Trends in Market Pulp

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Brian McClay & Associates Inc.

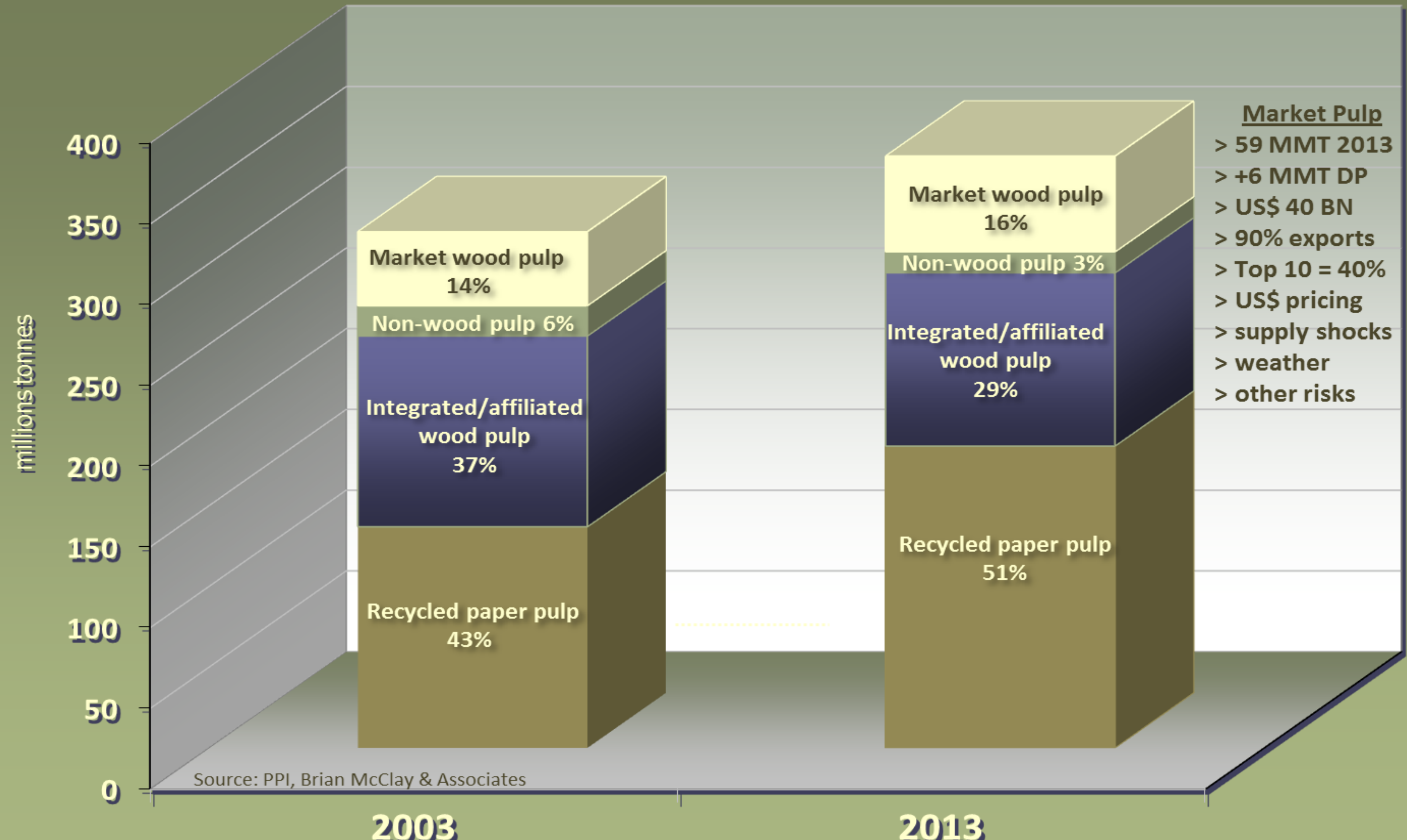
