



OJI PAPER GROUP

Oji Paper Group

Environmental and Sustainability Report

2009

the \mathbb{R}^n is a linear space over \mathbb{R} with the usual addition and scalar multiplication. The inner product is defined by

$$(x, y) = x_1 y_1 + x_2 y_2 + \dots + x_n y_n \quad (1)$$

where $x = (x_1, x_2, \dots, x_n)$ and $y = (y_1, y_2, \dots, y_n)$ are vectors in \mathbb{R}^n .

The norm of a vector x is defined by

$$\|x\| = \sqrt{(x, x)} = \sqrt{x_1^2 + x_2^2 + \dots + x_n^2} \quad (2)$$

The distance between two vectors x and y is defined by

$$\|x - y\| = \sqrt{(x - y, x - y)} = \sqrt{(x_1 - y_1)^2 + (x_2 - y_2)^2 + \dots + (x_n - y_n)^2} \quad (3)$$

The angle between two vectors x and y is defined by

$$\cos \theta = \frac{(x, y)}{\|x\| \|y\|} \quad (4)$$

where θ is the angle between x and y .

The orthogonal projection of a vector x onto a vector y is defined by

$$\text{proj}_y x = \frac{(x, y)}{(y, y)} y \quad (5)$$

The orthogonal distance from a vector x to a vector y is defined by

$$\|x - \text{proj}_y x\| = \sqrt{\|x\|^2 - \frac{(x, y)^2}{(y, y)}} \quad (6)$$

The orthogonal distance from a vector x to a subspace S is defined by

$$\|x - \text{proj}_S x\| = \sqrt{\|x\|^2 - \sum_{i=1}^k \frac{(x, e_i)^2}{(e_i, e_i)}} \quad (7)$$

where e_1, e_2, \dots, e_k is an orthonormal basis for S .

The orthogonal distance from a vector x to a line L is defined by

$$\|x - \text{proj}_L x\| = \sqrt{\|x\|^2 - \frac{(x, a)^2}{(a, a)}} \quad (8)$$

where a is a vector in L .

The orthogonal distance from a vector x to a plane P is defined by

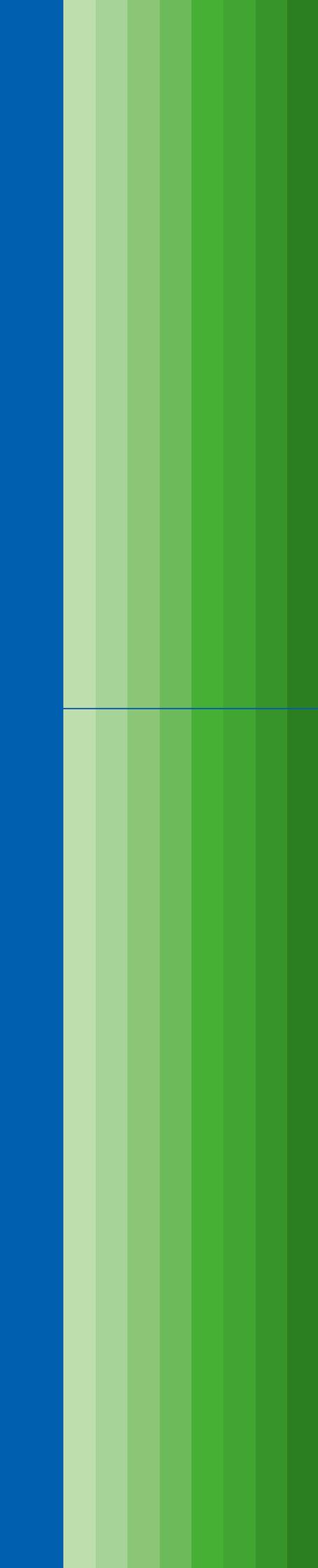
$$\|x - \text{proj}_P x\| = \sqrt{\|x\|^2 - \sum_{i=1}^2 \frac{(x, e_i)^2}{(e_i, e_i)}} \quad (9)$$

where e_1, e_2 is an orthonormal basis for P .

The orthogonal distance from a vector x to a hyperplane H is defined by

$$\|x - \text{proj}_H x\| = \sqrt{\|x\|^2 - \sum_{i=1}^{n-1} \frac{(x, e_i)^2}{(e_i, e_i)}} \quad (10)$$

where e_1, e_2, \dots, e_{n-1} is an orthonormal basis for H .



Continuing to Provide Paper

We will continue to practice responsible environmental management while cherishing our manufacturing roots.



Kazuhisa Shinoda

President and Chief Executive Officer
Oji Paper Co., Ltd.

The Oji Paper Group has made environmental compliance its first priority. We believe that doing so is the foundation for sustaining our business, and that only upon that foundation can we successfully gain revenue. In recent years, a series of compliance issues has affected the Group. The environment has come to have a profound influence on management in our time. In June 2009 we established the Environmental Management Division, an oversight entity dedicated to ensuring thorough environmental compliance.

Under this new organization, we have compiled our Environmental and Sustainability Report 2009, which looks back at our roots as a paper manufacturer while explaining the status of and issues related to our environmental efforts, based upon our Environmental Charter. Our Environmental Charter consists of eight Action Guidelines, some of which have numerical targets. This report not only outlines the content and feasibility of each Action Guideline, but further explains the “Oji Philosophy” for how we should go about performing each guideline. We have performed on-site research to ascertain exactly what is happening in the Group and faithfully report it here. From the facilities where we secure raw materials for papermaking to those where we manage the safety of outputs such as waste water, each site involved in

papermaking supports the eight Action Guidelines, constitutes an important area of our work, and strives everyday to fulfill its serious responsibility. This is why we believe it is urgently important that, through this report, all Group employees share an awareness of our responsibilities. The Oji Paper Group’s environmental management system continues to evolve, but what has not changed is that each employee plays a central role in its implementation. It is paramount that we maintain this mentality as we think deeply about and work with sensitivity for the environment in all aspects of our business. When one of us feels that something isn’t right, we can stop to think, discuss, and head off problems to bring about an even higher level of environmental management.

In order to make this report understandable to a wide range of readers, we have striven to avoid technical jargon and make expressions easy to understand. We hope to communicate the state of the Oji Paper Group accurately and honestly. We are committed to fulfilling our responsibility as a company that continues to provide paper, by consistently taking actions based on our solid manufacturing philosophy.

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The Oji Paper Group Environmental and Sustainability Report 2009 reports on the Group's fiscal 2008 environmental activities according to the eight Action Guidelines in its Environmental Charter.

Environmental Charter

Basic Policy

The Oji Paper Group Environmental Charter requires the Oji Paper Group to help create a truly enriched and sustainable society by developing business activities that harmonize with the environment from a global perspective. The Charter calls for the Oji Paper Group to make autonomous efforts to achieve further environmental improvement, and aggressively drive its forest recycling, paper recycling, and global warming countermeasures forward.

Action Guidelines

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Oji Paper Group Environmental and Sustainability Report 2009

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Continuing to Provide Paper

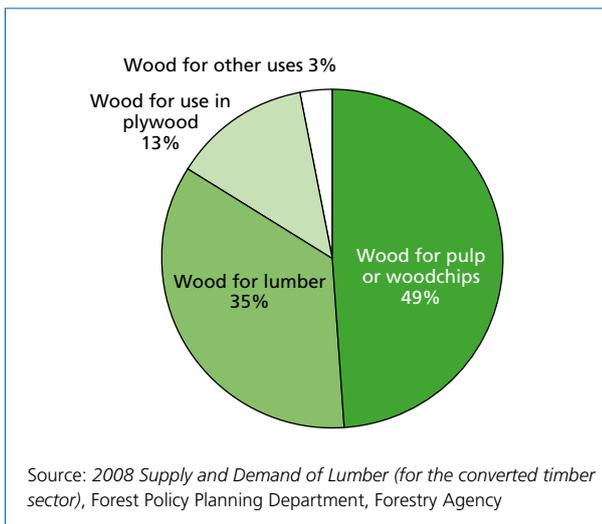
Promotion of Forest Recycling

We will promote green procurement of resources derived through sustainable forest management. In particular, we will utilize our long record of cultivating and managing company-owned forests in Japan and the results of our wide-ranging forest resource research as we implement tree plantation operations outside Japan to secure wood raw material resources and continually strive to preserve the environment.

Wood, which possesses attributes not found in other materials, is an indispensable resource for papermaking.

Wood is the material from which paper is made. Pulp and woodchips account for nearly half the total amount of wood consumed in Japan (see Figure 1). The amount of this wood that is consumed by the Oji Paper Group is 9,000,000 m³, or 10% of all wood consumed in Japan. In addition, although 60% of the paper produced in Japan is from recovered paper, it too is simply reused wood fiber.

Figure 1 Amount of Wood Consumed by Japan (Fiscal 2008)



Three main types of wood material used in papermaking

Sawmill residue, scrap wood

Cuttings produced when logs are milled, or scrap wood produced from the dismantling of houses, pallets, etc.

Plantation wood

Wood produced quickly and efficiently by planting fast-growing trees such as acacia and eucalyptus.

Low-quality timber

Wood which is too thin, bent or otherwise unusable for high-value uses such as lumber.

We grind these into chips, manufacture pulp, and create paper. Wood is an indispensable resource that allows the production of paper with excellent flexibility, whiteness, printing compatibility and cost-effectiveness, in a way no other material can provide. That is why the Oji Paper Group will continue to use wood for its products.

We obligate all suppliers to ensure traceability in all our wood procurement, and we are making our best efforts toward proper forest management and to prevent the inclusion of illegally logged timber.

Among the many natural resources, wood is a particularly precious one because it has the rare characteristic of being renewable. However, it is still only a natural resource, and one that quickly begins to disappear when more timber is logged than is planted, or when forests are poorly managed. The Oji Paper Group is keenly aware that it uses a great deal of this natural resource, and has established the following Wood Raw Material Procurement Guidelines to ensure that the Group gives attention to sustainability as we undertake raw materials procurement.

Wood Raw Material Procurement Guidelines (Overview)

1. Expand procurement of wood from certified forests

Promote the use of wood from forests which are certified by a third party to be grown through sustainable management.

2. Increase use of plantation trees

In addition to expanding company-owned plantations (see next page), proactively purchase plantation wood in external purchasing.

3. Utilize unused wood effectively

Produce paper using wood that is difficult to utilize in other industries, such as sawmill residue and low-quality timber.

4. Verify that procurement is in compliance with laws and is environmentally friendly and socially responsible

Ensure traceability by continuously requesting suppliers to verify where procured wood is produced and preventing the inclusion of illegally logged timber.

5. Disclose information

The area of the world's forests is decreasing every year, and illegal logging and poor forest management have become serious global problems. In this situation, the Oji Paper Group has made the strong commitment to "never purchase raw materials which do not comply with the rules," procuring wood according to guidelines 1 through 3. Responding flexibly to changing conditions, we do our best to maintain balance between many types of wood raw material.

Guideline 4—"Verify that procurement is in compliance with laws and is environmentally friendly and socially responsible"—

Figure 2 Oji Paper Group Procured Wood Chips (Fiscal 2008)

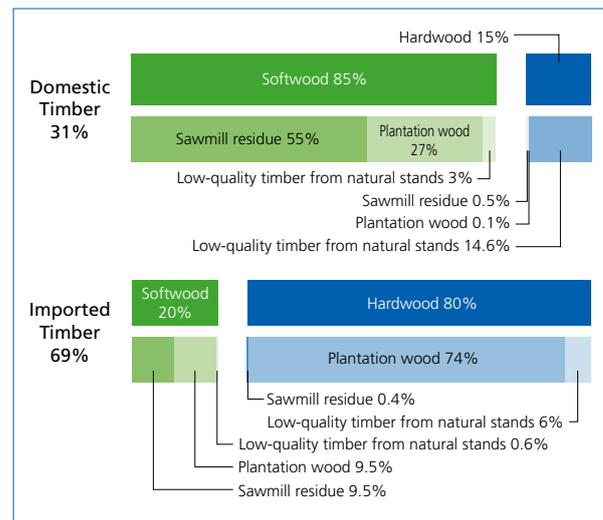
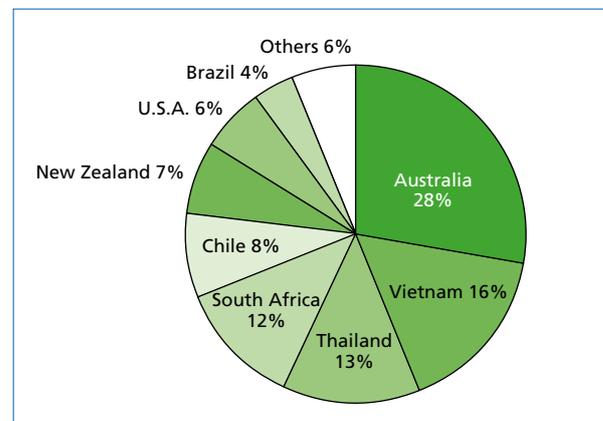


Figure 3 Oji Paper Group Sources of Imported Wood Chips (Fiscal 2008)



provides support to each of the first three guidelines. In addition to monitoring the suppliers from whom we procure wood, we also obligate each supplier to submit to us traceability reports that contain even the origin of the raw materials. Under this highly stringent checking system, we carefully prevent the inclusion of illegally logged timber in our supplies. Through these efforts we are able to ascertain detailed information as shown above (in figures 2 and 3) about the wood we use, which we disclose in accordance with Guideline 5.

