,” has two parts: increasing **value** by **enhancing** businesses and increasing **value** by **expanding** businesses. This refers to strengthening our profit base by reducing costs and improving productivity in our existing businesses, while venturing into new markets by improving products and services, expanding capacity, and undertaking M&As, to expand sales and market share. I will now give an overview of some specific businesses.

First, in the printing and communications paper business, unfortunately, paper’s function of “communicating information” is being replaced by digital media, which means a fall in demand and a further contraction of the market in the years ahead. To build business foundations that are capable of withstanding the turbulent changes in the demand structure, in addition to cost reductions, we will reorganize our production facilities making full use of existing infrastructure, and at the same time, we will look closely at the circumstances and explore further responses. In the corrugated container business, we are proceeding with the expansion of facilities and sales in the greater Tokyo area, where demand is particularly strong, and in Southeast Asian countries, where demand is growing in proportion with their economic growth. In line with this, we will work steadily to distinguish ourselves from our competitors by building integrated materials and processing systems and leveraging inter-site synergies to raise our competitiveness in terms of quality, service, and cost, as well as by offering environmentally-friendly products rooted in the individual locations. The same applies to the Functional Materials Business. In South America and Europe, to accommodate brisk demand, we are undertaking construction work to expand production of thermal paper. At the same time, in Southeast Asia, we are working to strengthen our competitiveness, including

in the thermal paper and printing and converting in label businesses. The entry of the Adampak Group into the Oji Group is one example of this. We will strengthen downstream businesses and their cooperation between upstream businesses and establish systems that will enable us to correctly identify customers’ needs and immediately deliver what they need. In the household paper business, we will strive for the further improvement of value of “nepia” products. In addition to being the first in our industry to obtain FSC™ certificates, we have changed from film to paper for packaging and adopted biomass film and ink. In this way, environmental response will become a key theme in this business. In order to act in environmentally-friendly ways that also involve our customers, we will strive for the popularization and penetration of the kind of environmental products that only we can offer. In the pulp business, sales volumes are limited by the production capacity of our mills, and prices change according to market conditions. For these reasons, we will pursue cost reductions and production efficiency improvements, which will be key to increasing our cost competitiveness. Securing forest plantation sites and their sound maintenance and management, as well as securing forest resources at appropriate costs in the pulp business and other businesses will become extremely important going forward.

The second basic policy, “Initiatives for Environmental Issues,” involves increasing the **value** of the Oji Group by **executing** measures to address environmental issues and contributing to sustainability. We will execute the initiatives for our Environmental Vision 2050 formulated in September 2020 with the aim of achieving net-zero carbon by 2050, as well as our Environmental Action Program 2030 which serve as milestones toward the realization of that vision. In the Environmental Action Program 2030, to reduce greenhouse gas emissions by 70% or more (compared with FY2018) by FY2030 as a response to climate change issues, we are undertaking a review of our energy mix, including shutting down coal-fired boilers, and expanding the net increment in carbon stocks by expanding the land area of our overseas forest plantations.

The third basic policy, “Initiatives for Product Development,” involves increasing **value** by **encouraging** and developing new products and materials. It means leveraging our core forestation and paper manufacturing technologies and our renewable forest resources to develop the Oji Group’s next core products and materials. This is a key element of our advance into new domains in our goal of “Toward Further Growth and Evolution,” and we will pursue it without delay.

Even if we achieve a society that has adapted to environmental issues in 20 to 30 years’ time as a result of our “Initiatives for Environmental Issues,” I believe that we will always need to enhance our businesses, that is, reduce costs and improve productivity, and expand them, that is,



advance into new markets and expand sales, including the continued development of new products and materials (Fig.3). So, where will we be once we have enhanced and expanded our businesses rooted in forest resources? I believe that this question has much in common with the question of what purpose society seeks from the Oji Group. Last year, we announced our Purpose, codifying it as “Grow and manage the sustainable forest, develop and deliver the products from renewable forest, and Oji will bring this world a brighter future filled with hope.” As part of our 150th anniversary commemorations, we held a conversation with Mr. Ken Shibusawa, the 5th grandson of Eiichi Shibusawa. At that time, an employee posed the question, “If Eiichi Shibusawa were alive today, what kind of dream do you think he would talk about?” If Eiichi Shibusawa, who moved the times forward by advocating the establishment of Shoshi Kaisha 150 years ago for the advancement of Japan’s cultural progress, were alive today, I feel that he would talk about wanting to move the times forward to bring the world a brighter future filled with hope. How will the Oji Group face up to global warming and environment issues, and how will we utilize our renewable forest resources to contribute to the building of a sustainable society? I feel as though Eiichi Shibu-

sawa would be asking us about our determination to achieve those things.

**Toward the Next 150 Years—
Core Competencies and Necessary
Elements**

I believe that the driver for the Oji Group’s value creation will be our core competencies centered on our sustainable business model and forest resources that we have cultivated over our 150 year history, namely sustainable forest management, utilization of renewable resources, development of new materials derived from wood, application of fundamental paper manufacturing technologies, and global network and sales. In addition, the following five elements will be crucial to promoting our businesses toward the next 150 years. They are funds, human resources and education, digitalization, information and communication, and co-creation with outside parties.

First, regarding funds, without sufficient funds, we will not be able to make the necessary investments. In our FY2022–2024 Medium-term Management Plan, with the

Fig. 3



Message from the President

assumption that we will maintain a net D/E ratio of 0.7 times and anticipating three-year cash flows of 600.0 billion yen, we formulated a plan to allocate 400.0 billion yen to strategic investments, excluding dividends and upkeep CAPEX. We must constantly think about the development of a profit base that will continue to generate cash flows and about the most effective use of cash flows.

Human resources and education are also extremely important. The source of our value creation is always our people, and we must work hard on initiatives that encourage them to demonstrate diversity and individuality and that will cultivate and secure appropriate capabilities to suit the business environment. In Japan, corporate spending on skills development as a percentage of GDP is extremely low compared with other countries. While some may believe that on-the-job training (OJT) is sufficient, OJT functions effectively only when the market is growing constantly and the company is able to continue in the same industry. In fact, there are very few markets that grow organically, and such expansion has become more staggered. For this reason, the expansion of skills development opportunities in line with the changes in the times, such as sales, technology, languages, and DX, is essential.

The next is digitalization. I must admit that, until quite recently, I believed that the extent to which digital technologies would be of use in our industry was limited. However, when we look at the recent advances in generative AI that are changing the world with astonishing momentum, it is clear that the possibilities of DX have expanded significantly. A gap will naturally grow between those companies that do (or can) take advantage of those possibilities and those that do not (or cannot). What kinds of changes will our Group be able to achieve, including in ensuring safety, improving production and operational efficiency, and the use of digital technologies in PR activities? The time has come in which we must give serious thought to this question, starting by changing our awareness and trying out different things.

Meanwhile, people may ask if such progress in digitalization will lead to the swift exchange of useful information, but this will not necessarily be the case. In terms of information and communication, individual awareness and organizational culture will be crucial. Whether or not we are able to properly manage information, including market trends and production and sales information, and use that information in our business operations will be a significant factor that will influence the speed of our corporate growth and our ability to evolve. The appropriate flow within the organization of information that has immediacy and certainty. The development of a free and open workplace culture. We will thoroughly instill an awareness of these two imperatives in all officers and employees, further promote effective sharing of information to demon-

strate synergies within the individual business companies and among the Oji Group's various locations in Japan and overseas, and enhance our comprehensive strengths.

The fifth necessary element is co-creation with outside parties. Today is not an age in which we can do everything we want to do by ourselves. To break free of the current circumstances and stride purposefully in the direction of "evolution," we will promote co-creation with outside parties that have different specializations and characteristics from our own. To bring this world a brighter future filled with hope, we will steadily improve these five elements, in addition to our core competencies and work toward our Long-term Vision.

Our Top Priorities of Compliance, Safety, and Environment

I will now discuss the three matters of compliance, safety, and environment, which are the foundations of our business continuity and should be seen as the absolute priorities of the Oji Group for the achievement of further growth and evolution. Firstly, in regard to compliance, if we are to be needed and recognized by society, it is essential that every person who belongs to the Oji Group address the demands of society with sincerity. We will thoroughly instill in all our officers and employees sound common sense, the sensibilities to immorality, and the courage to take action, and we will strongly encourage free and open exchanges of opinions. Regarding safety, we recognized that the protection of the lives and physical and mental health of the valued people who work in the Oji Group is the duty of every person in a management and supervisory position, including our officers. We will devote our utmost efforts to instilling an awareness of strict compliance with the rules and to developing systems for the realization of zero accidents and injuries. Regarding the environment, we will comply with laws and regulations and strengthen our sustainable business operations rooted in forest resources without causing environmental accidents. Compliance, safety, and environment influence the very existence of the Oji Group. No matter how many billions of yen in profit we may generate, if we are unable to uphold these three priorities, we will have no worth as a corporation. We will share that awareness among the entire Group.

So the Plum Blossoms Will Continue to Bloom

Finally, I would like to present the "Final Thoughts" section of Eiichi Shibusawa's memoirs of 1914, in which he talks about the paper manufacturing business.

"The paper manufacturing business is a business that will

advance and promote cultural progress, and its impact on general society is immense. However, while there are several large businesses among the various manufacturing industries that have developed in recent years, the size of paper manufacturing companies must be described as small in comparison. Nevertheless, among the industries described as Japanese manufacturers, I believe that it is none other than Oji Paper that should be described as the origin of the machine industry in Japan. To give an analogy, in the spring, there are hundreds of different flowers that bloom in competition with each other. And as truly bright and beautiful they all may be, the harbinger of all those flowers is the humble plum blossom. The plum blossom may not be the most beautiful flower, but even amid the cold of early spring, it starts to bloom undaunted, and even the cherry blossom and the tree peony are no match for its wonderful fragrance. It is an incontestable fact that Oji Paper may occupy that po-

sition of the plum blossom among those flowers. I pray in earnest that, as the pioneer of the manufacturing industry in Japan, as the plum blossom that is the harbinger of the spring flowers, it will continue, in both name and deed, to prosper as an essential business for many years to come."

These are the final, concluding words of his memoirs. And so, carrying on those intentions, we have marked our 150th anniversary. Just like the plum blossoms that bloom first as the harsh winter recedes and the signs of spring appear, we will devote our efforts to ensure that we will prosper for the next 150 years as a company that is needed and that continues to create new value. I ask from the heart that all of our stakeholders will continue to extend their support to the Oji Group.



Long-term Vision & Medium-term Management Plan

The core of the Oji Group's business is forests. The appropriate cultivation and management of forests not only produce renewable forest resources; they also help to enhance the multifunctional role of forests. In addition, at the same time as supporting and enriching the lives of people around the world, we are also able to replace fossil resource-derived materials and products through products that utilize forest resources. We believe that our purpose is to leverage these characteristics to respond to such environmental issues as global warming and biodiversity conservation. Reflecting our Management Philosophy and Purpose, the Oji Group has formulated and is implementing the Long-term Vision for 2030 and the FY2022–2024 Medium-term Management Plan as a roadmap for enhancing corporate value, achieving sustainable growth amid societal changes, and realizing our long-term goals.

Long-term Vision



Targets We Aim to Achieve in FY2030

To Achieve Environmental Action Program 2030

In our Environmental Action Program 2030, we set a target of reducing our greenhouse gas (GHG) emissions by at least 70% in FY2030 compared to FY2018 levels, as a milestone for our target of net-zero carbon in 2050 per our Environmental Vision 2050. By FY2030, we plan to invest 100.0 billion yen into the reduction of emissions and 100.0 billion yen into increasing the net increment in carbon stocks by forests, for a total investment of 200.0 billion yen.

In addition to realizing carbon neutrality, the Oji Group will also fully engage in a wide range of initiatives as outlined in our Environmental Action Program 2030.

Environmental Action Program 2030

- | | |
|--|--|
| 1 Action on Climate Change <ul style="list-style-type: none"> Reduce greenhouse gas (GHG) emissions by at least 70% compared to FY2018 | 3 Consideration for Ecosystem <ul style="list-style-type: none"> Challenge for zero environmental impact Biodiversity conservation |
| 2 Abundant Forests Creation and Resource Recycling <ul style="list-style-type: none"> Sustainable forest management (forest recycling) Resource recycling (paper and water recycling) | 4 Development of Trusting Relationships with Our Stakeholders <ul style="list-style-type: none"> Responsible raw materials procurement and manufacturing Expansion of products that contribute to a decarbonized society Zero environmental accidents and zero product liability accidents |

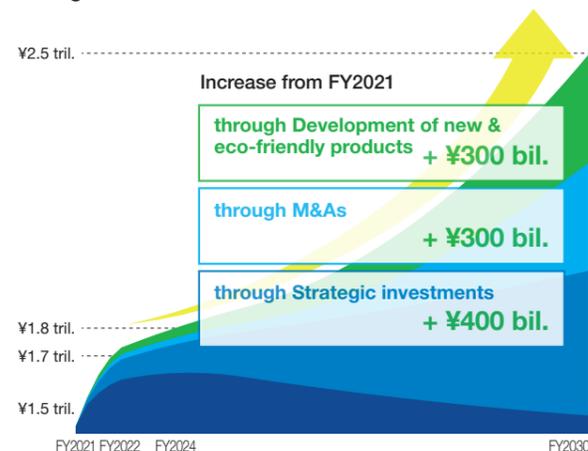
Environmental Action Program 2030 → <https://ojiholdings.disclosure.site/en/themes/150/>

Consolidated Net Sales of 2.5 Trillion Yen or More

Based on our FY2021 results, we will strive to increase our consolidated net sales target for FY2030 by over 1 trillion yen to 2.5 trillion yen or more.

Amid an anticipated contraction in demand for a portion of our products, we will improve our profit ratio through such means as cost reductions and operational improvements. However, our goals go beyond that. In order to achieve further growth and evolution as the Group, we will expand existing promising businesses through strategic investment and M&As. At the same time, we will focus our efforts on developing, commercializing, and expanding the sale of new and eco-friendly products. Further, through this process, we will aim to transform our portfolio into one which meets the demands of the times.

Changes in Consolidated Net Sales



Basic Policy of "Toward Further Growth and Evolution" to Achieve FY2030 Targets

1 Initiatives for Environmental Issues—Sustainability—

→ P25–34, 83–102

2 Initiatives for Profitability Improvement—Profitability—

→ P43–62

Household and Industrial Materials Businesses

Sales target for FY2030
¥1,250.0 billion

Business Strategy

Industrial Materials Business

- Further expand & enhance packaging business in Southeast Asia, India & Oceania
- Expand & enhance corrugated container business in Greater Tokyo area, Japan

Household and Consumer Products Business

- Enhance branding & expand sales of household paper products in Japan
- Expand & enhance overseas disposable diaper business

Within our Industrial Materials Business, demand for our corrugated container business remains robust. We aim to further expand and strengthen this business through M&As and new plant construction and, at the same time, by promoting restructuring of production systems and the integration from base paper manufacturing to product processing. We will also be focusing our efforts on expanding our liquid packaging carton and filter businesses. In our Household and Consumer Products Business, we will expand our market share of our domestic household paper business through enhancing our brand value, and expand and strengthen our disposable diaper business overseas.



Tochigi Plant, Oji Container



Autumn 2023 Revamped packaging to make environmental considerations more visible

Functional Materials Business

Sales target for FY2030
¥400.0 billion

Business Strategy

- Actively develop high-function and eco-friendly products
- Expand global sales of imaging media business and enhance competitiveness including printing and converting

We aim to expand profitability by expanding sales of thin capacitor films for electric vehicles and other high-function and eco-friendly products; and by expanding our imaging media business, which is experiencing strong demand, through means such as construction to expand production capacity.



Aident Corporation in Malaysia, a subsidiary of Adampak Group

Forest Resources and Environment Marketing Business

Sales target for FY2030
¥600.0 billion

Business Strategy

- Expand & enhance pulp business as a "comprehensive pulp manufacturer"
- Expand renewable energy and other energy businesses
- Expand lumber processing business

In addition to expanding and strengthening our global pulp business, we will focus our efforts on expanding other businesses which leverage forest resources such as our biomass power generation and lumber processing businesses.



Pan Pac Mill (New Zealand)

Printing and Communications Media Business

Sales forecast for FY2030
¥150.0 billion

Business Strategy

- Restructure production system and enhance competitiveness through collaboration with other Group segments by maximizing the use of assets owned

We will strive for the optimum production system restructuring for the Group as a whole by assessing demand trends and continuing to implement thorough cost reduction and, at the same time, by effectively utilizing owned assets such as pulp manufacturing facilities.



The #L-1 machine (for containerboard) at the Oji Paper Tomakomai Mill

3 Initiatives for Product Development—Green Innovation—

→ P35–42

Long-term Vision & Medium-term Management Plan

Overview of FY2022–2024 Medium-term Management Plan

In the FY2022–2024 Medium-term Management Plan, we have set numerical management targets to serve as milestones on the way to achieving our Long-term Vision for 2030. Under the basic policy of “Toward Further Growth and Evolution,” we will steadily execute “Initiatives for Product Development,” “Initiatives for Profitability Improvement,” and “Initiatives for Environmental Issues” in a timely manner and strive for the enhancement of corporate value by achieving those numerical management targets.

Numerical Management Targets for FY2024	
Consolidated operating profit	150.0 billion yen or more
Profit attributable to owners of parent	100.0 billion yen or more (Continue stable profit of 100.0 billion yen or more)
Overseas sales ratio	40% (With a target of 50% in the future)
Net D/E ratio	0.7 times maintained (End of March 2022: 0.7 times)

Key Initiatives

- In response to the increasing importance of addressing environmental issues, implement our Environmental Vision 2050 and Environmental Action Program 2030 action plans.
- Make effective use of own facilities, promote further production system restructuring.
- Implement strategic investments and M&As, etc. in order to further expand promising businesses in Japan and overseas businesses.
- In addition to developing new materials and products, accelerate rapid commercialization initiatives with regard to our green innovation themes: “Development of new materials derived from wood,” “challenge to the medical and healthcare field,” and “development of eco-friendly paper materials.”

FY2022 Results and FY2023 Priority Measures

- Industrial Materials Business ● Household and Consumer Products Business ● Functional Materials Business
- Forest Resources and Environment Marketing Business ● Printing and Communications Media Business ● Research and development, others

Initiatives for Profitability Improvement—Profitability—

Main FY2022 Results	
● April	Started operation of paperboard machine relocated from Oji Materia's Nayoro Mill to Oji Paper's Tomakomai Mill
● July	Started operation of ninth corrugated container plant in Malaysia
● August	Started operation of sixth corrugated container plant in Vietnam
● September	Acquired Adampak Group, a high-performance label printing and converting company with business bases in Southeast Asia and China
● January	Started operation of tenth corrugated container plant in Malaysia
● February	Relocated Oji Container's Utsunomiya Plant and started operation as Tochigi Plant

Main FY2023 Priority Measures [†] Timings of future measures are scheduled timings	
● May	Acquire IPI, a company that operates liquid packaging carton business in Italy
● July	Increase ultrathin OPP film machine at Oji F-Tex Shiga Mill and start operation
● September	Start operation of seventh corrugated container plant in Vietnam
● January	Start operation of filter production plant in Japan
● January	Expand thermal paper production facilities in Germany

Pick Up

●●● **Business Expansion through Company Acquisitions and Plant Construction**
As one of our key initiatives, we are proceeding with the expansion of our business through such means as strategic investments and M&As.

● **Film Business: Expansion of Production Facilities**
To meet the rapid expansion of demand for capacitor films for electric vehicles, we will expand our production facilities in 2023 and 2024.



IPI Head Office in Italy



Tenth corrugated container plant in Malaysia



New film machine building at Oji F-Tex Shiga Mill

Initiatives for Environmental Issues—Sustainability—

Main FY2022 Results	
● June	Acquired forest plantation (Roundhill, New Zealand) Acquired forest plantation (Shiranuka, Hokkaido)
● August	Built new Edogawa Warehouse at Oji Nepia, with electricity supplied by solar power generation
● September	Acquired forest plantation (Invercargill, New Zealand)
● October	Acquired forest plantation (Kuromatsunai, Hokkaido)
● November	Made PT Korintiga Hutani, a forestry company in Indonesia, a consolidated subsidiary

● **December** Started operation of biomass power plant in Tokushima Prefecture in a joint venture with ITOCHU ENEX

Main FY2023 Priority Measures [†]Timings of future measures are scheduled timings

● **May** Shut down coal-fired boiler at Oji F-Tex Ebetsu Mill
● **September** Start operation of solar power generation facility at Tochigi Plant, Oji Container

Pick Up

● **Expansion of Forest Plantations in Japan and Overseas**
As one of our initiatives toward the achievement of the Environmental Action Program 2030, we are expanding our forest plantations in Japan and overseas to increase the net increment in carbon stocks.