www.pulpmarket.ca

AFVP

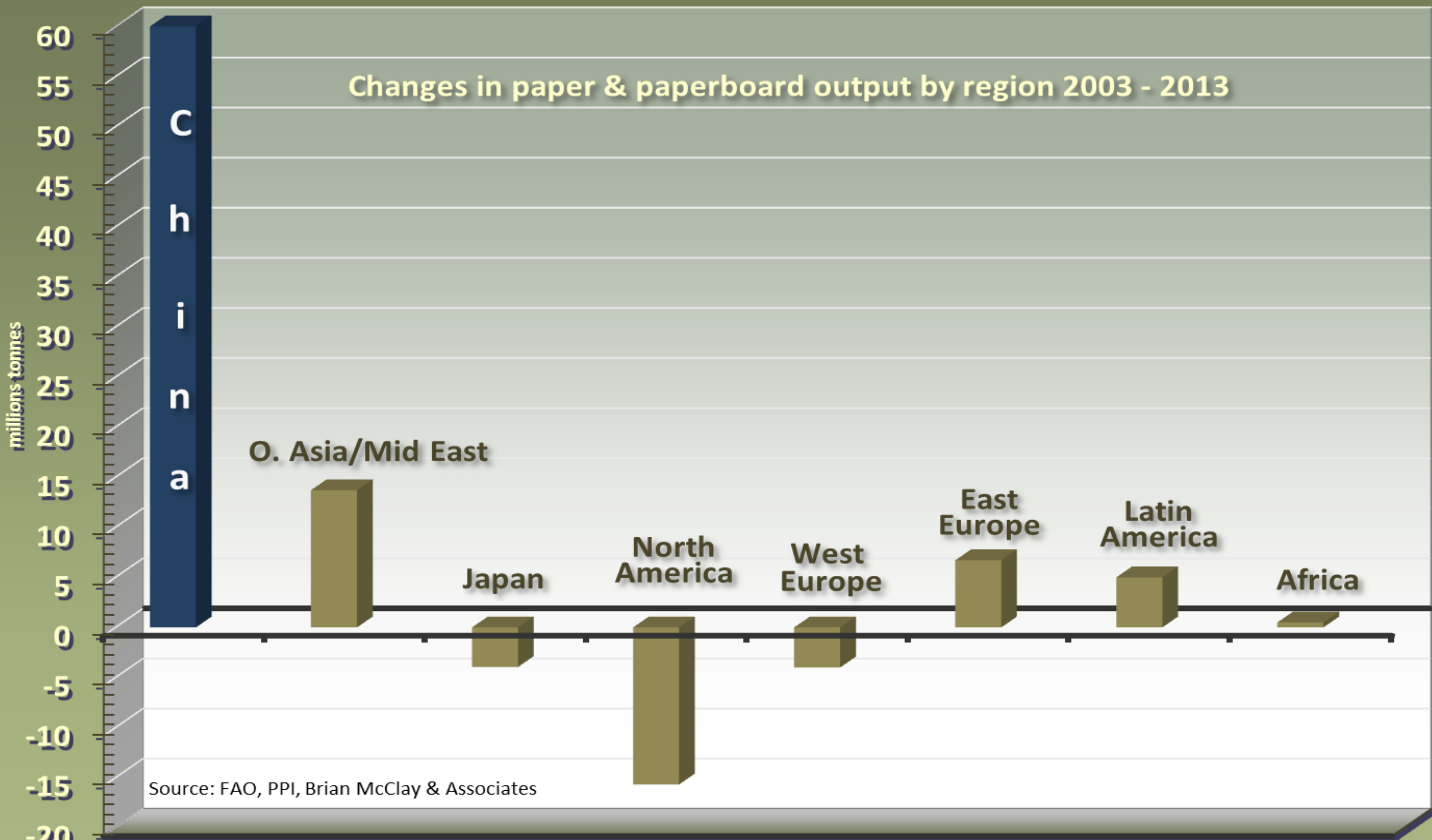
DIVONNE-LES-BAINS

18 June 2015

