

# Global Trends in Market Pulp

Brian McClay

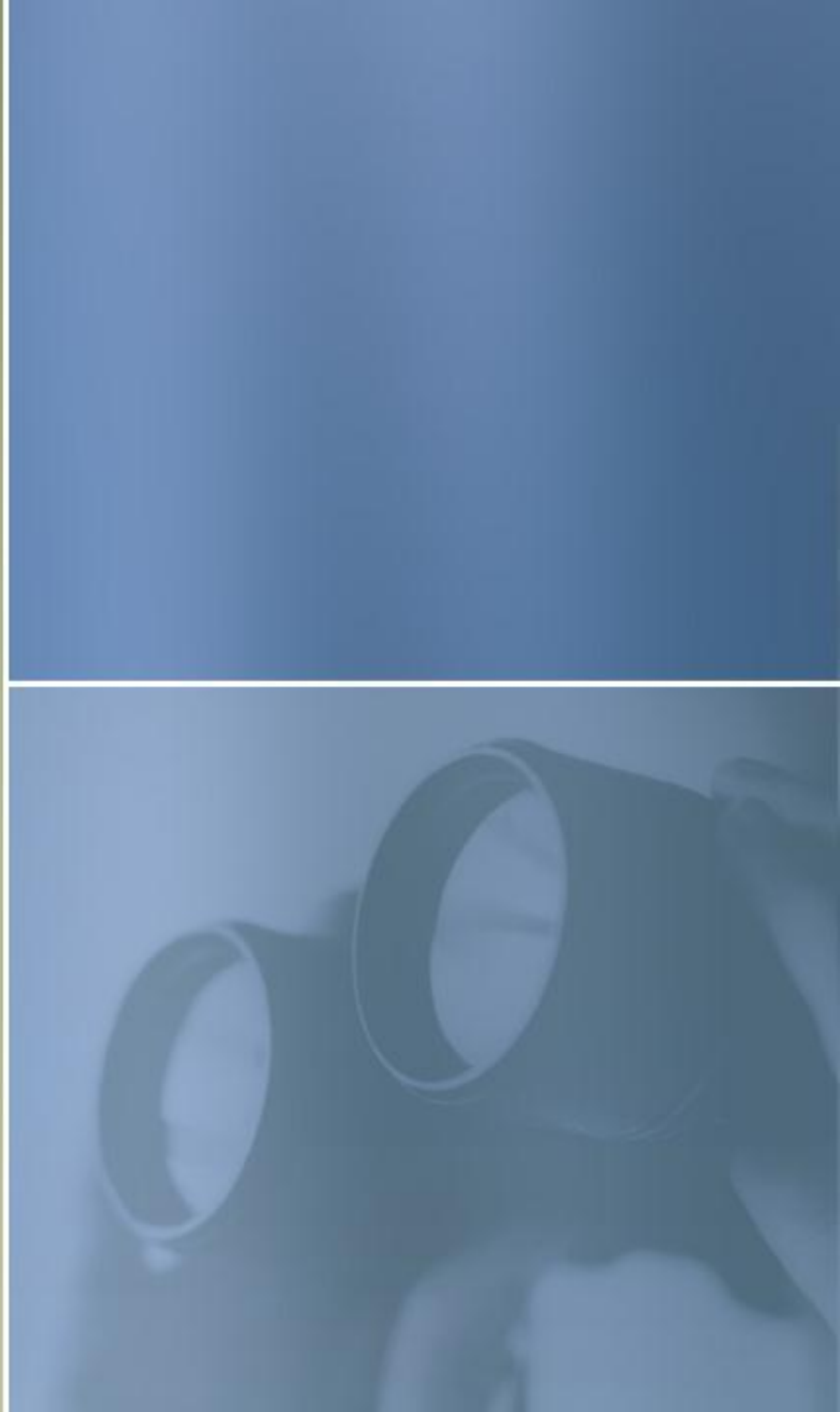
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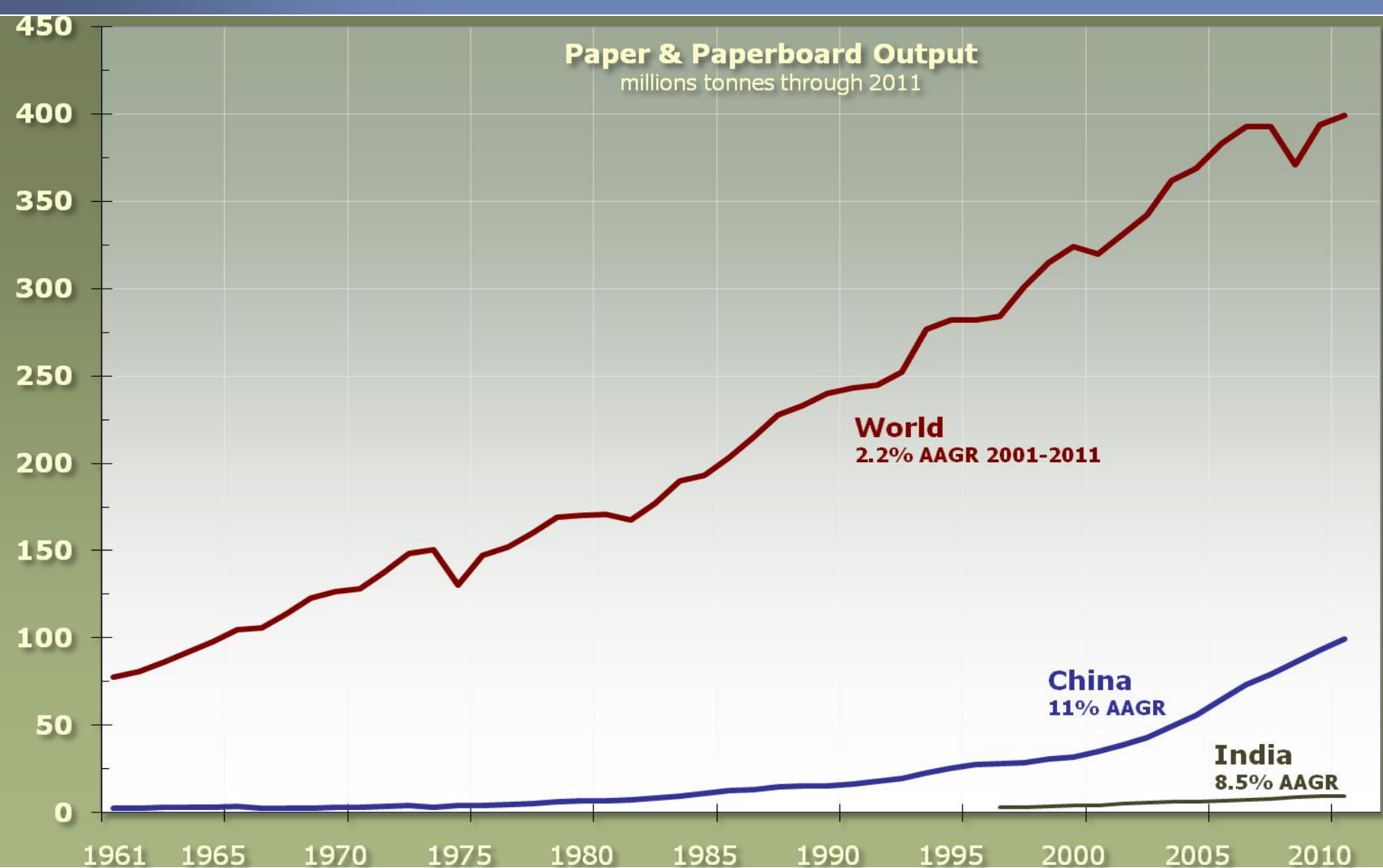
**EUROPULP – UTIPULP meeting**