●● **Operation of Solar Power Generation Facilities**
We continue to engage in the establishment of solar power generation facilities and other measures to promote the use of renewable energy.



Shiranuka, Hokkaido



Pan Pac Roundhill on New Zealand's North Island (plans to convert grazing land to forest plantation)



Solar panels at Edogawa Warehouse, Oji Nepia

Initiatives for Product Development—Green Innovation—

Main FY2022 Results	
● April	Developed laminated paper using plant-derived polylactic acid
● May	Packaging material made with SILBIO BARRIER, a paper material with barrier properties, adopted for coffee packaging by Nakabayashi
● July	Developed eco-friendly paper cup base
● October	Started sales of cell culture substrate, “CellArray” Developed cellulose nanofiber and natural rubber composites
● December	Developed eco-friendly anti-heat windshield film
● February	Developed cellulose polymer pellets

Main FY2023 Priority Measures [†]Timings of future measures are scheduled timings

● **May** Invest in venture capital fund specializing in materials and scientific fields
● **January** Start operation of bench plant for polymerization of wood-derived lactic acid inside Edogawa Mill

Pick Up

● **Development of Eco-Friendly Products**
Making full use of the technologies we have built up over 150 years, we are developing a wide variety of products aimed at solutions to environmental issues.



Recyclable aqueous coated paper cup base



Laminated paper using plant-derived polylactic acid



Eco-friendly anti-heat windshield film

● **Demonstration Manufacturing of Wood-derived Plastics**
Aiming to popularize biomass plastics derived from inedible materials, we will demonstrate the manufacture of polylactic acid made with pulp.



Wood-derived biomass plastic (polylactic acid)

Group Financial Strategies to Achieve the Long-term Vision toward the Realization of Our Purpose

Oji Holdings Corporation
Director of the Board,
Senior Executive Officer **Kazuhiko Kamada**



Review of the First Year of the Medium-term Management Plan and Future Strategies

Management Numbers

In FY2022, the first year of the FY2022–2024 Medium-term Management Plan, earnings fell due to the significant impact of cost increases, such as soaring fuel and raw material prices, rising transportation costs and rising commodity prices, as well as delays in passing those cost increases on to our product prices. In addition, the net D/E ratio rose to 0.8 times because of the increase in working capital in response to those soaring fuel and raw material prices.

	FY2022 Results	FY2023 Forecasts	FY2024 Targets
Consolidated operating profit (¥billion)	84.8	100.0	150.0
Profit attributable to owners of parent (¥billion)	56.5	65.0	100.0
Overseas sales ratio	37.6%	33.0%	40.0%
Net D/E ratio	0.8	0.7	0.7

In FY2023, the overseas business is facing a severe situation, with earnings plummeting due to the worldwide stagnation in movement of goods and the decline in the pulp market. Nevertheless, we plan to achieve a year-on-year in-

crease in profits with consolidated operating profit of 100.0 billion yen and profit attributable to owners of parent of 65.0 billion yen through continuous cost reduction and steady realization of the effects of price adjustments in the domestic business. In this second year of the Medium-term Management Plan, amid an unclear and uncertain global situation, we aim to achieve our numerical management targets for FY2024 by implementing, without delay, various measures based on the basic policies of our Long-term Vision and Medium-term Management Plan, namely “Initiatives for Profitability Improvement,” “Initiatives for Environmental Issues,” and “Initiatives for Product Development”.

Capital Allocation

In the Medium-term Management Plan, we plan to execute strategic investments worth 400.0 billion yen over three years, while maintaining a net D/E ratio of 0.7 times. In FY2022, although cash inflow fell short of initial expectations due to the slump in earnings and increase in working capital, we made the necessary investments, including expansion of corrugated container production bases and installation of new film facilities in Japan, and the construction of new corrugated container plants in Southeast Asia and expansion of forest plantations overseas. For the remaining

two years of the plan, we will also continue to accelerate investments in promising businesses, such as strengthening and expanding existing businesses through the construction of new facilities and plants and M&As, and creating core businesses through the development of new materials and products, in addition to environmental investments to achieve the Environmental Action Program 2030, while taking appropriate risks in consideration of the balance with financial soundness. In particular, we will focus on initiatives for environmental issues and product development from a long-term perspective, taking into account their future potential as well as being conscious of responses to social issues, even though short-term investment effects may not be expected in some aspects.

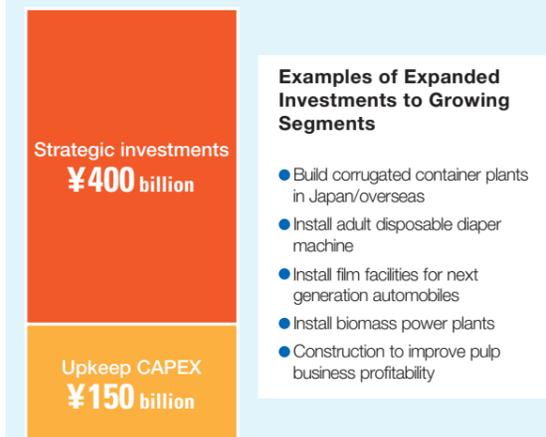
sides of achieving our targets “the reduction of GHG emissions” by improving energy efficiency and increasing our usage rate of renewable energy and “the increase in the net increment in carbon stocks by forests” by expanding our forest plantations, and we plan to invest 100.0 billion yen each into these two areas by FY2030, for a total investment of 200.0 billion yen.

We are also actively working to contribute to the reduction of GHG emissions by other parties through the supply of renewable power, including biomass power generation and hydroelectric power generation.

To accelerate these efforts through the use of financing from green bonds and green loans, we formulated a Green Financing Framework in January 2023.

Funds procured through green bonds and green loans will be allocated to investment in the following eligible green projects.

FY2022–2024 Investment Plan



Project Category	Eligible Projects
Renewable Energy	Capital and operating expenditures relating to the following renewable energy projects <ul style="list-style-type: none"> ● Biomass (power generation, heat supply) ● Solar energy ● Hydropower energy ● Onshore wind energy
Sustainable Forest Management	● Capital and operating expenditures relating to acquisition and conservation of production forests and conservation forests

¹Please refer to the Green Financing Framework page for details.
<https://investor.ojiholdings.co.jp/en/ir/greenfinance.html>

Involvement in Stakeholder Engagement

In accordance with the provisions of the Oji Group Corporate Code of Conduct, we will respect the diverse positions of our stakeholders and build relationships of trust with them by pursuing our corporate activities based on awareness of our responsibilities as a corporate citizen and on high ethical principles appropriate for an organization that enjoys the trust of society.

In addition, as expressed in our Purpose that we formulated in May 2022, we will walk alongside all our stakeholders to bring this world a brighter future filled with hope.

For example, in addition to proactively sharing and disclosing financial and non-financial information to shareholders and investors, we strive to achieve mutual understanding and build relationships of trust through engagement and interviews.

We also maintain relationships with local communities with an emphasis on trust, by providing appropriate information about our corporate activities, actively participating in local activities such as groundwork, and striving to communicate with sincerity.

We will continue to build relationships of trust and walk alongside all our stakeholders going forward.

With regard to returns to shareholders, it is our fundamental policy to maintain stable dividends while at the same time giving consideration to internal reserves in order to prepare for future management measures. In FY2022, we have decided to pay an ordinary dividend of 16 yen per share, an increase of 2 yen over the previous fiscal year. We will also continue the well-received shareholder benefits program that we introduced in FY2021.

Financial Strategies to Achieve Harmony with Nature and Society

Group Financial Strategy in FY2023 and Beyond

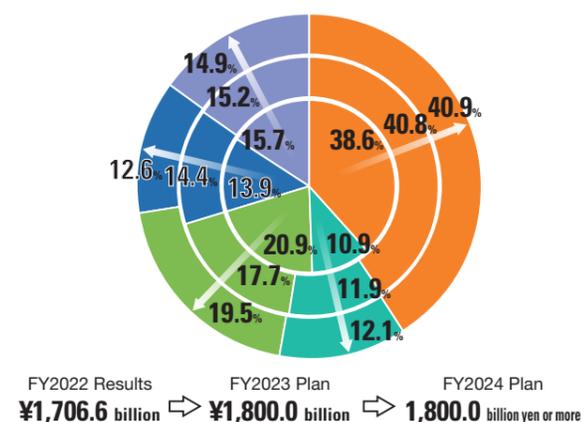
Regarding the funds necessary for these investments based on medium- to long-term strategies, while considering the balance between self-financing and external procurement, where necessary, we will compare and consider various financing methods and schemes, including ESG bonds and other sustainable finance, and procure the funds at the appropriate time.

It should be noted that the capital condition of the Oji Group as a whole is being centrally managed by Oji Holdings. In line with our growing global expansion, demand for funds from our overseas business companies is increasing. We will engage in efficient, global fund management, allocating surplus funds generated by our overseas businesses to investment in new opportunities in their regions. We will also conduct thorough funds management, including reducing the balance of cash and deposits, in our efforts to further strengthen our financial governance.

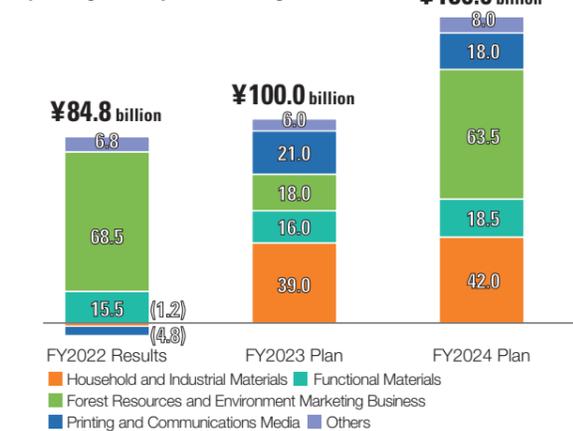
Formulation of Green Financing Framework

The Oji Group has formulated an Environmental Vision 2050 and Environmental Action Program 2030 and has set targets of achieving net-zero carbon in 2050 and, in the process, reducing greenhouse gas (GHG) emissions by 70% or more compared to FY2018 by 2030. We have positioned as the two

Consolidated Net Sales and Sales Composition by Business Segment



Operating Profit by Business Segment



Mitigation and Adaptation to Climate Change

Basic Approach

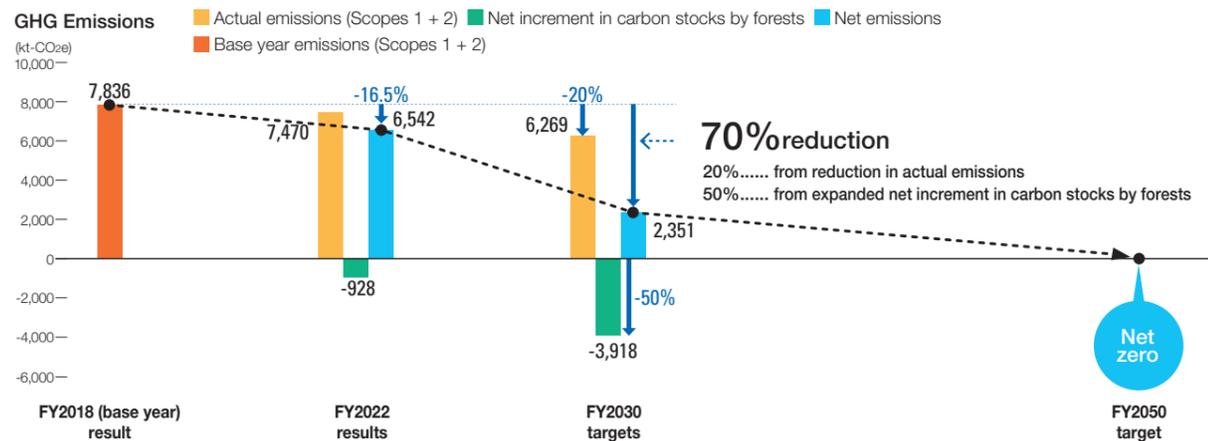
The Oji Group established Environmental Charter in 1997 with the basic philosophy of rolling out its corporate activities in harmony with the environment from a wide global perspective and contributing to the realization of a truly affluent, sustainable society. As our vision toward mitigating climate change based on the Charter, in 2020 we formulated our Environmental Vision 2050 centered around the goal of net-zero carbon, and we also set a milestone target to achieve that goal in our Environmental Action Program 2030 of reducing our greenhouse gas (GHG) emissions by at least 70% compared to FY2018 levels. To achieve the target, we focus on reducing actual emissions by reducing coal consumption and other emission sources, and increasing the net increment in carbon stocks by forests.

GHG Emissions Reduction Target and Emissions Results

Our goal is to reduce net emissions (actual emissions minus net increment in carbon stocks) by at least 70% compared to the FY2018 levels by FY2030. Of this, 20% is to be achieved by reducing actual emissions (total of Scope 1 and Scope 2), and 50% is to be achieved by increasing the net increment in

carbon stocks by forests.

In FY2022, the net GHG emissions were reduced by 16.5% compared to the FY2018 levels, to 6,542 kt-CO₂e.



Roadmap for GHG Emissions Reduction toward FY2030

Category	Sub-category	GHG reduction (kt-CO ₂ e)	GHG reduction rate	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Reduction in actual emissions	Improve energy efficiency	200	2.6%	Reduce energy consumption intensity by 1.0% or more per year, averaged over five years										
	Increase the percentage of renewable energy use	Reduce coal consumption	1,007	12.9%	Reduced by 3.8% on average between FY2018 and 2022									
		Install private solar power systems, etc.	360	4.5%	Installation planning → Investment decisions → Installation									
Subtotal		1,567	20.0%	Reduction of 366 kt-CO ₂ e (4.7%)										
Expansion of net increment in carbon stocks by forests	Invest in forest conservation and plantation	3,918	50.0%	Diversify production forests: 250,000 ha → 279,000 ha → 400,000 ha										
	Plant fast-growing trees			Search for sites, land surveys → Assessment of business feasibility → Consideration of acquisition, decision										
Total		5,485	70.0%	Net increment in carbon stocks by forests: 928 kt-CO ₂ e (11.8%)										

Participation in the GX League

Oji Holdings joined the GX League which began full-scale activities in May 2023. The League is a forum for companies endeavoring for carbon neutrality to discuss and carry out a transformation of the entire socio-economic systems (green transformation) in cooperation with the Japanese Government, universities, and financial institutions.



Reducing Actual Emissions

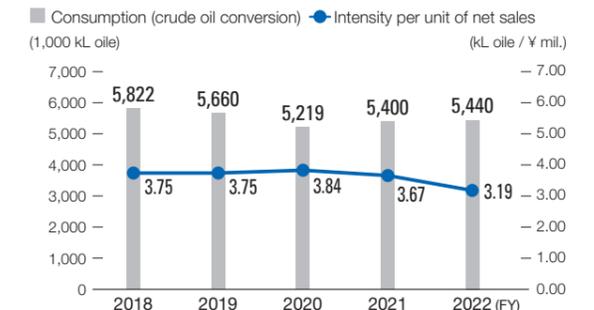
We are working to improve energy efficiency and increase the percentage of renewable energy use to reduce GHG emissions through our business activities. In FY2022, the actual GHG emissions were reduced by 4.7% compared to the FY2018 levels, to 7,470 kt-CO₂e.

Improve Energy Efficiency

We are working to improve our energy efficiency with a target reduction in energy consumption intensity of at least 1% per year, averaged over five years. Our mills and plants regularly hold energy conservation meetings, attended by personnel from energy management and manufacturing divisions to discuss facility renovations and change of operation methods.

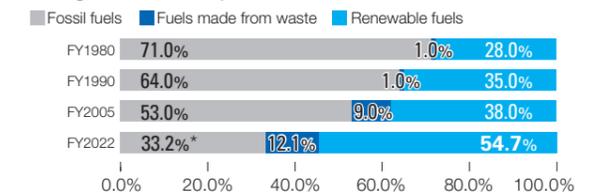
In FY2022, our domestic business companies made energy conservation investments of 1.6 billion yen, thereby reducing energy consumption corresponding to approximately 1% of the total energy consumption across the Group (crude oil conversion 47 thousand kL). Energy consumption intensity was reduced by 3.8% per year on the average between FY2018 and FY2022.

Energy Consumption* and Intensity



*A star mark indicates that FY2022 figure for energy consumption has been assured by KPMG AZSA Sustainability Co., Ltd. For the calculation method, see page 111.

Changes in Fuel Composition Ratio



*Breakdown: Coal 11.4%, gas 8.7%, oil 7.3%, and purchased energy 5.8%

Increase the Percentage of Renewable Energy Use

The Oji Group has increased the percentage of renewable energy use by utilizing black liquor (byproduct from its global pulp production operations), wood residue, and bark as fuels. Aiming to further improve energy efficiency, we are working to reduce coal consumption while introducing solar power generation systems.

In FY2022, the percentage of renewable energy use was 54.7%.

Reduce Coal Consumption

Of the 16 boilers in Japan that were burning coal as of FY2018, we will disuse eight coal-only-fired boilers by FY2030 which do not include backup boilers, and switch to gas fuels in a transition phase toward decarbonization. We shut down a coal boiler at Oji Materia Nayoro Mill in FY2021 as part of restructuring of production systems, and also shut down a coal boiler at Oji F-TeX Ebetsu Mill in FY2023. We are also considering reducing coal consumption by changing the composition of fuels at coal co-fired boilers. With the investment of about 100 billion yen, we expect to reduce GHG emissions by about 1,000 kt-CO₂e.

As achieving net-zero carbon emissions will require further reduction of the use of fossil fuels including gas, in the future, we will also consider using hydrogen, ammonia, and synthetic methane (e-methane) as fuels.

Installation of Solar Power Systems

We have been installing solar power systems on factory roofs and idle land. A new warehouse built in August 2022 at Oji Nepia Edogawa Factory uses electricity generated from solar power. At Oji Container Tochigi Plant, a solar power generation facility scheduled to start operation in September 2023 will supply all of the power used by the plant during the daytime.



Solar power generation facility at Tochigi Plant, Oji Container

Topics Efforts for a Shift to Black Pellets Fuel

At the boiler #6 of Oji Paper Tomakomai Mill, where waste-derived fuels (RPF, waste tires, sludge, etc.) and coal are co-fired, a demonstration test for a shift from coal to black pellets to reduce CO₂ emissions is underway.

Three tests were conducted in FY2022 to collect basic data on the fuel such as transportability and combustibility. Now we will draw up a plan for a long-run test in view of stable regular operation, to identify issues and consider whether boiler retrofitting is needed.



Black pellets (biomass-fuel wood pellets that are semi-carbonized)

Mitigation and Adaptation to Climate Change

Topics

Renewable Energy Power Generation Business

We sell electricity generated by biomass, hydropower, and solar power, indirectly contributing to the reduction of GHG emissions by electricity consumers. In FY2022, we sold 1,103 GWh of electricity through the feed-in tariff (FIT) system for renewable energy under which electric utilities purchase electricity from renewable energy at a fixed price. This is equivalent to a reduction of 480 kt-CO₂e in electricity consumer emissions*.

* Calculated by multiplying the amount of electricity sold by the national average emission factor used to calculate emissions from electricity use under the Mandatory Greenhouse Gas Accounting and Reporting System.

Reducing Emissions from Wood Chip Carriers

Most of the wood chips used as raw material for paper are transported by ship from overseas plantations. With international efforts underway to reduce GHG emissions from ships, Oji Group's chip carriers now navigate at lower speeds to reduce GHG emissions by increasing fuel efficiency. In addition, newer vessels built in recent years generate lower GHG emissions than conventional types, contributing to GHG emissions reduction.



Woodchip carrier GT SELENE (built in 2022)

Expansion of Net Increment in Carbon Stocks by Forests

The Oji Group owns a total of 603,000 ha of forests (comprising 455,000 ha of production forests and 148,000 ha of conservation forests) in Japan and overseas and practices sustainable forest management taking into consideration the environment, society, and economy. The actual carbon stocks of these forests reached 122,450 kt-CO₂ at the end of FY2022, and the annual average net increment in carbon stocks by forests between FY2018 and FY2022 was 928 kt-CO₂*1. The amount of O₂ released during the same period averaged 675 kt per year*2. To achieve our Environmental Action Program 2030, we aim to increase the net increment in carbon stocks by

forests to 4,000 kt-CO₂ by expanding plantations and planting fast-growing trees.