We are proactively increasing tree plantations overseas in order to ensure stable supplies and increase our cost-competitiveness.

Our tree plantation operations outside Japan, which began in earnest in New Zealand and Australia during the 1990s, have now expanded into Asian countries such as China and Laos, and we have now begun to harvest the trees in each of those locations. Because plantation sizes are limited, it

is imperative that we raise their productivity as much as possible. To achieve this, we have adopted eucalyptus and acacia trees—species that can be harvested in short cycles of ten or so years—as we gradually increase plantation sizes.

Figure 4 Oji Paper Group Tree Plantations Outside Japan

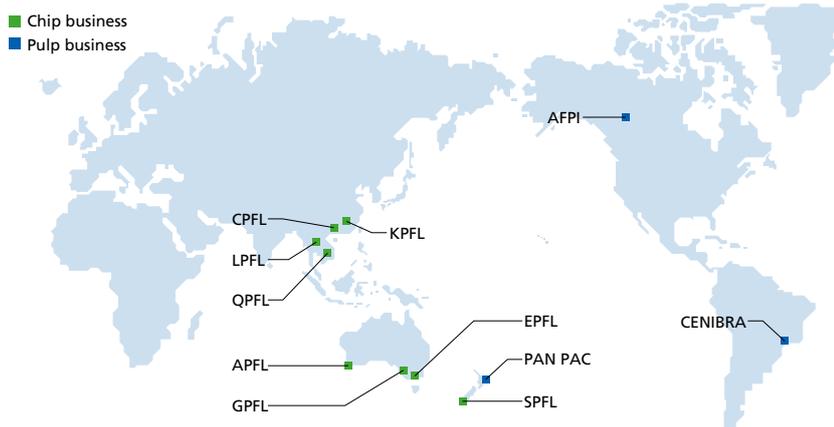
Note 1: CPFL, KPFL, CENIBRA and AFPI plantation areas are as of the end of December 2008. All others are as of the end of March 2009. OPFL includes 1,807ha of plantations loaned to other companies.

Note 2: The total target area and planted area for CENIBRA are calculated based on our investment percentage (39.84%) in the entire area including 24,459ha of leased plantation.

Note 3: The total target and planted area for AFPI are calculated based on our investment percentage (30%) in the entire area.

	Country, region	Company	Est. (year)	Cooperating companies	Plantation area (ha)		Tree species	Harvest cycle (years)	Harvest year	Forest certification
					Target	2008 result				
Chip export	New Zealand South Island	SPFL	1992	Oji Paper, ITOCHU, Fuji Xerox	10,000	10,083	Eucalyptus	12	2004	FSC
	Australia Western Australia	APFL	1993	Oji Paper, ITOCHU, Senshukai, Tohoku Electric Power, Nippon Yusen	24,000	23,696	Eucalyptus	10	2003	FSC
	Vietnam Binh Dinh Province	QPFL	1995	QPFL (Oji Paper, Sojitz, Dai Nippon Printing)	13,000	11,056	Acacia	7	2002	FSC
	Australia Victoria	GPFL	1997	Oji Paper, Sojitz, Toppan Printing	6,500	6,548	Eucalyptus	10	2010 (scheduled)	—
	Australia Victoria	EPFL	1999	Oji Paper, Sojitz, Shogakukan, Japan Pulp and Paper	2,800	2,864	Eucalyptus	10	2008	—
	China Guangxi Zhuang Autonomous Region	CPFL	2002	Oji Paper, Marubeni	6,500	6,361	Eucalyptus	6	2007	—
	Laos Central Laos	LPFL	2005	Holding companies (Oji Paper, Kokusai Pulp & Paper, Shueisha, Mitsui S.K. Lines, Senshukai, Recruit, Daiichi Paper, Honda Trading, Maruman, U-CAN, A-One, Sato, Nishizaki Paper Sales, Fellissimo, Belluna), Government of Laos	50,000	18,600	Eucalyptus, acacia	7	2012 (scheduled)	—
	China Huizhou, Guangdong	KPFL	2005	Guangdong Petro-trade Development, Oji Paper, Marubeni	25,000	23,424	Eucalyptus	5	2008	—
Pulp production	Brazil State of Minas Gerais	CENIBRA	1973	Japan Brazil Paper and Pulp Development (Oji Paper, Japan Bank for International Cooperation, others)	43,450	57,155	Eucalyptus	7	1984	FSC, PEFC
	New Zealand North Island	PAN PAC	1991	Oji Paper	30,000	32,765	Radiata pine	30	1991	FSC
	Canada Alberta	AFPI	1998	Mitsubishi Corporation, Oji Paper	7,500	1,971	Poplar	18-25	TBD	FSC
Total					218,750	194,523				

Figure 5 Distribution Map of Oji Paper Group Tree Plantations Outside Japan



● Issues involving tree plantations outside Japan

In the case of tree plantations outside Japan, our main business partner is nature itself. Droughts and natural disasters can affect tree growth. Fierce competition can prevent us from obtaining more plantation land. And more than anything else, numerous unforeseeable problems can occur in the initial stages of overseas projects undertaken amid different cultures, throwing even the best plans off course. We will continue working with local staff and other stakeholders to steadily solve these issues and expand plantation area as we strive toward a more stable supply of raw materials.

Oji Philosophy

Promoting effective use of Japan's largest amount of company-owned forests, we have taken the lead in energizing Japan's forest industry.

Wood raw material is not only for papermaking, but is also an indispensable resource for everyday life that is used in homes, furniture, fuel and more. The ideal method of procuring this renewable natural resource is to maintain a situation in which the trees and animals of a forest can remain as diverse and abundant as possible, while avoiding the harvest of more than is being grown. However, the number of forests where such management can be achieved is globally limited, making it impossible to respond to the demand for wood raw material. That is why it is necessary to secure resources while planting fast-growing tree species on limited land areas to efficiently produce wood raw material, and that is the reason we have proactively developed our plantations outside Japan, as shown in Figure 4 on the previous page. Our policy of expanding company-owned plantation operations remains unchanged.

In Japan as well, the Oji Paper Group owns, administers and manages 190,000ha of company-owned forests—the most of any private enterprise in the country. However, as a user of wood raw materials, using low-quality timber mainly from our company-owned forests to create paper is not our only pursuit. We are also actively engaged in creating lumber and other goods, creating fuel from the portions of wood that cannot be used for papermaking, and other efforts in order to be a general forestry company that uses forests appropriately and utilizes all of the precious wood resources it harvests without waste.

Revitalization of Japan's forest industry requires a system that can provide a stable wood supply, effective utilization of forest resources through that system, and maintenance of planted forests such as thinning of trees. The Japanese forest industry faces a plethora of issues—efficient maintenance of forest roads by coordination between forest owners, cost-reduction through mechanization, and securing young laborers, to name a few—but the efforts of the forest industry at large are what will ultimately raise its competitiveness. The Oji Paper Group will actively maintain close relations with all involved as it continues to powerfully lead the revitalization of Japan's forest industry—starting with company-owned forests.



Company-owned forest in Miho, Kanagawa Prefecture, Japan



Continuing to Provide Paper

Promotion of Paper Recycling

While we continually utilize our edge in paper and paperboard manufacturing to promote the use of recovered paper, we also strive to set the ratio of recovered paper that is friendliest to the environment while still economical and appropriate for its intended use. We make concerted efforts to expand recovered paper use and develop technologies that turn previously unusable recovered paper into resources.

Japan recovers a stellar 75.1% of its paper, and boasts one of the world's best recovery systems.

Recovery of paper began long ago, during the Edo Period (1603-1868) in Japan. It firmly took root in the Japanese lifestyle and spirit, and a world-class recovery system developed through the valiant efforts of many people. Today, the paper recovery rate has reached 75.1% (see Figure 1). When one considers that discarded paper includes uncollected varieties such as books and sanitary papers, it becomes clear that virtually all collectible paper is collected.

Figure 1 Paper Recovery Rate in Japan

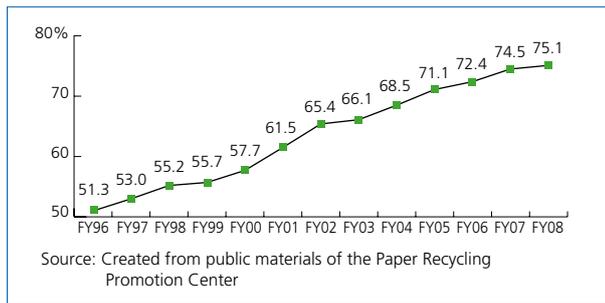


Figure 2 Uses of Recovered Paper in Japan (Fiscal 2008)

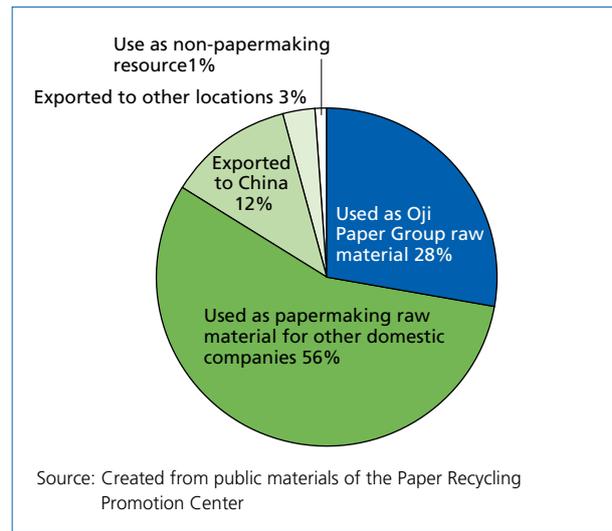


Figure 2 Focus Points: Strong connection between recovered paper and the papermaking industry

- 99% of recovered paper is used as raw material for papermaking.
- The Oji Paper Group uses the most recovered paper in Japan.

In order to use more volume and at higher efficiency, we sort recovered paper for optimal use.

Paper is discarded and collected from homes, offices, printing companies, paper processors and a myriad of other entities. We have a responsibility to use that paper with

minimal waste. We are able to maximize efficiency and minimize environmental impact through skillfully separating recovered paper according to its best use.

Figure 3 Uses of Sorted Recovered Paper

Difficulty of use	Recovered paper type		Main uses
	Grade	Examples	
High	Grade A	White shavings, milk carton	Toilet paper Boxboard (outer layer) Newsprint
	Grade B	Newspaper, etc.	Printing and communications papers
	Grade C	Magazines, etc.	Boxboard (inner layer)
	Grade D	Containerboard, etc.	Containerboard (liner)
	Grade E	Difficult-to-recycle paper (core paper)	Containerboard (inner corrugated layer)

Figure 3 Focus Points: Sorting allows optimal use

- Recovered paper—collected, sorted and bundled by many hard-working individuals—arrives at the paper mill.
- The harder a paper is to process, the cheaper it can be obtained; however, uses are also more limited.
- Generally, grades A and B have ink removed, for Grade C ink is removed depending on use, grades D and E do not have ink removed.
- Special equipment is needed to remove extraneous materials from Grade E paper.

With its goal of a 62% recovered paper utilization rate, the Oji Paper Group takes seriously its responsibility as Japan's leading user of recovered paper.

The Oji Paper Group uses more recovered paper than any other user in Japan. Utilizing its strengths as a manufacturer of diverse varieties of paper, it makes an effort to match sorted, recovered paper with its optimal use, responsibly improving the recovered paper utilization rate while minimizing environmental impact.

