RISI Global Tissue Outlook
Latin America Suffering from Economic Instability

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- Educational background in forestry, economics and business studies
- In consulting business and information services for the forest industry since 1976
- Cooperating with RISI since 2007
- Developed global tissue databases and forecasting models
- Previous experience in graphic papers, packaging papers and recovered paper
- Assisted by RISI Asian, European and American colleagues and consultants
- Produced more than 200 single-client and multi-client tissue studies

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Agenda

• Recent Global Trends
• North American Outlook
• European Outlook
• Asian Outlook
• Latin American Outlook
• Summary of Global Outlook
• Concluding Remarks
RECENT GLOBAL TRENDS
World Tissue Consumption by Region, 2015

China passed Western Europe in 2014 and is now the second-largest tissue consuming region worldwide; Latin America is number four.

Million Tonnes, Share (%) of the Global Total

Global Consumption: 34.8 Million Tonnes (2015)
Growth in the Global Tissue Market

Relatively stable growth until the Great Recession in 2009, volume growth slightly above 1.0 million tonnes per year, recovery took a few years but 2015 was a good year due to China, North America and Western Europe
Regional Volume Growth of Tissue Consumption, 2000-2015

Latin America shows the second-largest volume growth

More than one-third (36%) of global growth in China!

Total Global Growth: 13.9 Million Tonnes (924,000 Tonnes per Year)
World Tissue Consumption by Region

Market is dynamic: China has passed Western Europe in market size, while Asia Far East is now—and Eastern Europe soon will be—larger than Japan.

<table>
<thead>
<tr>
<th>Region</th>
<th>Consumption (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. America</td>
<td>25.3%</td>
</tr>
<tr>
<td>China</td>
<td>20.7%</td>
</tr>
<tr>
<td>W. Europe</td>
<td>18.9%</td>
</tr>
<tr>
<td>L. America</td>
<td>11.0%</td>
</tr>
<tr>
<td>E. Europe</td>
<td>5.3%</td>
</tr>
<tr>
<td>Japan</td>
<td>5.5%</td>
</tr>
<tr>
<td>Asia Far East</td>
<td>5.9%</td>
</tr>
<tr>
<td>N&amp;M East</td>
<td>4.0%</td>
</tr>
<tr>
<td>Africa</td>
<td>2.1%</td>
</tr>
<tr>
<td>Oceania</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

Global Consumption: 34.8 Million Tonnes (2015)
NORTH AMERICAN OUTLOOK
North American Tissue Business
Exceptionally Strong in 2015

Strong economy helped the AfH sector growth

Average growth back on a 1.5% per year track
US Tissue Imports Growth, 2008-2015

Canada continues to be the main US import source for tissue, but China has jumped into second position ahead of Mexico and Indonesia.

Average growth rate, 2008-2015: 3.7% per year

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Main US Tissue Import Sources
Relative Shares of Total Imports, 2014

Parent Rolls
- Canada: 41.2%
- Mexico: 21.9%
- Indon.: 23.8%
- Italy: 2.6%
- China: 3.2%
- Germany: 1.9%
- Others: 5.3%

Total Imports: 340,400 Tonnes

Converted Products
- China: 44.2%
- Canada: 41.5%
- Mexico: 7.9%
- Indon.: 1.8%
- Italy: 0.5%
- Others: 4.1%

Total Imports: 546,100 Tonnes

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Retailer Labels Down in Canada, PL Share Recently Stabilizing in the USA

Major fight going on between private labels and brands in the USA, with brand owners increasingly using special price promotions, while in Canada brands continue to rebound through "half-price" actions.
Expected Growth in US Tissue Consumption by Business Sector

Away-from-Home retailer labels will show strong growth of about 520,000 tonnes in 2010-2018, while At-Home branded volume growth will remain moderate (0.3% per year).
## Major Tissue Capacity Changes in North America, 2015-2016

### 2015
- **Double Tree Paper/Royal Paper, Gila Bend, AZ, USA**: 29,000 t/a
- **Orchids Paper, Pryor, OK, USA**: 27,000 t/a
- **Nippon Paper Industries USA Co., Port Angeles, WA**: 18,000 t/a
- **Lincoln Paper & Tissue, Lincoln, ME, USA**: -69,000 t/a

### 2016
- **First Quality Tissue, Anderson, SC (new TAD PM)**: 64,000 t/a
- **Von Drehle Corp., Natchez, MS, USA (NTT PM)**: 32,000 t/a
- **St. Croix Tissue (APP), Baileyville, ME, USA**: 120,000 t/a

**Total**: 216,000 t/a
Major Tissue Capacity Changes in North America, 2017-2018

2017-2018

- Orchids Paper Products, Barnwell, SC, USA (NTT PM) 32,000 t/a
- Resolute Forest Products, Calhoun, TN, USA (NTT PM) 60,000 t/a
- Confidential, USA 64,000 t/a
- Kruger Products, Crabtree, QC, Canada 20,000 t/a
- First Quality Tissue, Anderson, SC, USA (ATMOS PM) 68,000 t/a
- Little Rapids Corporation, Shawano, WI, USA (replacement) 10,000 t/a
- First Quality Tissue, Lock Haven, PA, USA (TAD PM) 64,000 t/a