*1 The figures of carbon stocks and net increment in carbon stocks exclude those by CENIBRA's forests planted by third parties and forests less than two years after plantation.

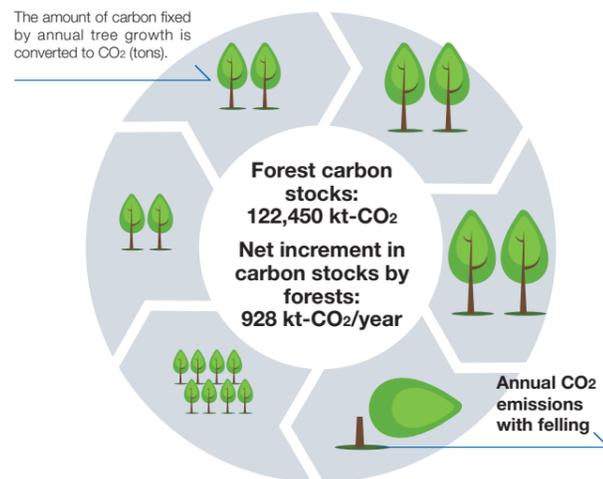
*2 Calculation assuming that the same amount of O₂ as CO₂ absorbed (in moles) is released.

Source: National Institute for Environmental Studies <https://www.nies.go.jp/kanko/news/25/25-3/25-3-04.html> (Japanese only)

The net increment in carbon stocks by forests is calculated by the gain-loss method (except for CENIBRA). CENIBRA calculates the figure by the stock difference method which is more accurate. CENIBRA has obtained assurance for the net increment in carbon stocks by forests in FY2021 and FY2022 from a third party organization.

Annual CO₂ absorption with growth

The amount of carbon fixed by annual tree growth is converted to CO₂ (tons).

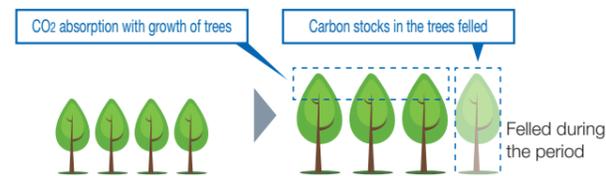


Forest carbon stocks : The CO₂ stocks in Oji Forests as of end of FY2022.

Net increment in carbon stocks by forests : The amount of CO₂ absorbed by the trees in Oji Forests minus the amount of CO₂ stored in the trees felled which are subtracted as emissions. Annual average between FY2018 and FY2022.

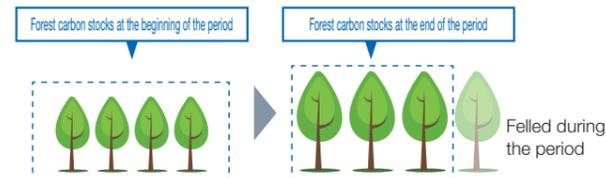
Gain-loss Method

The amount of CO₂ absorbed with growth of trees and the amount of carbon stocks by the trees felled during the period are calculated and the latter is subtracted from the former.



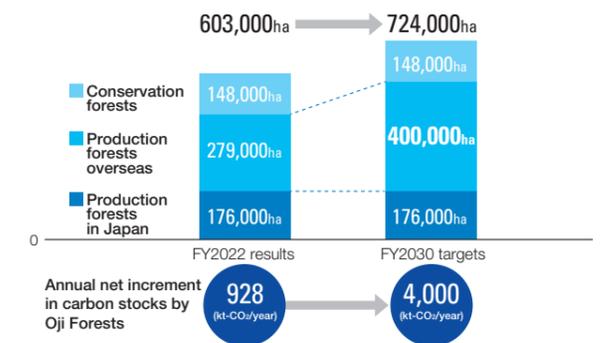
Stock Difference Method

The forest carbon stocks at the end of a period and the forest carbon stocks at the beginning of the period are calculated and the latter is subtracted from the former.



Expand Forest Plantations

With KTH in Indonesia becoming a consolidated subsidiary in FY2022, the net increment in carbon stocks by Oji Forests has increased. We are considering acquiring more sites for forest plantation primarily in South America, Oceania, and Southeast Asia, where we have been operating our forest plantation business. Our target is to expand the area of our overseas production forests to 400,000 ha by FY2030, at an estimated acquisition cost of about 100 billion yen.



Plant Fast-growing Trees

In our overseas forest plantation business, we plant fast-growing trees, including hardwoods such as eucalyptus and acacia as well as softwoods such as radiata pine. We harvest and replant trees in a shorter cycle than general forestry practices, for example, in a 6-to-10-year cycle for eucalyptus and acacia and in an approximately 30-year cycle for radiata pine.

In addition, CENIBRA, Brazil, has long been breeding forest trees. More than 10 types of high-quality varieties with high growth rate and pulp productivity were selected from among

more than 20 thousand trees obtained through artificial pollination efforts. KTH, Indonesia, also continues to breed forest trees. Planting high-quality tree species developed by each business increases the growth rate of forest trees, facilitating carbon absorption and fixation.



Artificial pollination of eucalyptus



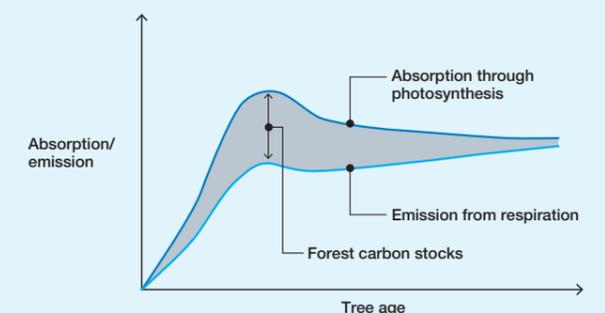
Tree nursery, CENIBRA

Topics Challenges for Japanese Forestry and Action to Mitigate Climate Changes

About two-thirds of Japan's land area is covered by forests, of which plantations account for about 40%. Most of these plantations were planted in the years after World War II to the period of rapid economic growth. Now that half of these trees are over 50 years old and are ready to be fully utilized (time to harvest).

Because respiration relative to carbon absorption is greater in a mature forest than in a young forest in the growing phase, the net carbon absorption capacity decreases as a plantation matures. For this reason, felling and replanting trees in plantations is considered desirable not only for circular resource use, but also for mitigating climate change. However, the rate of carbon fixation (approximately equal to carbon dioxide absorption) by forests has been declining due to the gradual decrease of young forests in the growing phase, as the circular use of forests has been impeded by such problems as declining number of forestry workers, the underdeveloped forest road networks, and slow progress of replanting and cultivation due to falling timber prices.

In Oji Forests in Japan, we intend to fell and replant approximately 400 to 500 ha of plantations every year. We will continue to work to overcome challenges for forestry in cooperation with the government, local communities, and other companies to help the circular use of plantations to increase carbon absorption.



Mitigation and Adaptation to Climate Change

TCFD

The Oji Group announced its support for the Task Force on Climate-related Financial Disclosures (TCFD) in December 2020, and is working on climate-related information disclosure recommended by the TCFD.



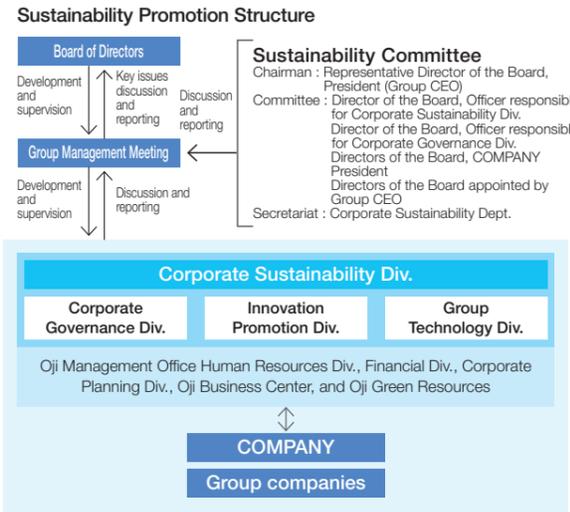
The TCFD is a task force established by the Financial Stability Board (FSB) at the request of G20 Finance Ministers and Central Bank Governors Meeting. In June 2017, the TCFD released its recommendations that encourage companies to disclose the financial implications of climate-related risks and opportunities to help investors make appropriate investment decisions.

Governance

Recognizing efforts for sustainability including addressing climate change issues as one of the important management challenges, the Oji Group established the Sustainability Committee and the Corporate Sustainability Division in April 2022.

The Sustainability Committee, chaired by the Representative Director of the Board, President of Oji Holdings Corporation (Group CEO) and consisting of Directors of Oji Holdings Corporation (including Presidents of all COMPANIES), discusses the Group's risks associated with sustainability and measures against those risks biannually. Matters discussed at the Committee are referred for discussion and reported to the Group Management Meeting depending on the importance, and after deliberation by the Meeting, the Board of Directors makes a decision on execution of matters. In FY2022, the Group CEO appointed a female Independent Outside Director as a new member of the Committee.

The Corporate Sustainability Division carries forward matters determined by the Sustainability Committee as a division which oversees and manages the Group's efforts for sustainability.



Climate-related Risks, Opportunities, Strategies, and Responses

Type	Driver (Factor causing an impact on our business)	Awareness of business environment	Impact on our business			
			1.5°C (2°C) scenario		4°C scenario	
			2030	2050	2030	2050
Transition risks	Policies, laws and regulations	Fluctuation of fossil fuel-derived energy prices	Small	Small	Small	Small
		Tightened CO ₂ emissions regulations	Large*	Small*	Medium*	Small*
	Markets	Increasing stakeholders' interest in low-carbon products and services	Small	Small	Small	Small
Transition risks	Reputation	Negative feedback from stakeholders	Medium	Medium	Small	Small
		Acute	Increasing severity of extreme weather events	Small	Small	Small
Physical risks	Chronic	Changes in precipitation and weather patterns, and rising average temperatures	Small	Small	Large	Large
		Resource efficiency	Effective resource utilization Reduction in water use and consumption	Small	Small	Medium
Opportunities	Energy sources	Use of low emission sources of energy	Small	Medium	Small	Small
		Products and services	• Changes in consumer preferences • Development of new products and service through R&D and innovation	Large*	Large*	Large*
	Markets	Use of incentives	Small	Medium	Small	Small

* Impact amount. Small: less than 10 billion yen. Medium: not less than 10 billion yen but less than 50 billion yen. Large: not less than 50 billion yen. Impact levels without asterisk mark (*) represent qualitative assessment.

Strategy

Climate-related risks and opportunities for us have been analyzed as shown below. We recognize the importance of transition risks due to policies and regulations such as carbon taxes in the medium term toward 2030, physical risks such as changes in precipitation and weather patterns in the long term toward 2050, and opportunities for increased demand for low-carbon products in the medium to long term.

To meet challenges for transition to a decarbonized society, we have set our GHG emissions reduction targets and are working to reduce coal consumption, increase the net increment in carbon stocks by forests, and develop wood-derived products as a plastic alternative. While continuing our present efforts, we believe, will limit the impact on our business from the transition to a decarbonized society, we will continue to analyze risks and strengthen our resilience*1.

*1 The concept of climate resilience involves organizations developing adaptive capacity to respond to climate change to better manage the associated risks and seize opportunities, including the ability to respond to transition risks and physical risks. (Source: TCFD recommendations)

Risk Management

The Corporate Sustainability Division examines risks on a Group wide basis with assistance from external experts, and the Sustainability Committee analyzes them while discussing their importance and priority. Impacts on our business, strategy, and finances are assessed quantitatively and qualitatively, using scenarios for 1.5°C (2°C) and 4°C for the medium term (2030) and the long term (2050)*2.

The Corporate Sustainability Division is in charge of overall management of responses to climate-related risks based on the strategy across the Group, and the Sustainability Committee manages the progress. Specifically, for the reduction of GHG emissions, we have organized a project team and are working to reduce coal consumption and expand the net increment in carbon stocks by forests. Furthermore, climate-related risks are referred for discussion and reported to the Group Management Meeting depending on the importance, and integrated into company-wide risk management.

*2 Transition risks were analyzed based on two scenarios: IEA's 2°C Scenario (IEA 2DS) showing a pathway to possibly limit the warming to 2°C, and the Net Zero Emissions by 2050 Scenario (NZE 2050) to achieve net zero CO₂ emissions by 2050. Physical risks were analyzed based on the RCP1.9, RCP2.6, and RCP8.5 scenarios. In RCP8.5, the average global temperature is projected to rise by more than 4°C and natural disasters are expected to become more frequent.

Indicators and Targets

We have set the following targets based on the 1.5°C target in the Paris Agreement. The carbon price of 140 USD/t-CO₂ (2030 level in developed countries) from the Net Zero Emissions (NZE) scenario of the International Energy Agency (IEA) is used as the internal carbon pricing (ICP) for risk analysis and evaluation items for investment decisions.

Scopes 1 + 2	70% reduction by FY2030 and net zero by FY2050 (including the net increment in carbon stocks by forests)	FY2022 results	16.5% down (compared to FY2018)	Reduction in actual emissions	4.7%
Scope 3	Reduction of GHG emissions through collaboration with suppliers		We conducted a fact-finding survey of GHG emissions in a supplier sustainability survey		
Coal consumption	Zero coal consumption by FY2050		17.1% down (compared to FY2018)	Net increment in carbon stocks by forests 11.8%	

Strategies and countermeasures	Investment toward Decarbonization
<ul style="list-style-type: none"> Pursue thorough-going energy conservation and efficient operation of in-house power generation facilities to reduce fossil fuel consumption and electricity purchase to optimize overall energy costs Enhance the operation of renewable energy sources such as hydro and biomass energy toward net zero carbon emissions in FY2050 	<p>Investment in connection with coal reduction</p> <p>Approx. 100 billion yen</p>
<ul style="list-style-type: none"> Convert to renewable energy and other fuels that emit less CO₂, and enhance energy conservation measures Further promote resource-circulation, environmentally friendly business initiatives such as forest recycling and recovered paper recycling 	<p>Investment in connection with acquisition of forest plantations</p> <p>Approx. 100 billion yen</p>
<ul style="list-style-type: none"> Continuously disseminate information on the status of sustainable forest management initiatives to stakeholders Promote the acquisition of forest certification, announcement of procurement policies, such as no illegal logging, and ensuring traceability of suppliers Implement environmental education to communicate environmentally-friendly business activities in collaboration with environmental NGOs, etc. Be registered as Type I or Type II Registered Wood-related Business Entity as defined in the Clean Wood Act Conduct due diligence to prove the legality and verify the legality in connection with the procurement of wood raw materials and biomass fuels 	<p>Financial Impact of Climate-related Risks and Opportunities (2030)</p> <p>Example of opportunities</p> <p>Green innovation Increase in sales from the environmentally friendly business 300 billion yen</p> <p>Example of risks</p> <p>Burden of carbon tax 60.6 billion yen*</p>
<ul style="list-style-type: none"> Formulate and regularly review a BCP, and enhance BCM Keep abreast of and monitor the status of key raw materials Enhance our relationship with suppliers, and stabilize procurement by diversifying suppliers Enhance stable procurement through procurement from multiple sources in North America, South America, Oceania, etc. Expand and promote effective utilization of company-owned forests Conduct survey and research on impacts of temperature and precipitation on growth of trees, and select tree species suitable to the area 	
<ul style="list-style-type: none"> Further expand the water treatment business primarily by promoting the expanded service for the production of water for daily use Propose innovative technology leading to the effective utilization of water resources 	
<ul style="list-style-type: none"> Promote the power generation business such as wind power generation and micro hydroelectric power generation 	
<ul style="list-style-type: none"> Enhance the alternate use of biomass plastics made from biomass and the development of paper materials as an alternative to plastic packaging, and expand sales opportunities 	
<ul style="list-style-type: none"> Plan and implement the management of company-owned forests in line with national and local governments policies Maintain and improve productivity of planted trees by conducting research and technology development tailored to the relevant areas 	

* Calculated by multiplying CO₂ emissions from fossil fuel use by the carbon price

Sustainable Forest Management and Biodiversity Conservation

Sustainable Forest Management

Basic Approach

The appropriate cultivation and management of forests not only produces renewable forest resources; it also helps to enhance the multi-faceted functions of forests, including absorbing and fixing CO₂, conserving biodiversity, cultivating water resources, and preserving soil. To meet such environmental challenges as dealing with global warming and conserving biodiversity, our purpose is to fully leverage the functions of forests that are the precious assets of the Oji Group in pursuing our business activities. We believe that continuing to “grow forests and utilize forests” will produce exceedingly important value, both for the environment and for society.

Overview of the Oji Group's Forests (Oji Forests)

The Oji Group owns and manages extensive forests in Japan and overseas, amounting to 603,000 ha. The portfolio comprises 455,000 ha of production forests primarily for producing forest products in consideration of environment, and about 148,000 ha of conservation forests principally for preserving biodiversity and basins.

Wood from production forests is expected to be used as raw materials for paper manufacturing and fuels for biomass power generation, and for new materials derived from wood components under development. In order to maintain stable supply of these wood raw materials, the Oji Group spends approximately 14.2 billion yen annually for ongoing sustainable forest management. In addition, our Environmental Action Program 2030 states a goal of expanding overseas production forest area to 400,000 ha.



CENIBRA in Brazil: Production forest (left) and conservation forest (right)

Conservation Forests

Of the 603,000 ha of forests owned and managed by the Group in Japan and overseas, approximately 25%, i.e., 148,000 ha are conservation forests, which are managed with consideration for the environment and ecosystems. Specifically, of the forests managed by CENIBRA, Brazil, conservation forests account for as much as about 42%.

In Japan, 12,000 ha out of 188,000 ha of company-owned forests are conservation forests designated for preserving biodiversity, maintaining landscapes around recreational facilities (conservation for forest utilization), preventing soil runoff and collapse (land conservation), preserving water sources, and protecting scientifically valuable forests. Since one forest may have multiple functions, the cumulative total area of environmental conservation functions is 17,000 ha.

We will continue to maintain and properly manage conservation forests that contribute to the conservation and promotion of biodiversity.

Oji Group's Forests by Country

Country	Business company	Established	Production forests (1,000 ha)	Conservation forests (1,000 ha)	Total (1,000 ha)
Brazil	CENIBRA	1973	144	106	250
	Pan Pac	1971	36	5	41
New Zealand	SPFL	1992	10	3	13
	Oji FS	2014	7	1	8
Indonesia	KTH	1998	63	19	82
Vietnam	QPFL	1995	9	1	10
Other (3 companies in Vietnam and Australia)		—	10	1	11
Overseas subtotal			279	136	415
Company-owned forests in Japan	—	—	176	12	188
Group total			455	148	603

Production forests : forests primarily for producing forest products in consideration of environmental conservation.

Conservation forests : forests primarily for environmental conservation, including protecting biodiversity and basins.

Conservation Forests in Japan by Function

Conservation forest functions	Forest area*1 (actual area) (ha)	Function area*2 (cumulative total) (ha)
Biodiversity conservation	9,742	9,495
Conservation for forest utilization	710	4,357
Land conservation	818	2,735
Water conservation	275	532
Conservation for scientific research	8	8
Total	11,552	17,127

*1 Each conservation forest is categorized by its main function, and forest areas are aggregated by category.

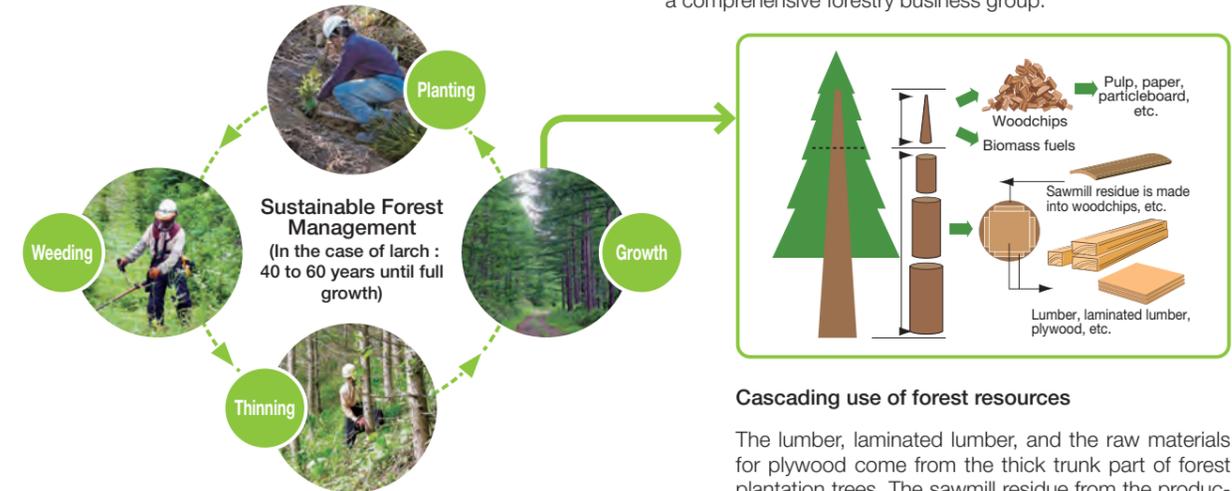
*2 Each function area shows the cumulative total of the areas of forests with that function regardless of their main functions' categories.

