Global OCC Markets
Great Uncertainty About China

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OCC Prices in Different Regions

- Before July 2017
  - One set of OCC prices
- July 2017 onward
  - Two sets of prices: China OCC price and OCC prices outside of China
Why Is China Important?

• China accounts for about 28% of world total paper and board production and consumption
• China consumes about one-third of the world’s total recovered paper (RCP)
• About 45-50% of global RCP exports go to China
Background of China’s RCP Import Policy

• National Sword 2017 & Blue Sky 2018
• Mixed paper ban
  • Announced in July 2017, took effect at the end of 2017
• New 0.5% contaminant standard
  • Took effect at the beginning of 2018
• Trade dispute between China and the USA
  • Inspection and pre-inspection, CCIC, duty on US RCP (25%) and US recycled pulp (10%) …
• Future
  • Will China ban imports of all RCP grades? When?
Sharp Drop in Chinese RCP Imports

Million Tonnes

- Mixed paper ban
- OCC imports plunged by about 40% year over year
- China released 17.5 million tonnes of RCP import permits so far, but most of them were granted to large containerboard and boxboard producers (the largest three received about 65% of the total permits)
China’s Dependency on RCP Imports
Falling import share in Chinese total RCP demand

- Net import share
  2012: 40%
  2014: 35%
  2016: 35%
  2017: 31%
  **2018: 20%??!!**

- Can China raise domestic collection so much in such a short time?
High OCC Costs Faced by Chinese Paper Companies

- Fiber shortage caused by sharp fall in imports
- Domestically collected OCC became very expensive as demand/supply balance tightened significantly
- Fiber quality issue with domestic OCC
- Without RCP import permits, most small and medium paper companies had to rely 100% on expensive domestic OCC
## China’s Increasing Virgin Pulp Imports

### Million Tonnes

<table>
<thead>
<tr>
<th>Grade</th>
<th>2016</th>
<th>2017</th>
<th>2018*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>18.79</td>
<td>21.05</td>
<td>22.51</td>
</tr>
<tr>
<td>% Change</td>
<td>-7.1</td>
<td>12.0</td>
<td>6.94</td>
</tr>
<tr>
<td>BSK</td>
<td>8.05</td>
<td>8.13</td>
<td>8.57</td>
</tr>
<tr>
<td>BHK</td>
<td>8.34</td>
<td>10.47</td>
<td>11.53</td>
</tr>
<tr>
<td>Unbleached Kraft</td>
<td>0.65</td>
<td>0.65</td>
<td>0.75</td>
</tr>
<tr>
<td>Other</td>
<td>1.76</td>
<td>1.81</td>
<td>1.66</td>
</tr>
</tbody>
</table>

* Estimated.

**Will there be enough pulp, especially UKP, in the market?**
Chinese Recycled Pulp Imports
Thousand Tonnes

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>2018*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>12.6</td>
<td>11.9</td>
<td>230</td>
</tr>
<tr>
<td>% Change</td>
<td>55.4%</td>
<td>-5.4%</td>
<td>1817% !!!!</td>
</tr>
<tr>
<td>Taiwan</td>
<td>0.23</td>
<td>0.42</td>
<td>143.0</td>
</tr>
<tr>
<td>Germany</td>
<td>5.72</td>
<td>6.83</td>
<td>22.3</td>
</tr>
<tr>
<td>USA</td>
<td>2.78</td>
<td>1.84</td>
<td>9.1</td>
</tr>
<tr>
<td>South Korea</td>
<td>0.04</td>
<td>0.10</td>
<td>3.6</td>
</tr>
<tr>
<td>Other</td>
<td>3.81</td>
<td>2.72</td>
<td>52.0</td>
</tr>
</tbody>
</table>

* Estimated.

Where will the new recycled pulp capacity come from?
China’s Falling Containerboard and Boxboard Production

Million Tonnes

- Fiber shortage?
  Or weak demand?
  Or Environmental issues?

- Demand shift from paper to plastic packaging?

* Estimated.
China’s Increasing Containerboard and Boxboard Imports

Thousand Tonnes

• Where did China import from?
  • Other Asia?
  • Europe?
  • North America?

* Estimated.
China’s Impacts on Other Regions

• Other Asia
  ▪ RCP imports surged
  ▪ Increasing RCP availability and low fiber cost
  ▪ Growing recycled pulp production and exports
  ▪ Growing paper and board production and exports
  ▪ Risk: will this region start to restrict RCP imports too?

• Major RCP Exporting Regions
  ▪ Fall in RCP exports and increasing RCP availability for domestic paper mills at relatively low cost
  ▪ Growing recycled pulp and paper and board production and exports
  ▪ Possible decline in recovery rates in the near term
US RCP Exports
Thousand Tonnes

- Little drop in total RCP exports
- Exports to Other Asia surged by 122% year over year in January to August, while exports to China declined by 40%
- Exports of OCC increased by 21%
Western European RCP Exports

Thousand Tonnes

- Net exports declined by about 14% year over year in January to July
- Exports to Other Asia surged by 100% year over year, while exports to China plunged by 60%
- Domestic demand was fairly strong
Japanese RCP Exports
Thousand Tonnes

- China’s RCP import policy did not impact Japanese exports to China much
- Net exports dropped by 6% year over year in January to August
- Exports to China dropped by 12% year over year, while those to Other Asia increased by 10%
- Good domestic demand
Future: China’s RCP Import Policy

• Easing in RCP import restrictions?
• Import ban for all RCP grades? 2019? 2020?
• Our assumption on China’s RCP imports
  ▪ 2018: 15 million tonnes
  ▪ 2019: 10 million tonnes
  ▪ 2020: 5 million tonnes
  ▪ 2021: 0
• Uncertainty
  ▪ Will OCC, especially pre-consumer OCC, be considered clean enough to be imported? Will China start to impose restrictions on recycled pulp imports?
Future: China’s Domestic RCP Collection

- How can China improve its domestic collection?
  - Government
    - Two-network-integration (solid waste collection and resource recycling networks), support from local governments
  - Private sector
    - Paper mills, recycling companies, e-commerce players
  - Many large paper companies recently raised the quality standards for domestic RCP, including OCC
  - Limited room
    - Real paper recovery rate is not low
  - Potential supply increase
    - Impact of trade dispute
Future: Chinese Paper Companies

• Global fiber sourcing and PAB production strategy
  ▪ Acquisition and new projects outside of China
    • Virgin pulp, recycled pulp and paper and board lines
    • But announced projects are not enough to make up the expected sharp drop in RCP imports
  ▪ Delay in new PAB capacity inside China
    • Fiber issue?
    • Slowing economic growth and slowing PAB demand?
    • Demand shift to plastic?
  ▪ Closures of small or even medium-size mills?
    • Fiber shortage, high fiber costs, high environmental standards and cost …
Future: Paper Industries in Other Regions

• Opportunity
• Risk associated with Asian RCP policy and trade dispute
• Global fiber balance in the long run
  ▪ China needs either fiber or paper and board
  ▪ Global OCC demand/supply will return to balance in the medium and long term
Thank you!
For more information:

Outlook for Global Recovered Paper Markets 2017
www.risi.com/GlobalRCP

OCC/UKP Market Analysis and Outlook
www.risiinfo.com/OCC-UKP

The China Recovered Paper Market: A Comprehensive Analysis and Outlook
www.risi.com/ChinaRCP

World Pulp and Recovered Paper 5-Year & 15-Year Forecasts
www.risi.com/forecasts

World Recovered Paper Monitor
www.risi.com/OGRPM