Forest operations in Brazil: Overview and highlights

6th International Forest Engineering Conference (FEC2018)

"Quenching our thirst for new knowledge"
1. Planted Forests in Brazil
2. Fibria Overview
3. Forest Operations in Fibria
4. New Technologies
5. Future Expectations
Planted Forests in Brazil
Planted Forests in Brazil

7,84 M hectares (2016)

http://iba.org
2 Fibria Overview
Shareholder Structure

Votorantim S.A. (1) 29.42%
BNDES Participações (1) 29.08%
Free Float (2) 41.36%

Commitments and Certifications

Member of Dow Jones Sustainability Indices
In Collaboration with RebeccoSAM

Fibria Celulose S.A. confirmed as a FTSE4Good constituent
FSC

Water Footprint Network
Carbon Footprint
Fibria’s Units Industrial Capacity

- Três Lagoas, Mato Grosso do Sul: 3,250 thousand t/year
- Jacareí, São Paulo: 1,100 thousand t/year
- Aracruz, Espírito Santo: 2,340 thousand t/year
- Veracel, Bahia: 560 thousand t/year

(1)
More Competitive Cash Cost

BHKP capacity ('000 t)

<table>
<thead>
<tr>
<th>Country</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>1,140</td>
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<tr>
<td>China</td>
<td>1,875</td>
</tr>
<tr>
<td>Canada</td>
<td>1,100</td>
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<tr>
<td>Iberia</td>
<td>2,285</td>
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<td>Chile/Uruguay</td>
<td>4,795</td>
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<td>Indonesia</td>
<td>3,830</td>
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<td>Brazil</td>
<td>16,265</td>
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<td><strong>Total</strong></td>
<td><strong>31,290</strong></td>
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</tbody>
</table>

- US$61

- WC

Interest
Capex
Income tax
SG&A

Cash Production Cost (US$/t) Delivery CIF Europe

Fibria w/ H2 Structural pro-forma

Assuming WC release = 0
Horizonte 2 Project
The world’s largest single line pulp mill

- Start-up brought forward: about 2 months ahead of schedule

- Total annual capacity: 1,950,000 t

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Expansion Capex
US$2,193 million
(US$1,124/t)

Inside the fence Capex
US$947/t

Energy Surplus
130 MW

Cash production cost
US$116/t
(US$3.38)

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(1) Industrial Capex
Estimated Market BHKP Capacity Ranking 2017

SUZANO + FIBRIA

Merger announced on March 15th

8 million tons/year
### SUZANO + FIBRIA

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Thousands internal and outsourced workers</td>
<td>37</td>
</tr>
<tr>
<td>Billions exported in 2017</td>
<td>US$ 5.4</td>
</tr>
<tr>
<td>Billions Estimated investment in 2018</td>
<td>US$ 1.9</td>
</tr>
</tbody>
</table>
Global Clients

+ 90 countries

Sales distribution
Pulp and paper
(pro-forma Suzano + Fibria 2017)
High Forest and Industrial Competitiveness

11 Units Industrial

11 Millions of tons annual capacity market pulp

1,4 Millions of tons paper annual capacity

Obs.: Veracel: 50% Fibria e 50% Stora Enso
The biggest agribusinesses brazilian company
Valor da empresa (R$ bilhão)

5th

Biggest company in Brazil

Fonte: Bloomberg, em 15 de março de 2018.

1 Empresas listadas na B3. Não inclui companhias do setor financeiro.
3 Forest Operations in Fibria
160 Harvesters
54 Forwarders

CTL Harvesting
Flat areas

Fibria
CTL Harvesting

34 Harvesters
15 Forwarders

Steep Slopes
Full tree

3 Fellers
3 Skidders
3 Processor Heads
InField Chipping

Flat areas

3 Fellers
3 Clambuncks
3 Chippers

Fibria
Manual pitting
Mechanized pitting and fertilization
Manual fertilization
Manual Planting
Manual weed Control

Silviculture
Steep Slopes

Fibria
Logistics

Different Modals

530 Trucks
18 million m³/year

8 Ships
3.3 million m³/year

5 Train (490 wagons)
1 million m³/year
New Technologies
Big Loader Machines *(Ports and Woodyards)*

**Multidocker (Horizonte 2)**

- **Mantsinem (Aracruz)**
  - 2.71 million m³/year
  - Loading/Unloading time reduced around 40%
  - US$ 17.9 millions investment
Benefits

- Increase in 10% of transport capacity
- Economic, environmental and social benefits
  (less traffic closed to the communities)

Trucks with lighter body-frames

Partnership with the Federal University of São Carlos and patented by Fibria.

Savings of 3,8 million liters of diesel
Avoids emission of 9,5 tCO₂e
HORIZONTE 2
SEEDLING MILL
Tree Planters Movement

IBA Cooperative Group

Fibria direct agreements
Suzano Autonomous Tractor
Future Expectations
Global Paper Consumption

CAGR 2000 – 2010
Developed Markets: - 2.1%
Emerging Markets: + 5.6%

P&W Consumption (000 tons)\(^{(1)}\)

<table>
<thead>
<tr>
<th>Year</th>
<th>Developed Markets</th>
<th>Emerging Markets</th>
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<tbody>
<tr>
<td>2000</td>
<td>103,286</td>
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CAGR 2010 – 2020
Developed Markets: - 3.1%
Emerging Markets: + 0.9%

Tissue Consumption (000 tons)\(^{(1)}\)

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<th>Emerging Markets</th>
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Somos Fibria
New Products (Bioproducts Strategy)

Bio-Oil

Partnership with the American company Ensyn Corporation, in which we have a 12.1% of its capital.

Development of a biorefinery project. Through the pyrolysis process, in which biomass is subjected to a thermochemical treatment, we obtain liquid fuel, which can replace fossil fuels in generation of energy or be co-refined with oil.

The project is in the final study and validation phase. If approved, the project’s production will be 100% geared toward the North American market.
Nanocellulose

Pure and simple.
Spinnova represents a disruptive, ecological innovation that turns cellulose into textile fibre simply, without harmful chemicals. Spinnova is the most sustainable fibre in the world.

Jul 06, 2017 | Spinnova Finland
Acquisition of minority equity interest in Spinnova 18% of the total capital (EUR 5Million)

Nov 18, 2016 | CelluForce Canada
The world leader in the commercial production of cellulose nanocrystals (“CNC”) Subscription agreement CAD$5,300,000.00, approximately 8.3% of CelluForce's capital
**New Products** (Bioproducts Strategy)

**Lignin**

**2015 | Acquisition of Lignol Canada**
Today called **Fibria Innovations**
Industrial scale testing is being done with potential clients

**2018 | New Plant Start up**
Capacity: 20,000 ton/year
Capex: US$ 21 million
Location: Limeira, São Paulo
Considerations

- We still have many challenges to mechanize silviculture operations
- New company must focus in operational best practices and development of new wood based products
- We welcome new partnerships for studies and machine development
- Another big driver/challenge will be to connect all forest devices (Forest 4.0)
- Trial to use balloons for monitoring and data transmission (to be presented at FEC-technicall sessions)
Thank you!!!

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