Outline of Oji’s Forest

Oji Green Resources Co., Ltd.
Outlook of Oji Group
Outline of Oji Group

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Oji Holdings Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date established</td>
<td>February 12, 1873</td>
</tr>
<tr>
<td>Capital</td>
<td>103,880 million yen (as of March 31, 2016)</td>
</tr>
<tr>
<td>Revenue</td>
<td>¥1,433,595 million (for the full year ended March 31, 2016)</td>
</tr>
<tr>
<td>Operational Profit</td>
<td>¥73,685 million</td>
</tr>
<tr>
<td>Number of consolidated subsidiaries</td>
<td>176</td>
</tr>
<tr>
<td>Number of employees</td>
<td>33,605 (Domestic 16,845, Overseas 16,670)</td>
</tr>
</tbody>
</table>

Oji Group Major Business Locations

- Oji Paper
- Oji Nepia
- Oji Material
- Oji F-tex
- Oji Container
- Morisigyo Group
- Oji Imaging Media
Global Business Locations

Oji Group began overseas operation in the 1970s with the establishment of a pulp production in Brazil, since then, the operation has been expanded continuously.
Oji Paper Group Products

Oji Paper Group Products are used extensively in our everyday life

### Industrial and Household Materials
- Corrugated Container
- Envelope
- Paper Bag
- Toilet Roll
- Facial Tissue
- Diaper

### Printing and Communications Media
- Newsprint Paper
- Printing Paper
- PPC Paper

### Functional Materials
- Film Material
- Transformer Board

### Forest Resources and Environmental Products
- Pulp
- Lumber
- Power Generation
Organization Chart

- Business domains are classified into the five companies: Industrial Materials, Functional Materials, Forest Resources and Environmental Marketing, Printing and Communications
- In addition, there are two groups to support business domains: Shared Service companies and Corporate Management Group
Diversification of Business

Developing business overseas and diversifying business in response to changing business environment

**Business Development Overseas**
- Development of Overseas Business
- 2004: 8%, 2015: 28%

**Business Diversification**
- 2004: 4%, 2015: 19%
- Development of Forest Resources
- Paper and Communications Media
- Industrial Material
- Functional Material
- Others
Outlook of Oji’s Forestry Business
Forest Resources & Environment Marketing Company

**New Business**

- **Major Business**
  - Renewable Energy
  - (Woody Biomass, Hydro Power, Solar Power)
  - Bio Refinery

**Pulp**

Developing new applications of pulp in addition to ordinary use for paper

**Forest Plantation & Lumber**

- **Major Business**
  - Forest Plantation
  - Lumber, Chip Sales
  - Log Processing
Location of Forest Business

Forestry businesses are operated across 10 countries

- Forestry Business
- Forestry & Pulp Business

- KPFL, CPFL (China)
- LPFL, SLPFL (Laos)
- QPFL, TTO (Vietnam)
- KTH (Indonesia)
- APFL (Australia)
- GPFL (Australia)
- EPFL (Australia)
- CENIBRA (Brazil)
- Oji Fibre Solutions (New Zealand)
- PAN PAC (New Zealand)

190K ha of Oji’s forest in Japan

Oji (Cambodia) Plantation Forest Co., Ltd. (OCP) (Cambodia)
Outline of Oji’s Forest in Japan

Hokkaido  126,577ha
Tohoku  7,313ha
Chugoku  13,906ha
Kanto/Chubu  17,852ha
Kinki  12,699ha
Shikoku  2,679ha
Kyushu  7,640ha

The largest private forest in Japan
190K ha
The same area as Osaka Pref.
or 0.5% of the land area of Japan