Renewable Forest Resources

Forests are a renewable resource that can be planted, grown, harvested, and re-planted. To make cascading use of trees (thorough use of every part of trees), the Oji Group utilizes the

harvested wood for lumber, plywood, woodchips for paper manufacture, wood biomass fuel, etc.

The Oji Group promotes the effective utilization of wood as a comprehensive forestry business group.



Cascading use of forest resources

The lumber, laminated lumber, and the raw materials for plywood come from the thick trunk part of forest plantation trees. The sawmill residue from the production of lumber, and the tips of those trunks which cannot be used for lumber, are thoroughly utilized as woodchips for paper manufacturing or biomass fuel.

Social Contributions That Are Environmentally and Economically Friendly to Local Communities

Sustainable forest management requires a mutual understanding between forest plantation companies and the local communities, grown through considering environmental, social, and economic effects for the community. To give an example of economic contribution, our overseas forest plantation companies have created approximately 15,000 jobs locally. Another such example is our technical training primarily on planting and forest management provided to owners of small-scale forests. Further, we cooperate with local governments, NGOs, and civic groups in each region to create and share environmental and social benefits. Their activities include biodiversity conservation programs in environmentally protected forests, vocational and educational support in local communities, and assistance in areas that have poor access to medical services.



CENIBRA supports beekeeping

Oji Fibre Solutions supports an educational program of Graeme Dingle Foundation

Topics Establishment of Oji Forest Value-Creation & Promotion Department

The Oji Group established the Oji Forest Value-Creation & Promotion Department in October 2022 to utilize diverse functions of the forests it owns and manages toward achieving its Purpose. The Oji Forest Value-Creation & Promotion Department seeks to utilize forest resources to create new businesses and expand research areas, while conducting various surveys, searching for partners, and sourcing investment opportunities to solve social issues and increase corporate value.

Forests' Multi-functionality and Ecological Services



Topics Earned the Highest “A” Score in the CDP Forests Category (Timber Products)

Oji Holdings was added to the “A list” of top-scoring companies selected by CDP, an international non-profit organization for the first time in 2022, which recognized its leadership in transparency and performance in corporate sustainability concerning forests (timber products).



As a Forests A List company, we are leaders in corporate transparency and action on deforestation.

Sustainable Forest Management and Biodiversity Conservation

Biodiversity Conservation

Basic Approach

The Oji Group has declared to seek “Harmony with Nature and Society” in its Management Philosophy and has set the goal of conserving biodiversity and reducing our impact on the environment under its Environmental Vision 2050 and Environmental Action Program 2030. To that end, the Group works for forest management with consideration for ecosystems, protection and nurturing of rare plants and animals, research and development of biodegradable and biomass materials for ecosystem maintenance, and purification of wastewater and exhaust gases.

With regard to forests, in particular, as well as the need of sustainable forest management for the continuation of our business as a company that use forest resources, we recognize the importance of conservation and promotion of biodiversity as a social responsibility of a company that owns and manages vast forests. We maintain natural forests’ ecosystems rich in biodiversity, and properly manage our plantations to help the formation of multilayered vegetation and healthy ecosystems.

In Japan and overseas, we work with governments, environmental NPOs, academic researchers, and local community to protect and nurture endangered species and maintain and restore ecosystems.

Initiatives for Protection and Nurturing of Rare Animals and Plants

The 30by30 Alliance for Biodiversity

We have joined the 30by30 Alliance for Biodiversity, which was voluntarily launched by companies, local governments, and organizations in April 2022 under the initiative of the Ministry of the Environment in Japan, towards the international goal of protecting at least 30% of land and sea by 2030. The Alliance members provide support for registering their owned or controlled lands as OECM* and expanding protected areas, and provide support.

* Other Effective area-based Conservation Measures. Areas where biodiversity is being conserved through efforts by the private sector, such as corporate forests and satoyama.

The Oji Group has been working in collaboration with the Ecosystem Trust Society since August 2016 in activities to protect fairy pitta’s growing environment in the Koyagauchi company-owned forest in Kochi Prefecture. For this company-owned forest, we have already applied for screening for certification under a “trial scheme to certify conserved areas” conducted by the Ministry of the Environment in FY2022. We aim to obtain OECM certification through final certification under the Ministry’s scheme.

* A national scheme to certify areas where biodiversity is being conserved through efforts by the private sector or other parties. The certified areas, other than protected areas, will be registered as OECM on an international database.



Fairy pitta in the Koyagauchi company-owned forest. Listed as an Endangered IB on the Ministry of the Environment Red List. Photo provided by the Ecosystem Trust Society

Conservation Activity for Kiwi (Pan Pac, New Zealand)

Pan Pac conducts activities for protecting kiwi, a rare bird species, in cooperation with the Ministry for the Environment of New Zealand, citizen volunteers, and other parties. For these activities, the company has designated land of an area of approximately 40 ha as a kiwi sanctuary for protecting kiwi chicks. Chicks and eggs in the surrounding area are captured and collected, and chicks that are captured or hatched from the collected eggs are nurtured in the sanctuary before being returned to the wild.

In June 2019, Pan Pac was named Community Corporate Sponsor of the Year at a national kiwi conference held by “Kiwis for kiwi,” a kiwi protection organization.



Kiwi

Monitoring of Biodiversity Indicators (CENIBRA, Brazil)

In collaboration with external research institutions, universities, NGOs, and other organizations, CENIBRA monitors plants and animals and water resources, and conducts various ecosystem protection and conservation activities.

Monitoring results up until 2021 confirm that endangered 31 species of birds and 17 species of mammals are inhabited in CENIBRA’s conservation forest. CENIBRA is engaged in activities for breeding mutum (crax blumembachii), an endangered bird species, and returning them to nature, and is implementing a Green Corridor Program to link separated habitat areas.



Green Corridor Program

*1 Expanding forest areas by restoring waste lands to connect neighboring natural forests.

*2 Plantations also serve to protect protected forests from erosion from the surrounding area.



Buffy-headed marmoset (CR)



Mutum (VU)

† IUCN Red List Categories: Critically Endangered (CR), Vulnerable (VU)

Itou Conservation Activities in Sarufutsu (Sarufutsu Company-owned Forest in Hokkaido)

In 2009, the Oji Group established the Sarufutsu Itou Conservation Council with a local NPO, administrative bodies, researchers, and others for the purpose of protecting the Japanese huchen called itou, or the sea-run taimen (Huchoperryi), an endangered species that lives in the river zone of the Sarufutsu forest in Sarufutsu village, Hokkaido. An area of 2,600 ha including the river zone was designated a conservation area. Activities include the removal of artifacts that obstruct the itou from migrating upstream, and surveys on spawning beds and the number of individuals migrating upriver.



Nuptial-colored itou (male) Photo by Yo Chirai (Listed as an Endangered IB on the Ministry of the Environment Red List)

Alpine Plant Community Restoration Activities (Samani Company-owned Forest in Hokkaido)

The alpine plant community on Mt. Apoi is home to many endemic plants with place names such as “Apoi,” “Samani,” and “Hidaka,” and was designated a national special natural monument in 1952. While the local government and people continue to work together to maintain trails to prevent trampling, patrol the area to prevent illegal digging, and conduct restoration experiments, the Oji Group provides support such as offering a site for restoring alpine plants.



Samani yukiwari blooming on the trail side



Apoi-azumagiku blooming in a test site

Initiatives for Maintenance and Restoration of Ecosystems

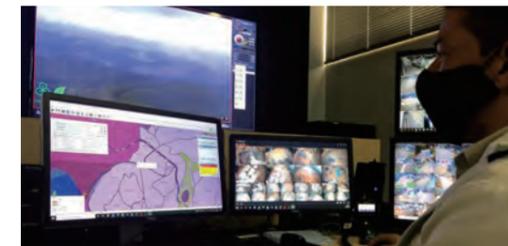
Protection against Forest Fires (CENIBRA, Brazil)

CENIBRA has introduced an innovative forest fire prevention and fighting system using artificial intelligence (AI) for their 250,000 ha forests. The company has installed 38 watchtowers equipped with 360 degrees rotating cameras in the forests. When the AI detects smoke and fires, the monitoring

room notifies fire crews nearest to the site of the incidents. They start firefighting immediately. The AI-equipped cameras are more efficient than human eyes and can locate the accurate fire site within one to two minutes. CENIBRA has reduced forest fire risks significantly.



Fire watchtower



Fire monitoring in the monitoring room



Firefighting training by firefighters

Efforts to Preserve and Restore Natural Forest (Pan Pac, New Zealand)

The forest land located just north of Pan Pac’s Whirinaki Mill with a total area of 298 ha includes about 23% (68 ha) of well-established indigenous (native) forest.

Pan Pac partnered with a government organization to place the forest reserve into a conservation covenant. The reserve area comprises tree species unique to the Hawke’s Bay region, and given the forest’s age and previous protection from animal livestock and pests, the native tree population holds particular ecological and cultural importance. Pan Pac will be working with specialists to harvest rare seeds to assist in local and national programs of native forest regeneration. The company also hopes to welcome schools to the area for educational visits.

In June 2021, Pan Pac received funding approval through the government’s “Jobs for Nature Fund.” The money will be

used to fence the reserve area and plant an additional 12 ha of native plants on bare land areas to speed up restoration.



A view of the reserve

New Value Creation through Green Innovation



Our role is to fully utilize wood resources effectively to solve social challenges

Oji Holdings Corporation
Corporate Officer
General Manager,
Innovation Promotion Div.

Kohei Michikawa

Under the Group basic policy of “Initiatives for Product Development—Green Innovation—,” our Innovation Promotion Division aims to grow healthy forests, create products that utilize those forest resources, and deliver them to society. We are promoting research and development focusing on three themes to solve social issues by making full use of wood resources and refining various core technologies cultivated through forestation and papermaking over the 150 years since the company's founding.

First, in the area of new materials derived from wood, we are developing new materials with the aim of creating new value for pulp and venturing into new businesses. Specifically, we are compounding cellulose nanofibers (CNF) with natural rubber and exploring the possibility of new applications for this composite material. Further, we are promoting the development of products such as cellulose mats and cellulose polymer pellets to make effective use of cellulose materials. We are also manufacturing sugar solution from wood that will become a key raw material for a variety of biomanufacturing in test basis. By combining it with fermentation, we will be able to convert this sugar solution into polylactic acid and other biomass plastics and into ethanol, which is expected to become a raw material for sustainable aviation fuel (SAF), with the aim of decarbonization.

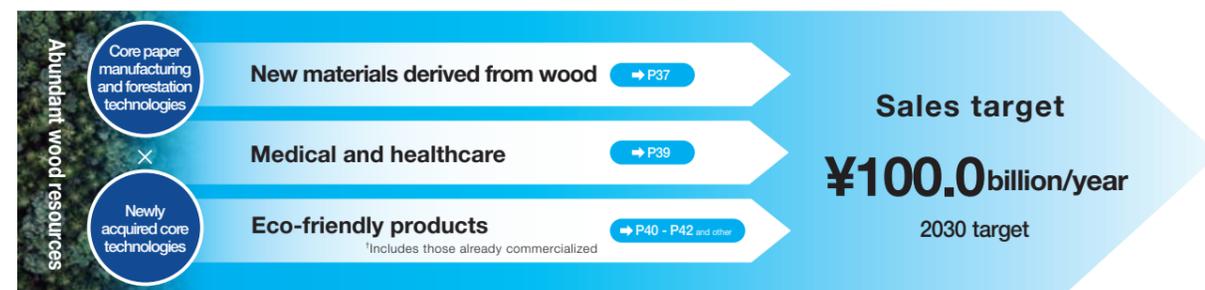
Next, in the area of medical and healthcare, with an eye on the medical care of the future, we are expanding our business into new fields. We are working on the development of pharmaceutical products using hemicellulose, a main component of wood, and large-scale cultivation of medicinal plants for the stable supply of high-quality, domestically-grown raw materials for Chinese herbal medicines. In addition, we are promoting the development of cell culture substrates for controlled cell orientation, which are expected to have applications in regenerative medicine.

In the area of eco-friendly products, we are developing products to meet a wide variety of needs for solutions to environmental issues, such as reducing plastic consumption. Specifically, we are manufacturing biomass plastic films for packaging applications with the aim of reducing carbon emissions derived from fossil fuels. In addition, we are developing recycling-friendly paper products and composites of biodegradable plastics and cellulose. We also have developed functional products such as anti-heat windshield films to reduce the burden on the global environment.

Further, with the aim of accelerating our green innovation and steadily growing it into a pillar of earnings, we have established the Corporate Business Development Division, and based on the technologies developed in the Innovation Promotion Division, we are promoting the commercialization of liquid packaging cartons, including the development of plastic-free products.

With the promotion of these kinds of new value creation through green innovation, our target is net sales of 100.0 billion yen by 2030.

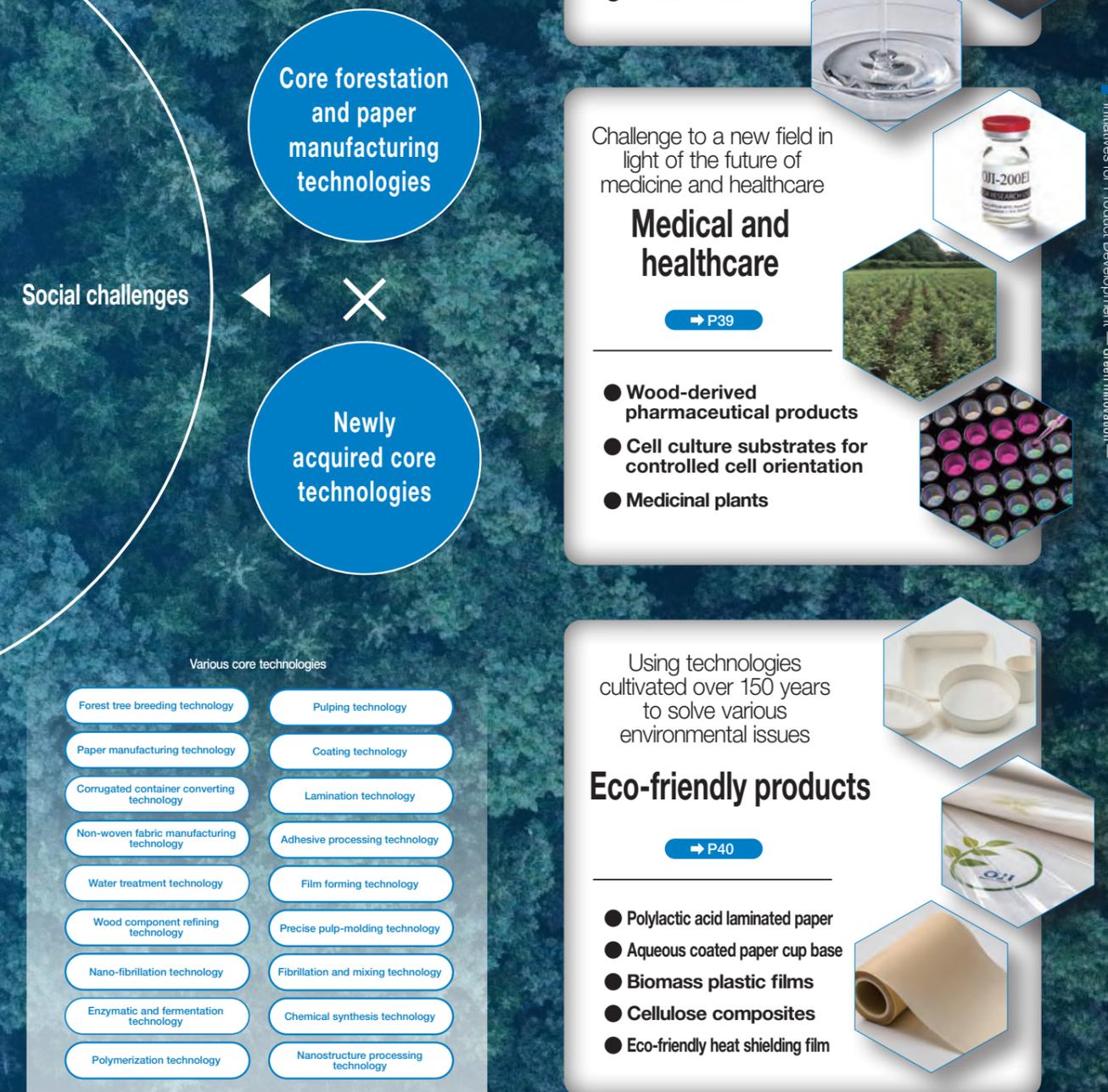
Future Green Innovation Initiatives



■ Innovation Promotion Division's Initiatives Using Our Abundant Wood Resources

The Innovation Promotion Division is making use of our abundant wood resources and various core technologies to contribute to the Oji Group's green innovation.

In addition to the core technologies that we have acquired in our paper production business, including forest tree breeding technology, pulping technology, paper manufacturing technology, and water treatment technology, we are acquiring core technologies that differ from conventional paper production industry technologies, such as wood component refining technology, nano-fibrillation technology, enzymatic and fermentation technologies, and nanostructure processing technology, and promoting the development of new materials derived from wood, medical and healthcare products, and eco-friendly products.



New Materials Derived from Wood

Creating New Value for Pulp

As paper consumption declines, we will create new value for pulp as a raw material and we will pursue research to extract its potential, develop new materials, and enter new businesses.

Development of Biomanufacturing Technology with Wood Resources as Raw Materials

We are making major contributions to biomanufacturing innovation through the development of new materials utilizing our abundance of wood from sustainable forest management.

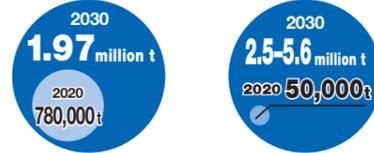
To contribute to a decarbonized society in which petroleum-derived fuels and plastics are replaced with those derived from biomass, we are pursuing the development of new materials derived from the wood which is obtained from sustainable forest management. Needs are expected to increase for sugar solution, which is a key raw material of various biomanufacturing*1 and for biomass plastics, such as polylactic acid, and ethanol, which can be used in the manufacture of basic chemicals, SAF*2, a focus of the aviation industry's attention, both of which are obtained by combining sugar solution with fermentation.

We refined our manufacturing technology for wood-derived ethanol after it was adopted as a NEDO project*3 until 2018. For wood-derived sugar solution as well, we have succeeded in the development of proprietary technologies, including saccharification enzyme recovery, and are now undertaking sample work, which is being evaluated.