Nice, France

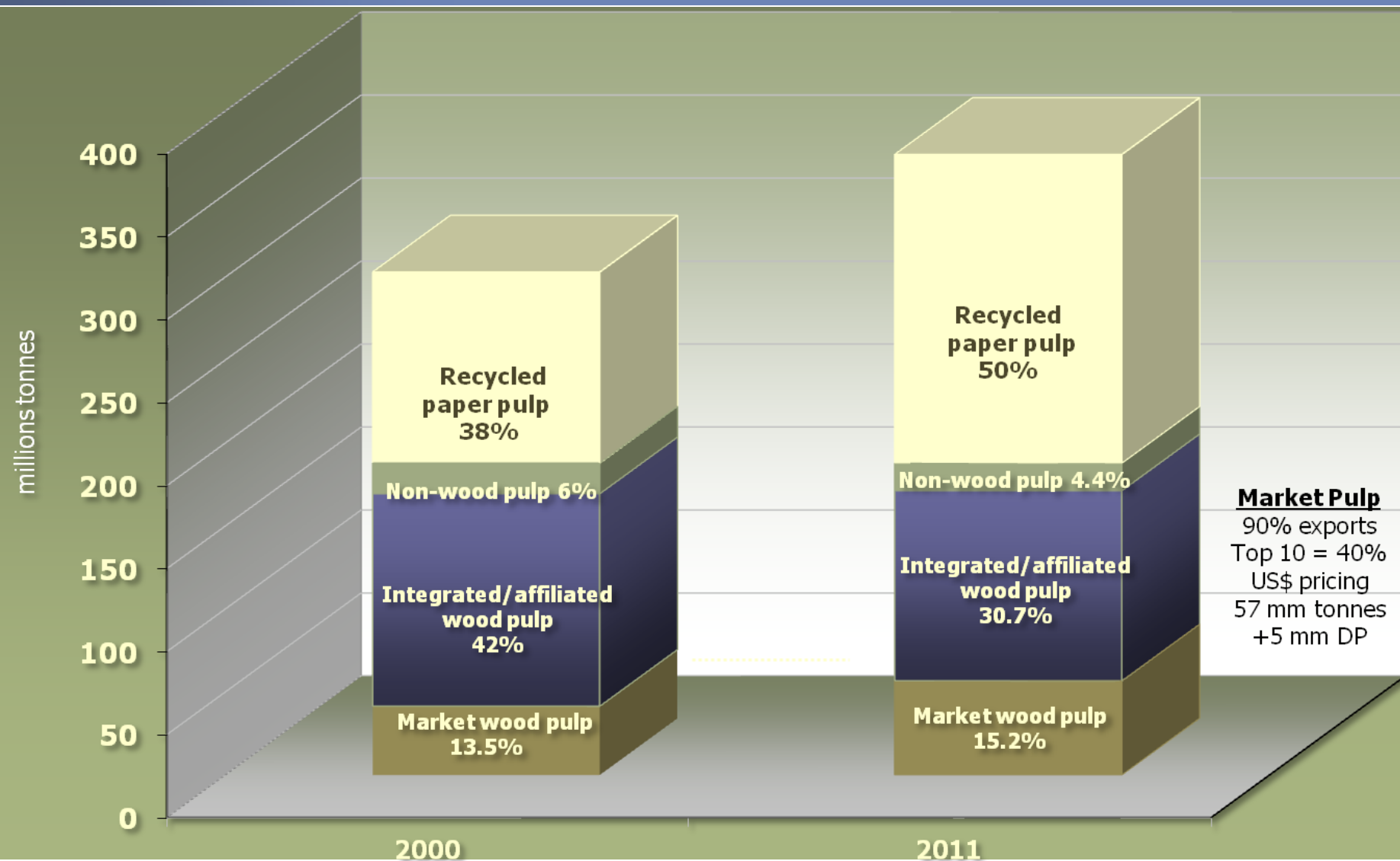
**20 September 2012**



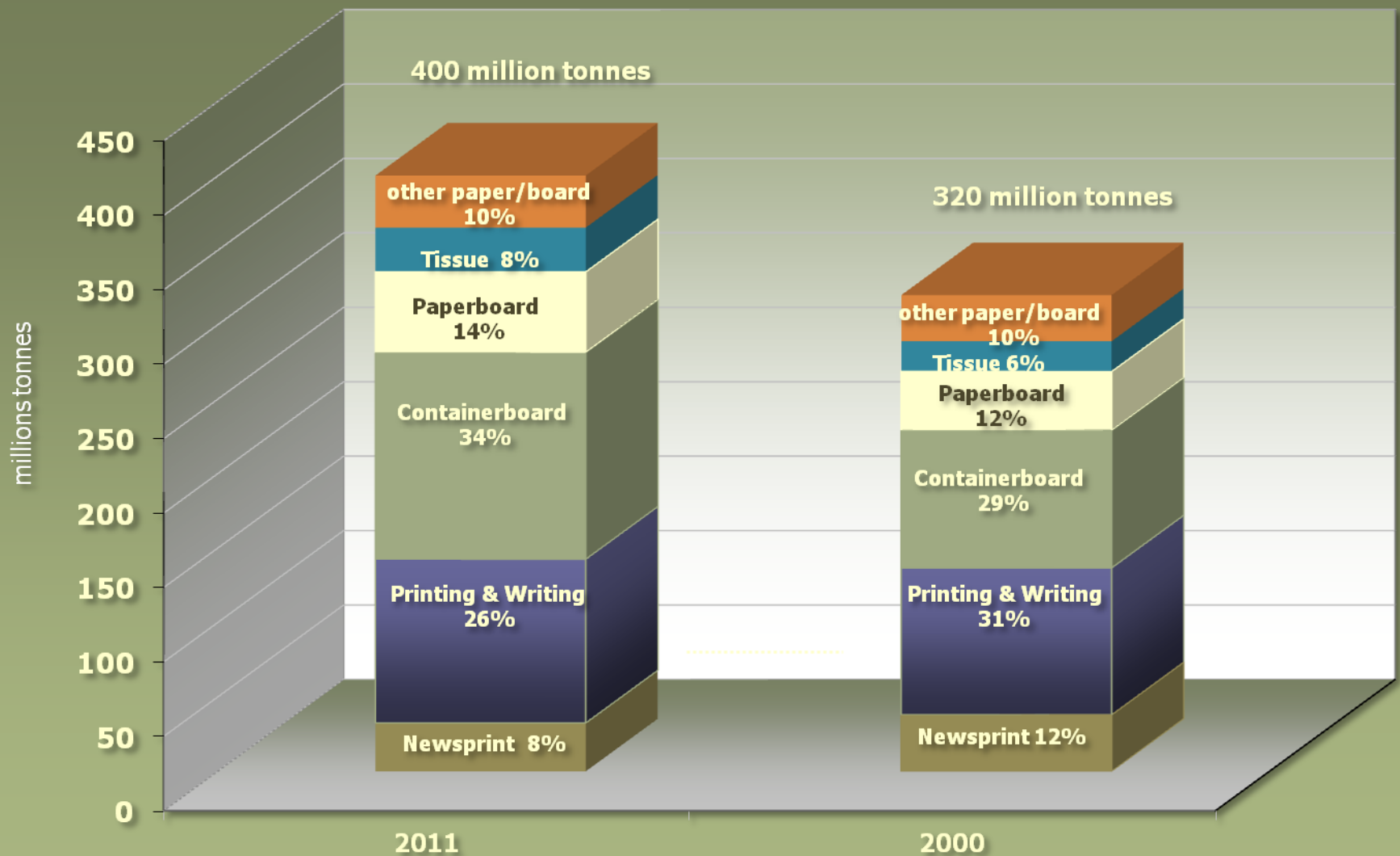
# Paper still a growth business, China 25% of total



# Purchased fibre gaining share of global paper furnish



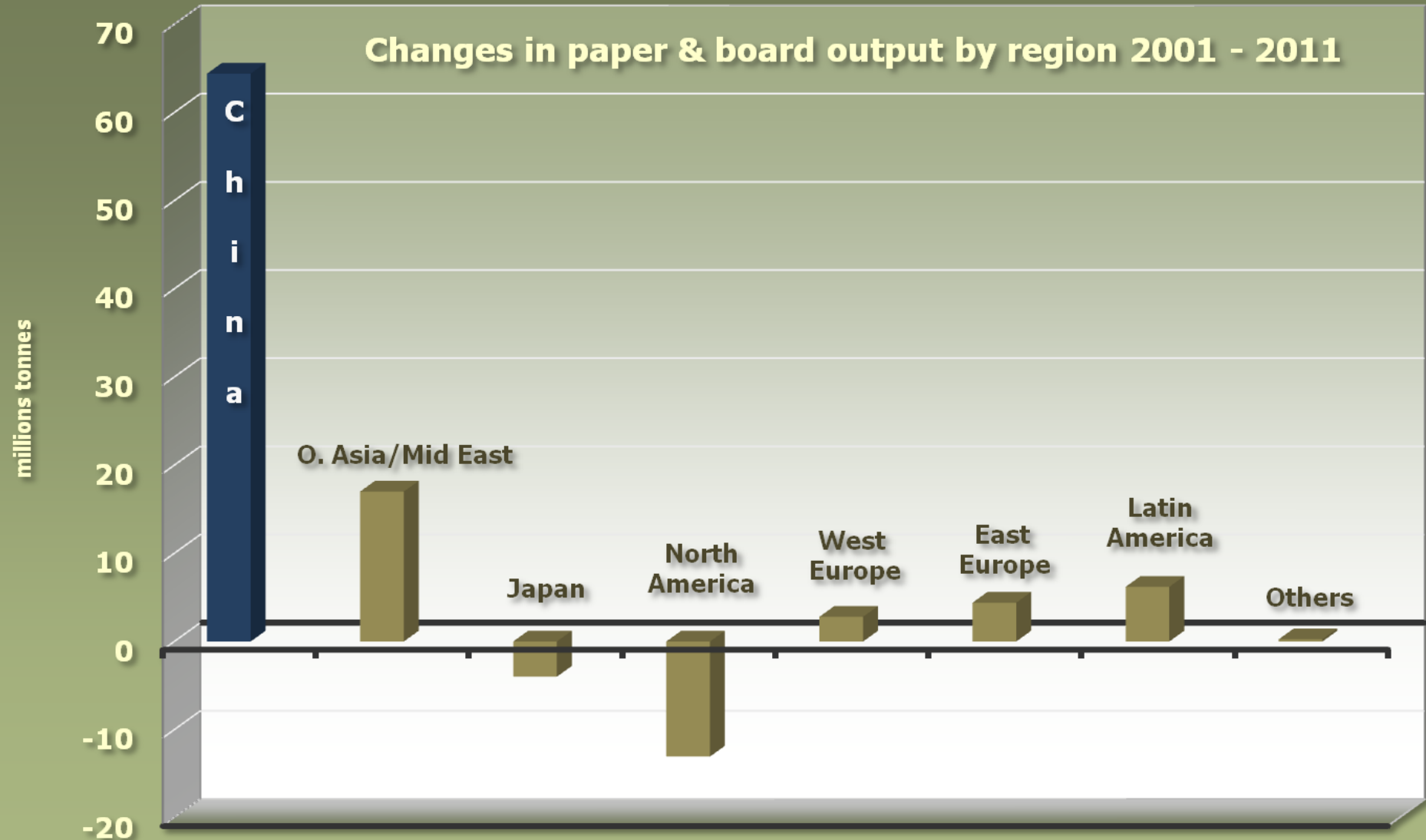
# Paper still growing - packaging, tissue gaining share