Figure 4 Oji Paper Group Recovered Paper Utilization Rate

	Fiscal 2007			Fiscal 2008		
	Quantity of paper production (t)	Quantity of recovered paper used (t)	Recovered paper use rate (%)	Quantity of paper production (t)	Quantity of recovered paper used (t)	Recovered paper use rate (%)
Printing and communications papers	3,007,304	757,086	27.7	2,515,990	640,682	28.2
Containerboard	2,535,604	2,638,137	97.9	2,317,258	2,405,612	98.2
Newsprint	1,135,172	875,970	60.3	1,085,797	804,907	60.1
Boxboard	701,149	642,929	84.9	736,405	669,652	83.7
Packaging papers	315,809	21,073	6.1	272,060	19,890	6.7
Sanitary papers	199,681	21,781	9.8	194,362	21,244	10.1
Miscellaneous boxboard	165,377	168,470	91.5	104,414	101,047	85.8
Miscellaneous papers	107,722	2,124	1.9	97,425	1,890	1.9
Total	8,167,819	5,127,570	60.4	7,323,711	4,664,924	61.5

Figure 4 Focus Points: Why the recovered paper utilization rate increased from fiscal 2007 to fiscal 2008

- Our paper production declined from fiscal 2007 to fiscal 2008
- In particular, production of printing and communications papers, which has low recovered paper utilization rates, declined sharply, resulting in a higher overall recovered paper utilization rate.



Recovered paper storage area at the Oji Paper Fuji Mill, showing recovered paper being mixed for uniform quality.

Figure 5 Oji Paper Group Recovered Paper Utilization Rates by Paper Type (Fiscal 2008)

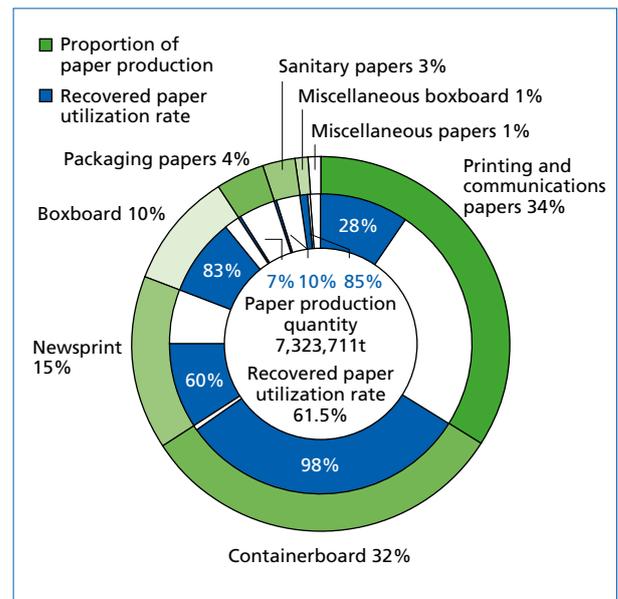


Figure 5 Focus Points: Why the recovered paper utilization rate varies by paper type

- Containerboard and boxboard recovered paper utilization rates are usually extremely high. This is because they are structured with multiple layers of thick paper, and low-grade recovered paper can be used for the inner layers.
- Newsprint is not required to be very white, so half or more of its content is recovered paper.
- In contrast to the above two types, the standard for recovered paper utilization rate in printing and communications papers is low. Reasons for this include that dirt gets mixed in and whiteness decreases, making it impossible to maintain desired quality.



Containerboard and boxboard are structured with multiple layers of thick paper. Each layer uses a different grade of recovered paper.

The Oji Paper Group continues to make Group-wide efforts to prevent recurrence of incidents of falsification of recovered paper ratios, which caused great inconvenience to customers and society at large.

In January 2008, it was discovered that the ratio of recovered paper in certain recycled paper produced and marketed by Oji Paper Co., Ltd. and Oji Specialty Paper Co., Ltd. was being falsified. This incident caused great inconvenience to our customers. One contributing factor was that transactions were taking place based solely on paper manufacturers' self-proclaimed recovered paper ratios, and we did not have the

awareness that recovered paper ratio is as important as quality standards (such as for whiteness and dirt) or delivery deadlines. We encountered a period of great turbulence following the incident. We are again keenly aware of the importance of this matter, and are taking numerous measures to prevent such a situation from ever occurring again.

1. System for Verifying the Content Ratio of Recovered Paper Pulp Established by the Japan Paper Association

In April 2008, the Japan Paper Association established the System for Verifying the Content Ratio of Recovered Paper Pulp in order to prevent falsification incidents from recurring in the industry. The main content of that system is as follows:

Carefully manage recovered paper content ratio

Perform regularly scheduled internal audits

Enable business partners to confirm the status of recovered paper pulp use

2. Oji Paper Group Recovered Paper Pulp Content Ratio Management Procedure Manual

According to the above system, the Oji Paper Group rapidly created the Recovered Paper Pulp Content Ratio Management Procedure Manual and implemented its use beginning in July 2008.

Manage recovered paper pulp content ratio

- Do not accept orders if we cannot provide the requested quality or quantity.
- Confirm content ratios when receiving orders.
- At mills, confirm whether recovered paper pulp supplies are sufficient before beginning production.
- Manage, create and maintain records of recovered paper content ratios on each production line, keeping them for three years.
- In the sales division, confirm sales quantities of recovered paper products monthly.

Perform regularly scheduled internal audits

- The Oji Paper Group Internal Audit Office performed audits of all seven Oji Paper mills and related divisions in which falsification occurred. (November 2008)
- In response to the results of those audits, the Recovered Paper Use Content Ratio Audit Committee was established at Oji Paper. (February 2009)
- The scope of the audits was expanded to include each of the 21 mills in the Oji Paper Group.
- Each mill now receives a yearly content ratio audit, in addition to examinations already administered in accordance with ISO procedures.

Results

From February to the end of August 2009, 11 of 21 mills were audited. Audits confirmed that management was being performed accurately and according to the procedure manual.

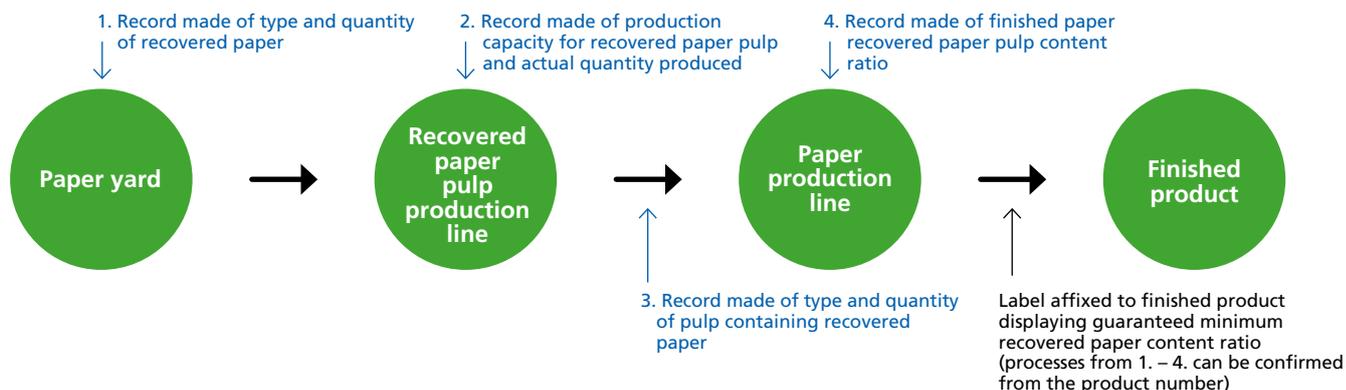
Business partners confirm the status of recovered paper pulp use

- In response to customer requests, we now issue Recovered Paper Content Ratio Certificates which contain the name of the manager responsible for that product.
- For customers who wish to confirm content ratios more directly, we allow customers to visit mills, perform inspections and confirm for themselves.
- During mill inspections, we allow customers to see all aspects of the process, from the production line to the records which constitute evidence of content ratio. (see Figure 6 on the next page)

Results

From July 2008 to the end of June 2009, we received 24 visit inspections from customers, each of whom confirmed our proper operations.

Figure 6 Oji Paper Group Recovered Paper Pulp Content Ratio Verification Flowchart



Going forward, we will continue to abide by the Recovered Paper Pulp Content Ratio Management Procedure Manual, rebuilding the relationship of trust with our customers and, with a strong commitment to never falsify information again, making our best efforts to prevent any recurrence.

Oji Philosophy

As a manufacturer, we continue to convey positive messages and information to society.

The type of paper that uses recovered paper at the highest rate is containerboard, followed by boxboard and then newsprint. In particular, containerboard has already reached its maximum potential for recovered paper content, and the type where recovered paper use must be expanded is printing and communications papers.

Recovered paper exports have increased, making good recovered paper more difficult to obtain in large quantities. The Oji Paper Group has determined that an important measure to handle this scarcity will be doing as much as possible with recovered magazine paper, which has a somewhat lower quality. The Oji Paper Tomioka Mill has newly installed equipment which can produce from

recovered magazine paper a raw material of equivalent quality to newsprint, which is then being made into printing paper. When using recovered paper to make printing paper, the biggest stumbling block is dirt. Dirt content can be reduced by augmenting equipment and using more chemicals, but these actions require great care as they result in greater environmental impact, not to mention higher costs. Our challenge is to use recovered magazine paper as best we can while communicating with customers to gain their understanding about quality levels. Conveying positive messages and information by honestly spelling out what we can and cannot do is one of the most important roles we play at the Oji Paper Group.



3

Promotion of Global Warming Countermeasures

As measures to fight global warming, we will continue to promote energy conservation, transition to non-fossil fuels and efforts to reduce CO₂ emissions, while also proactively developing and maintaining forests that will contribute to CO₂ sequestration.

We secure the energy needed to produce paper by combining fossil fuel-based, renewable and waste-derived energies.

Papermaking is a so-called “process industry,” meaning large-scale machinery is used to supply many diverse paper types at consistent quality and quantity, and in a stable manner. Paper production consists of the pulping process, where pulp is made from wood or recovered paper; the papermaking process, in which pulp is made into paper; the coating process, in which paper is made printable, and other processes. Each process requires many machines, the operation

of which requires electricity produced in-house or purchased from power companies. Paper must also be dried during the production process, in order to remove the water contained in the raw materials. This drying also requires energy. The energy consumed by the paper industry accounts for approximately 5% of all industrial consumption (see Figure 1), making it one of the industries with the highest energy consumption.

Figure 1 Final Energy Consumption Percentage by Industry in Japan (Fiscal 2007)

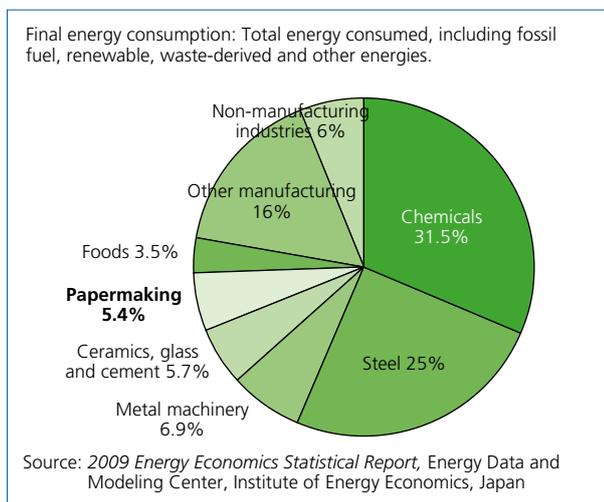
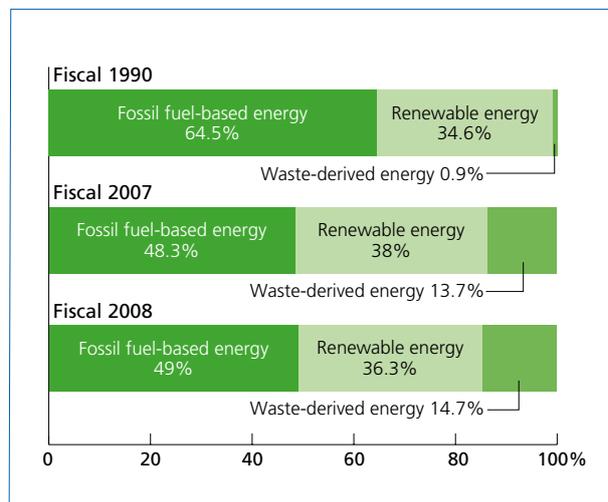


Figure 2 Percentage of Consumption by Energy Type, the Oji Paper Group



Energy used in paper production

Fossil fuel-based energy

Includes heavy oil C, coal and others. This also includes electricity purchased from power companies.

***Heavy oil C:** The oil remaining after crude oil distillation, or heavy petroleum created by refinement. This oil contains many impurities.