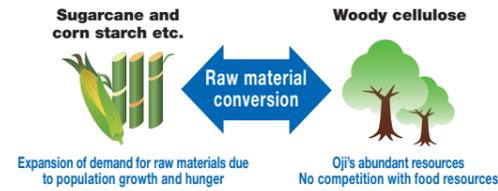
*1 Production of plastics, rubber, fibers, fuels, and other products using smart cells (micro-organisms that raise the productivity of beneficial substances), with biomass-derived sugars as raw materials
 *2 Sustainable aviation fuel: Fuel seen as the trump card in the decarbonization of the aviation industry
 *3 Demonstration Project for Comprehensive Development of Cellulose-based Ethanol Production System (April 2015–March 2018)

Sudden Expansion of Demand for Biomass Plastics and Biofuels in Japan

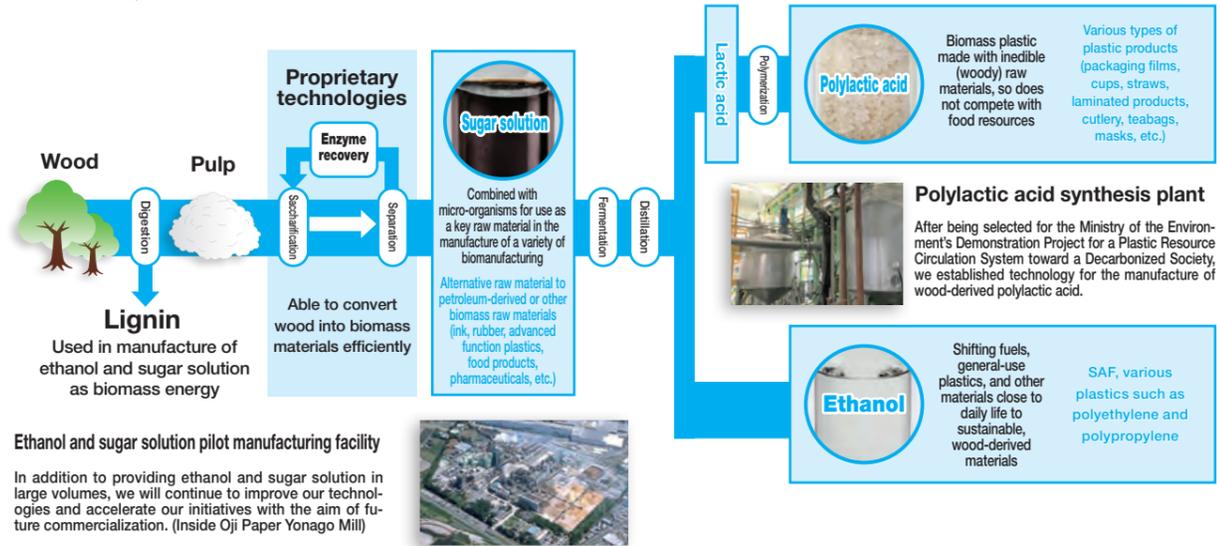
Forecast demand for biomass plastics*4 Forecast demand for biofuels*5



Challenge for the development of new materials derived from wood



*4 From Fourth Fundamental Plan for Establishing a Sound Material-Cycle Society, Ministry of the Environment (2018)
 *5 From Government-Private Sector Council for the Promotion of Introduction of Sustainable Aviation Fuel (SAF), Ministry of Economy, Trade and Industry (2022)



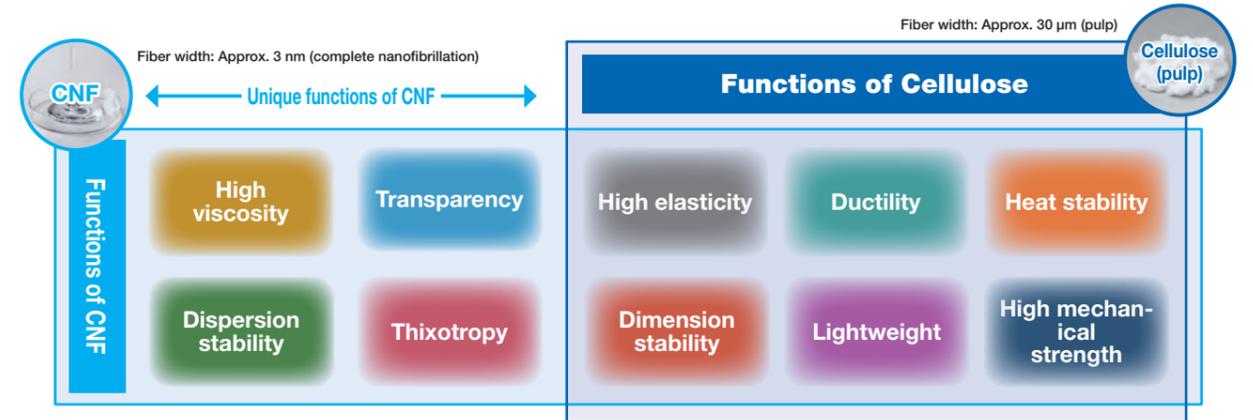
Future Initiatives



Use of Cellulose That Accommodates Social Changes

To accommodate changes in society and customers' requirements, we are promoting development for the effective use of cellulose materials, from CNF to pulp.

In the course of developing applications for CNF, we have learned that, in addition to demand for unique functions that are only obtained by conversion to CNF, there is also demand for the functions that cellulose originally possesses. To meet this demand, as well as expanding applications that make use of CNF's unique functions, we also embarked on the development of applications for pulp, making use of cellulose's original functions. This will enable us to select and propose the cellulose materials that best suit the customers' requirements, allowing us to expand the fields in which these materials are used.



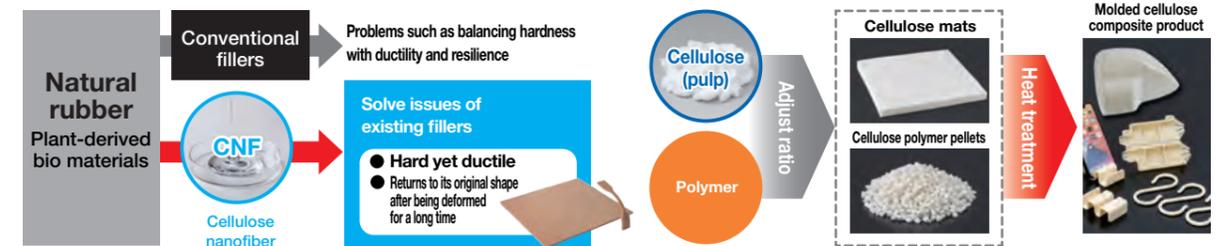
Development for the Expansion of Market for CNF

Exploration of Applications with Expected High Consumption of CNF

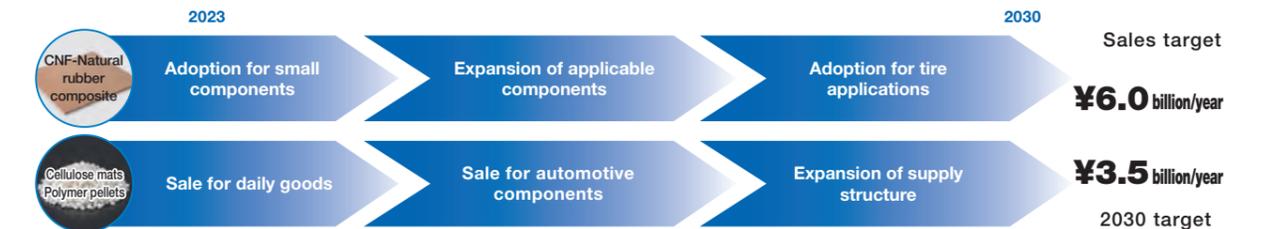
To increase consumption of CNF, we are promoting the development of CNF composite materials that will enable the provision of CNF's unique functions in forms that are easy to handle, and we are exploring the possibility of new applications for such composite materials.

CNF-Natural Rubber Composite

By compounding natural rubber with CNF, we successfully achieved both reinforcement effect (hardness) and stretch, and we discovered potential for a novel rubber material by replacing carbon black, the existing petroleum-derived reinforcing material, with biomass. We will proceed with the development and practical application of this material in anticipation of its future adoption for tire applications, which are expected to yield high CNF consumption.



Future Initiatives



Medical and Healthcare

Challenge to a New Field in Light of the Future of Medicine and Healthcare

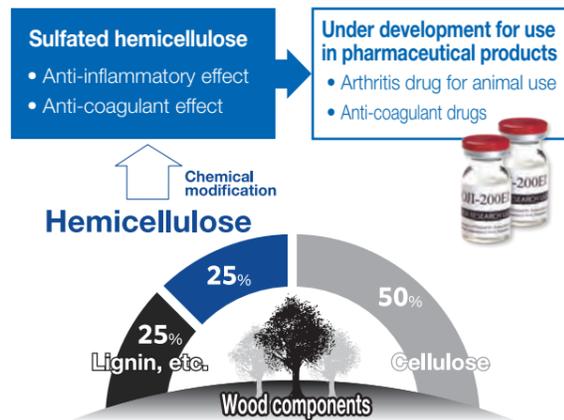
As the super-aging society progresses and interest in extending healthy life expectancy grows, there is a need for new and different form of medicine and healthcare. The Oji Group is taking on the challenge of new domains through our efforts to utilize wood resources in the medical and healthcare field.

Drug Discovery from Wood Resources

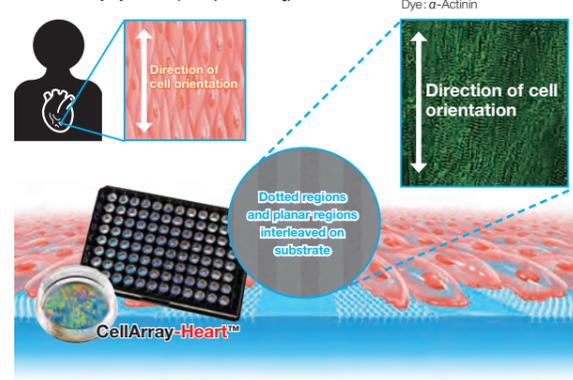
Wood-derived Pharmaceutical Products

The Oji Group aims to contribute to human and animal health through the development of “sulfated hemicellulose.” Sulfated hemicellulose is a compound obtained by “hemicellulose,” one of the major components of wood. It has been confirmed to have anti-inflammatory and anti-coagulant effects. In addition, this compound is similar to heparin, an animal-derived pharmaceutical product used all over the world. By replacing this animal-derived pharmaceutical product with a wood-derived one, it is expected to accommodate a wide range of needs.

We are currently filing a prior application for an arthritis drug for animal use, and we have obtained approval for the manufacture and sale of veterinary drugs. Going forward, we will develop it into a drug for human use and work on the building of the pharmaceutical business, leveraging the compound's property of being derived from wood.



Human Cardiomyocyte Tissue (Conceptual Drawing)



Cultivating cardiomyocytes on this product enables reproduction of cell orientation similar to that in vivo.

Stable Supply of High Quality, Domestically Grown Raw Materials for Chinese Herbal Medicines

Large-scale Cultivation of Medicinal Plants

Medicinal plants are used in a wide range of applications, including pharmaceuticals (primarily Chinese herbal medicines), cosmetics, and food products, making them an indispensable plant resource in daily life. However, in many cases, supply is dependent on wild plants imported from overseas, resulting in risks such as resource depletion, export restrictions, and foreign exchange fluctuations, as well as issues such as environmental conservation and traceability. For these reasons, a shift to domestic production is needed.

Amid such needs, leveraging our forest tree breeding technology, we have successfully established cultivation techniques for licorice, the most used medicinal plant, and we are now working on large-scale cultivation.

Nanostructure Technology for Regenerative Medicine and Drug Discovery

Cell Culture Substrate for Controlled Cell Orientation, CellArray-Heart™

The issue was that the cellular functions of cardiomyocytes generated from human iPS cells were not developing as far as in vivo cells (they were not maturing). Focusing on the fact that cardiomyocytes are “oriented” (facing the same direction) in vivo, we have developed CellArray-Heart™.

This product is a cell culture substrate fabricated by our original technology that has nanodot regions with a pitch of several hundred nm and planar regions interleaved in parallel stripes. When culturing human iPS cardiomyocytes, we can reproduce the same cell orientation as they have in vivo. Because it has been confirmed that iPS cardiomyocytes that have been oriented when cultured progress to maturation, it is hoped that this method will help avoid animal testing in drug discovery and have applications in regenerative medicine.

We are currently proceeding with the collection of detailed data for use in promotional activities with our joint research partner, Juntendo University.



Eco-Friendly Products

Using Technologies Cultivated over 150 Years to Solve Various Environmental Issues

Toward solving environmental issues, such as reduction of CO₂ emissions and plastic consumption, we develop eco-friendly products that meet a wide range of needs by making full use of our abundant fundamental and core technologies cultivated over the years.

Recycling-friendly Paper Products

Laminated Paper Using Plant-derived Polylactic Acid

The incineration of ordinary laminated paper as combustible waste results in the emission of fossil fuel-derived CO₂. Since the plastic layers of the laminated paper we developed use plant-derived polylactic acid, combustion of the paper does not increase CO₂ in the atmosphere. In addition, this paper is biodegradable under compost conditions.



Recyclable Aqueous Coated Cup Base

Traditional paper cups, made of plastic laminated paper, are not suitable for recycling and are generally treated as combustible waste. However, by leveraging our technology to apply special aqueous resin to the cup base in a thin and even manner, we successfully developed a paper cup base that still has the functions required for paper cups, while being recyclable as paper material.



Biodegradable Plastic-Cellulose Composites to Reduce Environmental Burdens

Cellulose Composite, Resoil-Green

We have developed resin materials that are composites of biodegradable plastics and wood-derived cellulose (pulp). The use of pulp means that this product can achieve a high degree of biomass as well as a high biodegradation rate. In addition, the product improves various properties of resin such as strength and stiffness. Since all raw materials of the products are biodegradable in soil, compared with regular plastics, the products can contribute to reducing environmental burdens.



Emission Reductions of CO₂ from Fossil Fuels by the Development of Biomass Plastic Films

Biomass plastic film, Alphan G

We have developed a polypropylene film containing polylactic acid, which as the plant-based plastic has a low environmental impact to reduce CO₂ emissions from fossil fuels. This product, Alphan G, was certified as a Biomass mark product* and has been commercialized.

We are also working on the development of heat-sealing films and will continue to develop a wide variety of products that contribute to SDGs.

* Biomass mark certified by the Japan Organics Recycling Association



Contribution to Energy Conservation through Development of Heat Shielding Film

Anti-heat Windshield Film

To mitigate soaring utilities costs and reduce the environmental burden of increased use of electric power, heat shielding materials that can be adhered to windows in automobiles and buildings are attracting attention. Our heat shielding film offers both high heat shielding performance and transparency, and in December 2022, we added a new product that uses recycled materials for release films to our line-up. It is currently available as film for automotive windshields, and we are considering expanding its application to building windows.



New Value Creation through Green Innovation

Initiatives for New Business Development

We will create business models and businesses that will open up a circular future.

General Manager,
Corporate Business Development Division **Teruyuki Mori**



As part of our structural reforms towards achieving the "long-term vision" goals, we established the Corporate Business Development Division in October 2022 with the aim of developing businesses that will contribute to building of a sustainable society and growing those businesses into future earnings pillars.

We will aim to expand our business by establishing the comprehensive management and promotion system for new business, such as the liquid packaging carton business, one of our environmental response businesses, the effective utilization of company owned forests (P32: Oji Forest Value-Creation & Promotion Department), and eco-friendly paper products that will contribute to de-plasticization.

Liquid Packaging Carton Business

In September 2020, the Oji Group established Ishizuka-Oji Paper Packaging Co., Ltd. in a joint venture with ISHIZUKA GLASS Co., Ltd. and entered the liquid packaging carton business.

For chilled cartons for refrigerated storage, such as milk and juice, we have already achieved an integrated structure in Japan covering the entire process from manufacturing base paper to converting and sales. In the Liquid Packaging Carton Department that launched in October 2022, we are actively working to enhance a structure and promote sales activities to drive forward and expand the business



Chilled cartons

Acquisition of IPI (Italy) for the Expansion of Business into Overseas Markets

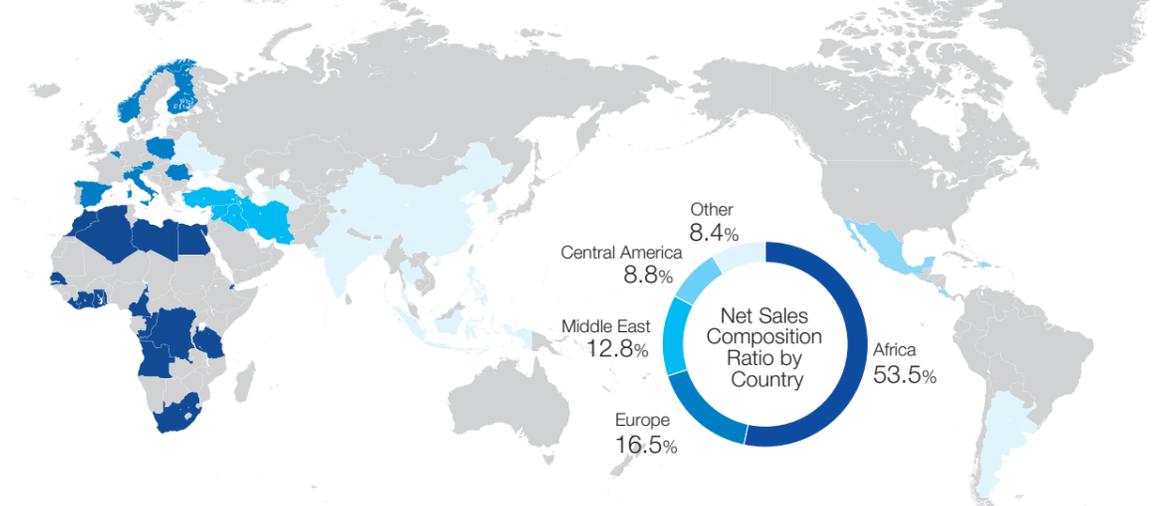
As part of our overseas strategy for the liquid packaging carton business, we acquired IPI S.r.l. (Italy), a manufacturer and distributor of converted paper and filling machines for aseptic packaging cartons, in May 2023. This acquisition aims to enter the aseptic carton market, which is the largest segment in the global liquid paper carton industry.

This will enable integrated production of base paper and converted paper similar to our chilled cartons, allowing the Oji Group to make a full-scale entry into the Asia and Oceania markets, where the Oji Group has particular strengths. In addition, by leveraging IPI's sales network in newly emerging countries like Africa and other regions, the Oji Group anticipates the entry and expansion of other businesses.



Aseptic packaging cartons
* Cartons are sterilized in filling machine that keep contents for six months to a year at room temperature.

IPI's Sales Area (2022)



Business Promotion for Eco-Friendly Paper Packaging

Oji Group is promoting the development and commercialization of a variety of paper packaging products and the establishment of new business models as an activity toward solving environmental issues, such as reduction of CO₂ emissions and plastic consumption.

Commercialization of Eco-Friendly Paper Packaging to Meet a Wide Variety of Needs

■ FlatSkin®: Cardboard That Enables Prolonged Shelf Life and Attractive Presentation of Fresh Foods

This is a package comprising cardboard and film that can be separated for disposal. The vacuum packaging of meat and fish suppresses drips, and printing on the cardboard offers attractive presentation of foods.



■ Paper-made Blister Pack: a Packaging That Offers Effective Presentation of Contents

This is composed of three pieces; paperboard top, tray, and divider. Even without using plastic films, it is able to secure and protect the products inside. Because the package can be printed on and window holes can be made, this product offers more effective presentation of the contents such as daily goods.



■ Flanged Paper Tray: Microwave-safe Packaging

This is a packaging that can be top-sealed and that has a flanged structure for ease of carrying and four-cornered adhesion construction that provides superior container strength.



These containers are microwave-safe and can also be used as tableware.

■ Tapered Paper Tray: Food Tray with Separable Cardboard and Film

This is a paperboard-based tray with a resin film that covers the surface. It is designed so that the cardboard and film can be easily peeled away, making it easy to separate for disposal after use. Because the flange is flat, there is no concern about the contents leaking after top-sealing.



Building of New Recycling System

■ Recycling System for Paper Cups

Conventional paper cups, made of plastic laminated paper, are not suitable for the existing recycling systems, so are generally treated as combustible waste. Leveraging our recycling technologies that we have cultivated over many years, Oji Group has built a system that enables recycling of paper cups by incorporating paper cup crushing technology and washing technology. The collected paper cups are reborn into other familiar paper products (corrugated containers, tissues, etc.)

We will also make an effort in the recycling of the paper cups used by our customers.



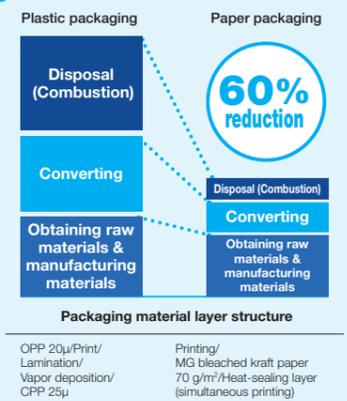
Topics Reduction of CO₂ Emissions by Introduction of Paper Packaging

The calculation*1 and comparison of the life-cycle CO₂ emissions of petroleum-based plastic packaging and sustainable paper packaging shows that paper packaging emits less CO₂ than plastic packaging*2. Therefore, the introduction of paper packaging can contribute to CO₂ emission reduction. For more details, please see our website.

*1 CO₂ emissions are calculated by converting greenhouse gas (GHG) emissions such as carbon dioxide (CO₂), methane (CH₄), and dinitrogen monoxide (N₂O) into CO₂. The calculation is made based on LCA (Life Cycle Assessment) methodology.
*2 Calculation results of reduction rate will vary, depending on packaging material and layer structure. (It is assumed that the paper packaging material is MG bleached kraft paper 70 g/m² and that the method of printing is gravure printing.)