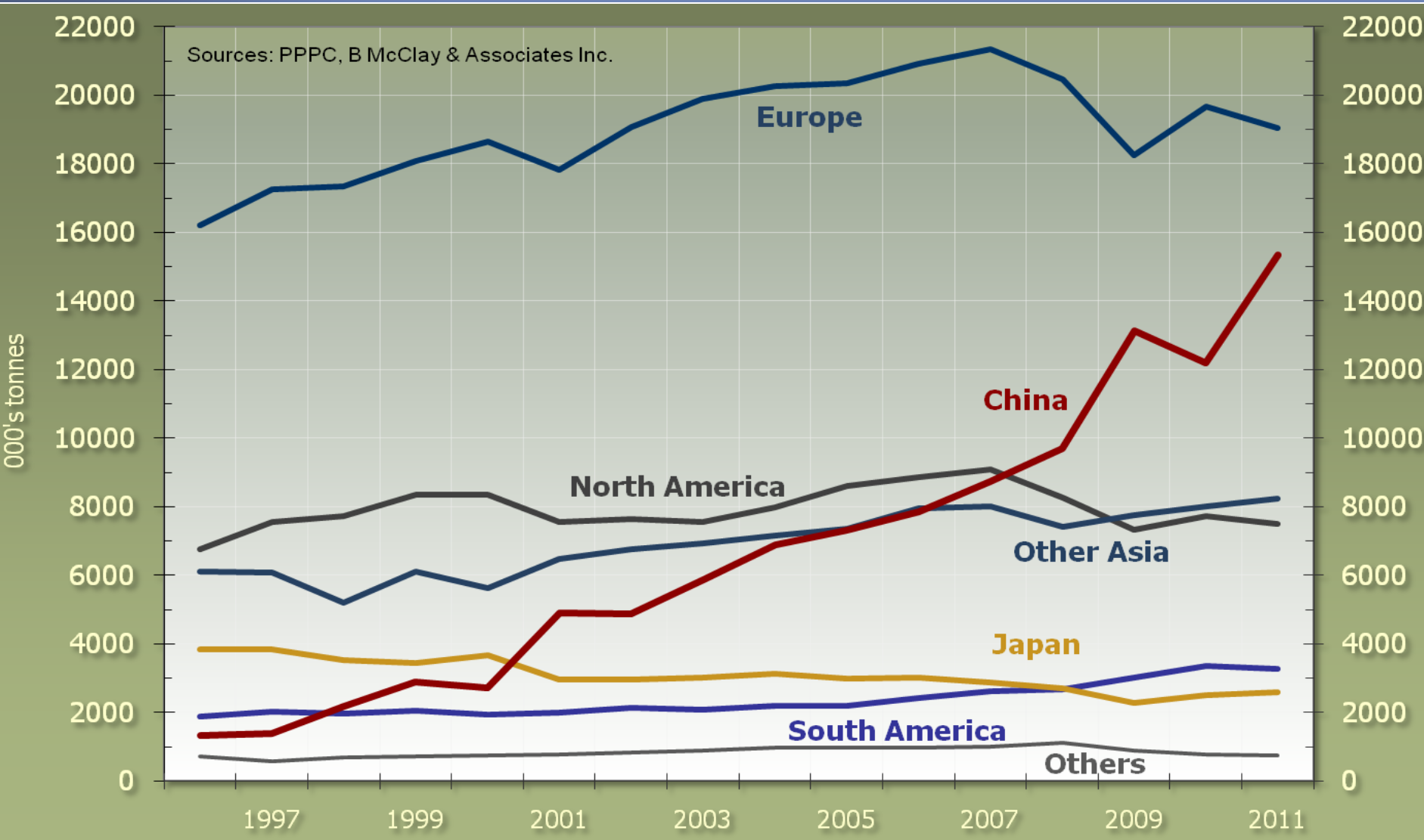
Source: PPI, Brian McClay & Associates

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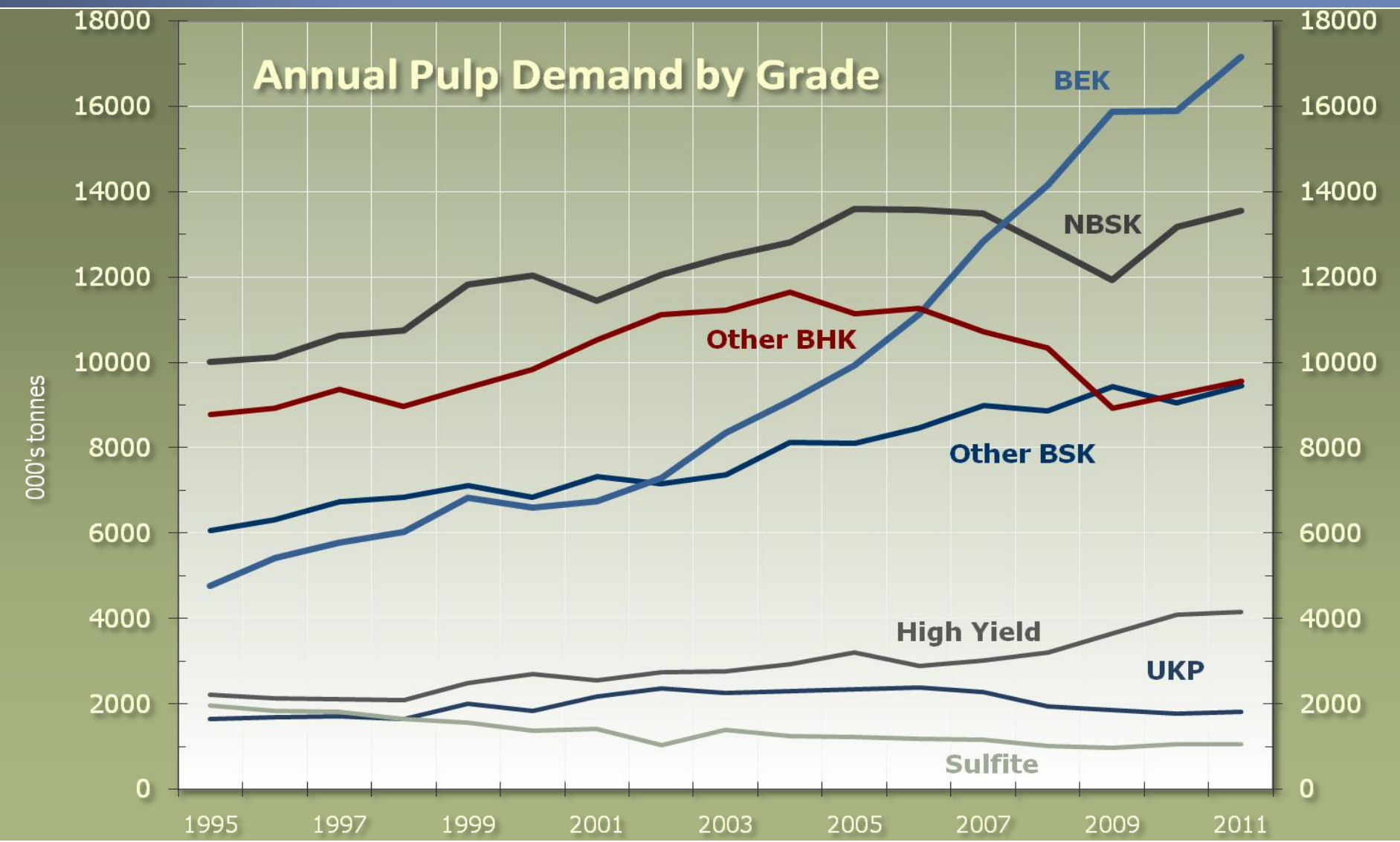
# Huge capacity surge in China, 90% non-integrated



# Europe biggest market, China more impact on pricing



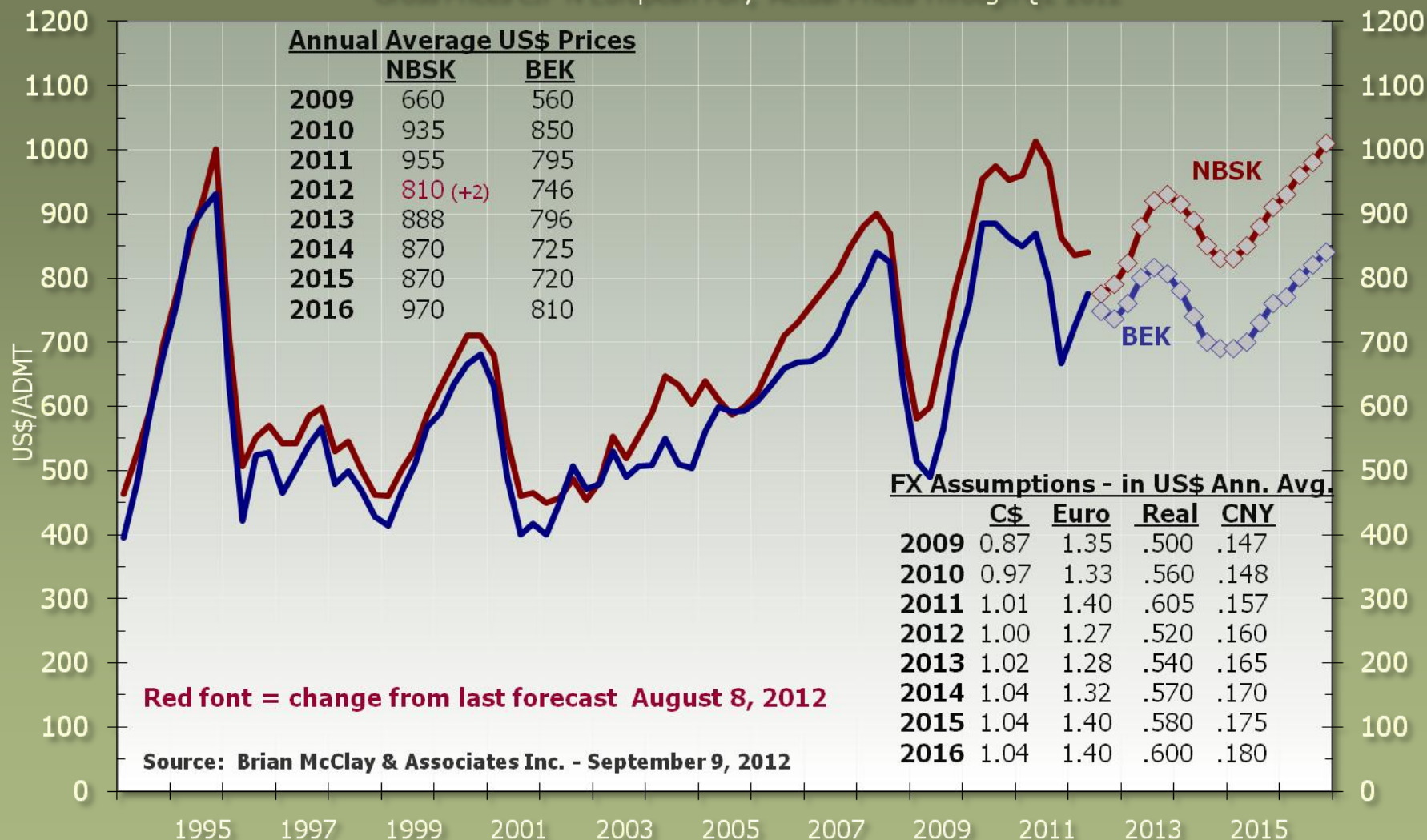
# BEK demand up 10%/year past decade, NBSK 1.7%



# Short-term: 4-quarter pricing rally

## Quarterly NBSK/BEK US\$ Prices in N Europe - 2016

Gross Prices CIF N European Port, Actual Prices Through Q2 2012

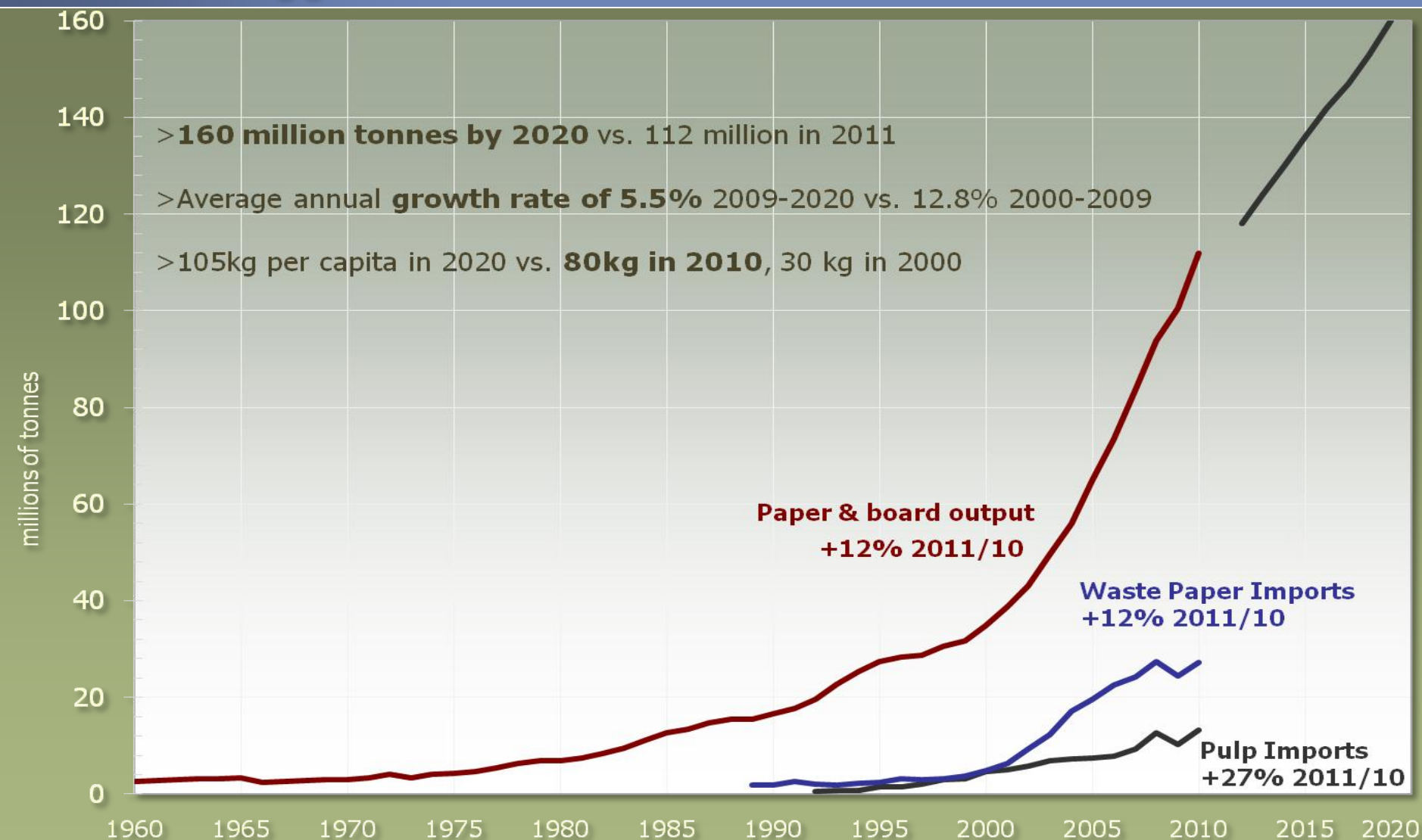


# Medium-to-Longer term outlook

- China continues to drive global wood fibre markets
- Peak Recovered Paper
- Softwood pulp shortage? NBSK a specialty pulp and priced as such.
- Good growth prospects for dissolving pulp - the cellulose gap.
  - Mill conversions reduce paper pulp supply next few years
  - Purpose-built DP (flex) mills will be needed 2017+, add to market volatility
- Nano-crystalline cellulose (NCC)
  - US\$ 600 billion industry by 2020