Waste-derived energy

Includes RPF, scrap tires, etc. This is a new energy source that makes fuel from what would have been waste materials.

***RPF (Refuse Paper and Plastic Fuel):** Solid fuel created by mixing recovered paper that cannot be processed with waste plastic. The most prominent new energy source.

Renewable energy

Includes black liquor, bark and others. Using primary wood-derived raw materials, these are produced using the renewable resource of trees.

***Black liquor:** The non-fibrous material extracted when pulp is produced from wood raw material. It contains a great deal of organic material, and is concentrated and incinerated at the mills.



RPF



Scrap tires

Figure 2 Focus Points: Reducing the fossil fuel-based energy percentage

- The paper industry has long used black liquor as one of its main energy sources, contributing to a higher percentage of renewable energy.
- In recent years, the transition to waste-derived energy has accelerated, contributing to reduction of the percentage of fossil fuel-based energy to below 50%.
- In fiscal 2008, production of printing and communications papers with a high wood pulp ratio declined markedly. This resulted in a decrease in black liquor produced from wood raw material, in a correspondingly reduced percentage of renewable energy.

Having achieved a 20% reduction in the proportion of fossil fuel-based energy, we are now working toward reducing consumption even further.

In its Environmental Action Plan 21, the Oji Paper Group set targets for the “promotion of global warming countermeasures”—a 20% reduction of fossil fuel-based energy consumption per unit of production and a 20% reduction of

fossil fuel-derived CO₂ emissions per unit of production by fiscal 2010, compared to fiscal 1990 levels. “Unit of production” refers to the energy (crude oil equivalent) required to produce one ton of paper.

Figure 3 Fossil Fuel-based Energy Consumption per Unit of Production, the Oji Paper Group

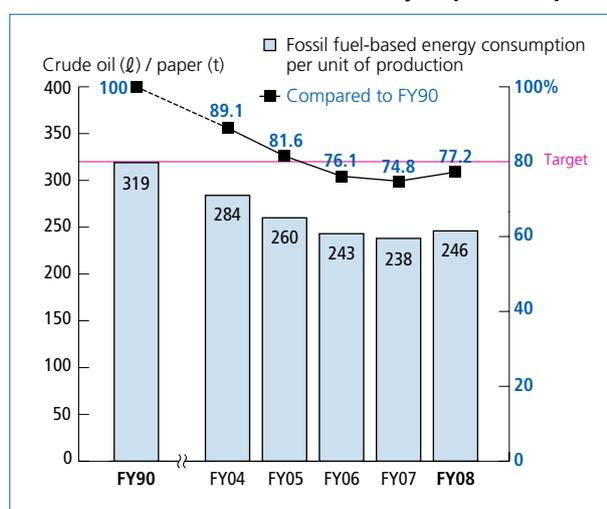
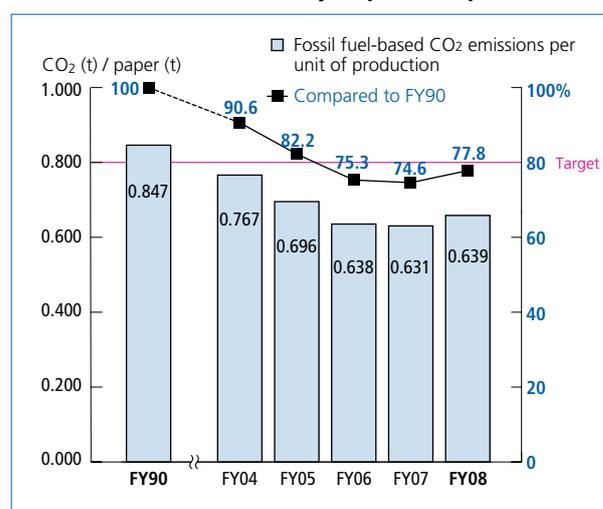


Figure 4 Fossil Fuel-based CO₂ Emissions per Unit of Production, the Oji Paper Group



Energy conservation patrol at Oji Paper's Yonago Mill. Every inch of every site is checked.

Figures 3 and 4 Focus Points: Effects of adopting a new energy boiler

- Since fiscal 2006, we have achieved the 20% reduction target for each unit of production described in Figures 3 and 4.
- This reduction is largely the result of adopting a new energy boiler (see next page) and proactively using it with RPF, scrap tires, bark and other fuels that were once considered waste, as an alternative to fossil fuel-based energy.

● Issues related to global warming countermeasures

CO₂ is not the only greenhouse gas that contributes to global warming. There are six other types of gases as well, including methane and dinitrogen monoxide. The Oji Paper Group has achieved its goals for reduction of fossil fuel-derived CO₂ emissions as a global warming countermeasure. However, the Group has not yet seen comparable reductions in overall greenhouse gas emissions. This is why the Oji Paper Group is committed

to stepping up its efforts from the overall greenhouse gas perspective, and not simply CO₂ reduction alone. Because greenhouse gases are produced roughly in proportion to total energy consumption, reduction of total energy consumption will be more and more important going forward. Consistent reduction of total energy consumption requires dedicated improvement and a ground-up review of all production processes. At the same time, it

is also important to do everything possible each day toward energy conservation and consumption reduction. To this end the Group has strengthened its energy conservation patrols, in which multiple inspectors thoroughly check each facility for energy efficiency and possible waste. The Group will also add to its grassroots efforts, which include conserving energy used by air conditioning and lighting in each business division.

Our new energy boilers have contributed greatly to reducing dependence on fossil energy, but many issues remain.

As surplus recovered paper became more noticeable around the year 2000, we began to consider how it could be effectively used, particularly recovered paper that is difficult to use as raw material. This led to our promotion of using RPF, a fuel made by combining paper that is hard to process with waste plastic. As shown in Figure 5, we are expanding the adoption of what we call “new energy boilers,” (or biomass power generators) which use non-fossil fuels including RPF, scrap tires and bark.

Figure 5 Adoption of New Energy Boilers, the Oji Paper Group

Amount of evaporation: Amount of steam produced per hour. The more steam is produced, the larger the scale of the boiler.

Start of operation	Mill	Location	Main fuel	Amount of evaporation (t/h)
April 2004	Tomakomai Mill, Oji Paper	Hokkaido Pref.	RPF, scrap tires	260
May 2004	Oita Mill, Oji Paperboard	Oita Pref.	RPF, scrap tires	200
June 2005	Yonago Mill, Oji Paper	Tottori Pref.	RPF, scrap tires	250
May 2006	Nichinan Mill, Oji Paper	Miyazaki Pref.	Scrap tires, wood	130
November 2006	Tokai Mill's Shibakawa Facility, Oji Specialty Paper	Shizuoka Pref.	Wood, RPF	7
October 2007	Kasugai Mill, Oji Paper	Aichi Pref.	RPF, scrap tires, wood	140
December 2008	Tomakomai Mill, Oji Paper	Tokushima Pref.	Waste plastic, RPF, wood	300
December 2008	Nikko Mill, Oji Paperboard	Tochigi Pref.	RPF, wood	70



New energy boiler at Oji Paper's Yonago Mill

■ Advantages of new energy boilers

1. They enable a drastic reduction in CO₂ emissions originating from fossil-fuel (some mills may be able to achieve a reduction of 50% or more)
2. They allow valuable, effective use as fuel of what were once mere waste materials
3. They can burn multiple fuels simultaneously

■ Issues relating to new energy boilers

1. Fuel procurement

Mills are located in rural areas, but the recovered paper and waste plastic that comprise RPF are produced mostly in urban areas, resulting in losses in geographical efficiency due to the need for shipping. Quantities are also limited. In recent years, other paper companies have installed new energy boilers to meet their fossil energy reduction goals, but are now having trouble with stable fuel procurement due to RPF quantity, quality and price problems.

Solution

We have established Oji Eco Materials Co., Ltd., allowing us to efficiently procure fuel as an entire group, instead of as separate mills.

2. Boiler operation

Because new energy boilers use multiple fuels that each have different characteristics (including quantity of heat generated), they require great care to be operated with stability. Also, the waste materials used for fuel can cause all manner of trouble, as they contain wire and other non-burnable materials, as well as chlorine and other chemicals which can lead to boiler corrosion. This means that each day, we have to pay close attention to fuel characteristics while performing inspections and maintenance.

Solution

Each mill which has adopted new energy boilers gathers to exchange technology and skills for stable operation.

3. Combustion ash processing

New energy boilers produce large quantities of combustion ash. Currently, effective uses of this ash include cement raw material, road sub-base material and soil improvement material, but are ultimately limited, leaving us unable to use all that is produced. Combustion ash can also contain heavy metals such as lead, meaning that it must be preprocessed to remove toxins before being used, which means higher costs.

Solution

We plan to develop new detoxification technologies and ash uses through coordination between the Group headquarters and mills.

Oji Philosophy

Just as we have done before, we will continue to promote non-fossil energy by making a multitude of progressive efforts.

The method of extracting cellulose and hemicellulose fibers from wood to produce pulp has become common throughout the paper industry. It may appear to be wasteful that only 50% of pulp fibers can be extracted from wood; however, the true value of this method lies in the fact that the liquid which remains—called black liquor—can be collected and used right at the mill as an energy source. Indeed, this method is an unparalleled, superior technology that uses virtually all of the wood material.

Unlike fossil fuel resources, wood raw material is renewable with proper management. Being an industry that consumes large amounts of energy, the paper industry has been quite progressive in that it has never relied completely on fossil energy. With that record, the paper industry has promoted the use of new energy boilers in order to achieve further progress in eliminating fossil energy dependence. New energy boilers differ from normal combustion boilers because they are equipped with systems to incinerate materials that are usually difficult to burn. This innovation has enabled the use as fuels of what were once mere waste materials, such as scrap tires and bark. We also believe that the most prominent waste-derived fuel, RPF, is an innovative combination of difficult-to-process recovered paper—which was previously unusable waste—and waste plastic that allows a system in which we can completely utilize recovered paper resources.

However, the fact remains that because it is a new system, there are still many problems that we have yet

to ascertain. Going forward, the move away from fossil energy will only grow more pronounced, and new energy boilers will continue to be necessary. Therefore, we are keenly aware that we cannot avoid the various problems associated with this technology. We are strongly committed to solving each problem through cooperation as an entire corporate group, never leaving work sites on their own as we team up to tackle energy and related waste issues together.



Wires contained in scrap tires. These often cause operational trouble, such as clogged pipes.



Continuing to Provide Paper

Reinforcement of Environmental Improvement Measures and Environmental Management Systems

In all our business activities, we strictly adhere to environmental laws and regulations, striving to reduce our environmental impact as we try to raise environmental management levels throughout our entire Group.

We have established the Environmental Management Division, positioning environmental management as a top priority.

Paper production results in wastewater, smoke and other wastes, which are emitted from mills. The paper industry is not alone—all manufacturing industries alike have significant environmental impacts. The world today shares a common awareness of environmental problems; each company is responsible for managing and reducing its environmental impact, and no enterprise can ignore that responsibility. The Oji Paper Group has clearly placed environmental management as one of its most important corporate activities, and is strengthening its

environmental management system. In particular, it is striving to deepen awareness throughout the Group to ensure that compliance with laws and regulations remains its highest priority. Also, in response to rapidly changing social conditions, the Group undertook an organizational revision in June 2009. That revision included establishment of the Environmental Management Division, which presides over all environmental work and will enable speedy, complete management of environmental matters.