Potential Projects

- Kruger Tissue, Memphis, TN or Canada (TAD PM) 60,000 t/a
- Sofidel North America, Circleville, OH, USA (NTT + Conv.? ) 130,000 t/a
- Sofidel North America, Haines City, Florida, USA 65,000 t/a
- Procter & Gamble, Box Elder, UT, USA (TAD PM) 72,000 t/a
- ST Tissue, Franklin, VA, USA 64,000 t/a

318,000 t/a

391,000 t/a
Net Capacity Change* and Tissue Capacity Utilization in North America

This year is looking good as some projects have been delayed, but any new expansion for 2017 or 2018 adding to the committed capacity would change the current outlook from positive to negative; potential closures could help.

A lot of new capacity coming on stream that will effect 2017-2018; utilization rate will head south if no further closures occur.

*Based on committed projects only
EUROPEAN OUTLOOK
Main European Tissue Markets, 2015

The four largest markets account for half of European tissue consumption

- Germany: 17%
- UK: 13%
- France: 11%
- Italy: 10%
- Iberian Peninsula: 10%
- Russia: 6%
- Nordic Countries: 6%
- Benelux: 5%
- Poland: 5%
- Greece: 2%
- All Others: 15%

Total Market Size: 8.4 Million Tonnes
Western European Tissue Market Showed Recovery in 2015, Outlook Positive
Southern Europe finally returning to its pre-recession level

Very long-lasting recovery!
Eastern European Market Growth Suffering from Political and Economic Problems

The conflict between Russia and Ukraine continues to cast a pall over tissue market expansion.
Forecast European Volume Growth of Tissue Consumption by Main Country, 2015-2018

Russian growth is stunted by the poor economic outlook, but still positive, and recovery expected in 2017-2018

Total Expected Growth: 272,000 Tonnes
Net Capacity Change* and Tissue Capacity Utilization in Europe until 2018

European investments will push capacity utilization down in 2014-2017 and several planned projects indicate this trend could continue.
ASIAN OUTLOOK
Main Asian Tissue Markets, 2015
China dominant, Asia Far East now larger than Japan

China 57%
Japan 15%
Asia Far East 17%
N&M East 11%

Total Market Size: 12.6 Million Tonnes

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Recent Growth Rates of Chinese Tissue Consumption

The Chinese tissue market has been in a very strong growth phase, but since 2011 market growth has slowed substantially.

Recently, growth has been slowing, but 2015 was an exception.

Average growth: 7.9% per year
Chinese Tissue Exports Growth, 2008-2015

Chinese tissue exports exploded in 2011-2014 and went to nearly every corner of the world, with Asia Far East, North America and Japan being the largest buyers, followed by Oceania, but no growth in 2015.
Expected Growth Rates of Asian Tissue Consumption, 2015-2018

Strong growth in major markets, with Japan, South Korea and Taiwan the exceptions, India to gradually take off, China slowing.

Average Growth: 5.1% per year
Chinese Investments Exploding, but Closures and Project Delays Expected

There is a real investment peak with too much capacity being built, but currently also a wave of capacity closures in the industry.

Effective Capacity Change*

* PM start-up/learning curves considered
Net Capacity Change* and Capacity Utilization in the Asian Tissue Industry

Overcapacity is obvious, although project delays may help

*Based on committed projects only, learning curves considered
LATIN AMERICAN OUTLOOK
Main Latin American Tissue Markets, 2015

The five largest markets accounted for 77% of total consumption

- **Brazil** 29%
- **Mexico** 28%
- **Argentina** 8%
- **Colombia** 6%
- **Chile** 4%
- **Peru** 4%
- **Venezuela** 2%
- **Costa Rica** 2%
- **Guatemala** 2%
- **Ecuador** 9%
- **All Others** 9%

Total Market Size: 3.8 Million Tonnes
Latin American Tissue Market Shows Varying Annual Growth, Trend Positive

Economic turbulences and political instability causing problems, disappointing growth in 2014 and 2015

Average Growth, 4.3%/a

Growth Rate, Percent per Year


In the past 10 years, growth has been strongest in Brazil, followed by Mexico and Argentina.
Recent Growth of Tissue Consumption in the Five Largest Latin American Markets

Major annual variation in annual growth rates of apparent consumption typical in all main countries

Market Growth, Percent from the Previous Year

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>8.0</td>
<td>5.0</td>
<td>2.0</td>
<td>-1.0</td>
</tr>
<tr>
<td>Mexico</td>
<td>6.0</td>
<td>7.0</td>
<td>4.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Argentina</td>
<td>4.0</td>
<td>3.0</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Colombia</td>
<td>8.0</td>
<td>9.0</td>
<td>7.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Chile</td>
<td>8.0</td>
<td>7.0</td>
<td>6.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>
Expected Volume Growth of Latin American Tissue Demand by Main Country, 2015-2018