OJI Green Resources
## Outline of Oji’s Forest outside of Japan

<table>
<thead>
<tr>
<th>Country</th>
<th>Region</th>
<th>Company</th>
<th>Est.</th>
<th>Tree Species</th>
<th>Planted Area* (ha)</th>
<th>Harvest Cycle (years)</th>
<th>Harvest</th>
<th>Forest Certificate</th>
</tr>
</thead>
<tbody>
<tr>
<td>NZ</td>
<td>South Island</td>
<td>SPFL</td>
<td>1992</td>
<td>Euc.</td>
<td>9,747</td>
<td>15</td>
<td>2004</td>
<td>FSC</td>
</tr>
<tr>
<td>Australia</td>
<td>Western Australia</td>
<td>APFL</td>
<td>1993</td>
<td>Euc.</td>
<td>15,809</td>
<td>10</td>
<td>2003</td>
<td>FSC</td>
</tr>
<tr>
<td>Victoria</td>
<td></td>
<td>GPFL</td>
<td>1997</td>
<td>Euc.</td>
<td>5,210</td>
<td>7</td>
<td>2002</td>
<td>FSC</td>
</tr>
<tr>
<td>Vietnam</td>
<td>Binh Dinh Province</td>
<td>QPFL</td>
<td>1995</td>
<td>Aca.</td>
<td>9,881</td>
<td>12</td>
<td>2010</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phu Yen Province</td>
<td>TTO</td>
<td>2011</td>
<td>Aca.</td>
<td>2,293</td>
<td>6</td>
<td>2007</td>
<td></td>
</tr>
<tr>
<td>Laos</td>
<td>Central Laos</td>
<td>LPFL</td>
<td>2005</td>
<td>Euc. &amp; Aca.</td>
<td>18,438</td>
<td>10</td>
<td>2012</td>
<td></td>
</tr>
<tr>
<td></td>
<td>South Laos</td>
<td>SLPFL</td>
<td>2010</td>
<td>Euc. &amp; Aca.</td>
<td>3,928</td>
<td>7</td>
<td>2017</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>Kalimantan</td>
<td>KTH</td>
<td>2012</td>
<td>Euc. &amp; Aca.</td>
<td>23,708</td>
<td>6</td>
<td>2008</td>
<td></td>
</tr>
<tr>
<td>Cambodia</td>
<td>Kampong Chunchang Province</td>
<td>OCP</td>
<td>2002</td>
<td>Aca.</td>
<td>401</td>
<td>10</td>
<td>2011</td>
<td>FSC, CW</td>
</tr>
<tr>
<td>China</td>
<td>Guanxi Zhuang Autonomous Region</td>
<td>CPFL</td>
<td>2002</td>
<td>Euc.</td>
<td>2,616</td>
<td>10</td>
<td>2022</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Huizhou Guangdong</td>
<td>KPFL</td>
<td>2005</td>
<td>Euc.</td>
<td>4,648</td>
<td>7</td>
<td>2020</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>Plantation &amp; Forest</strong></td>
<td>Brazil</td>
<td>Minas Gerais</td>
<td>1973</td>
<td>Euc.</td>
<td>151,635</td>
<td>6</td>
<td>FSC, PEFC</td>
</tr>
<tr>
<td></td>
<td>NZ</td>
<td>North Island</td>
<td>1971</td>
<td>Radiata pine</td>
<td>34,601</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>282,915</strong></td>
</tr>
</tbody>
</table>

- The figure is the portion in terms of Oji’s ownership as of the end of the fiscal year 2015.
- For the project Oji owns more than 50%, the planted area is counted as 100% of the project area and for that of less than 50%, it is counted as the project area x Oji’s ownership ratio.
Introduction of Oji’s major forest and plantation and its business model
Oji’s Forest in Japan
Japan: Composition of Oji’s Forest by tree species

Composition of Oji’s Forest (190K ha)
- Natural forest: 78K ha (41%)
- Planted forest: 100K ha (53%)

Composition of Oji’s Natural Forest (100K ha)
- Hardwood: 6% (23.8%)
- Softwood: 76.2%

Composition of Oji’s Planted Forest (78K ha)
- Other species: 11.9%
- Japanese Cypress: 13.9%
- Ceder: 18.2%
- Pine: 56.0%

OJI Green Resources
Japan: Forest Certification in Japan

- About 170K ha of Oji’s forest is certified by SGEC (Sustainable Green Ecosystem Council)
- In June 2016, SGEC and PEFC agreed mutual certification.
Japan: Processing of Log and Sales

Sales of log

Log accumulation (Cedar) → Log transportation (down the stream) → Sales at log market or sawmill

Processing at Oji’s sawmill

Sawmill (Miyazaki Pref.) → Sales of product (Cedar squared log)
Japan: Export of Cedar Log
Japan: Cedar Log for Export and Domestic Market

- Volume of log export increased sevenfold over the past four years with Oji’s share reaching to 9%
- Sales increase of chip in biomass electric power generation offset decrease in pulp use

![Log Export In Japan and Oji’s share](image)

![Wooden Chip Sales by Application](image)

Increase sales in biomass electric power generation
Japan: Cascade Use of Wood

Transforming traditional paper manufacturing company into integrated forestry business company

- **Sourcing**
  - Forest Plantation

- **Processing**
  - Chip mill
  - Saw mill

- **Products**
  - Pulp / Paper
  - Biomass boiler
  - Lumber
  - Log (Export / Domestic Sales)

Utilization of forest resources by stable supply of wooden resources

Value-up of wooden resources

Produce marketable products leveraging stable supply of wooden resources
Oji’s Forest in Brazil
Brazil: Forest plantation at CENIBRA

Nursery

Eucalyptus Urograndis
Brazil: Location of Mills

CENIBRA
Belo Oriente Mill

Governador Valadares

Estado de Minas Gerais

Belo Horizonte

Ipatinga

South America
Brazil: Outline of CENIBRA

Outline of CENIBRA’S Pulp Mill

Location: Belo Oriente, Estado de Minas Gerais
Establishment: September 13th, 1973
Start of Operation: March, 1977 (1st line)
December, 1995 (2nd line)
Tree Type: Eucalyptus Grandis
Forest Certification: FSC-FM Certificate
Product: LBKP
Production: 1.2 million ton per year
# of employee: 4,884 (as of the end of December, 2015)
Brazil: Outline of CENIBRA’s Forest

Area of Forest (as of the end of December, 2015)

<table>
<thead>
<tr>
<th>Plantation</th>
<th>131K ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protected forest</td>
<td>104K ha</td>
</tr>
<tr>
<td>Forest road etc.</td>
<td>19K ha</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>254K ha</strong></td>
</tr>
</tbody>
</table>

• MAI (including bark) is about 40 cubic meters / ha·year.