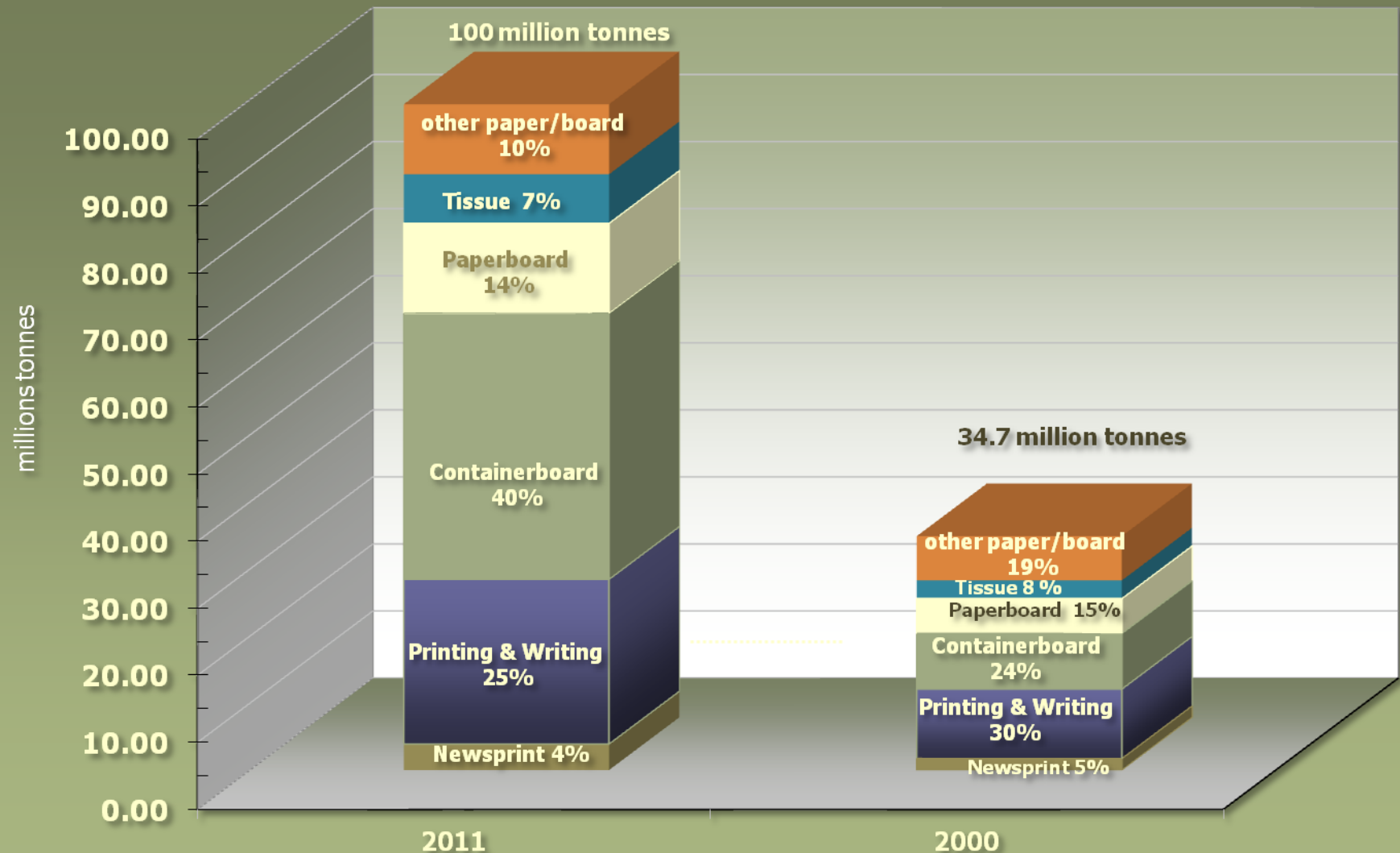
# China's continued ascendancy

China driving global fibre demand



# China's surging middle-class more paper-centric

Should drive consumer packaging, tissue, printing & writing grades

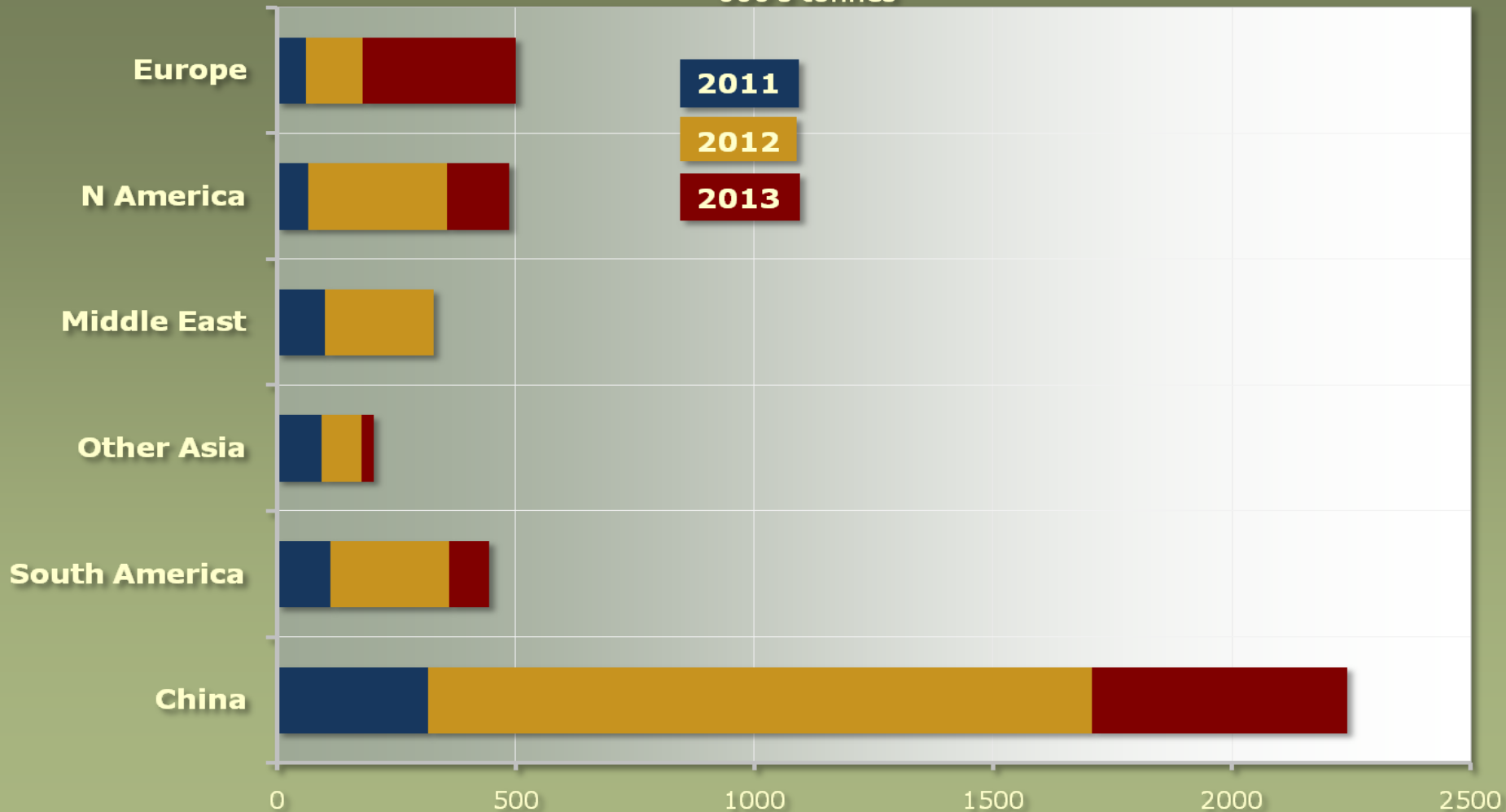


Source: PPI, B McClay & Associates

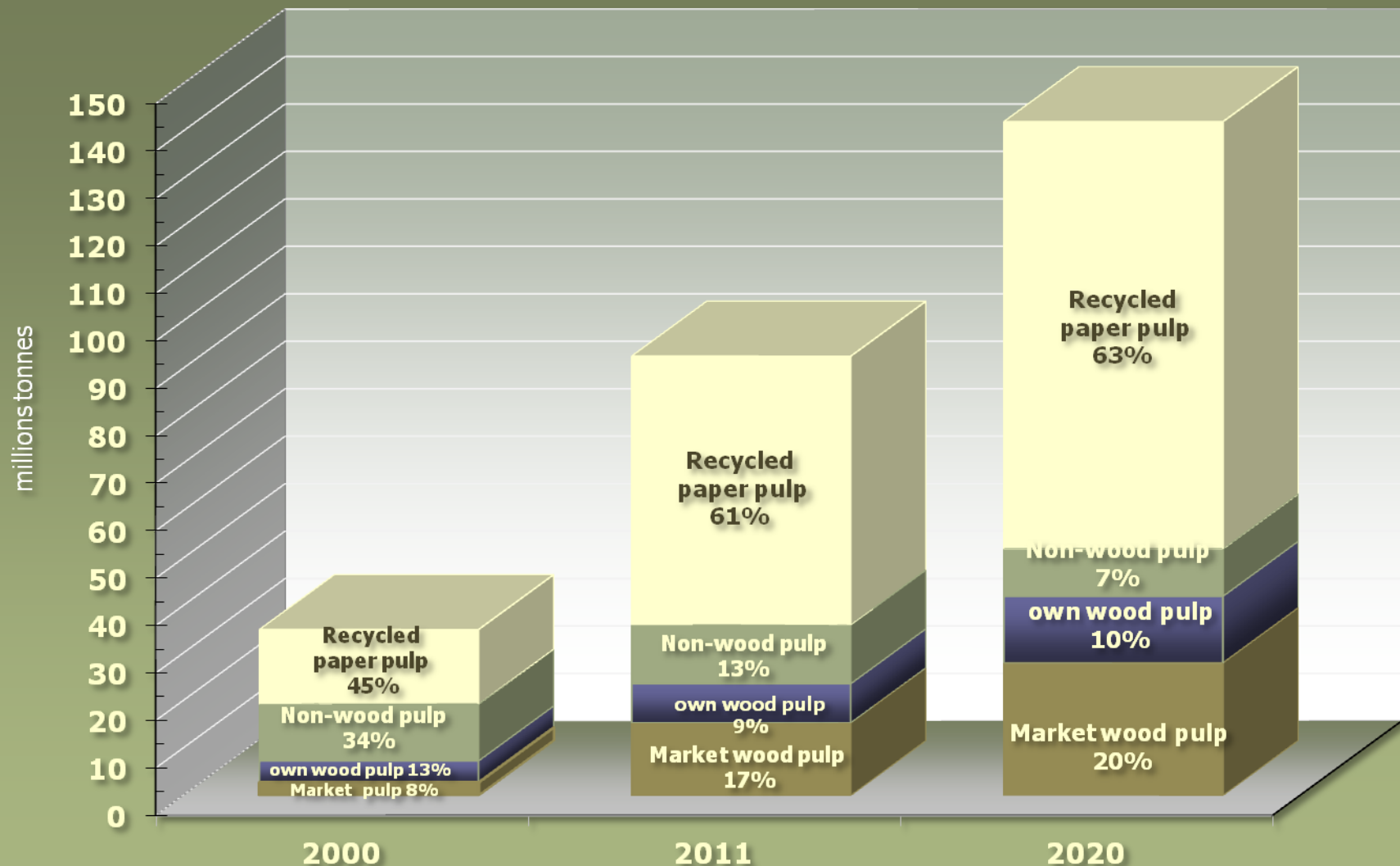
# Growing tissue output will need more softwood pulp