Mexico takes the lead in expansion as Brazil in recession
Major Capacity Changes (>10,000 t/a) in the Latin American Tissue Industry

2015

- Procter & Gamble de Mexico, Apizaco, Tlaxcala -58,000 t/a
- Celulosa Argentina, Capitán Bermudez, Argentina 30,000 t/a
- K-C de Centroamerica, Sitio del Nino, El Salvador 11,000 t/a
- Forestal y Papelera Conception, Coronel, Chile 70,000 t/a
- Claramax, Paulo Bento, RG, Brazil 19,000 t/a
- Absormex/CMPC, Altamira, Tamaulipas, Mexico 60,000 t/a
- Fábricas de Papel Potosi, San Luis Potosi, Mexico 16,000 t/a
- Braswell/Samta/Smanseng, Paulinia City, SP, Brazil 35,000 t/a
- Grupo Corporativo Papelera, Tepetlaoxtoc, Mexico 213,000 t/a
Major Capacity Changes (>10,000 t/a) in the Latin American Tissue Industry

2016

• Papelera Nicaragua (Grupo Vual), Pilar, Argentina 14,000 t/a
• Mili, Tres Barras, SC, Brazil 34,000 t/a
• Cia. Canoinhas, Canoinhas, SC, Brazil 30,000 t/a
• Papelera Samseng, Pilar, Argentina 38,000 t/a
• Papelera Reyes, Callao, Lima, Peru 27,000 t/a
• SEPAC, Mallet, PR, Brazil 35,000 t/a
• COPAPA, Callao, Lima, Peru 25,000 t/a
• CVG Group, Rio Negrinho, SC, Brazil 25,000 t/a

2017

• Celulosa Campana, Lima, Buenos Aires, Argentina 30,000 t/a
• Convertipap, Atlantagatepec, Mexico 25,000 t/a
• Suzano Pulp and Paper, Imperaritz, Maranhao, Brazil 60,000 t/a
Major Capacity Changes (>10,000 t/a) in the Latin American Tissue Industry

2017-2018

- K-C de Mexico, unrevealed location, Mexico 60,000 t/a
- Papelera San Francisco, Mexicali, Mexico 30,000 t/a
- Confidential, Brazil 60,000 t/a
- Suzano Pulp and Paper, Mucuri, Bahia, Brazil 60,000 t/a
- CMPC Tissue, Canete, Lima, Peru 25,000 t/a

350,000 t/a
Net Capacity Change* and Tissue Capacity Utilization in Latin America

Project delays and stronger demand could be helping a lot, but currently the outlook is not encouraging for new investments.

* Based on committed projects only
SUMMARY OF GLOBAL OUTLOOK
Anticipated Growth in the Global Tissue Market

Tissue consumption benefitting from improving global economic growth

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Expected Regional Volume Growth of Tissue Consumption, 2015-2018

Volume growth dominated by China, followed by Latin America

North America expected to have very positive trend, Latin America down due to Brazil

39% of global growth in China!

Total Expected Global Growth: 3.7 Million Tonnes
Net Capacity Change* and Capacity Utilization in the Global Tissue Industry

Major capacity closures could improve outlook, but only marginally. Global overcapacity is the name of the game!

* Based on committed projects only
Concluding Remarks

• China's growth is slowing and also cutting average global growth to 3.5% per year, which is still good, although down from 4.0% earlier. But China will continue to be the main driving force of global tissue industry expansion, although overcapacity is the threat in nearly every region. Project delays will be common.

• North American developments are characterized by steady and encouraging growth with many new developments and technological and raw material considerations, but also continuing fights between brands and private labels.

• In Europe, the tissue business had a rather quiet phase, but is now seeing some more positive developments, and many new plans are currently moving forward. Russian-Ukrainian conflict continue to cast a pall over the European outlook.
Concluding Remarks

- Latin America is suffering from economic instability, Brazil is in a deep recession and Venezuela will remain in its current desperate situation as long as everything is controlled by the government. But Mexico is back on a growth track again.

- In Asia, last year was a positive surprise for China, and although the economy is slowing, the longer-term prospects continue to be good, and given the huge population, tissue has great future there. In China, major restructuring is going on and we expect even more mills to be shut down, not only due to environmental concerns, but also increasingly for financial reasons.
Concluding Remarks

• APP's expansion now has partly moved from China to Indonesia due to integrated pulp mills, and seems to have no limit. However, it has already been impacted by the simple problem of where to sell all this extra supply. We consequently expect delays in the company's expansion program.

• In general, overcapacity has hit the global tissue business, so major new investments and export-oriented tissue capacity will not be needed for the next two to three years. But the industry attracts investors and even more plans are in the pipeline, although time schedules may change.
Thank you for your attention!

For more information:

Outlook for World Tissue Business
www.risi.com/OWTB

World Tissue Business Monitor
www.risi.com/WTBM

US Tissue Monthly Data
www.risi.com/USTM

Special Study Recently Published:
Exploding Chinese Tissue Business – Opportunities and Challenges
www.risi.com/chinatissue