Market pulp gaining share of global fiber furnish



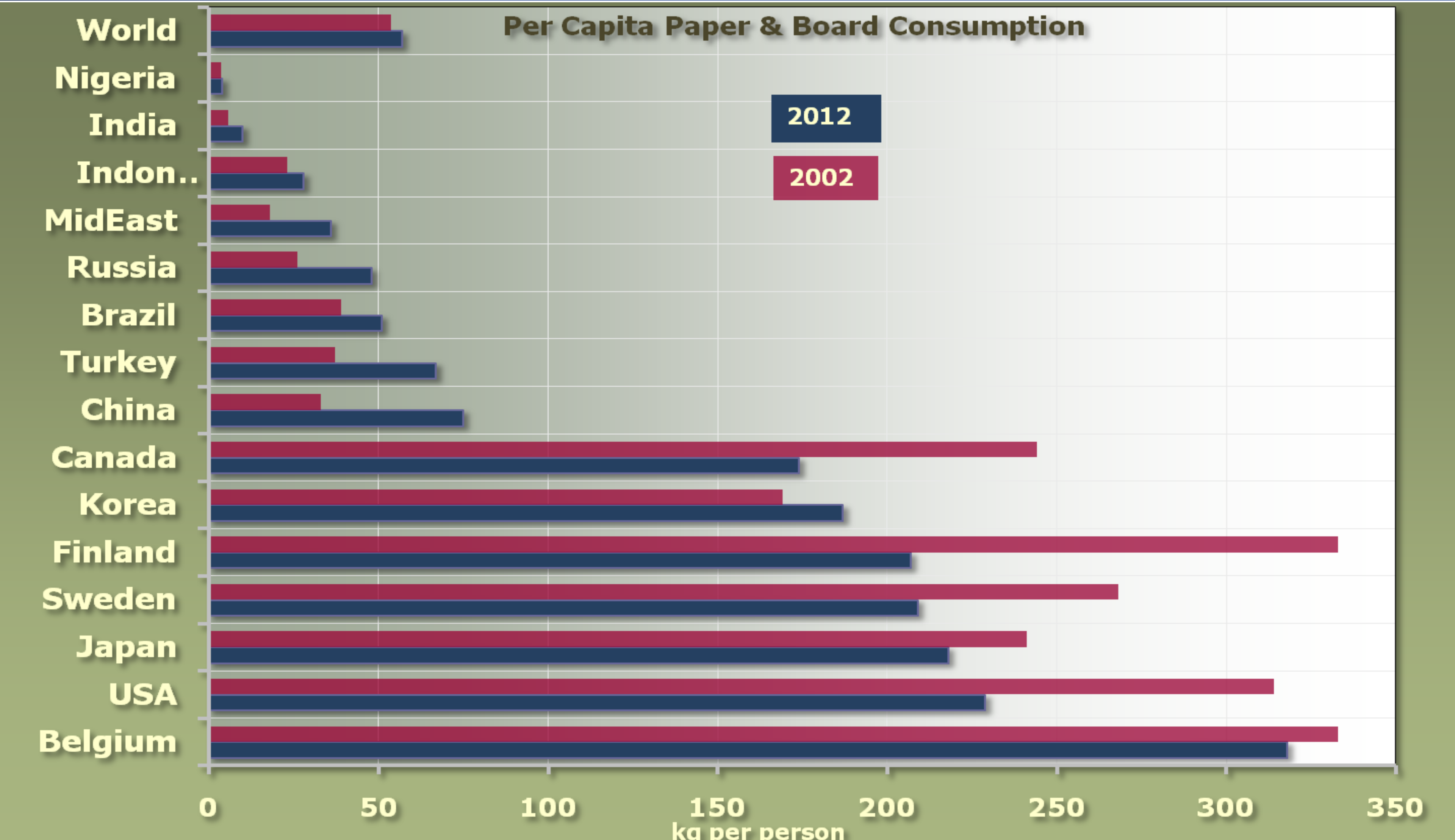
Capacity surge in China, 85% non-integrated to fibre