## Annual Tissue Capacity Growth

000's tonnes



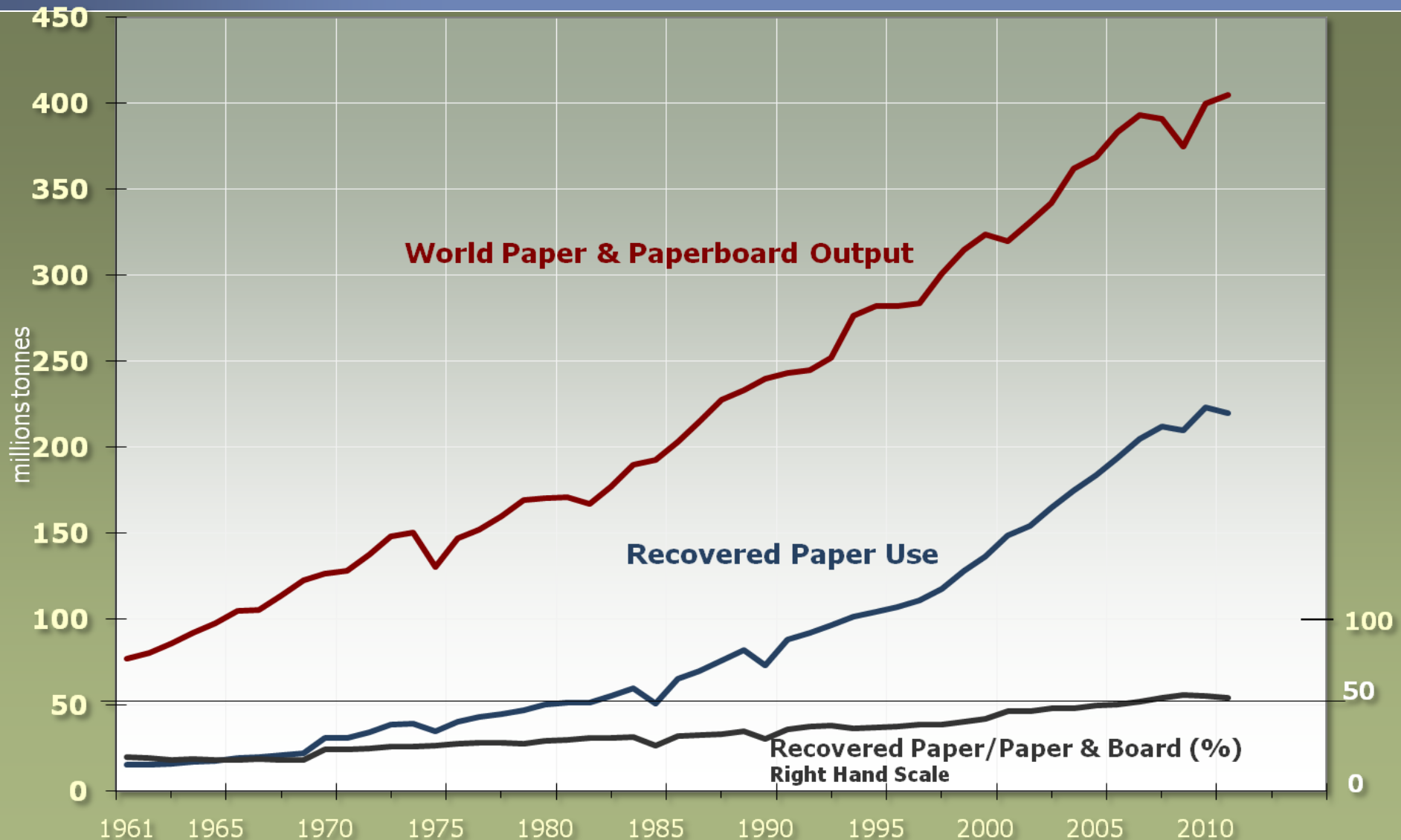
# Most fibre demand growth in China will be wood pulp



Source: PPI, Brian McClay & Associates

# Peak Recovered Paper

Supply growth slows, quality declines, costs rise



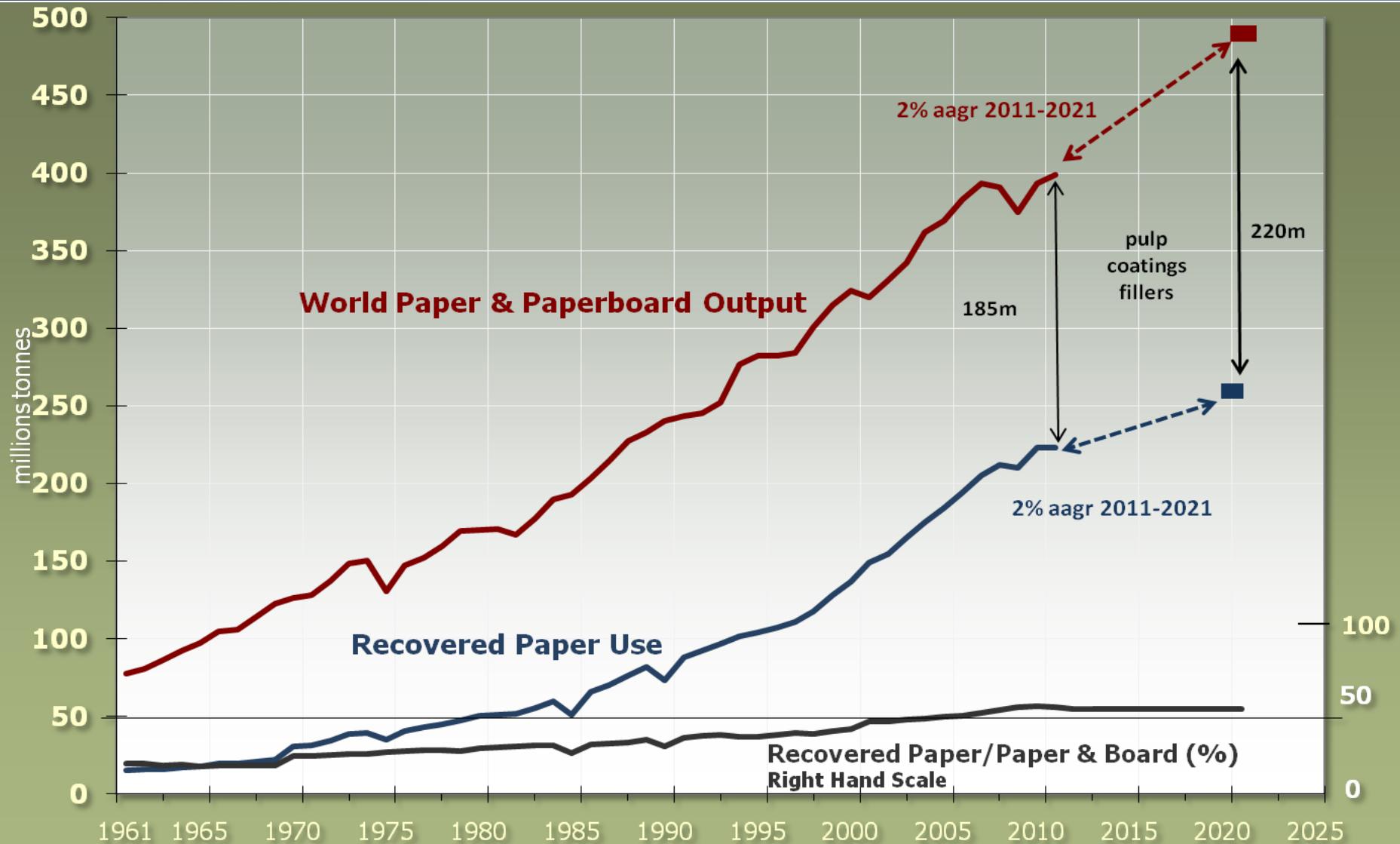
Source: FAO, PPI, Brian McClav & Associates

# Peak Recovered Paper

- Graphic paper use down in U.S., Europe and Japan, big exporters
- Already high recovery rates? U.S. 72%, Europe 77%, Japan 81%
- Raise recovery rates everywhere else
- Tissue demand growing fast (4%), potential recovery rate lower.
- More specialty papers, food grades, composites, not recovered
- Marginal cost of collection rising
- Quality of marginal supply declining.