Sustainable packaging | CO₂ reduction effect

➔ <https://solution.ojiholdings.co.jp/ojipaperpackage/sustainability/> (available in Japanese only)

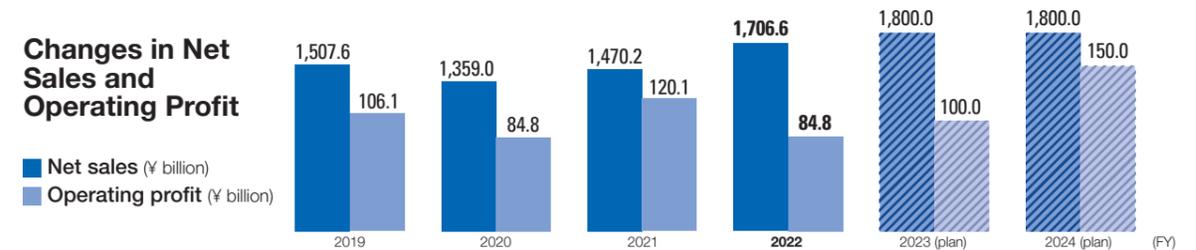


Business Overview

Oji Holdings Corporation

Net sales **¥1,706.6 billion** Operating profit **¥84.8 billion**

Changes in Net Sales and Operating Profit



Industrial Materials COMPANY	Household and Consumer Products COMPANY	Functional Materials COMPANY	Forest Resources and Environment Marketing COMPANY	Printing and Communications Media COMPANY	Corporate Management Group and Shared Service Companies																								
<p>→ P45</p> <p>Main businesses Containerboard/corrugated containers, Boxboard/ folding cartons, Packaging materials/paper bags</p> <p>Affiliated companies</p> <table border="1"> <tr> <th>Domestic</th> <th>Overseas</th> </tr> <tr> <td>43 companies</td> <td>44 companies</td> </tr> </table> <p>Earnings structure</p> <p>Net Sales Composition Ratio: 38.6%</p> <p>Net sales: ¥780.5 billion</p> <p>Operating profit: ¥(1.2) billion</p>	Domestic	Overseas	43 companies	44 companies	<p>→ P49</p> <p>Main businesses Household papers, Disposable diapers</p> <p>Affiliated companies</p> <table border="1"> <tr> <th>Domestic</th> <th>Overseas</th> </tr> <tr> <td>1 company</td> <td>6 companies</td> </tr> </table> <p>Earnings structure</p> <p>Net Sales Composition Ratio: 10.9%</p> <p>Net sales: ¥219.9 billion</p> <p>Operating profit: ¥15.5 billion</p>	Domestic	Overseas	1 company	6 companies	<p>→ P51</p> <p>Main businesses Specialty paper, Thermal paper, Adhesive products, Film</p> <p>Affiliated companies</p> <table border="1"> <tr> <th>Domestic</th> <th>Overseas</th> </tr> <tr> <td>9 companies</td> <td>22 companies</td> </tr> </table> <p>Earnings structure</p> <p>Net Sales Composition Ratio: 20.9%</p> <p>Net sales: ¥423.8 billion</p> <p>Operating profit: ¥68.5 billion</p>	Domestic	Overseas	9 companies	22 companies	<p>→ P55</p> <p>Main businesses Pulp, Energy, Plantation services, Lumber processing</p> <p>Affiliated companies</p> <table border="1"> <tr> <th>Domestic</th> <th>Overseas</th> </tr> <tr> <td>17 companies</td> <td>29 companies</td> </tr> </table> <p>Earnings structure</p> <p>Net Sales Composition Ratio: 13.9%</p> <p>Net sales: ¥281.0 billion</p> <p>Operating profit: ¥(4.8) billion</p>	Domestic	Overseas	17 companies	29 companies	<p>→ P59</p> <p>Main businesses Newsprint, Printing and Publication paper, Communications paper</p> <p>Affiliated companies</p> <table border="1"> <tr> <th>Domestic</th> <th>Overseas</th> </tr> <tr> <td>7 companies</td> <td>1 company</td> </tr> </table> <p>Earnings structure</p> <p>Net Sales Composition Ratio: 15.7%</p> <p>Net sales: ¥318.1 billion</p> <p>Operating profit: ¥8.4 billion</p>	Domestic	Overseas	7 companies	1 company	<p>→ P61</p> <p>Main businesses Real estate, Engineering, Trading business, Logistics, etc.</p> <p>Affiliated companies</p> <table border="1"> <tr> <th>Domestic</th> <th>Overseas</th> </tr> <tr> <td>15 companies</td> <td>2 companies</td> </tr> </table> <p>Earnings structure</p> <p>Net Sales Composition Ratio: 15.7%</p> <p>Net sales: ¥318.1 billion</p> <p>Operating profit: ¥8.4 billion</p>	Domestic	Overseas	15 companies	2 companies
Domestic	Overseas																												
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† Net sales and operating profit of Oji Holdings Corporation include adjustments (primarily those for internal transactions). Non-consolidated net sales, net sales composition ratio and operating profit do not include adjustments (primarily those for internal transactions).

Household and Industrial Materials Businesses | Industrial Materials Business



Through offering innovative proposals using sustainable paper packaging materials to protect the environment while increasing profits, we will respond to the trust of our stakeholders.

Oji Holdings Corporation
Executive Officer
President, Industrial Materials COMPANY

Akio Hasebe

Business Overview

The Industrial Materials Business has production and sales structures that integrate material and converting from base paper manufacturing to product processing and packaging design for the packaging materials that are essential to industry such as corrugated containers, folding cartons, and paper bags and responds in a timely manner to customer needs.

● Corrugated Container Business

As well as corrugated containers used in foodstuffs, daily products, electronics, and other areas, we also offer heavy-duty packaging materials used for transporting mainly industrial parts. We also provide automatic packaging systems adjusting the packaging dimension in order to fit each product size inside.

● Folding Carton Business

For folding cartons used in a range of fields including confectionaries, cosmetics, and pharmaceuticals, we are combining aesthetically pleasing base paper with structural design tailored to the application and appealing graphics, thereby further enhancing the value of our customers' products.

● Paper Bag Business

We handle a wide range of customer needs—such as heavy-duty sacks for packaging used for safe and secure transport of various products, paper bags that are used for packaging of retail products which also play a role in sales promotions, and bags for home delivery, which are seeing increased demand given the growth in online shopping.



Awareness of Business Environment

- Increased consumer awareness about environmental issues
- Growing interest in renewable materials with the trend toward de-plasticization
- Economic development in emerging markets such as Southeast Asia and India
- Expansion of the e-commerce market
- Soaring raw material and fuel prices and large fluctuations in exchange rates

Business Opportunities and Risks

- Expanding sales by proposing a switch to paper packaging materials
- Creating sales opportunities in collaboration with Oji Group companies in Japan and overseas
- Increasing market share through capital investment and M&A to meet rising demand
- Soaring raw material and fuel prices and passing the cost increase on to product prices
- Deterioration of base paper market conditions in China and Southeast Asia

Our Strengths

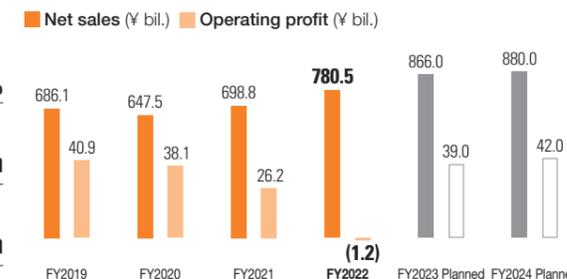
- Stable supply and quality control system enabled by integrating base paper manufacturing and converting/processing
- Reduced environmental burdens through efficient base paper transportation, including at two integrated corrugated container plants in Japan
- Corrugated container processing bases at many locations in Southeast Asia and a strong container-board sales organization around these bases

Changes in Net Sales Composition Ratio, Net Sales, and Operating Profit* Sales target for FY2030: ¥1,250.0billion

* Total of the Industrial Materials Business and the Household and Consumer Products Business



Net Sales Composition Ratio **38.6%**
Net Sales **¥780.5 billion**
Operating Profit **¥(1.2) billion**



Segment Overview

In FY2022, the Household and Industrial Materials Businesses had net sales of 780.5 billion yen (up 81.7 billion yen from FY2021) and operating loss of 1.2 billion yen (down 27.4 billion yen from FY2021). In the domestic business, net sales increased with efforts for price revision in a number of products. Net sales of disposable diapers remained almost unchanged from the previous year. In the overseas business, net sales of containerboard and corrugated containers increased mainly due to higher sales in Southeast Asia and India and penetration of price increases, as well as the operation of new containerboard machines in Malaysia started in October 2021.

In FY2023, net sales of 866.0 billion yen (up 85.5 billion yen from FY2022) and operating profit of 39.0 billion yen (up 40.2 billion yen from FY2022) are planned.

Challenges for the Achievement of the Medium-term Management Plan and Priority Measures for 2023

Business Strategy

- Further expand & enhance packaging business in Southeast Asia, India, and Oceania
- Expand & enhance corrugated container business in Greater Tokyo area, Japan

Challenges

- Overseas : Build new plants, accelerate M&A
- Japan : Expand business through our own plants in the Greater Tokyo area and expand our market share through M&A in other regions

Measures

- Overseas: Build a new plant in India
- Overseas: Promote proactive capital investment
- Japan: Expand business in the Greater Tokyo area, mainly through new plants in Chiba and Tochigi
- Japan: Plan M&A

Further Expansion & Enhancement of Packaging Business in Southeast Asia, India, and Oceania

To meet the increasing demand for packaging in various regions, we own a total of 47 manufacturing bases in nine countries throughout Southeast Asia, India, and Oceania, and we are developing our business in the countries.

From 2022 to 2023, following the start of operation of new corrugated container plants in Malaysia (two plants) and Vietnam (two plants), in June 2023, we decided to construct our fifth corrugated container plant in India.

In Southeast Asia and India, we will continue to expand our business and increase our market share including through M&A. In addition, we will strengthen our business foundation by improving our competitiveness in terms of cost and quality by proactively introducing the latest equipment not only at new plants but also when renewing facilities at existing plants.

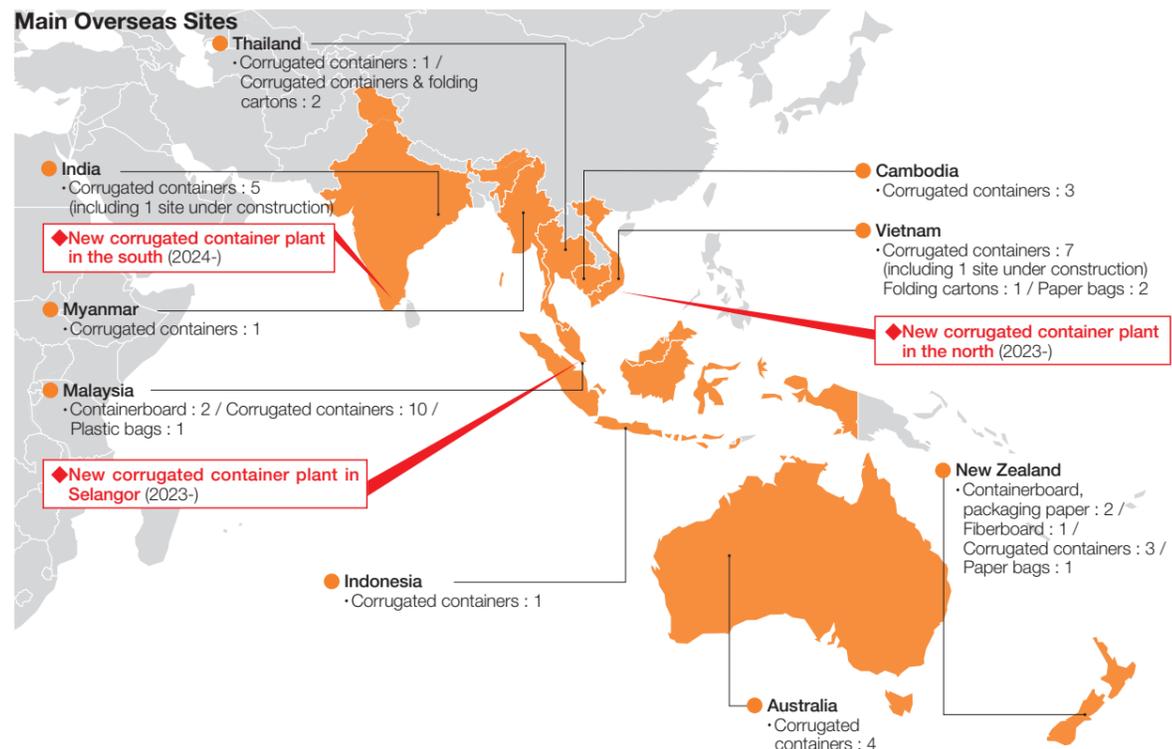
In Oceania, a new plant started operation in Christchurch, New Zealand in 2022, and we intend to expanding our business and strengthen our competitiveness through aggressive M&A in the corrugated container business including in Australia, as well

as by introducing the latest equipment to existing plants.

We will also work on the development of plastic alternative products to respond to the expected growing demand.



Our 6th corrugated container plant in Vietnam (started operation in August 2022)



Expansion & Enhancement of Corrugated Container Business in Greater Tokyo Area, Japan

In February 2023, an integrated containerboard processing plant in Utsunomiya City, Tochigi Prefecture, began operation, which had been constructed to meet increasing demand for corrugated containers in the Greater Tokyo area. It is the second integrated containerboard processing plant following the Kushiro Plant, in Hokkaido of the COMPANY.

The integrated plant is not only highly competitive in terms of cost and production efficiency, but also reduces greenhouse gas emissions generated during the transportation of containerboard. It is a corrugated container plant for the new era, which is also in accordance with the Group's long-term vision of building a sustainable society through our business activities. We will continue to make investments that contribute to both competitiveness and sustainability and meet the expectations of our stakeholders.



Integrated plant for corrugated containers in Tochigi Prefecture (started operation in February 2023)

Voice Leading the Market as the Largest Integrated Paper and Corrugated Container Manufacturer in Malaysia



HPI Resources Berhad Group Managing Director Chang Kee Soon

Since 2010, Oji Group has established itself as a solid leader in the Malaysian corrugated container industry through strategic acquisitions of GSP, UKB, and Harta. Continuous business expansion and M&As over the past 12 years have led to have a market share of 35% in Malaysia.

Our commitment to innovation and growth are visible in our state-of-the-art GSP's 4th Plant (PP4) and UKB's 2nd Plant (UKB2), which are increasing the Oji Group's competitiveness in the Malaysian market.

As the largest integrated paper and corrugated container manufacturer in Malaysia, we are committed to providing our customers with competitive prices, outstanding quality, and sophisticated service while always being a responsible corporate citizen.

While demand remains sluggish, we will continue to work to modernize our facilities to optimize staffing and operating costs. In addition, GSP's containerboard machine (PM3) with the state-of-the-art technology started operation in 2021. Through integrating the upstream and downstream to strengthen our packaging business in Malaysia, we will lead the market, and thus strive to maximize returns to our shareholders by being proactive and always looking forward.

Initiatives for Environmental Issues

At the integrated containerboard processing plant in Tochigi Prefecture, a solar power generation system with an output of 1.5 megawatts is being installed (scheduled for completion by the end of September 2023). It is not the first solar power generation system installed at our corrugated container plant, but having a larger output, this system will be able to cover the daytime electricity for the corrugated container processing section when weather conditions are favorable.

We are also working to install solar power equipment in existing plants if their weight does not exceed the allowable roof load or when the roof is repaired, and examining the possibility of fuel conversion for coal-fired boilers.

We will continue to work on initiatives for environmental issues along with business expansion.



Solar panels at the corrugated container plant in Tochigi Prefecture (to be completed by the end of September 2023)

Initiatives for Product Development

Development of Corrugated Cardboard Packaging Solution for Export Shipment of Car Seats

We developed a corrugated cardboard packaging solution for export shipment of car seats as an alternative to steel packaging material that had been used. The solution made all of corrugated cardboard are expected to reduce cost, reduce workload in packaging, and further facilitates recycling. In recognition of these, the solution received the WorldStar Winner in the WorldStar Awards 2023 organized by the World Packaging Organization (WPO).

To promote paper recycling, which is one of the Group's sustainable business models, we will continue to develop products that open up new possibilities for paper packaging materials.



Corrugated cardboard packaging solution for export shipment of car seats developed by Oji Container

"OJI FLEX PACK'AGE," Automated Packaging System

We sell "OJI FLEX PACK'AGE," automatic packaging system, which helps packaging adjust flexibly to the product size, and fanfold corrugated sheets "Rakudan," its packaging material. In addition to saving labor in packaging operations, they also help reduce greenhouse gas emissions by reducing the amount of materials used and transportation. This has been well accepted by customers in various industries as a next-generation packaging solution.

Having started the production of "Rakudan" in the Kansai region in June 2022 following the Kanto region, now we can offer this solution to an even more customers. We will further accelerate its market rollout and work to strengthen the foundation of the "Rakudan" business and reduce environmental burdens.



"OJI FLEX PACK'AGE," automated packaging system



We will maximize the internal resources of the Oji Group to enhance the value of the “nepia” brand and deliver products that stand by people and the environment to our customers.

Oji Holdings Corporation
Executive Officer
President, Household and Consumer Products COMPANY

Takayuki Moridaira

Business Overview

Oji Nepia has developed the “nepia” brand of household paper and conducts its business activities with the aim of being a brand that stands by people’s lives and the environment.

“Perceived quality for life” as in the seeking of good texture, comfort, and functionality. “Environmental Quality” as in the adoption of FSC™ certified paper for forest conservation and the tie-up with WWF. Oji Nepia pursues these two qualities and activities by integrating sales, marketing, and production functions. (FSC™ C018118)



nepia Premium Soft Toilet Rolls



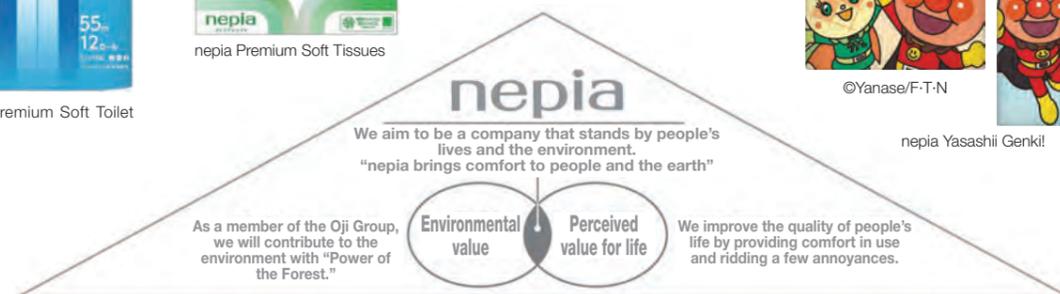
nepia Premium Soft Tissues



nepia Tendar Hakudake Fit Pants



nepia Yasashii Genki!



Awareness of Business Environment

- Low birthrate and super-aging society
- Economic development in emerging markets such as Southeast Asia
- Hygiene awareness established since the COVID-19 pandemic
- Increased consumer awareness about environmental issues
- Soaring raw material and fuel prices and large fluctuations in exchange rates
- Change in consumer behavior due to successive price hikes of daily necessities

Business Opportunities and Risks

- Growing needs for eco-friendly products
- Capturing firm demand mainly in the Greater Tokyo area in Japan by improving production and logistics systems and strengthening branding
- Improving competitiveness by optimizing product lineup
- Soaring raw material and fuel prices and passing the cost increase on to product prices

Our Strengths

- A wide range of eco-friendly products, including FSC™ certified paper and filmless boxed tissues
- Stable supply and quality control system enabled by integrating base paper manufacturing and converting/processing
- Establishment of a finely woven product supply network with dedicated warehouses in the Greater Tokyo area

Challenges for the Achievement of the Medium-term Management Plan and Priority Measures for 2023

Business Strategy

- Enhance branding & expand sales of household paper products in Japan
- Expand & enhance overseas disposable diaper business

Challenges

- Develop products that respond to domestic demand fluctuations and further enhance the value of the “nepia” brand
- Respond to changes in the overseas disposable diaper market environment
- Strengthen cost competitiveness and sales capabilities

Measures

- Strengthen the branding of “nepia” that stands by people’s lives and the environment
- Domestic household paper: Expand products using FSC™ certified materials, implement events for the 20th anniversary of the “Hana-Celeb” brand, and renew existing household paper products
- Overseas disposable diaper: Develop products that meet the needs of local consumers, expand sales channels for adult diapers, and thoroughly reduce costs

Enhancement of Branding and Expansion of Sales of Household Paper Products in Japan

Oji Nepia started using FSC™ certified paper in 2011 ahead of others in the industry. Since then, it has continued to produce environmentally-friendly products, adopting biomass film and ink and developing products using paper instead of film for packaging.