Paper still a growth business, China now 26% of total

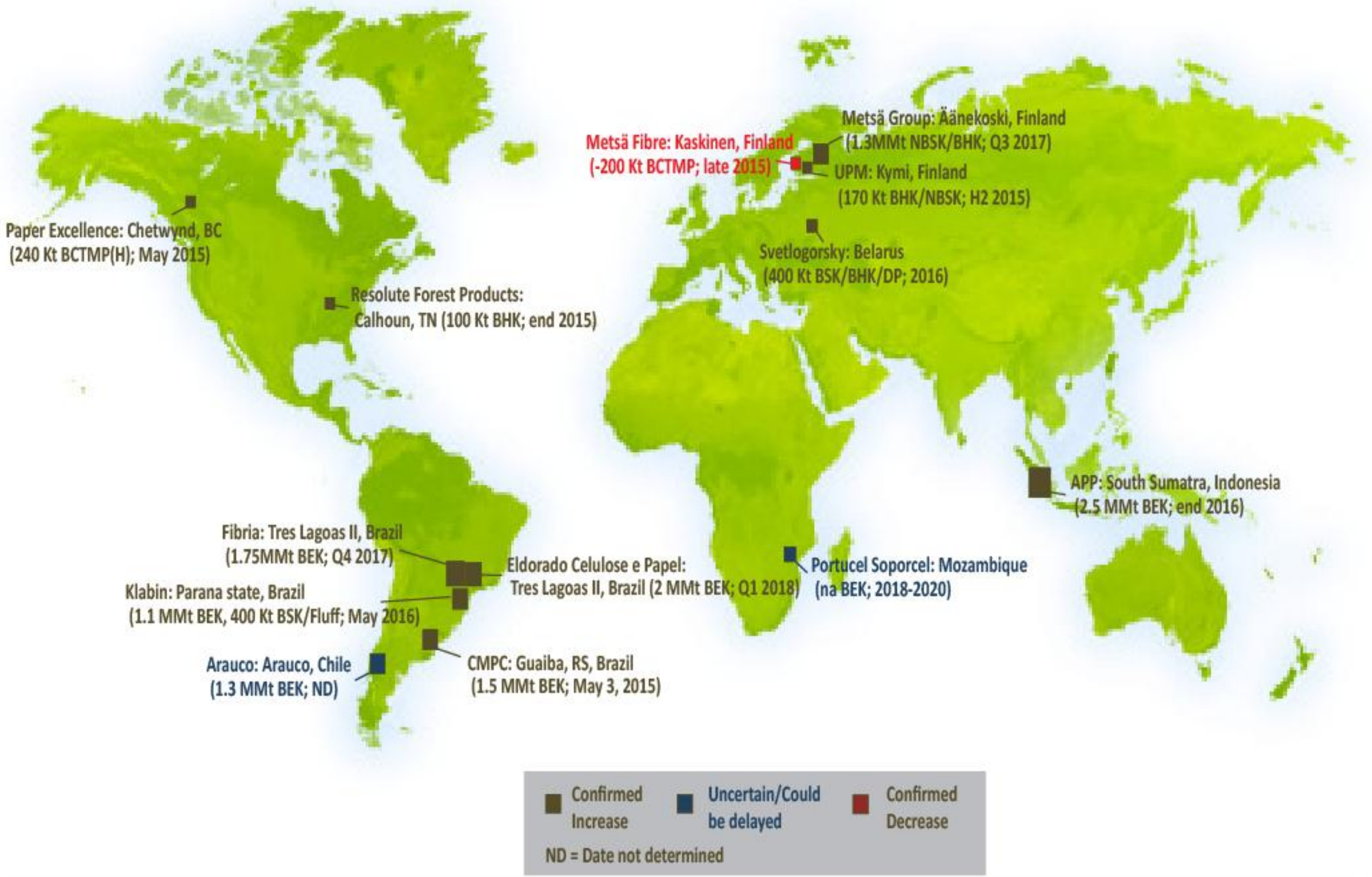
Source: FAO, PPI, Brian McClay & Associates