Figure 1 Oji Paper Group New Environmental Management Organization

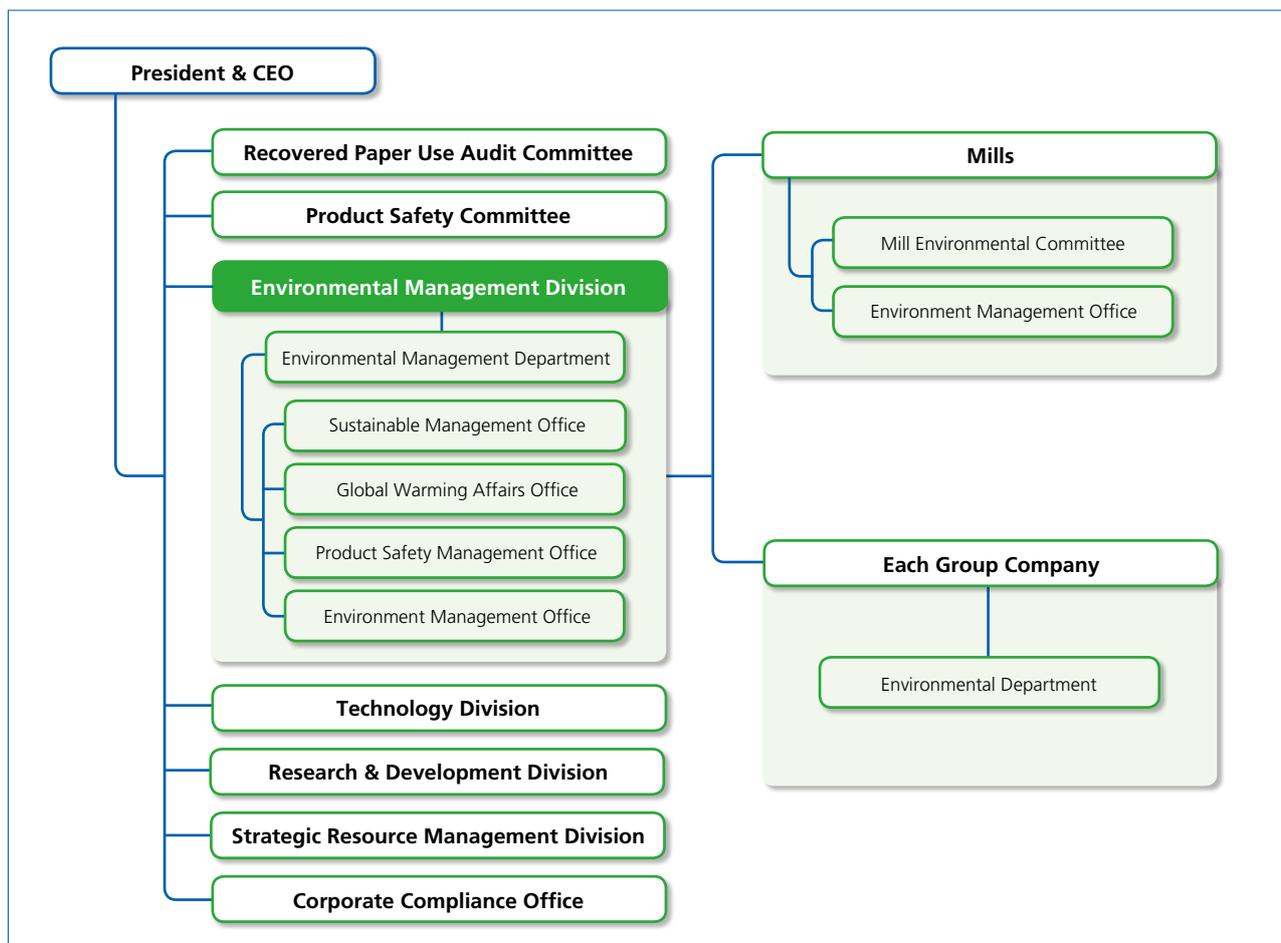


Figure 1 Focus Points: Consolidation of all environmental operations to the Environmental Management Division

- We have consolidated all environment-related operations to the Environmental Management Division.
- As the department overseeing environmental matters, the Environmental Management Division directly consults with related departments and raises effectiveness.

We promote adoption of an environmental management system tailored to the situation of each facility.

In order to facilitate the assured performance of environmental management, the Oji Paper Group's Environmental Action Plan 21 calls for an environmental management system (EMS) that suits the circumstances of each

facility. The Group uses the following three types of systems to give facilities options that fit their situations, encouraging them to adopt the right one.

<p>ISO14001</p>	<p>Certifications in Japan (KES, Eco-Action 21)</p>	<p>O-EMS (Oji Paper Group Environmental Management System)</p>
<p>This is a comprehensive environmental management-related system. It can be used to achieve sustained environmental performance improvement through reduced environmental impact. Because specific management methods are left to each facility, users can build a system that matches their organizational situation. While this system is labor-intensive, it is also highly trusted as an international standard.</p>	<p>These are comprehensive systems based on ISO14001. They primarily focus on CO₂ reduction and resource conservation, giving practical environmental improvement support. These are suitable systems for those small and medium-size facilities for which adoption of EMS is too costly. An increasing number of companies are considering requiring these systems as part of green procurement regimes.</p>	<p>This is the Oji Paper Group's original EMS. While it is not an ISO-like third-party certification, it is implemented in collaboration with specialist internal staff to integrate ISO standards with environmental audit (see next page) guidance. It allows management tailored to practical business situations while still covering all important areas. This system is best suited to small and medium-size facilities that do not need a comprehensive system and pose a comparatively low environmental risk.</p>

Figure 2 Oji Paper Group Status of EMS Certification (As of Sep. 1, 2009)

	Number of facilities (of 209 facilities audited)	Mills (selected)
ISO14001	98	All mills of Oji Paper, Oji Paperboard, Oji Nepia, Oji Specialty Paper; Oji Cornstarch, Kyushu Packaging, Oji Chiyoda Container, Oji Interpack, Hokkaido Mori Shigyō
Certifications in Japan	6	Chuetsu (Shiga), Kiyoshiyouki (Shiga, Suzuka), NIHON SEIKAHOUSO, Mori Kamihanbai (Kyoto, Nagoya)
O-EMS	2 (10 are preparing to acquire)	Fuchigami Danbo-ru, Matsuda Aoi Danboru

■ EMS certification policy

The Oji Paper Group plans to promote O-EMS certification among those facilities that have not yet obtained EMS certification. O-EMS is a system on which the Group began working in September 2007, and is increasingly being adopted by containerboard mills in particular. In order to facilitate O-EMS adoption by more work areas, the Group plans to work with facilities to improve the system, using it to raise the level of environmental management Group-wide. However, regardless of what systems are adopted, those involved must be truly invested for those systems to have meaning. By raising awareness at each facility and adding on-site environmental audits, the Group plans to build a more assured management system.



The first O-EMS certified facility, Fuchigami Danbo-ru Co., Ltd., is presented with its certificate.

We have implemented environmental audits within a robust system—in terms of both quality and quantity—to ensure that we never again violate environmental laws.

The environmental management systems (EMS) we introduced on the previous page are simply systems which establish environmental management procedures. It is therefore also necessary to confirm on our own what has resulted from the application of these systems. This confirmation is performed with certainty by on-site environmental audits.

In order to check the implementation status of environmental work—beginning with legal compliance—the Oji Paper Group has been performing environmental audits since 1994. The initial audits covered the Group’s nine mills and expanded to the entire Group in 2002. However, emission of smoke in excess of standards and the improper handling of data were discovered in July 2007 at five Oji Paper mills and four Oji Paperboard mills. To prevent this type of inexcusable incident

from recurring, the Group thoroughly reviewed not only the number, but also the content of audits as it strengthened the system (see Figure 3).

Specifically, audits are now more searching in the information they obtain about what is actually happening at worksites. For example, we verify not only the daily reports, but also the operational notes, and interview workers about how they handle abnormalities and other issues. Auditors also make unannounced checks of data, taking the time to verify accuracy. Through these reviews of procedure, we have drastically increased the number of items on our audit checklist, from 170 to 470. We have also increased the amount of time spent auditing a single facility as much as six-fold, and now perform audits at all 209 Group facilities over two-year cycles.

Figure 3 Oji Paper Group Environmental Audit Review Content (Selected)

	Before changes	After changes
Number of checklist items	170	470 (These are now constantly reviewed)
Interviews	None	Performed with mill managers, site operators, etc.
Follow-up	Confirm completed reports from mills	Confirm completion of fixed problems and fulfilled requests by documents, photographs, etc.

■ Environmental audit results

Commencing with the first of the above new audits in July 2007, the Oji Paper Group completed the first audit cycle covering all facilities in September 2009. In order to comply with the regulatory limits established by laws and community ordinances, the Group has created even stricter voluntary standards for each mill.

Audits confirm in great detail whether these voluntary standards are being observed, how facilities are being managed day-to-day, and whether procedures are being followed in the unlikely event that a standard is breached. This has resulted in mills being admonished even when they have not violated laws or regulations. The Group never compromises, proactively consulting with authorities and expeditiously making improvements in all necessary items that come to light. In order to implement more certain environmental management, the

Group has added improvement to its 470 audit checklist items. Also, beginning in fiscal 2010, documentation audits will be further enhanced while the frequency of on-site audits is raised as part of the Oji Paper Group’s firm commitment to prevent any recurrence of legal violations or environmental incidents.



An environmental patrol at Kure Mill. Mills perform voluntary checks separately from audits.

Oji Philosophy

Taking firm steps toward on-site awareness and environmental management, the Oji Paper Group will continue united in its powerful environmental efforts.

Papermaking is a so-called “process industry.” Operating our massive machines 24 hours a day, 365 days a year, stably and without stopping, we have operated our business with a mentality of efficiency. That is why stopping equipment is a great loss for a site, and a decision which requires courage. The smoke emissions incidents that occurred in July 2007 were the result of just such a mentality—that continuous operation was a higher priority than the law. The smoke emissions incidents constituted a betrayal of the trust of many community residents and users of our products. We must never allow such incidents to occur again.

Beginning this year, under the direction of the newly established Environmental Management Division, we are committed first to firmly creating a Group-wide awareness that legal compliance is our first priority, ensuring that manufacturing staff are educated to stop equipment when problems occur and follow the established procedures. Additionally, we will strive to prevent environmental problems and reduce our impact on the community environment.

At mills, the Environmental Management Division is a behind-the-scenes hero. It constantly monitors how well the inevitable environmental impacts of the papermaking process—smoke and wastewater emissions—are being minimized. Without the Environmental Management Division, the Group would be unable to continue providing paper. Only because of solid on-site environmental management can the Group say that it will continue doing

business. With that mentality, the Division will support each section of each facility with even greater care going forward. The entire Oji Paper Group is committed to implementing a powerful environmental management program.

Environmental Charter

Basic Policy

The Oji Paper Group Environmental Charter requires the Oji Paper Group to help create a truly enriched and sustainable society by developing business activities that harmonize with the environment from a global perspective. The Charter calls for the Oji Paper Group to make autonomous efforts to achieve further environmental improvement, and aggressively drive its forest recycling, paper recycling, and global warming countermeasures forward.

Action Guidelines

1. Promotion of forest recycling
2. Promotion of paper recycling
3. Promotion of global warming countermeasures
4. Reinforcement of environmental improvement measures and environmental management systems
5. Development of production technologies and products that minimize environmental impact
6. Reduction and effective utilization of waste
7. Transfer of environmental protection technology to other countries
8. Building relationships of trust with stakeholders

The Oji Paper Group has posted the Environmental Charter at each facility in order to unite the entire Group behind its commitment.



5

Development of Production Technologies and Products that Minimize Environmental Impact