In the Japan Sustainable Brands Index (JSBI) 2022, a corporate brand survey regarding SDGs as viewed by consumers* published in February 2023, Oji Nepia was ranked fourth

(of 306 companies), and the first (of 17 companies) in the ranking by industry, in the “Cosmetics and Toiletries Category.”

* Survey by Sustainable Brands Japan (15,300 samples nationwide, web survey, male and female aged 18–79, 306 companies)

Initiatives for Product Development

Launched “nepia Hana-Celeb facial towel”

In response to concerns about cloth towel hygiene and dissatisfaction with rough or fluffy textures when wiping moisture from the face after washing, we developed a new “nepia Hana-Celeb facial towel” suitable for gently wiping wet skin. Compared to Hana-Celeb boxed tissue, it absorbs water about three times faster, boasts double the strength when wet, and its embossed sheet quickly wipes away moisture from the face. Containing the same triple moisturizing ingredient as used in Hana Celeb Tissue, a proprietary technology of nepia, it also provides a soft feel even with a larger thickness. We will continue to develop products that bring consumers’ desires to life.



Initiatives for Environmental Issues

Launched “nepia nepinepi Tissue Filmless Box, 5-Pack 400 Sheets (200 Sets)”

We developed a filmless box having no film on the opening, which users can just push to take out tissues. The structure of the box eliminates the film while still ensuring a smooth tissue-picking experience. The box is designed to be opened easily by simply pressing on the opening at the beginning of use and produce no waste. After use, the box can be effortlessly folded for direct recycling as paper waste. In addition, eliminating the film on the opening has reduced about 25% of the plastic used in the product, making it an environmentally-friendly product that saves resources and plastic.



Functional Materials Business



We aim to expand the business by enhancing the added value of existing products, as well as developing “Only One” products and strengthening sales activities for them.

Oji Holdings Corporation
Executive Officer
President, Functional Materials COMPANY
Shigeki Aoki

● Specialty Papers Business

The Specialty Papers Business has a lineup of products with advanced special functions such as electrical material paper including insulation materials, dry pulp non-woven fabric excellent in bulkiness and liquid retention, and glass paper excellent in size stability and heat resistance.



Glass paper (Oji F-TEX)

● Imaging Media Business

The Imaging Media Business at the Oji Group develops thermal recoding media that meet customer needs for household, industrial, logistic, medical, and other various uses, leveraging diverse coating technologies, boasting a top class global market share.



Thermal paper for tickets (Kanzaki Specialty Papers)

● Adhesive Products Business

Using proprietary adhesive force control technology, the Adhesive Products Business handles from familiar products like food/beverage labels, courier labels, adhesive tape for packaging, and wound dressings to less familiar, special applications like aluminum tape for construction material and forgery prevention tape.



Biodegradable pressure-sensitive adhesive paper for labels (Oji Tac)

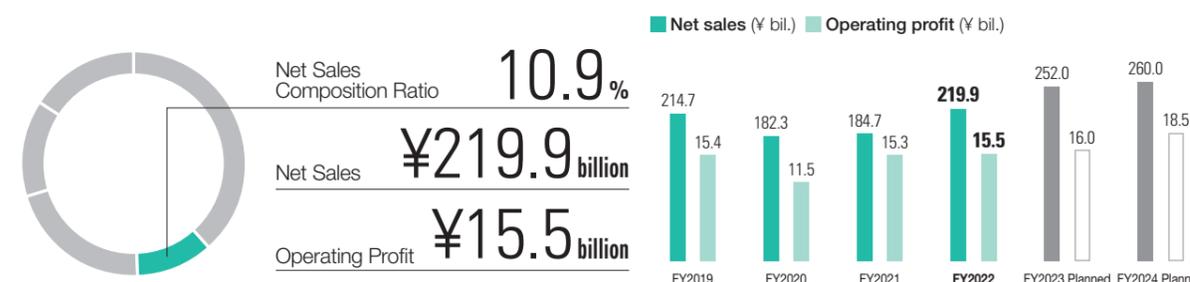
● Film Business

The Film Business handles OPP films for film capacitors to be incorporated in motor control PCUs of electric vehicles, developed based on its thin film technology that produces the world’s thinnest films, and optical double-sided adhesive films and hard-coated films that are adopted for smartphones and other precision devices.



Film used in capacitors (Oji F-TEX)

Changes in Net Sales Composition Ratio, Net Sales, and Operating Profit Sales target for FY2030: **¥400.0billion**



Segment Overview

In FY2022, the Functional Materials Business had net sales of 219.9 billion yen (up 35.2 billion yen from FY2021) and operating profit of 15.5 billion yen (up 0.2 billion yen from FY2021). In the domestic business, sales of specialty paper increased due to price revisions, despite a decrease in sales volume. Sales of thermal paper increased due to a recovery trend in demand, which had declined due to the impact of the COVID-19 pandemic, as well as price revisions. In the overseas business, sales increased due to a recovery in demand for thermal paper, spread of price increases, and the operation of a new facility in Brazil.

In FY2023, net sales of 252.0 billion yen (up 32.1 billion yen from FY2022) and operating profit of 16.0 billion yen (up 0.5 billion yen from FY2022) are planned.

Challenges for the Achievement of the Medium-term Management Plan and Priority Measures for 2023

Business Strategy

- Actively develop high-function and eco-friendly products
- Expand global sales of the imaging media business and enhancing competitiveness including printing and converting

Challenges

- Accelerate the development of high-function, high value-added, and eco-friendly products
- Expand business in Japan and the Asian region through M&A

Measures

- Realize effects of investment in the capacitor-use OPP film facilities in Japan and thermal paper facilities overseas early
- Japan: Increase market share by adding more value to existing products, developing “Only One” products, and strengthening sales and marketing
- Overseas: Realize synergies from the inclusion of the Adampak Group early

Actively Develop High-function and Eco-friendly Products

In Japan, we have worked to develop products with high functionality and high added value with considerations for environmental issues.

In the field of film products, we developed an eco-mark certified “heat shielding window film” that combines high heat shielding properties and light transmittance. In the field of paper, we developed “Semi-Through,” translucent thermal paper through which the backside of the label or the contents of the package is visible, and in the field of non-woven fabric, “kinarito,” a biodegradable non-woven fabric material made mainly from plant-derived cellulose and polylactic acid, and a water soluble “Texcell” series made of 100% natural materials. We also worked on the development of “Cellulose Mat” and “Fine Press W” for press molding using wood pulp as a substitute for plastic, and “Cellulose Resin Pellets” for injection molding.

In recent years, we have also developed new products to respond to the accelerating rise of expectations to address environmental issues in the agricultural materials field. Our product lineup includes “CALFRESH,” a fruit and vegetable packaging film that reduces industrial waste and food loss; “OJI Sustainable

Mulching Sheet,” a paper mulching sheet that biodegrades after agricultural use as a mulching sheet; and “HyBioth,” a biodegradable, water soluble non-woven fabric made primarily from natural pulp. Thus, we are developing new products to meet immediate user needs.

In response to the rapid popularization of electric vehicles due to a globalized trend toward decarbonized society, we will add two more units of production equipment for the capacitor-use OPP films in motor drive controllers at Oji F-TEX Shiga Mill, one of which has been operating since July 2023 and the other is scheduled to start operation in FY2024. As a result, the production capacity is expected to double from the February 2022 level.



Agricultural mulching sheet “OJI Sustainable Mulching Sheet”

Awareness of Business Environment

- Progress of global shift to a decarbonized society
- Growing interest in highly functional paper products with the trend toward de-plasticization
- Economic development in emerging markets such as South America and Southeast Asia
- Soaring raw material and fuel prices and large fluctuations in exchange rates

Business Opportunities and Risks

- Increasing demand for the capacitor-use OPP films due to the rapid popularization of electric vehicles
- Increasing demand for functional paper materials due to growing needs for environmentally-friendly products for de-plasticization or reduced plastic use
- Strong thermal paper demand in South America and growing demand for high performance labels in Southeast Asia region
- Foreign exchange fluctuation risks and security/safety situation risks in overseas becoming visible due to the diversity of production base locations

Our Strengths

- We have high levels of core technologies in “papermaking,” “converting (functional and adhesive coatings),” and “film forming”
- Organizational structure for agile development of highly functional, high value-added products including environmentally-friendly products
- Top global market share in the imaging media business
- Integrated production from base paper manufacturing to converting

Functional Materials Business

● SILBIO Series

In the midst of the growing needs for paper products as replacement for plastic packaging, “SILBIO series” has a lineup well-suited for light packaging applications in various fields, including a product that not only provides barrier property to paper packing materials but also has barrier and light-shielding properties as high as aluminum deposited film, a product that has transparency and barrier properties, a product that requires no sealant such as PE. The lineup consists of the following.

“SILBIO BARRIER” which has oxygen barrier property as high as EVOH, and moisture barrier property as high as LDPE, preventing contents from diffusing moisture or scent. “SILBIO ALBA,” aluminum deposited paper material which has oxygen barrier, moisture barrier, light-shielding and heat sealing properties, and is most suitable for applications requiring high barrier and concealability. “SILBIO CLEAR” which has a transparent feature in addition to barrier and heat sealing properties, and is most suitable for packaging for items whose contents you want to show such as food and daily products. “SILBIO EZ SEAL” which has no barrier property, but is specialized in its easy heat sealing feature without using sealant, and is most

suitable for secondary and delivery packaging for food, and industrial material packaging.

The SILBIO series products can bear a paper identification mark, and is adopted by customers who appreciate its features as packaging materials for food and soap.



Expanding Global Sales of Imaging Media Business and Enhancing Competitiveness Including Printing and Converting

Overseas, we have completed enhancing and expanding facilities to practically double production capacity, and started full operation in Brazil in order to meet strong demand for thermal paper in South America. In Europe, construction work has started to increase the capacities of thermal paper production facilities, which are scheduled to start operation in January 2024. In addition, in September 2022, Adampak Group, a high performance label printing and converting company with its business bases in Southeast Asia and China, became a member of the Oji Group. This addition of the high performance label business for electric products and healthcare products to the thermal paper and adhesive paper business already operating in Thailand and the high performance label printing/converting and cutting/converting business in Malaysia has enabled the integrated production from base paper manufacturing to converting. In the Asian market, which is expected to continue to grow further, we will propose a wide

range of timely and optimal label products to increase customer value, by picking up a broad range of customer needs in the high performance label market and feeding them back to the upstream business to realize synergetic effects early.

In the emerging markets in Southeast Asia, South America, the Middle East, and Africa, to meet the demand growing with economic development, we will aim to expand the areas in which we operate while strengthening our competitiveness at our existing bases, based on the Group’s core technologies which are strengths we have cultivated to date in “papermaking,” “converting (functional and adhesive coatings),” and “film forming.”

While continuing to advance our development of environmentally-friendly materials and products, we will keep on anticipating market needs and proactively working to expand into new business areas so as to promptly provide products and services that exceed expectations.

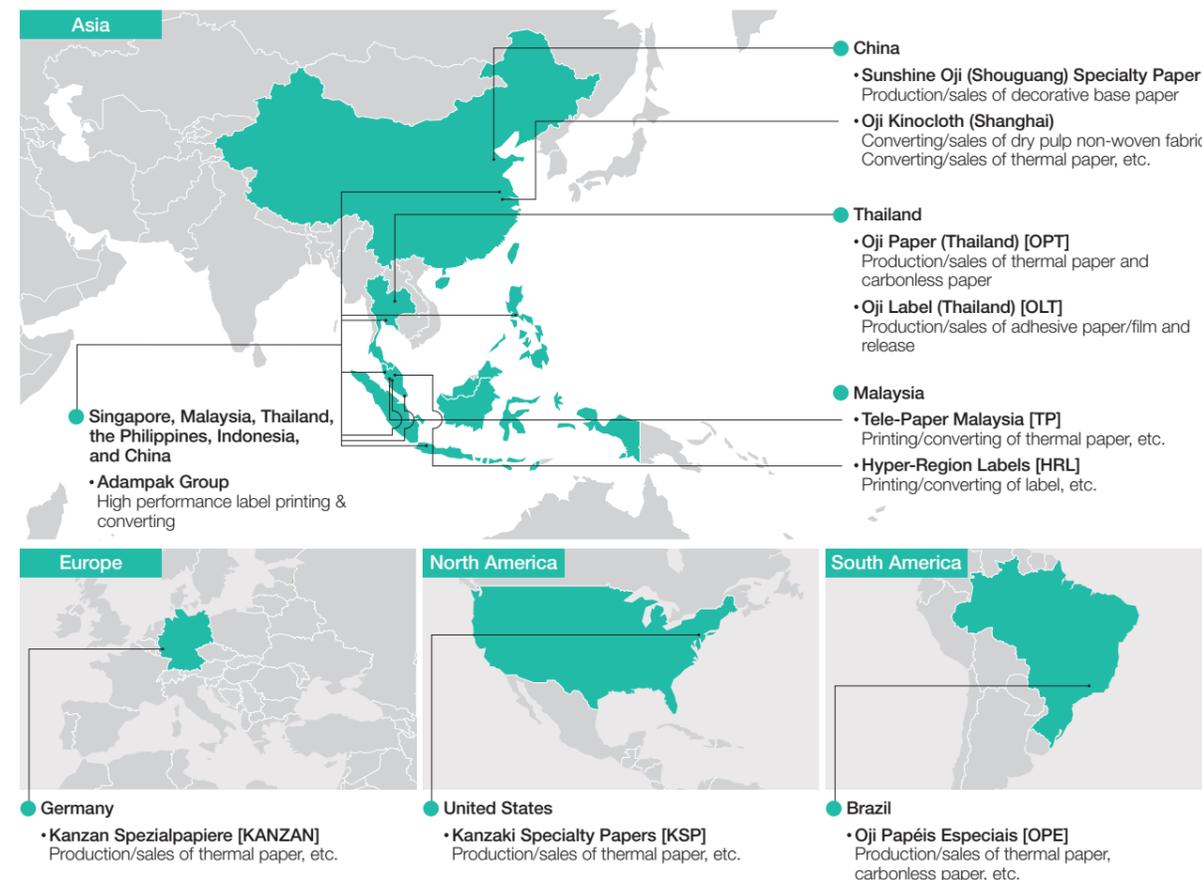


Adampak Group (Head Office in Singapore)



Adampak Group (Letterpress label printing presses at Aident Corporation in Malaysia, a subsidiary of Adampak Group)

Main Overseas Sites



Voice Creating Synergies among Group Companies to Further “Stick with Us”



Adampak Pte. Ltd.
Director, Chief Executive Officer
Tan Kok Kuang

Established and headquartered in Singapore since 1979, Adampak operates manufacturing footprint of seven plants across six countries in Asia i.e. Singapore, Malaysia, Thailand, Philippines, Indonesia and China.

Adampak’s regional presence is complemented by state-of-the-art production capabilities including technologically advanced digital printing, multi-color high speed flexographic and letterpress presses, precision die-cut machines as well as high-speed video auto-visual inspection units.

Adampak is the preferred partner for multi-national companies requiring premium, customized and high-performance label solutions including RFID tags as well as precision die-cut components across the globe. Adampak serves a wide spectrum of end markets i.e. Storage, Electronics, Power & Renewables, Automotive, Logistics and Healthcare.

Adampak has built up a strong brand and reputation across its diversified and blue-chip customers based on its excellent quality level, customer service, competitive pricing and on-time delivery. This has resulted in long-term and sticky relationships i.e. in-line with Adampak’s slogan of “Stick with Us”.

Oji Holdings acquired Adampak Group on September 1, 2022 and together with Oji’s technologically advanced products plus market leadership presence, Adampak is fully geared towards Oji’s vision of being our customer One Stop Packaging Solution provider.

Forest Resources and Environment Marketing Business



We are comprehensively leveraging wood resources including pulp, renewable energy, afforestation, and lumber processing to promote enhancement of the business.

Oji Holdings Corporation
Executive Officer
President, Forest Resources and Environment Marketing COMPANY

Yuji Onuki

● Pulp Business

We produce a diverse lineup of pulp grades including hardwood and softwood kraft pulp, and dissolving pulp. With 2.5 million tons per year market pulp supply capacity, we sell our products globally including in Asia, Europe, and North America.

● Energy Business

We are promoting the electric power generation business by establishing and expanding electricity generation facilities using renewable energy, including wood biomass, hydroelectric power, and solar power. Leveraging our sites in Japan and overseas, we are also working to strengthen purchase and market supply of biomass fuels in line with the energy business expansion.

● Lumber Processing Business

We are expanding production capacity, and are purchasing and selling lumber and processed lumber products, primarily in Asia and Oceania. In Japan, we are also seeking to strengthen profitability through sales expansion into the building materials field and other measures.

● Forest Plantation Business

We grow and manage company-owned sustainable forests in Japan and overseas. Harvested wood are supplied for pulp raw materials, as well as for a range of applications such as lumber, plywood materials, and biomass fuels. With the goal of 400,000 ha of overseas production forests, we are also acquiring lands and expanding forest plantations.

● Fuels/Chemicals and Other Material Procurement Business

Our centralized purchasing team buys a variety of chemicals and raw materials that are competitive and sustainable. We are committed to environmentally sustainable and socially responsible procurement in complying with Oji Group Partnership Procurement Policy.

● Starch and Saccharification Business

We have been developing technologies for starch and saccharification products, primarily of corn, to provide products that meet the needs of our customers.



Dissolving pulp (for general rayon and special items)



CENIBRA's pulp products warehouse



Nursery where eucalyptus varieties are selected and raised (CENIBRA in Brazil)

Awareness of Business Environment

- Growing demand for pulp due to economic development in newly industrialized countries and the trend toward de-plasticization
- Global moves to increase pulp production capacities
- Intensifying competition for procurement of wood resources
- Rising raw material and fuel prices, labor costs, etc.

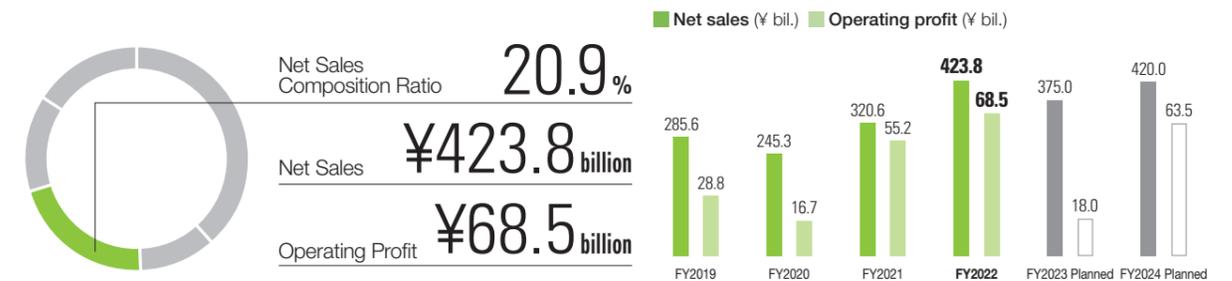
Business Opportunities and Risks

- Expanding and strengthening overseas business
- Expanding and improving competitiveness through M&A and strategic investments
- Securing forest resources by expanding plantations
- Market fluctuation risk due to social and economic conditions, currency exchange rates, natural disasters, etc.

Our Strengths

- Abundant and sustainable forest resources and know-how in forest management
- Integrated production from forest management to lumber processing and pulp
- Organization for production and sale of diverse types of pulp
- Procurement and sales capabilities that leverage the Group's collective strengths and domestic and overseas bases

Changes in Net Sales Composition Ratio, Net Sales, and Operating Profit Sales target for FY2030: ¥600.0billion



Segment Overview

In FY2022, we had net sales of 423.8 billion yen (up 103.2 billion yen from FY2021) and operating profit of 68.5 billion yen (up 13.3 billion yen from FY2021). In the domestic business, despite the impact of higher raw materials and fuel prices on the pulp business, sales and profits increased due to strong demand and rising market conditions. In the energy business, sales increased due to an increase in the amount of electricity sold as a result of the start of operation of a new biomass power plant in Tokushima Prefecture in December 2022. In FY2023, because sales and profits are expected to decrease due to the global decline in the pulp market, net sales of 375.0 billion yen (down 48.8 billion yen from FY2022) and operating profit of 18.0 billion yen (down 50.5 billion yen from FY2022) are planned.