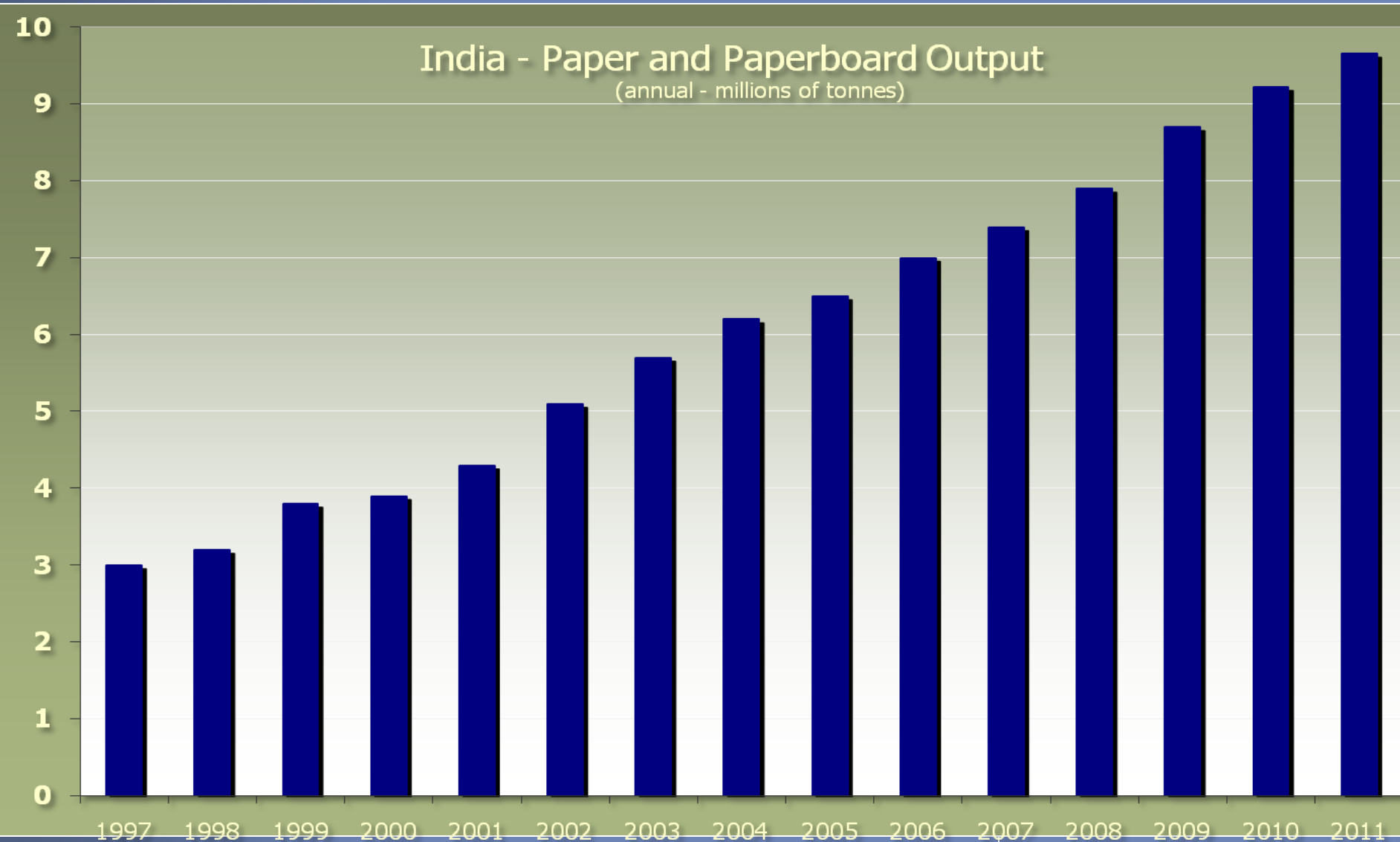
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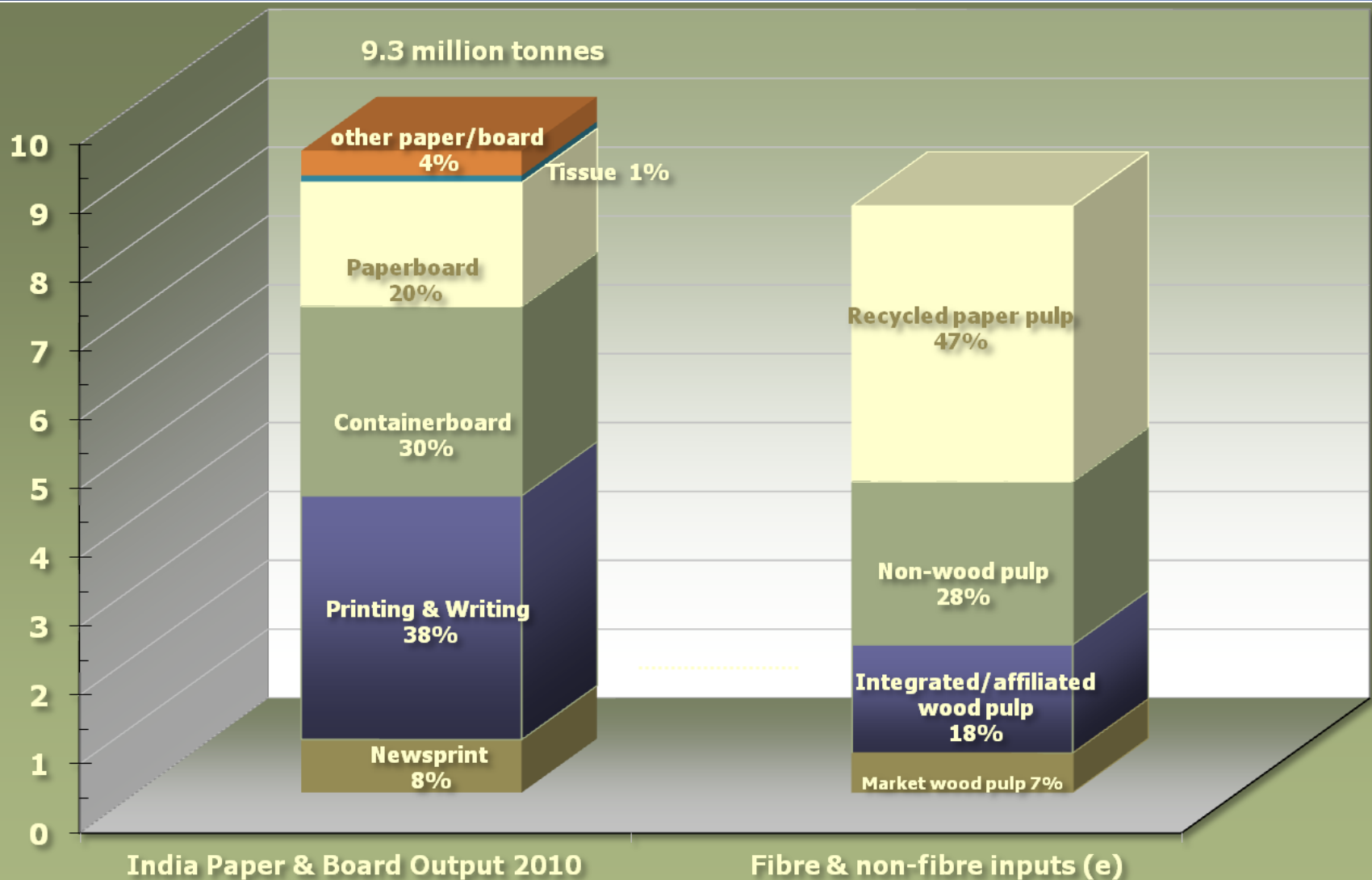