• Harvest Cycle is 6-year period.
Brazil: Pulp Product of CENIBRA
Oji’s Forest in Oceania
Oceania: Forest Plantation

APFL Eucalyptus Globulus

SPFL Eucalyptus Nitens

GPFL Eucalyptus Globulus

Pan Pac Radiata Pine
**NZ: Outline of Pan Pac**

<table>
<thead>
<tr>
<th>Business outline of PAN PAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Establishment</td>
</tr>
<tr>
<td>Shareholders</td>
</tr>
<tr>
<td>Location</td>
</tr>
<tr>
<td>Project scale</td>
</tr>
<tr>
<td>Species</td>
</tr>
<tr>
<td>Harvest cycle</td>
</tr>
<tr>
<td>History</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**Plantation site**

![Map of New Zealand with PAN PAC Otago highlighted.](image)
NZ: Business Overview of PANPAC

Forest Management

Planting ➔ Pruning ➔ Logging (with Thinning) ➔ Hauler (steep slope)

Log Yard in the Mill ➔ Cartage ➔ Skidder (moderate slope)
NZ: Business Overview of PANPAC

Lumber

Annual Production Volume:
North Island: 420Km3
South Island: 55Km3
Total: 475Km3

Sales Region:
- Australia: 1%
- Europe: 3%
- USA: 12%
- Japan: 12%
- China/South East Asia: 51%
- NZ: 21%
- Middle East & India: 1%

Products:
- Flitch (from Corewood)
- Board

Use:
- Pallet, Cable Drum, Packaging, Civil Work etc.
- Furniture, Appearance (Exterior and Interior) etc.
NZ: Business Overview of PANPAC

Wood from sustainably managed forest is totally utilized for lumber, pulp, chip and fuel.

Pan Pac owned Forest

Pulp: BCTMP and others 300,000 ton/a

*BCTMP*
Oji’s Forest in Indonesia
### Business outline of KTH

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td>PT. Korintiga Hutani (KTH)</td>
</tr>
<tr>
<td><strong>Shareholders</strong></td>
<td>Korindo Group 65.66%, OJI HD 34.34%</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>Pangkalan Bun, Central Kalimantan, Indonesia</td>
</tr>
<tr>
<td><strong>Planted area</strong></td>
<td>69,000 ha</td>
</tr>
<tr>
<td><strong>Species</strong></td>
<td>Eucalyptus pellita, Acacia mangium</td>
</tr>
<tr>
<td><strong>Harvest cycle</strong></td>
<td>6 years</td>
</tr>
<tr>
<td><strong>History</strong></td>
<td>1998: Establishment (2010: OJI participated)</td>
</tr>
<tr>
<td><strong>2013</strong></td>
<td><strong>Start Operation of Chip Mill, Veneer (Mar)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>FSC-CW Certificate (May)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Start Operation of Saw Mill (Dec)</strong></td>
</tr>
</tbody>
</table>

**Overview of Plantation**

**Logs of Aca. mangium**

**Biomass Boiler and Chip Mill**
Indonesia: Business outline of KTH

- Harvesting
- Harvested Log
- Chip export
- Log Sales
- Wood Pellet
- Lumber
Indonesia: Forest Plantation at KTH

**Outline of Forest**

- Term of operation: 43 years (1998-2041)
- Area: 92,000 ha
- Planned area: 69,000 ha
- Forest road: 2,300 km
- # of employee: 900
- # of contractor: 3,000
- Seedlings: 25 million per year

![Distant view of forest](image)
Indonesia: Overview of KTH mills

Outline
Area 335 ha. (on the right bank of Kumai River)
Started operation from April, 2013

Capacity of each business
- Chip: 1 million GMT per year
- Log Production: more than 1.3 million GMT per year
- Lumber: 12 thousand cubic meters per year
- Biomass power electricity generation: 7.3MW
- Pellet: 100 thousand ton per year
- PKS (Palm Kernel Shell) export: 100 thousand ton per year (near future)
Strategy for future
Strategy: Cascade Usage of Logs

Cascade Usage of Logs and Integrated Business

- Company’s plantation
- Logs for pulp
- Woodchips
- Woodchip business
- Logs
- Slabs
- Lumber business
- Bark & wastes
- Power Generation Business
- Timber business
Strategy: Selection and Concentration

- Developed domestic plantations to utilize abundant forest resources, but it became economically unreasonable to use due to high economic growth in Japan after WW II.
- Began overseas plantations in Brazil and New Zealand in 1970s.
- Expanded forest plantations in Australia, South East Asia and China in 1990s to secure logs for Japan.

- Progress of digitalization and domestic population decrease pushed down the demand for P&W paper in Japan.
- The downward trend drove Oji make a structural shift.

- Going forward, develop integrated forestry business globally by carrying out selection and concentration.