Challenges for the Achievement of the Medium-term Management Plan and Priority Measures for 2023

Business Strategy		Measures	
<ul style="list-style-type: none"> ● Expand & enhance pulp business as a “comprehensive pulp manufacturer” ● Propel renewable energy and other energy businesses ● Expand lumber processing business 		<ul style="list-style-type: none"> ■ Conduct investigations for modernization and stable operation of pulp facilities, strengthen cost competitiveness, and explore possibilities to increase production capacities ■ Expand power generation and the lumber processing businesses leveraging our forest resources ■ Acquire lands and expand forest plantations to secure forest resources 	
Challenges			
Pulp business	<ul style="list-style-type: none"> ■ Expand production and sales volume toward market growth ■ Strengthen cost competitiveness and sales capabilities 		
Energy business	<ul style="list-style-type: none"> ■ Expand the renewable energy business ■ Strengthen biomass fuel procurement 		
Lumber processing business	<ul style="list-style-type: none"> ■ Strengthen sales capabilities for lumber products ■ Expand the lumber production business 		

Enhancement and Expansion of Pulp Business

We continue to implement strategic profit measures at key business sites to reinforce business foundations that are resilient to fluctuations in pulp markets.

CENIBRA (Brazil)

- Enhance cost competitiveness and sales capabilities, and consider production increase, upon holding all voting rights of the company in May 2021
- Install most advanced & work saving manufacturing facilities

Pan Pac (New Zealand)

- Consider production increase to meet growing demand for folding cartons

Oji Fibre Solutions (New Zealand)

- Made the company a wholly-owned subsidiary in March 2022
- Implement measures to stabilize operations, improve yields, and conserve energy by introducing Oji Group's operational techniques and management methods

Dissolving pulp

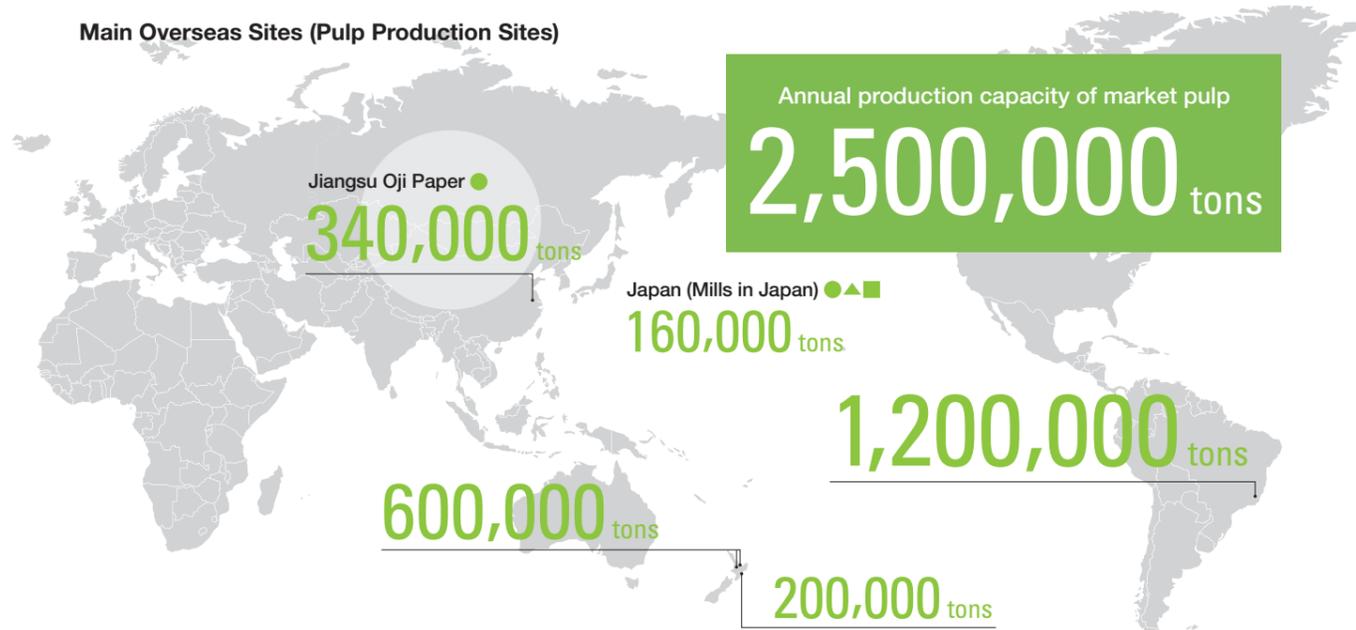
- Work to increase production and sales of dissolving pulp with growth potential in light of increasing demand for apparel, as well as to increase sales of high-value added products



Pulp being loaded onto a ship (Brazil)

Forest Resources and Environment Marketing Business

Main Overseas Sites (Pulp Production Sites)



Types of pulp ● Hardwood kraft pulp ▲ Softwood kraft pulp ■ Dissolving pulp ◆ Pulp for cement ❖ BC-TMP



CENIBRA Mill (Belo Oriente, Minas Gerais, Brazil)



Oji Fibre Solutions Tasman Mill (North Island, New Zealand)

Initiatives for Environmental Issues

Awarded the Gold Medal in the EcoVadis Sustainability Assessment

CENIBRA received the Gold Medal in a sustainability assessment by EcoVadis, an international assessment organization for supply chains based in France. In the assessment, companies are rated from the four aspects of environment, labor and human rights, ethics, and sustainable procurement. The Gold Medal is awarded to the top 5% of more than 100,000 eligible companies worldwide. The award solidifies the company's position of excellence under the circumstances of increasingly high environmental and social standards expected of corporations.

For CENIBRA's Sustainability Advisor, Sandro Morais Santos, such a remarkable performance in EcoVadis assessment is evidence of the Company's commitment and adherence to

the best ESG practices.

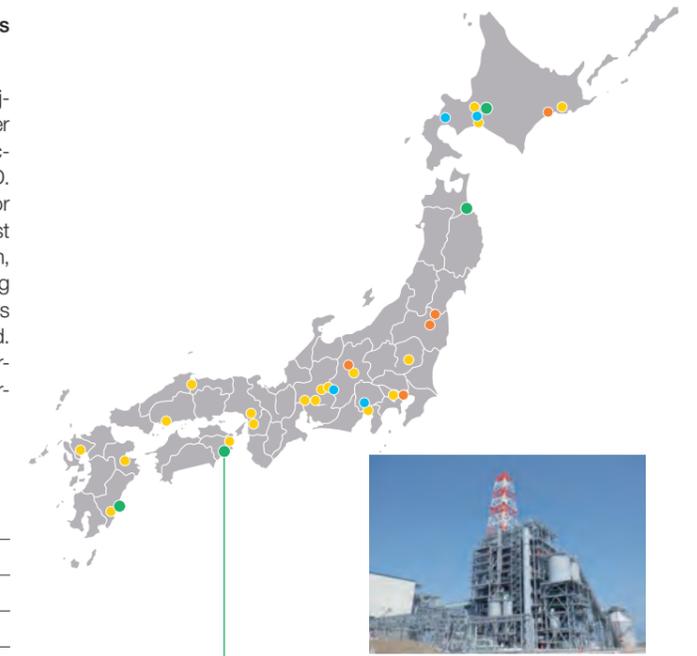
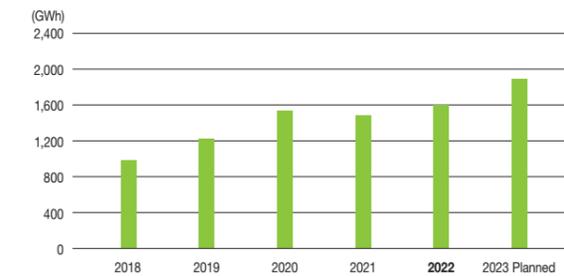
According to Sandra Maria Henrique, coordinator for Governance and Compliance at CENIBRA, this result proves that sustainability concept and practices have been maturing continuously throughout the Company's growth and evolution.



Expanding Renewable Energy and Other Energy Businesses

In the energy business, we continue studying for various projects to strengthen our renewable energy business. In December 2022, a biomass power generation facility in Tokushima Prefecture built as part of a joint venture with ITOCHU ENEX CO., LTD. commenced operations. We are also conducting studies for wind power generation projects utilizing company-owned forest lands in Japan. For the procurement of biomass fuels, in Japan, we are increasing the production of fuel woodchips by making use of unused wood resources as well as fully utilizing branches (small branches and leaves), which were previously abandoned. Overseas, we are working to increase procurement of palm kernel shells for use as fuel in Indonesia and Malaysia, while ensuring lawfulness and sustainability.

Changes in Electricity Sales



Oji Green Energy Tokushima Tomioka Eco-energy Power Station
Started operation in December 2022

The Oji Group owns and manages 188,000 ha of forests in Japan. This is the largest of all forests owned by private corporate entities in Japan. The Group initially owned forests primarily for producing raw materials for paper. However, now we have been enhancing the multi-faceted values of forests, including environmental contribution through forest management.



Urahoro larch forest (Hokkaido)



Oji Yoshimoto Seizai's lumber mill (Hokkaido)

Voice CENIBRA celebrates its 50th anniversary



Director, CENIBRA
Júlio Ribeiro

In September 2023, CENIBRA will celebrate its 50th anniversary, and I also celebrate 30 years of my working at the company that welcomed me as a trainee engineer, became my second home, and allowed me to build a solid career of which I am very proud.

Since 2008, our annual production has been 1.2 million tons of high-quality bleached eucalyptus pulp, mainly exported to customers in Europe, Asia, and the USA. However, we weren't born big. We began with 0.26 million tons per year, and we grew and reinvented ourselves to quintuple the original production, and by the end of 2023 we will have produced close to the 35 million tons produced in our history.

We will see our 50th birthday with a renewed determination to take on further challenges to embody Oji's Purpose of "Grow and manage the sustainable forest, Develop and deliver the products from renewable forest" to contribute to the sustainability of the world and the Oji Group.

Printing and Communications Media Business



We are increasing profitability and competitiveness by implementing the production system restructuring, etc. in light of demand structure trends through cooperation across Group segments.

Oji Holdings Corporation
Executive Officer
President, Printing and Communications Media COMPANY

Takayuki Moridaira

Tomakomai Mill, one of the world's leading newsprint mills, produces high quality newsprint with features requested by customers, such as lighter weight and improved print reproducibility, making full use of a wide variety of pulp. We hold approximately 30% share of the Japanese market with a stable supply to customers throughout the country including the Greater Tokyo area. Newsprint production using a large amount of recovered paper also contributes to paper recycling.



We offer a wide range of printing papers to meet various needs, including art paper used for photo albums and high-end catalogs, coated paper used for magazines and flyers, and woodfree paper used for books, each of which play a role in day-to-day communication of information. We also offer a full lineup of environmentally-friendly printing paper, including FSC-certified paper and products compliant with the Green Purchase Act.



We provide various output media to support information processing systems, including copying paper and forms. Produced with our carefully built quality design and quality control system, they can be used on printers with different printing methods and models. We offer high quality products not only superior in printability and workability in converting, but also capable to meet the need for printing at ever-higher speeds for productivity improvement.



Awareness of Business Environment

- Revitalized economic activities after the pandemic
- Increased consumer awareness about environmental issues
- Shift to paperless office with further utilization of ICT and spread of teleworking, etc.
- Soaring raw material and fuel prices and large fluctuations in exchange rates

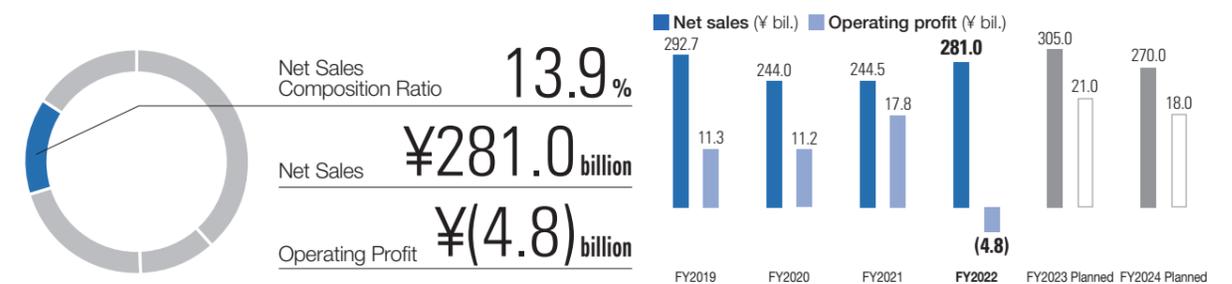
Business Opportunities and Risks

- Advantages of paper as an information medium (visibility, readability, reliability, preservability, texture unique to paper, reproducibility of photographs, etc.)
- Strengthening competitiveness through cooperation within the Group beyond the boundaries of businesses
- Growing demand for environmentally-friendly paper products due to heightening awareness for the environment
- Continuous decrease in demand for graphic paper
- Soaring raw material and fuel prices and passing the cost increase on to product prices

Our Strengths

- Large existing infrastructure including pulp production facilities and biomass power generation facilities
- Full lineup of environmentally-friendly products, including FSC-certified paper, eco mark certified products, and products compliant with the Green Purchase Act
- Capabilities to develop products meeting market needs

Changes in Net Sales Composition Ratio, Net Sales, and Operating Profit Sales forecast for FY2030 ¥150.0billion



Segment Overview

In FY2022, we had net sales of 281.0 billion yen (up 36.5 billion yen from FY2021) and operating loss of 4.8 billion yen (down 22.6 billion yen from FY2021). In the domestic business, although demand for newsprint continued to decline, net sales of newsprint were on a par with the previous year due to price revisions. Net sales of printing paper increased from the previous year due to rising demand for domestic products caused by decrease in imported paper, as well as price revisions. In the overseas business, net sales increased from the previous year at Jiangsu Oji Paper Co., Ltd.

In FY2023, net sales of 305.0 billion yen (up 24.0 billion yen from FY2022) and operating profit of 21.0 billion yen (up 25.8 billion yen from FY2022) are planned.

Challenges for the Achievement of the Medium-term Management Plan and Priority Measures for 2023

Business Strategy

- Restructure production system and enhance competitiveness through collaboration with other Group segments by maximizing the use of assets owned

Challenges

- Utilize owned resources effectively
- Focus always on cash flow

Measures

- Maintain product selling prices revised in FY2022 in response to continued increase in raw material and fuel prices
- Continue with thorough cost reduction
- Strengthen cooperation with other segments

We are working to improve profitability and competitiveness, by deepening cooperation with other segments in the Oji Group, anticipating future demand trends, and maximizing effective use of pulp manufacturing facilities, biomass boilers, and other assets.

In October 2021, we converted a newsprint machine to a machine for manufacturing containerboard at Tomakomai Mill. In April 2022, we started operation of a special liner and special paperboard machine relocated from Nayoro Mill of Oji Ma-

teria at the same mill. Overseas, utilizing existing pulp manufacturing facilities and biomass boilers, etc., we built a new household base paper machine at Jiangsu Oji Paper (China). (Started operation in 2020)



The #L-1 machine (retrofit of the #N-5 machine) at Tomakomai Mill

Initiatives for Environmental Issues

Electric power is indispensable for paper manufacturing. The Oji Group owns various types of power plants in Japan and works to secure power sources for its mills while engaging in the electricity sale business.

Among all, our Chitose No. 1 Hydroelectric Power Plant, built in 1910, is the oldest industrial power plant still in operation in Japan. The five hydroelectric power plants in the Chitose River basin have a generating capacity of 37,000 kW and are important sources of power for the Oji Paper Tomakomai Mill, located about 25 km away. They also supply power to customers around the Lake Shikotsu. After the Hokkaido Eastern Iburi Earthquake in September 2018, the power plant was restored in about an hour and a half, making it the only power

plant in Hokkaido to escape a blackout. Hydroelectric power generation has been attracting attention recently as a renewable, clean energy source with high energy conversion efficiency that emits no greenhouse gas from power generation. We will continue to contribute to the realization of a sustainable society through various approaches, including the effective use of energy.



Chitose No. 1 Hydroelectric Power Plant

Corporate Management Group and Shared Service Companies



Environmentally-friendly paper food containers proposed by Kyokuyo

Kyokuyo

Kyokuyo Co., Ltd. is a trading company that proposes and develops solutions to customers' problems from users' perspective. It purchases and sells various products of the Oji Group and other companies mainly in paper and packaging fields. These products include synthetic resin materials and products, packaging materials, chemicals, and machinery, from upstream (raw and other materials) to downstream (finished products). Leveraging its proposing ability, development ability and comprehensive ability to accommodate diversifying needs in the changing social environment, it is working to evolve paper and packaging, pursuing to create a more enriched society.



Environmentally-friendly containers using ISCC-certified biomass plastic

Ginpo Pack

Ginpo Pack Co., Ltd. is a manufacturer which conducts integrated planning, production, and sales of plastic containers for food packing. It offers high-quality packages with unique packaging materials, using its many patents and state-of-art technologies. The new material "Pulfine" in which a high foaming ratio is realized with a single material, is more resistant to heat and more durable than ever and can reproduce steaming hot home cooking when using a microwave oven. Ginpo is also committed to the development of environmentally-friendly containers using plant-derived biomass plastic.



The Grand Hotel New Oji

Hotel New Oji

Hotel New Oji Co., Ltd. is engaged in the hotel and flight catering businesses. Grand Hotel New Oji, a 16-story city hotel which is located in the center of Tomakomai City, Hokkaido and has banquet halls, three restaurants (Japanese, Western, and Chinese), bar, and shops, is a landmark in Tomakomai. In addition to this hotel business, we prepare a wide variety of high quality inflight meals for domestic and overseas airlines in the catering building at the New Chitose Airport and also load the meals onto aircraft using large, specialized vehicles.



Oji Homes Aoyama (Minamiaoyama, Minato-ku, Tokyo)

Oji Real Estate

Oji Real Estate Co., Ltd. is a general developer active nationwide in the management and effective utilization of the Oji Group's owned land and the development and sales of quality-oriented condominiums, single-family homes, and developed residential land, as well as lease and management of office buildings, condominiums, and commercial facilities, and the renovation business. It also has a construction and design division (first-class registered architect office) with good reputation for its technical capability, and conducts design, supervision, and consultation in a wide range of areas including factories and plants as well as public and private facilities.



Industrial water production system

Oji Engineering

Oji Engineering Co., Ltd. leverages its technologies accumulated at paper mills to offer one-stop engineering services ranging from proposals on facility design to proposals on operation methods. Under strict safety and construction quality control, the company responds rightly to customer needs through work management utilizing full use of IoT, and precise designing using 3D scanners and 3D CAD. It also explores new needs and provides solutions, for example, in the field of environmental business, such as wastewater treatment and renewable energy, or remote maintenance using thermal camera drones.



A roll-on roll-off (RORO) ship that can transport vehicles carrying goods

Oji Logistics

As a shared service company, Oji Logistics Co., Ltd. operates mainly domestic and international logistics services for Oji Group products. In 2022, it made full-scale entry to 3PL (third party logistics) services, using Urayasu Branch as its base. It is now changed into a warehouse, operating 24 hours a day and 365 days a year as a hub for consumer goods and e-commerce whose demand is growing mainly in the Greater Tokyo area. It is also accommodating a change in the operating environment surrounding the logistics industry such as "Logistics 2024 Issue," to earn trust from customers of the Oji Group and other companies.



Oji General Hospital

Oji General Hospital

Oji General Hospital has 440 beds (of which eight are in the ICU) and 25 departments, providing advanced and quality medical care as a key hospital in the Higashi-iburi and Hidaka medical area. It is designated as disaster base hospital, designated cancer care hospital, and regional perinatal maternal and child medical center, and also provides guidance and training for residents as a designated clinical training hospital. In addition, it has the geriatric health services facility, "Care Life Oji," in-home nursing care supporting office Oji, and the central regional comprehensive support center entrusted by Tomakomai City, working to provide safe and secure medical service.



Drink cartons made using base paper manufactured by the Oji Group

Ishizuka-Oji Paper Packaging

Ishizuka-Oji Paper Packaging Co., Ltd. operates the paper beverage container business by combining the Oji Group's expertise in manufacturing and processing paper with ISHIZUKA GLASS Co., Ltd.'s expertise in processing and filling paper containers for a diverse range of contents. By having in place a domestic integrated production system covering papermaking of base papers through to laminate processing and beverage packaging, and selling superior filling equipment from both Japan and overseas, as well as providing service and maintenance, it is working to ensure the stable supply of high-quality, safe, and dependable products to dairy and beverage manufacturers throughout Japan.