Source: FAO, PPI, Brian McClav & Associates

# Will India be another China?



# India growth to be fueled by market pulp, imports



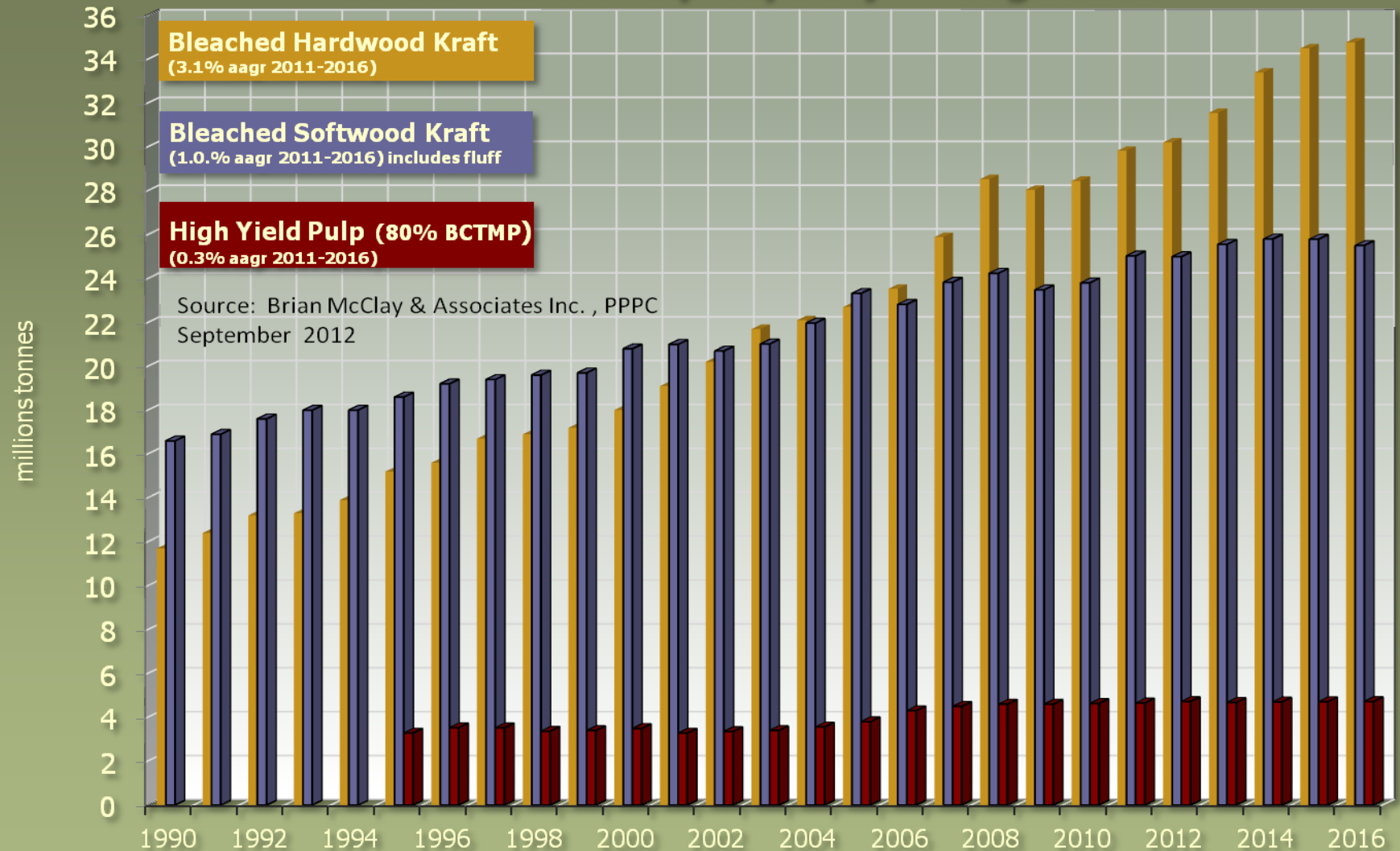
Source: PPI, Brian McClay & Associates

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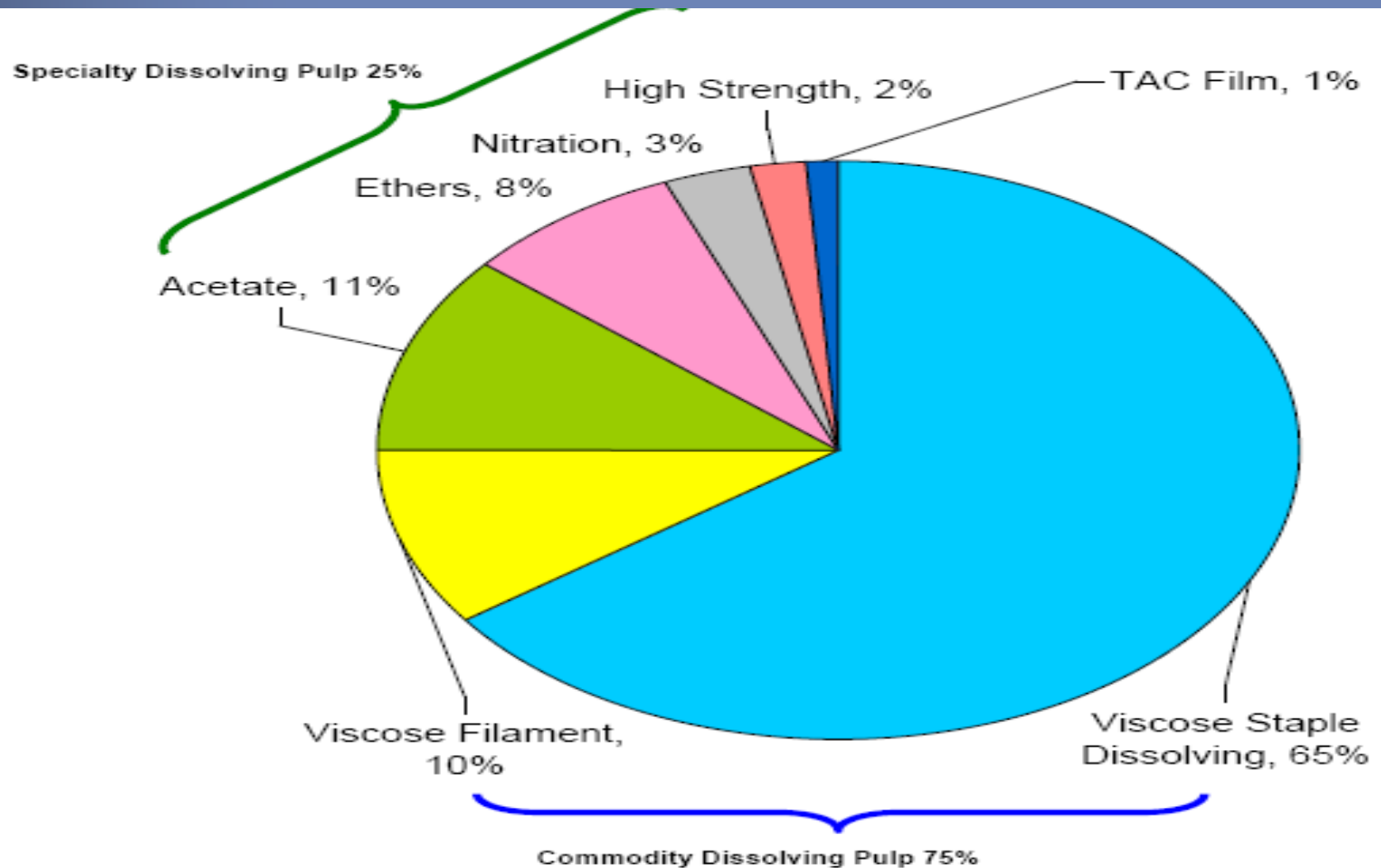
# Softwood pulp shortage?

Little new supply, rising demand from tissue, fluff, specialty products

## Annual Market Pulp Capacity Through 2016

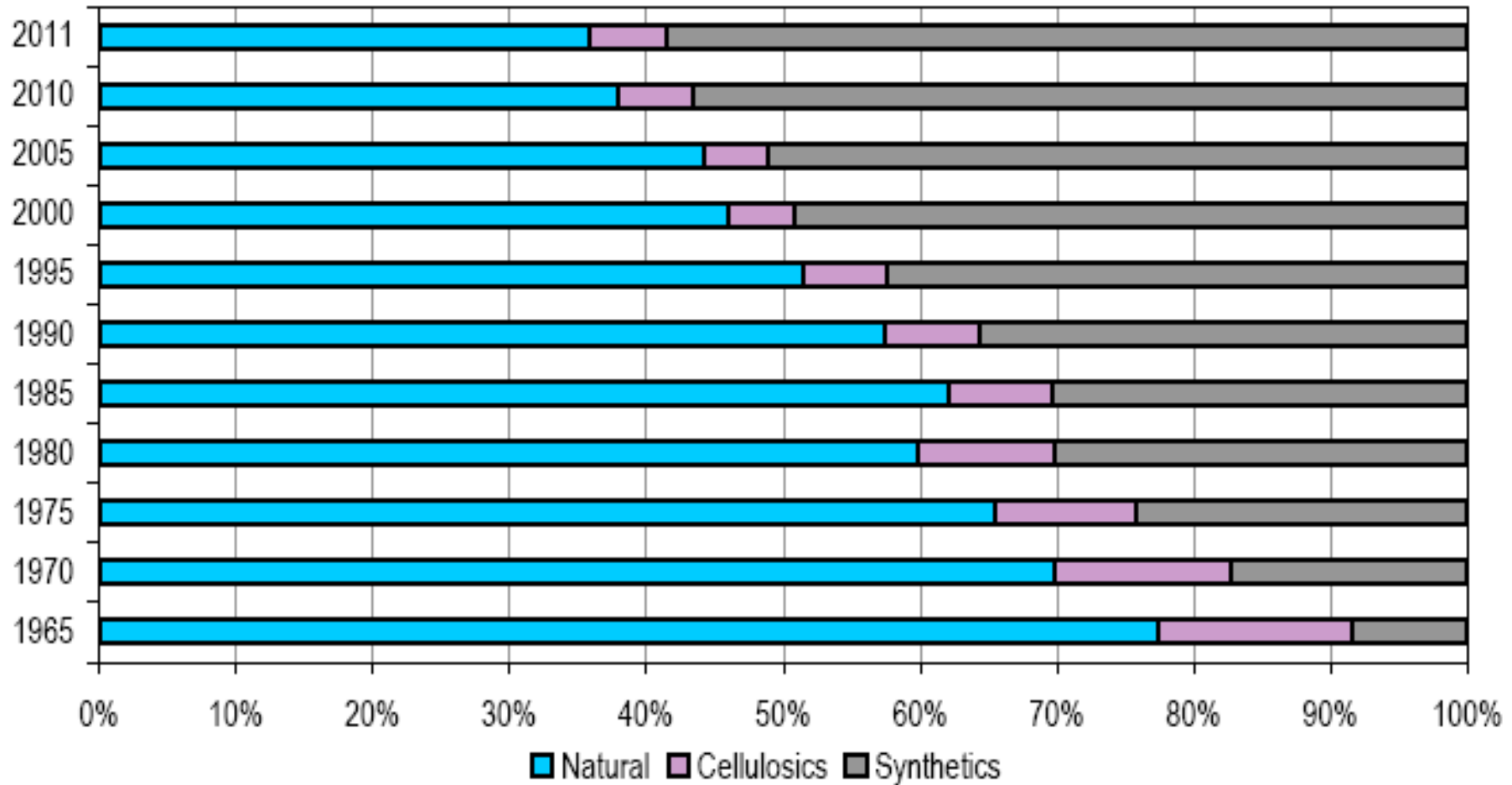


# DP: 5 mm tonnes 2011 – 75% textile, 25% specialty



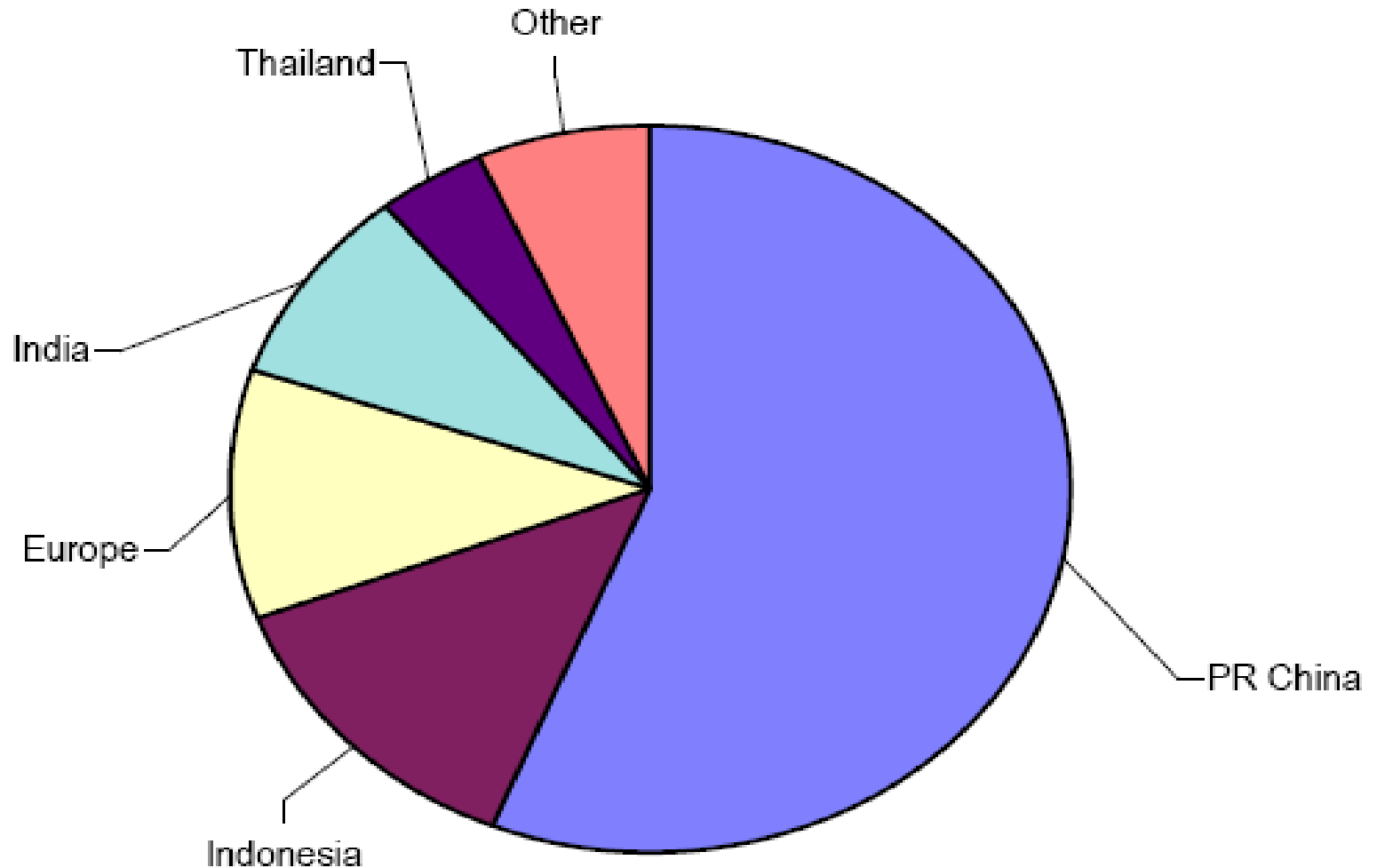
Source: Richard Brice and CIBC World Markets Inc.

# Share of global textile business by fibre type



Source: The Fiber Year 2012.