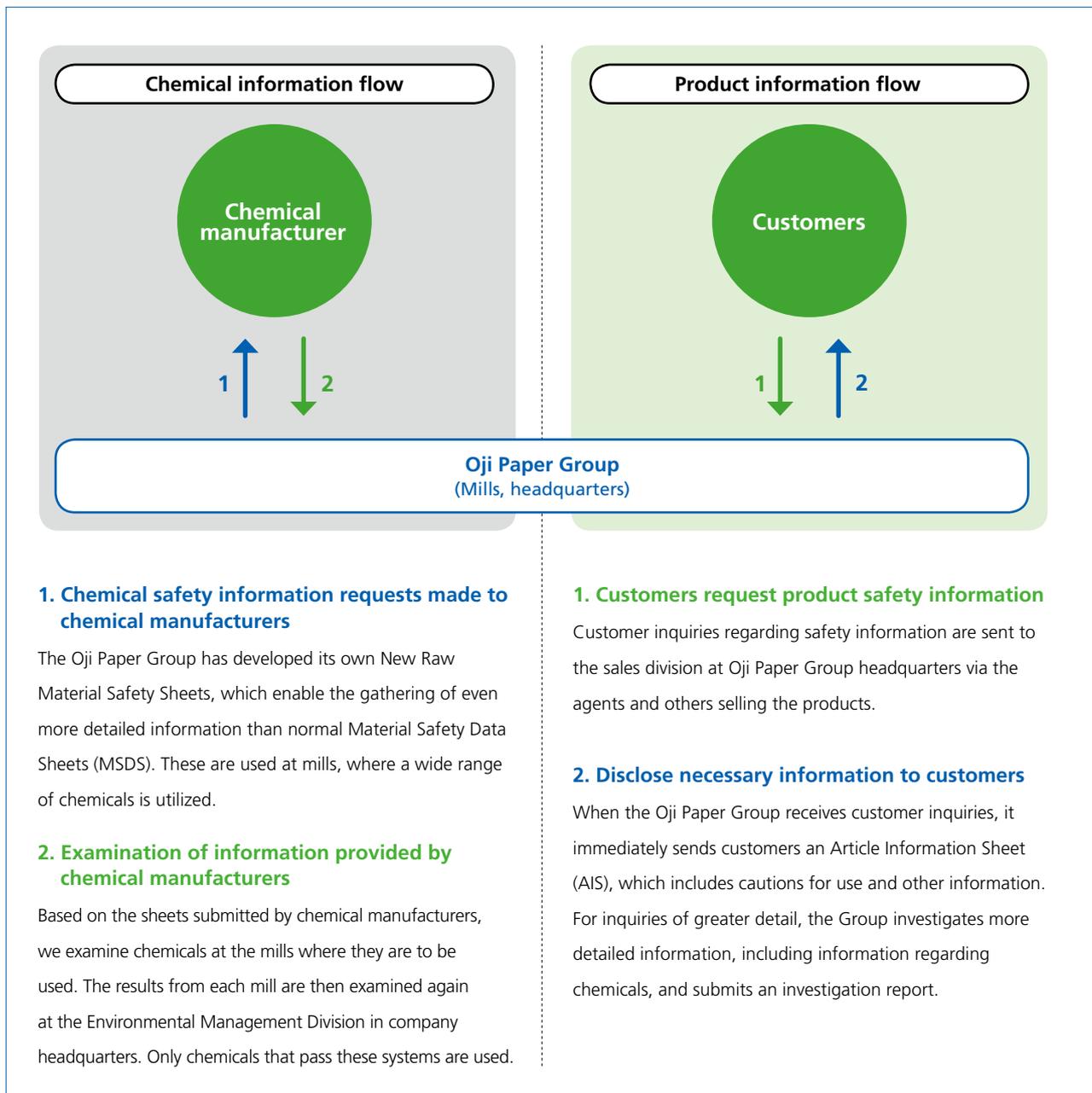
Utilizing our long experience in paper-related basic research, we are making great efforts in research and development of environmental impact-minimizing production technologies and products in order to realize a sustainable society. In our purchasing of raw materials as well, we both require product safety according to our Product Safety Charter and strive to use raw materials that result in minimal environmental impact.

The Oji Paper Group discloses information about chemicals it uses to customers after gathering all necessary information.

While wood and recovered paper are the main raw materials from which paper is made, chemicals must also be added to achieve its many characteristics, such as printability and strength. As is well known, paper has deeply penetrated our lives, and since it is processed and reshaped for our use in many familiar situations, it is often handled and

touched by our skin in the natural course of events. Paper is also frequently used to wrap our food. Because of this close contact, the Oji Paper Group performs strict examinations—from as early as the selection process—of the various chemicals used in papermaking in order to ensure complete product safety.

Figure 1 Oji Paper Group Product Safety Information Flow



We have started new efforts to achieve even greater product safety.

1. Voluntary standards for products used with food

The paper industry has established voluntary standards of greater strictness than those required by law for food-related products. The Oji Paper Group has incorporated these strict industry standards into its own systems, where they are faithfully followed. The Group also performs internal audits (currently, documentation audits once per year and on-site audits once every two years) to verify that the standards are being properly observed.

2. Product Safety Charter revision

In order to more firmly carry out product safety strengthening measures, the Oji Paper Group revised its Product Safety Charter in December 2008. The Group added three more items, including stringent management under voluntary standards, for a total of five items, making its safety efforts even more thorough. The Group is committed to continue to faithfully provide customers with very safe products.

Product Safety Charter

The Oji Paper Group delivers safe products, fully recognizing that its corporate social responsibility entails providing quality and services that enable customers to use its products with peace of mind. Going forward, we will continue to fulfill the trust of our customers by ensuring that all of our employees reliably implement the following commitments.

1. Complying with all safety-related laws and regulations, we will also implement appropriate management to follow voluntary standards.
2. We will continually improve our Group-wide quality control system, striving to ensure safety.
3. We will provide timely and appropriate information on product safety and proper usage.
4. We will proactively gather information on products involved in incidents and make reports to relevant authorities in compliance with the law. We will also faithfully take necessary action to find the root causes of incidents and strive to prevent their recurrence.
5. We will continuously review our management system through regular internal audits, always striving for improvement.

Oji Philosophy

We are making efforts to improve safety by even stricter chemical management.

Experts at the Environmental Management Division of the Oji Paper Group strive to constantly keep abreast of changes in legal systems and chemical hazard information. Simultaneously, they coordinate with mills, related divisions and even chemical manufacturers to maintain seamless information exchange, verifying information from

the selection stage onward. The Group receives numerous product safety inquiries each day, and will continue to keep its solemn responsibility in mind as it works to ensure compliance, improve product safety and reduce the environmental impact of manufacturing processes and of the products themselves.



6

Continuing to Provide Paper



Reduction and Effective Utilization of Waste

We are working hard to reduce the amount of waste produced by our manufacturing process while also promoting effective waste utilization measures in order to minimize the ultimate disposal of waste.

Ideally, a manufacturer turns all the raw materials it procures into products, but in reality some waste always occurs, and papermaking is no exception.

In addition to pulp produced from wood and recovered paper, filler composed mainly of calcium carbonate and several chemicals that give paper its necessary characteristics are also used to make paper. Further, securing the energy required to manufacture our products takes a combination of fossil, renewable and waste-derived energy.

In not only papermaking, but all manufacturing industries alike, the ideal is that 100% of raw materials becomes part of the product. This ideal is based less on waste reduction than on the

principle that manufacturing costs would be cut by using all raw materials without waste. At each of its manufacturing sites, the Oji Paper Group has added numerous innovations to its processes to try and reduce waste, even if only a little. However, because of certain characteristics of the raw materials and equipment used, a certain amount of paper sludge (PS) ultimately occurs that cannot be used as product. In addition, when fuel is burned in boilers to power papermaking, it leaves behind combustion ash.

■ The main wastes that occur in the papermaking process

1. Paper sludge (PS)

This is the general term for the sludge emitted by paper production processes.

PS from the recovered paper pulp production process

Recovered paper pulp manufacturing is the process of breaking down recovered paper in water and extracting pulp fibers. When this is done, microscopic pulp fibers and the other non-pulp fiber materials that form paper come together as PS, which is then emitted.

PS from the papermaking process

The final raw material produced by mixing pulp fibers with fillers and chemicals is laid onto what is called "wire" and then pressed to remove water. At that time, microscopic

pulp fibers fall out of the wire, along with filler and other material. Material that has fallen is collected and used again as raw material, but material that is ultimately unable to become paper gets emitted as PS.

PS from wastewater processing

Water that has been used in the mill is collected into water processing equipment, where impurities are removed, after which water that meets emissions standards is released into public waterways following processing. Solid matter left behind by this process is also PS.

2. Combustion ash Ash left behind in boilers

All paper mills have at least one boiler, and some have as many as five; each of these produces combustion ash.

Depending on the type of fuel initially burned, the amount of combustion ash left behind can vary. Fuels that produce larger amounts of combustion ash include RPF and scrap tires, coal, and to a lesser degree, wood material. Conversely, not much combustion ash is produced by black liquor or heavy oil. Since the new energy boilers adopted from 2004 onward mainly burn RPF and scrap tires, they produce a larger amount of combustion ash than previous boilers.

■ Efforts to reduce waste

Reducing waste, even a little, is our most important task. We long ago began to take measures at all our mills to reduce PS in particular. For example, the PS emitted by the recovered paper pulp production process is microscopic, but the attendant pulp material and filler are relatively large, meaning that by utilizing them in other mill processes such as papermaking, we can reduce the total amount of waste produced. Also, because PS includes water, some mills press the liquid out and then further incinerate the PS to create PS ash (see photograph at right) in their efforts to reduce waste.



Post-incineration PS ash, which is effectively utilized as a cement and soil enhancer.

While our mills tirelessly work to reduce waste, we simultaneously promote its effective utilization.

Our first priority is given to reducing the amount of waste produced by our facilities, but the waste that does occur is processed by one of two methods: Effective utilization or disposal in landfills.

Waste disposal methods

Effective utilization

Effective use of waste materials in cement raw materials, road sub-base raw materials, soil enhancers or snow melting agents, etc. as opposed to disposal in landfills. Only a small portion of waste can be sold, and the rest is processed at high cost.

Disposal in landfills

Disposal in a properly managed industrial waste landfill: Disposal costs money.

Final disposal rate

The final disposal rate is defined as the amount of waste generated at mills that was disposed of by burying in landfills, expressed as a percentage of production volume. The Oji Paper Group's Environmental Action Plan 21 sets forth a target of 0.5% or less by fiscal 2010. Reducing the amount of waste produced is a top priority, and the Group intends to promote the effective use of waste that does occur while reducing the amount that gets buried as much as possible. However, the average final disposal rate for paper mills of the Oji Paper Group is 0.97% (see Figure 1), meaning that unfortunately, the Group has not yet achieved its target.

Figure 1 Waste Disposal at Oji Paper Group Mills (FY2008)

- Production volume = Volume of paper produced, including reprocessed products...a
- Effectively utilized volume = Dry volume of effectively utilized waste...b
- Final disposal volume = Dry volume of waste buried in landfills...c
- Final disposal rate = Amount of waste generated at mills that was disposed of by burying in landfills, expressed as a percentage of production volume...c/a

Company	Mill	Production volume (t)	Total amount of waste (t)		Final disposal rate (%)
			Effectively utilized volume	Final disposal volume	
Oji Paper	Kushiro Mill	602,501	54,971	552	0.09
	Tomakomai Mill	1,223,678	119,710	3,883	0.32
	Fuji Mill	392,121	33,380	259	0.07
	Kasugai Mill	676,183	33,198	26,724	3.95
	Kanzaki Mill	65,099	7,385	7	0.01
	Yonago Mill	490,877	38,929	400	0.08
	Kure Mill	263,672	9,795	561	0.21
	Tomioka Mill	465,675	33,761	2,970	0.64
	Nichinan Mill	261,163	20,899	24,249	9.29
Total	4,440,969	352,028	59,605	1.34	
Oji Paperboard	Nayoro Mill	200,391	9,001	1,785	0.89
	Kushiro Mill	*Data is included in the Oji Paper Kushiro Mill			
	Nikko Mill	217,787	3,436	2,493	1.14
	Edogawa Mill	135,904	2,579	0	0.00
	Fuji Mill	266,308	1,237	499	0.19
	Matsumoto Mill	112,928	1,380	23	0.02
	Gifu Mill	319,943	1,643	565	0.18
	Sobue Mill	299,726	23,096	285	0.10
	Osaka Mill	217,157	2,551	24	0.01
	Oita Mill	320,421	17,110	3,392	1.06
	Saga Mill	319,776	10,992	26	0.01
Total	2,410,341	73,025	9,092	0.38	
Oji Specialty Paper	Ebetsu Mill	196,471	25,542	170	0.09
	Tokai Mill	136,429	8,103	1,785	1.31
	Nakatsu Mill	54,476	2,825	23	0.04
	Shiga Mill	20,643	717	1	0.00
Total	408,019	37,187	1,979	0.49	
Oji Nepia	Tomakomai Mill	44,267	3,465	2,253	5.09
	Nagoya Mill	142,594	3,743	12	0.01
	Tokushima Mill	38,165	106	9	0.02
Total	225,026	7,314	2,274	1.01	
Grand total	7,484,355	469,554	72,950	0.97	

Issues in achieving the final disposal rate target

The final disposal rate of Oji Paper Group paper mills averaged 0.97% in fiscal 2008, but varied widely, from 0% to nearly 10% (see Figure 1). This was due to various circumstances, including the fact that some mills have their own disposal facilities. In many cases, paying the costs necessary to process effectively utilized waste can

make it more expensive than disposal. In addition, disposal facilities are limited, and the amount of waste that can be disposed of varies along with economic conditions. Therefore, it is not viable to simply shift from burying waste to effectively utilizing it. Furthermore, the adoption of new energy boilers has resulted in new issues,

such as the occurrence of large amounts of combustion ash that cannot be effectively utilized. It will be very difficult to achieve the fiscal 2010 target, but the Group is united as it continues to persevere in waste reduction.

The Group is united in taking head-on the fresh problems posed by new energy boilers.

One factor preventing the Group from being able to achieve its final disposal rate target is the use of new energy boilers. As described in the topic “Promotion of Global Warming Countermeasures,” these boilers use mainly waste-derived fuel and therefore drastically reduce CO₂ emissions

resulting from fossil-fuel burning. On the other hand, they present many issues from a waste perspective. In any event, it has only been five years since the Oji Paper Group adopted its first new energy boiler system, and the entire Group is committed to solving its problems one by one.