# Major Viscose Staple Fibre Producing Regions



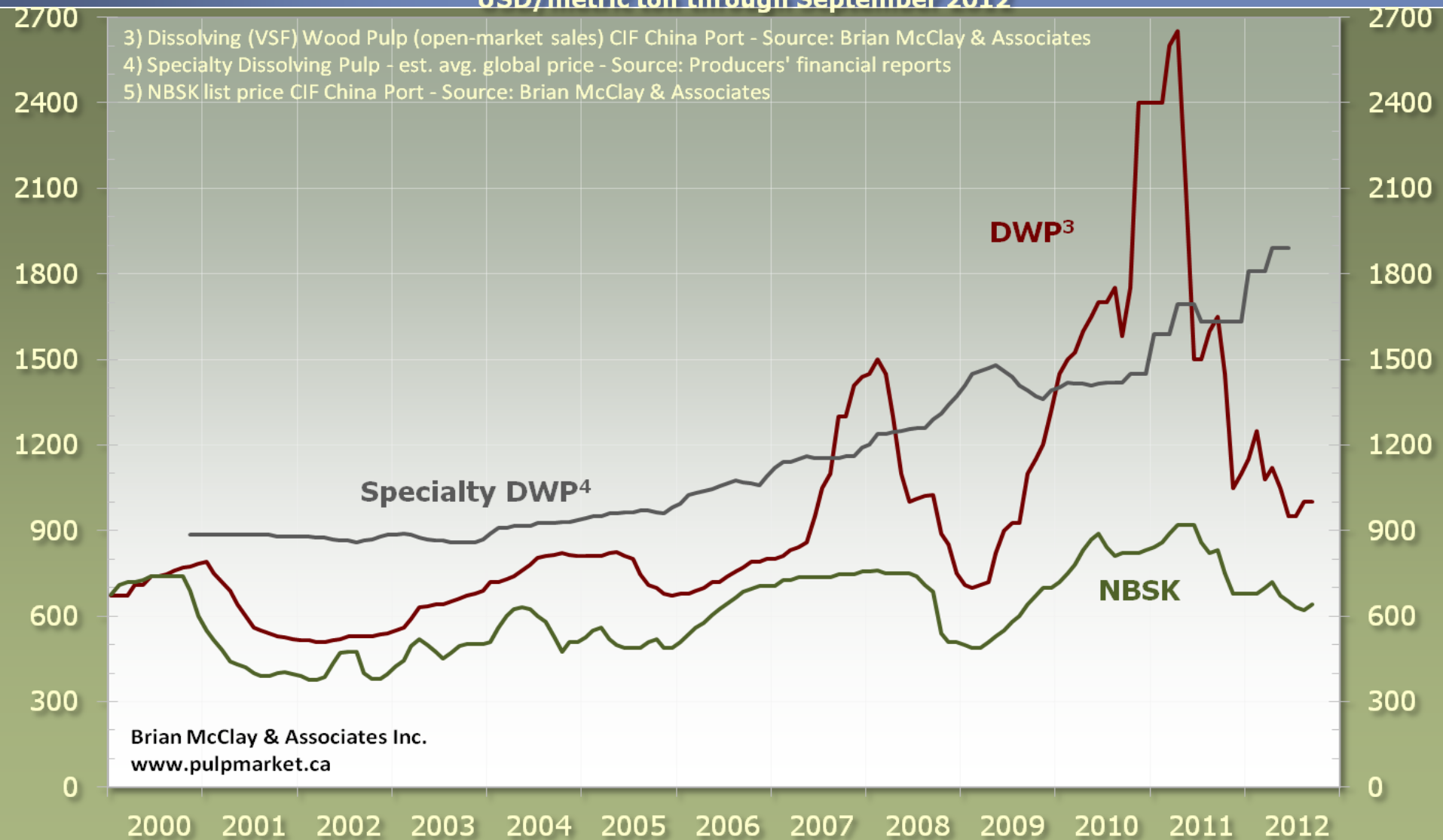
Source: The Fiber Year 2012.

# Growth prospects for dissolving pulp

- China, India surging consumer classes
- Peak cotton
- Sustainability—10 tonnes pulp/hectare vs. 1 tonne cotton, water use
- World demand for all textile fibres growing 3% per year
- Dissolving pulp based fibres 4% of total, huge leverage
- 10% per annum demand growth for textile grades
- Limit - all textile growth > 2.5 million more DP capacity per year

# Selected Monthly Pulp and VSF Prices in China

USD/metric ton through September 2012



# Dissolving Pulp Capacity Changes: 2012 - 2016

| Company  | Mill Location                     | Grade(s)          | Effective Date  | 000s Tonnes        |
|--|-----------------------------------|-------------------|-----------------|--------------------|
| <b>Södra</b>   | Mörum, Blekinge, Sweden           | Hardwood Kraft    | Jan 2012        | 170 <sup>2</sup>   |
| <b>Century Pulp &amp; Paper</b>  | Lalkua, India                     | Hardwood Kraft    | March 2012      | 35                 |
| <b>Stora Enso</b>  | Uimaharju, Finland                | Hardwood Kraft    | June 2012       | 150 <sup>6</sup>   |
| <b>Yueyang Paper</b>   | Hunan, China                      | Softwood Kraft    | Q2 2012         | 300                |
| <b>Shandong Huatai</b>   | Anqing City, Anhui, China         | Softwood Kraft    | August 2012     | 120 <sup>3</sup>   |
| <b>Nippon Paper Group</b>  | Kushiro, Japan                    | Hardwood Kraft    | October 2012    | 30                 |
| <b>Schweighofer Group</b>  | Hallein, Austria                  | Softwood Sulphite | End 2012        | 140 <sup>6</sup>   |
| <b>Buckeye Technologies</b>  | Perry, Florida, USA               | Softwood Kraft    | end 2012        | 30 <sup>5</sup>    |
| <b>Domsjö Fabriker</b>   | Örnsköldsvik, Sweden              | Softwood Sulphite | Q1 2013         | 45                 |
| <b>SAPPI</b>   | Ngodwana, South Africa            | Softwood Kraft    | April 2013      | 215 <sup>1</sup>   |
| <b>SAPPI</b>   | Cloquet, Minn, USA                | Hardwood Kraft    | June 2013       | 330                |
| <b>Sun Paper</b>   | Muang Phin, Savannakhét, Laos     | Hardwood Kraft    | mid-2013        | 200 <sup>9</sup>   |
| <b>Rayonier</b>  | Jesup, GA, USA                    | Softwood Kraft    | mid-2013        | 190 <sup>4</sup>   |
| <b>Continental Invest</b>  | Baikalsk, Russia                  | Softwood Kraft    | August, 16 2013 | -200 <sup>10</sup> |
| <b>Sateri (RGM International)</b>  | Bahia, Camaçari, Brazil           | Hardwood Kraft    | Dec 2013        | 85                 |
| <b>Paper Excellence</b>  | Prince Albert, SK, Canada         | Softwood Kraft    | Q4 2013         | 250                |
| <b>Lenzing</b>   | Paskov, North Moravia, Czech Rep. | Softwood Sulphite | Q4 2013         | 240 <sup>3</sup>   |
| <b>SCG Paper</b>   | Kanchanaburi, Thailand            | Hardwood Sulphite | Q4 2013         | 96                 |
| <b>Fortress Paper</b>  | Lebel-sur-Quévillon, QC, Canada   | Softwood Kraft    | 2014            | 250 <sup>7</sup>   |
| <b>Tembec</b>  | Temiscaming, QC, Canada           | Softwood Sulphite | 2015            | 35 <sup>8</sup>    |
| <b>Aditya Birla</b>  | Terrace Bay, Ontario              | Softwood Kraft    | 2016            | 280                |
| Red font means uncertain, blue means change since last report, purple means both |                                   |                   |                 |                    |

1 - Reduction of approx. 130K of UKP and BSK some of which was market pulp

2 - Conversion from BHK

3 - Stepwise conversion to dissolving pulp from market papergrade pulp to be completed by end 2013.

4 - Conversion of fluff line to dissolving

5 - Specialty

6 - Conversion from paper grade softwood

7 - Conversion from NBSK

8 - 5K will be added by late 2013/early 2014

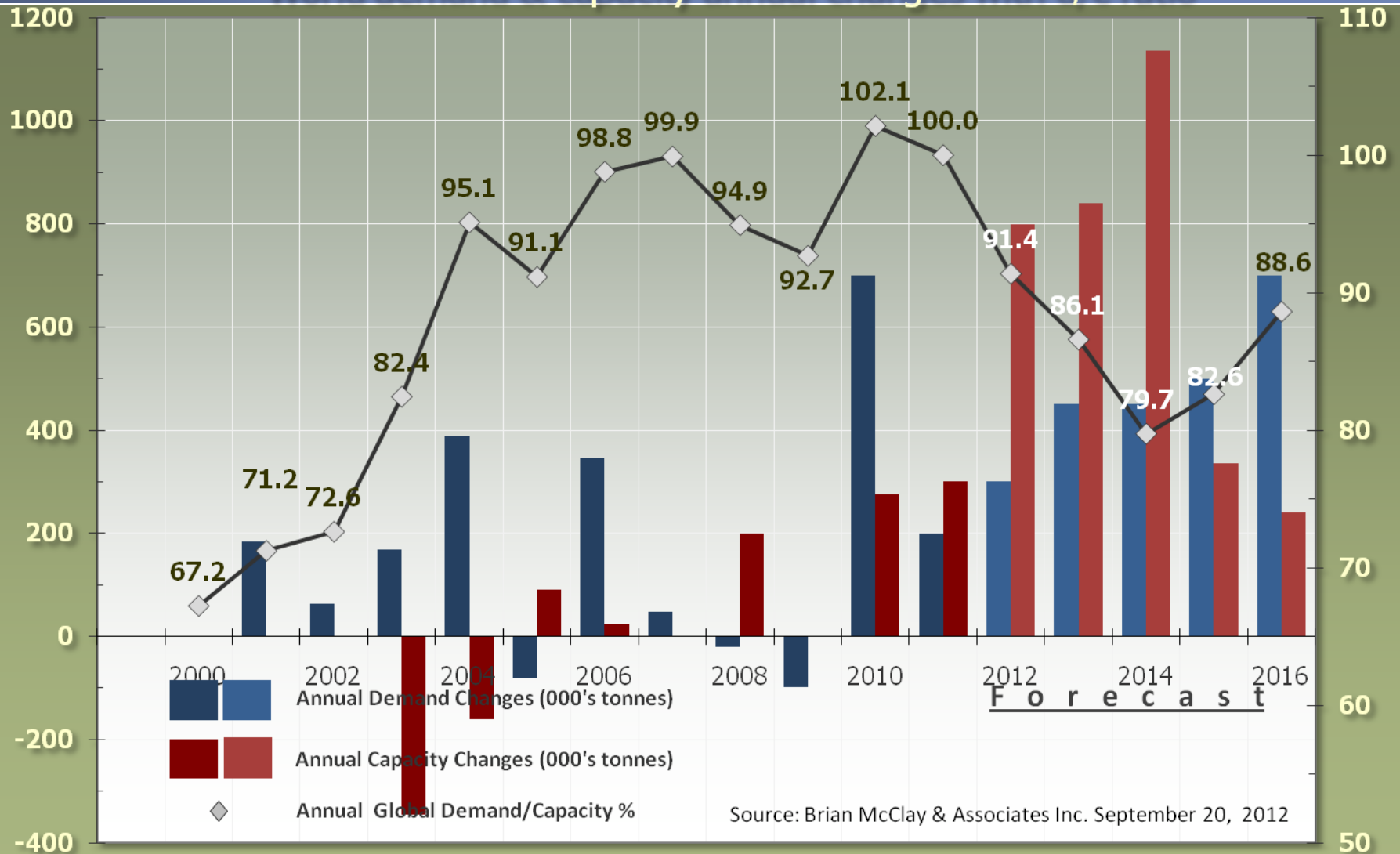
9 - Investment will allow swing between dissolving and papergrade pulp

10 - Permit to discharge waste water into Lake Baikal has been extended until August 16 2013

Decision on the mill's future expected in September 2012

# Dissolving Pulp - All Grades

World demand & capacity annual changes with d/c ratio



# Longer term implications for the pulp business

- Converting existing mills no longer enough
- Need to build world-scale plantation based DP mills, 'flex' mills?
- Flex mills reduce pricing volatility for DP, increase it for paper pulp
- Significant pressure on wood chip supply
- Adds to wood sustainability story – construction, paper/packaging, bio-energy, bio-chemicals, textiles .
- Overall, huge net positive.

# Nano-crystalline cellulose

- Very early stage of development
- Transparent, lightweight, 10 times stronger than stainless steel
- Domtar has pilot plant JV in Quebec
- US Forest Service funding similar plant
- Takes 2 tonnes of dried pulp to get 1 tonne of NCC
- US National Science Foundation - \$600 billion business 2020

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