■ Issues created by combustion ash produced by new energy boilers

1. High volume of waste produced

It depends on the type of fuel being used, but because most new energy boilers use waste-derived fuels, they produce much more combustion ash than previous boilers did.

2. Ash sometimes contains chlorine or heavy metals

This is due to the chlorine present in the waste plastic contained in RPF, and the lead, etc. contained in scrap tires. When these materials are found in ash, it becomes difficult to effectively utilize.

■ Final disposal rate in mills using new energy boilers

In 2004 the Oji Paper Group expanded its adoption of new energy boilers, and eight are in operation today. Each serves as the main boiler of the mill where it is located. There are differences in waste volume because the scale of boilers and fuels used vary, but overall the amount of waste being produced

is greater than any the Group has previously experienced. The final disposal rate for the majority of mills is becoming higher (see Figure 2) because effective utilization of combustion ash is not progressing as hoped.

Figure 2 Final Disposal Rate of Oji Paper Group Mills Using New Energy Boilers

Start of operation	Mill	Location	Amount of evaporation (t/h)	Final disposal volume (t)	Final disposal rate (%) 2008
April 2004	Tomakomai Mill, Oji Paper	Hokkaido Pref.	260	3,883	0.32
May 2004	Oita Mill, Oji Paperboard	Oita Pref.	200	3,392	1.06
June 2005	Yonago Mill, Oji Paper	Tottori Pref.	250	400	0.08
May 2006	Nichinan Mill, Oji Paper	Miyazaki Pref.	130	24,249	9.29
November 2006	Tokai Mill, Oji Specialty Paper	Shizuoka Pref.	7	1,785	1.31
October 2007	Kasugai Mill, Oji Paper	Aichi Pref.	140	26,724	3.95
December 2008	Tomioka Mill, Oji Paper	Tokushima Pref.	300	2,970	0.64
December 2008	Nikko Mill, Oji Paperboard	Tochigi Pref.	70	2,493	1.14

Figure 2 Focus Points: Relationship between new energy boilers and final disposal rates

- Nearly all mills that have adopted new energy boilers have final disposal rates above the target of 0.5%, and the Oji Paper Group as a whole averages 0.97%.
- Because many of the mills using new energy boilers are large-scale, their effect on the Group average is significant.



Oji Philosophy

Proud of the paper industry's efforts to reduce waste, the Oji Paper Group will consolidate its strength to take aim at solving the basic issues that remain.

Forty percent of the raw material used to make paper is wood, and 60% is recovered paper. In the case of wood raw material, we have proactively utilized the unused cuttings that remain when lumber is produced. We use all of the recovered paper as well—the important resource that is painstakingly collected and separated by many people. In this way the paper industry has taken materials that, if left alone, would have become waste, and has found ways to utilize them as raw materials for production. This achievement is the result of persistent effort at the facilities, where trial and error brought about higher technologies, which in turn enabled production of raw materials that could be used in both quality and cost-efficiency. The paper industry has been very progressive in reducing waste, and the mentality of effectively utilizing all resources is deeply ingrained.

The key to reducing waste volume is to reduce the volume generated in the first place. At the same time, our industry has promoted effective utilization by other industries of waste we have produced. We have drastically reduced the volume of waste disposed in landfills while working toward our 0.5% final disposal rate target. However, because effective utilization has been performed externally, it has the drawback of being easily affected by economic fluctuations. Destinations for effectively utilizing waste are limited, and so is the amount that can be processed. The inescapable fact is that effective utilization is usually more expensive than disposal in landfills. In addition, we have been affected by the marked increase

in waste created by the new energy boilers we began adopting in 2004, along with the fact that the combustion ash they produce is difficult to effectively utilize. Lamentably, the Group as a whole is not yet in position to achieve its target in the immediate future.

Landfills are limited. Therefore, in order for us to continue providing paper, it is imperative that we accelerate the effective utilization of waste such as combustion ash, and we believe that finding the way to do that is our responsibility. The system of new energy boilers was adopted only five years ago. It poses many issues, and staff are learning more about it each day. The core idea—to take material that would otherwise all become waste and turn it into energy before disposal—is the result of a corporate mentality cultivated over many years, and we will keep moving in this direction from the perspective of maximizing effective utilization of limited resources. The Oji Paper Group is committed to overcoming this challenge by capitalizing on its collective strength. The Group also aims to voluntarily seek out communication with other industries—something that was rare in the past—as it takes on the fundamental issues and avoids superficial solutions.



Continuing to Provide Paper

Transfer of Environmental Protection Technology to Other Countries

In our business activities outside Japan, we not only strictly comply with local environmental standards, but also proactively transfer our environmental protection technology to other countries.

While planning our expansion into the growing Asian market, we also aim to build an environmental model mill in China.

Looking to enter the growing Asian market, the Oji Paper Group is building a paper mill in Nantong City, Jiangsu Province, China. Since the groundbreaking ceremony in November 2007, construction has rapidly progressed toward the commencement of production, which is scheduled for 2010. The Nantong Mill is expected to become a production base that will satisfy continuously increasing demand in East Asia, with a scheduled output of 800,000 tons of printing paper per year—from just one mill. For reference, the Oji Paper Group’s entire operations in Japan produce approximately 8,000,000 tons per year; the Nantong Mill is a massive undertaking indeed.

China is taking stringent environmental measures as a nation, with minimization of environmental impact and effective

use of energy and other resources absolute prerequisites to entering the manufacturing market there. The environmental measures at the Nantong Mill will utilize the environmental technology the Oji Paper Group has cultivated over many years in Japan, adopting highly efficient, cutting-edge equipment that enables drastic reduction in water and chemical use. Further, the latest equipment will be coupled with the enhanced environmental management systems developed at Japanese mills, allowing the Nantong Mill to serve as a model mill for China’s ambitious environmental measures.

We will tackle China’s water problems by employing advanced wastewater solutions and using technology cultivated in Japan for further improvement.

China suffers from a lack of water supplies. Most of its paper mills are small-scale and use outdated processing technology, causing the wastewater from the paper industry to account for 20% of all industrial wastewater and 30% of all substances that impact the environment. Because the Yangtze

River, which flows near the Nantong Mill, is such a precious water resource, the amount of water permitted for use is about half of that allowed in Japan. Figure 1 shows that the legal regulation values for wastewater that must be observed in China are stricter than those in Japan.

Figure 1 Comparison of Legal Regulation Values for Wastewater in China and Japan

COD, BOD = Wastewater pollution indicators. The lower the number, the cleaner the water.

SS = An indicator of how clouded water is. When the number is high, it can contribute to sludge. The lower the number, the cleaner the water.

Note: Methods of measuring COD differ between China and Japan. Figures on the table marked with asterisks (*) indicate that the Japanese legal regulation COD level (Mn) has been converted to the Chinese standard COD (Cr); COD (Cr)≈2.2 COD (Mn).

	Nantong Mill in China	Existing Japanese mill (Kasugai Mill)	
	Legal regulation values	Legal regulation values	Results (fiscal 2008)
COD (Cr) mg/L	90	132*	108*
BOD mg/L	20	45	26
SS mg/L	30	40	24

Figure 1 Focus Points: Differences in Chinese and Japanese regulation values for wastewater, compensation measures

- Japan, a country that has experienced severe pollution in the past, also has very stringent wastewater regulations.
- The Kasugai Mill emits wastewater into an urban waterway, and operates under even more stringent regulations than other mills in Japan.
- Since the Nantong Mill is subject to even more stringent regulations than those applied to Kasugai Mill, the Oji Paper Group will adopt new technology in order to comply.

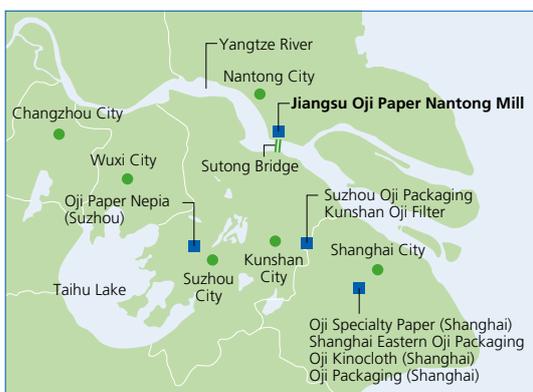
Oji Philosophy

We embrace our responsibility to provide an example of environmental technology in China.

The paper companies of Japan have a history of causing serious pollution problems in the past. In two highly publicized incidents, wastewater from the Honshu Paper Company's Edogawa Mill (currently the Oji Paperboard Edogawa Mill) caused problems on the coastline of Urayasu, Chiba Prefecture in 1958, and sludge problems occurred in Tagonoura Bay near Fuji, Shizuoka Prefecture in early 1970. These pollution incidents had enough impact to cause the passage of Japan's Water Pollution Control Law and other laws regulating wastewater. In the 50 years since the first incident, the paper industry has made environmental improvement efforts more progressively and deeply than other industries. The advanced technology cultivated over that long history by our predecessors is now going to cross the sea to be utilized at the Nantong Mill. The Oji Paper Group must now polish its technology

even further as it aspires to become an example to Chinese industry.

Japanese demand for paper has matured, making it unlikely that there will be another opportunity to build a new mill from the ground up in Japan. In other words, chances to build a large-scale mill with high-level environmental measures in mind from the start are very rare, so the Oji Paper Group plans to utilize this opportunity to its fullest potential. Adopting equipment that uses the latest technology Japan and the world have to offer, the Group hopes to lead environmental technology in China and contribute to the development of its local industry. The Oji Paper Group is dedicated to proactive efforts as it takes its responsibility for the future in both countries.



Nantong Mill location



The Nantong Mill under construction



Continuing to Provide Paper

Building Relationships of Trust with Stakeholders

Through proactive internal communications, external public relations and educational activities to let the community know about our environmental efforts, and by carrying out dialogue with our stakeholders, we will continue striving to protect the environment in the communities of our facilities both inside and outside Japan, contributing to the development of local communities.

From the recovered paper falsification incident, we learned how important it is to listen to the voices of all stakeholders and make our own voices heard at our own will.

1. Starting the Environmental Communication Committee

In June 2008, in response to the recovered paper falsification incident, the Environmental Communication Committee was established around a core of young Group employees. The Committee began its work with the mission of not simply “weathering the storm,” but instead tackling the problem head-on in order to thoroughly rethink the corporate stance of the Oji Paper Group. Through repeated dialogue with persons from outside the company, the Committee learned the importance of intently listening to stakeholder voices and clearly communicating our commitment. The activities of the Committee have been a wonderful opportunity to gain an awareness of the importance of communication.

* For more on the 2008 activities of the Committee, please see the separate section entitled *Oji Paper Group Environmental Communication Committee Activity Report 2009*.

2. Efforts to provide mill tours

Seeing the manufacturing site is the best way to learn about papermaking. True to this, many mills have long provided tours to local elementary and junior high schools or other community members, as well as to our business customers (see Figure 1). However, as we have carried out dialogue with persons outside the company, we have found that many people are not aware of how paper is made or recovered paper is used. This experience has enabled us to keenly realize our past failures to provide such learning opportunities.

The Group now has a broadening sense of urgency, which has led to new voluntary efforts. For example, the Fuji Mill, which almost exclusively uses recovered paper as its raw material, had not generally allowed mill tours for non-business customers in the past. However, spurred on by the recovered paper falsification incident, the mill has adopted a stance of wanting the public to see just how papermaking is done using recovered paper, and has begun offering tours for the general public. The mill established a tour route and dedicated inquiry desk in August 2008, and now even proactively promotes its tours for local elementary and junior high schools.



Visitors at the Oji Paper Fuji Mill

Figure 1 Number of Visitors at the Oji Paper Group's Main Mills (Fiscal 2008)

Company	Mill	Number of visitors	
Oji Paper	Kushiro Mill	269	
	Tomakomai Mill	4,871	
	Fuji Mill	670	
	Kasugai Mill	5,401	
	Kanzaki Mill	316	
	Yonago Mill	1,934	
	Kure Mill	1,329	
	Tomioka Mill	354	
Nichinan Mill	991		
Total		16,135	
Oji Paperboard	Nayoro Mill	182	
	Nikko Mill	542	
	Edogawa Mill	674	
	Fuji Mill	394	
	Matsumoto Mill	232	
	Gifu Mill	206	
	Sobue Mill	395	
	Osaka Mill	368	
	Saga Mill	362	
Oita Mill	270		
Total		3,625	
Oji Specialty Paper	Ebetsu Mill	442	
	Nakatsu Mill	86	
	Shiga Mill	40	
	Tokai Mill	Iwabuchi Facility	35
		Fujinomiya Facility	0
		Shibakawa Facility	86
		Fuji Facility	15
Daiichi Facility	0		
Total		704	
Oji Nepia	Tomakomai Mill	687	
	Nagoya Mill	85	
	Tokushima Mill	847	
Total		1,619	
Grand total		22,083	

We ask community residents to act as environmental monitors, closely exchange information, and think together with local communities in efforts to bring about better papermaking.

In addition to wastewater and other waste emissions, paper mills have other direct effects on people, such as vibrations, noises and smells. In order to go beyond mere legal compliance and obtain the direct opinions of community residents, we appoint approximately 10 people to serve as environmental monitors for a set period of time to keep information exchanges between facilities and community residents. Specifically, this information includes visits to monitors

by mill environmental supervisors, reports from monitors when they sense abnormalities in sounds or smells, and further, the holding of regular opinion exchanges. The monitors provide us with frank opinions and questions. After the 2007 smoke incidents we expanded the monitor system, which now operates at all the mills of Oji Paper, Oji Paperboard, Oji Specialty Paper and Oji Nepia.

We are working to interact with the community through seasonal events, learning experiences, and even visiting lectures—activities possible only at the Oji Paper Forest Museum.

The Oji Paper Forest Museum is located in Kuriyama Town, Hokkaido Prefecture. It hosts seasonal events such as Christmas wreath-making and Mother's Day card-making, the Oji Forest Nature Schools, and nature experience bus tours. It also sometimes hosts vocational schools holding life science classes, graduate schools holding environmental education training and local governments holding forest guide training seminars. For schools or organizations that are too far

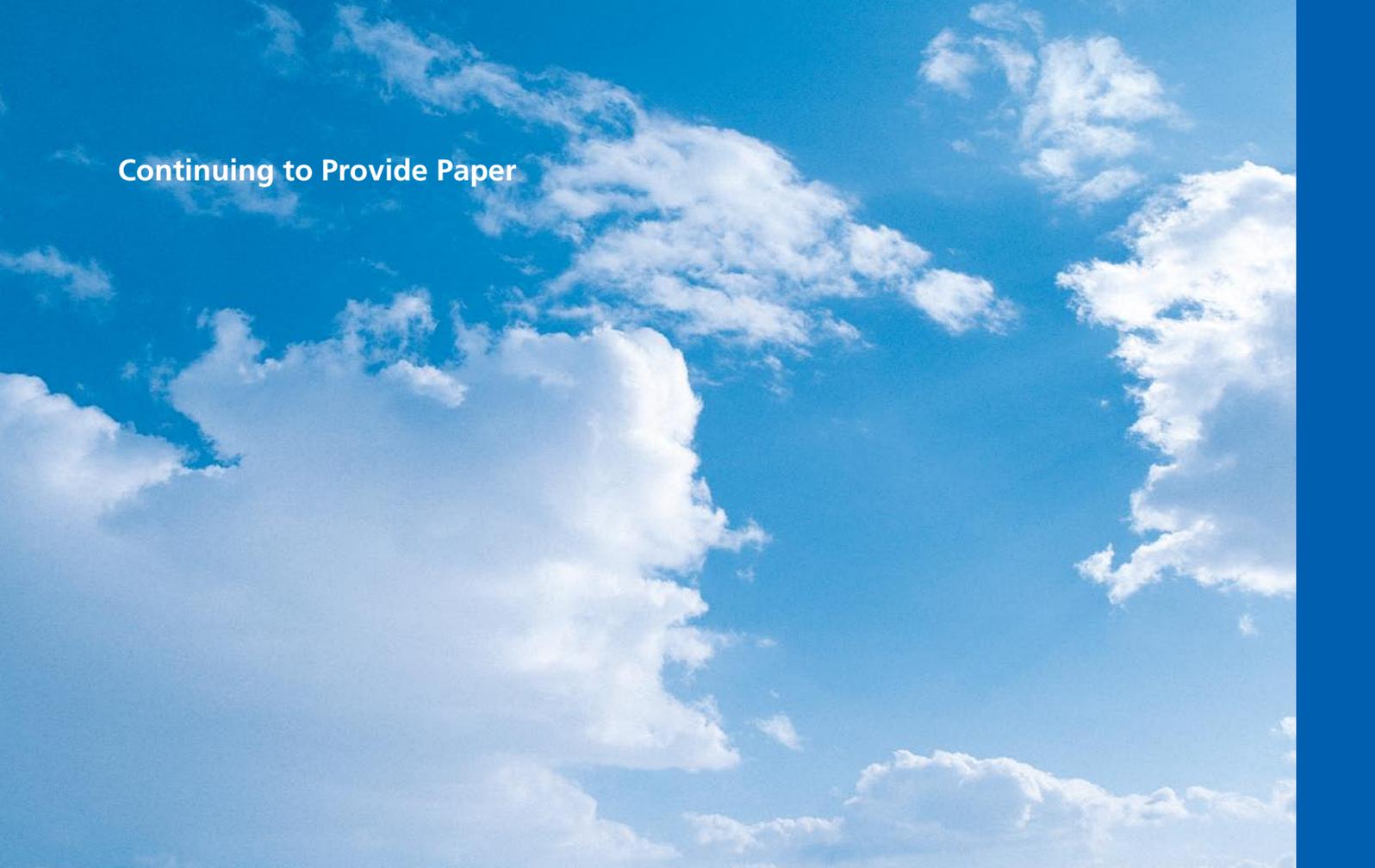
away to visit the Forest Museum, staff can take learning materials with them to give visiting lectures. Though it is out of our field, Internet publicity has even led to requests for environmental lectures at a civil engineering and construction company's safety rally. Our hope is that the Museum can contribute even a little to raising awareness among the general public concerning environmental problems.

Oji Philosophy

We pledge to deepen communication with stakeholders even further going forward.

Due to its mentality as a manufacturer, the Oji Paper Group has heretofore failed to carry on proactive and sufficient communication with people outside the company. This is how the recovered paper falsification incident occurred, but subsequent dialogue with people outside the company has led to many valuable discoveries. The Group now recognizes that a lack of communication was one factor

leading to the falsification. The Oji Paper Group believes that voluntary actions such as accepting more mill tours, exchanging information with the community and interacting with the general public will lead to a change in its corporate culture, and therefore plans to continue to deepen communication into the future.



Continuing to Provide Paper

All our departments are connected by paper, and each employee supports our papermaking. That is why we will use this Environmental and Sustainability Report to further develop our teamwork.

The Environmental and Sustainability Report 2009 was created based on the Environmental Charter of the Oji Paper Group and its eight Action Guidelines. The purpose of the Environmental Charter is to continue to make paper. In other words, in the absence of any one of the Action Guidelines contained herein, our papermaking ceases to be sustainable.

During the editing process, we came to feel, through numerous conversations with company departments, that awareness of our core business—papermaking—had grown thin. When the Environmental Communication Committee held study meetings last year, too, it came to light that despite the fact that recovered paper makes up 60% of our raw material, staff outside the relevant departments had almost no knowledge about it. In such a state, no matter how well we do our jobs, we

cannot possibly achieve teamwork in papermaking. We strongly sense that employees must learn anew what each department is doing and share the awareness that we all support the making of paper. As we take a wide view of the entire operation, the way we should move forward will come into view. It is our hope that this publication will become the catalyst for that revival. We believe that as each employee comes to realize we are all connected by papermaking, the Oji Paper Group will be able to build relationships of trust with everyone involved. The Oji Paper Group will continue providing paper, always mindful that answers ultimately come from one source—human-to-human connections.

Business Profile of the Oji Paper Group

Company Data

Name	Oji Paper Co., Ltd.
Founded	February 12, 1873
Established	August 1, 1949
Representative Director	Kazuhiisa Shinoda President and Chief Executive Officer
Paid-in Capital	¥103,880 million
Main Business	Manufacturing and marketing of pulp, paper and converted paper products
Net Sales	Fiscal 2008
	Non-consolidated: ¥ 569,581 million
	Consolidated: ¥1,267,129 million
Number of Employees	As of March 31, 2009
	Non-consolidated: 4,289
	Consolidated: 20,415

Major Subsidiaries

Pulp and paper products	Oji Paperboard Co., Ltd.
	Oji Specialty Paper Co., Ltd.
	Oji Nepia Co., Ltd.
	Oji Tsusho
	Oji Eco Materials Co., Ltd.
	Pan Pac Forest Products Ltd.
	Jiangsu Oji Paper Co., Ltd.
Oji Paper (Thailand) Ltd.	
Converted paper products	Oji Chiyoda Container Co., Ltd.
	Mori Shigyo Co., Ltd.
	Oji Interpack Co., Ltd.
	Oji Packaging Co., Ltd.
	Mori Kamihanbai, Co., Ltd.
	Oji Seitai Kaisha, Ltd.
	Oji Tac Co., Ltd.
	New Tac Kasei Co., Ltd.
	Oji Kinocloth Co., Ltd.
	APICA Co., Ltd.
	Chuetsu Co., Ltd.
	Kanzaki Specialty Papers Inc.
Kanzan Spezialpapiere GmbH	
Ilford Imaging Switzerland GmbH	
Wood and tree-planting	Oji Forest & Products Co., Ltd.
Other businesses	Oji Logistics Co., Ltd.
	Oji Real Estate Co., Ltd.
	Oji Cornstarch Co., Ltd.
	Oji Engineering Co., Ltd.
	Hotel New Oji Co., Ltd.
	Oji Salmon Co., Ltd.
	Oji Hall Co., Ltd.

Major Facilities

Paper Manufacturing Business

Oji Paper Facilities (9 Mills)

- Kushiro Mill
- Tomakomai Mill
- Fuji Mill
- Kasugai Mill
- Kanzaki Mill
- Yonago Mill
- Kure Mill
- Tomioka Mill
- Nichinan Mill

Oji Paperboard Facilities (11 Mills)

- Noyoro Mill
- Kushiro Mill
- Nikko Mill
- Edogawa Mill
- Fuji Mill
- Matsumoto Mill
- Gifu Mill (Ena and Nakatsugawa)
- Sobue Mill
- Osaka Mill
- Oita Mill
- Saga Mill

Oji Specialty Paper Facilities (2 Business Divisions, 3 Mills)

- ES Business Division (Ebetsu Mill)*1
- Nakatsu Mill
- Shiga Mill
- FP Business Division (Fuji Facility, Daiichi Facility)*2
- Tokai Mill (Iwabuchi Facility, Fujinomiya Facility, Shibakawa Facility)

*1 Reorganized as of November 1, 2009

*2 Reorganized as of September 1, 2009

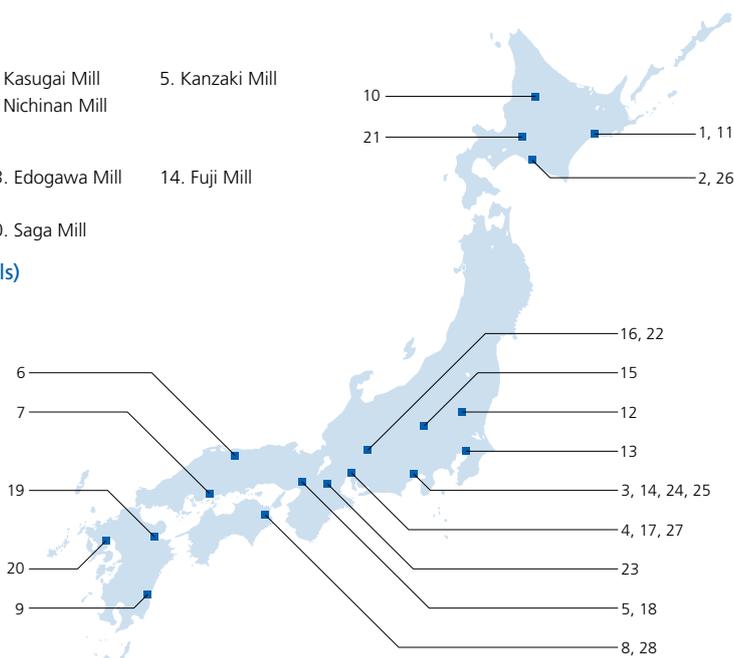
Oji Nepia Facilities (3 Mills)

- Tomakomai Mill
- Nagoya Mill
- Tokushima Mill

Converted Products Business

Chiyoda Container Group Facilities (36 Mills)

Mori Shigyo Group Facilities (21 Mills)





OJI PAPER GROUP