Emerging markets have good paper growth prospects



Selected Hardwood Market Pulp Capacity Changes 2014 - 2019

June 2015



Selected Softwood Market Pulp Capacity Changes 2014 - 2019

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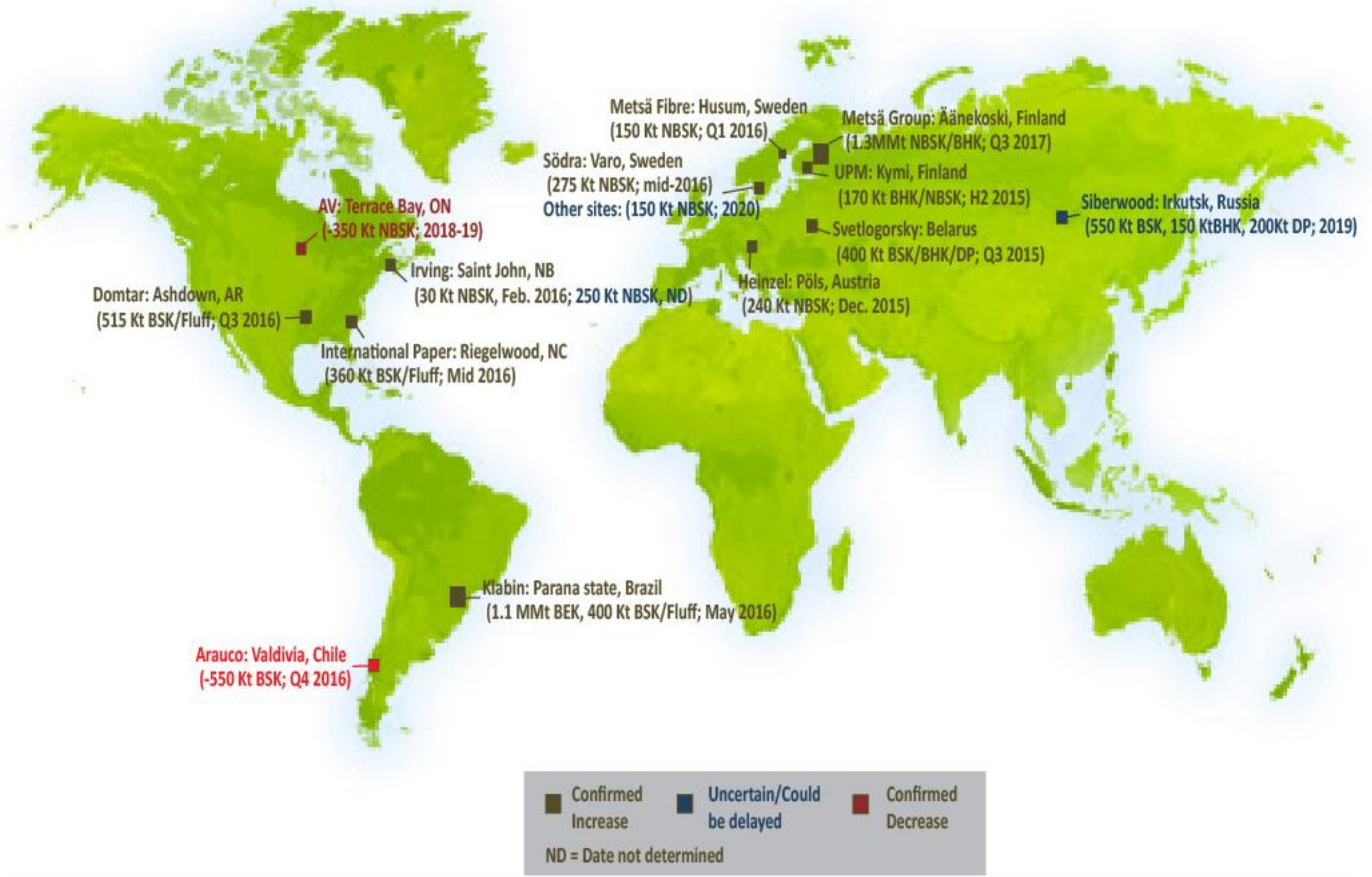
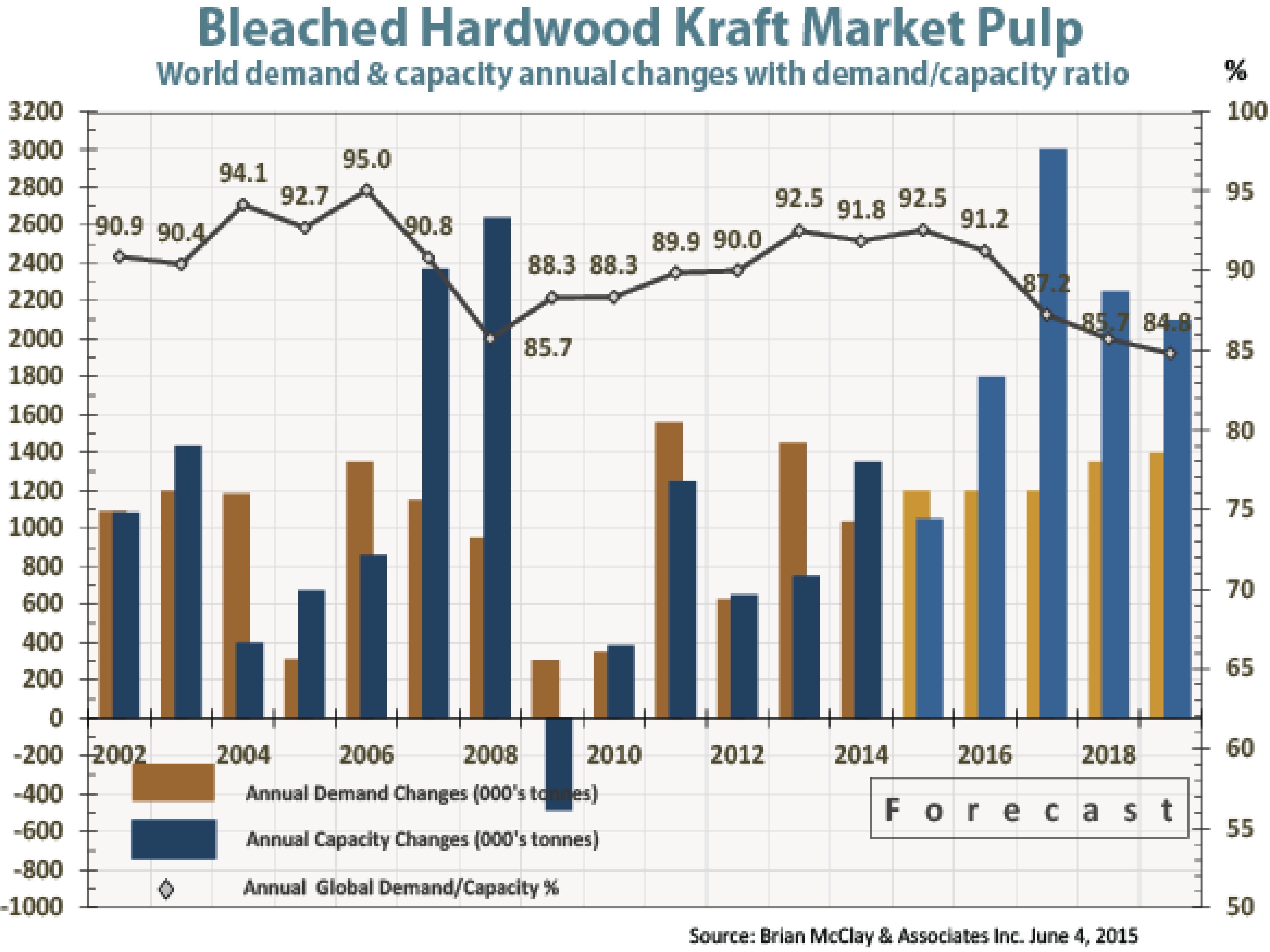
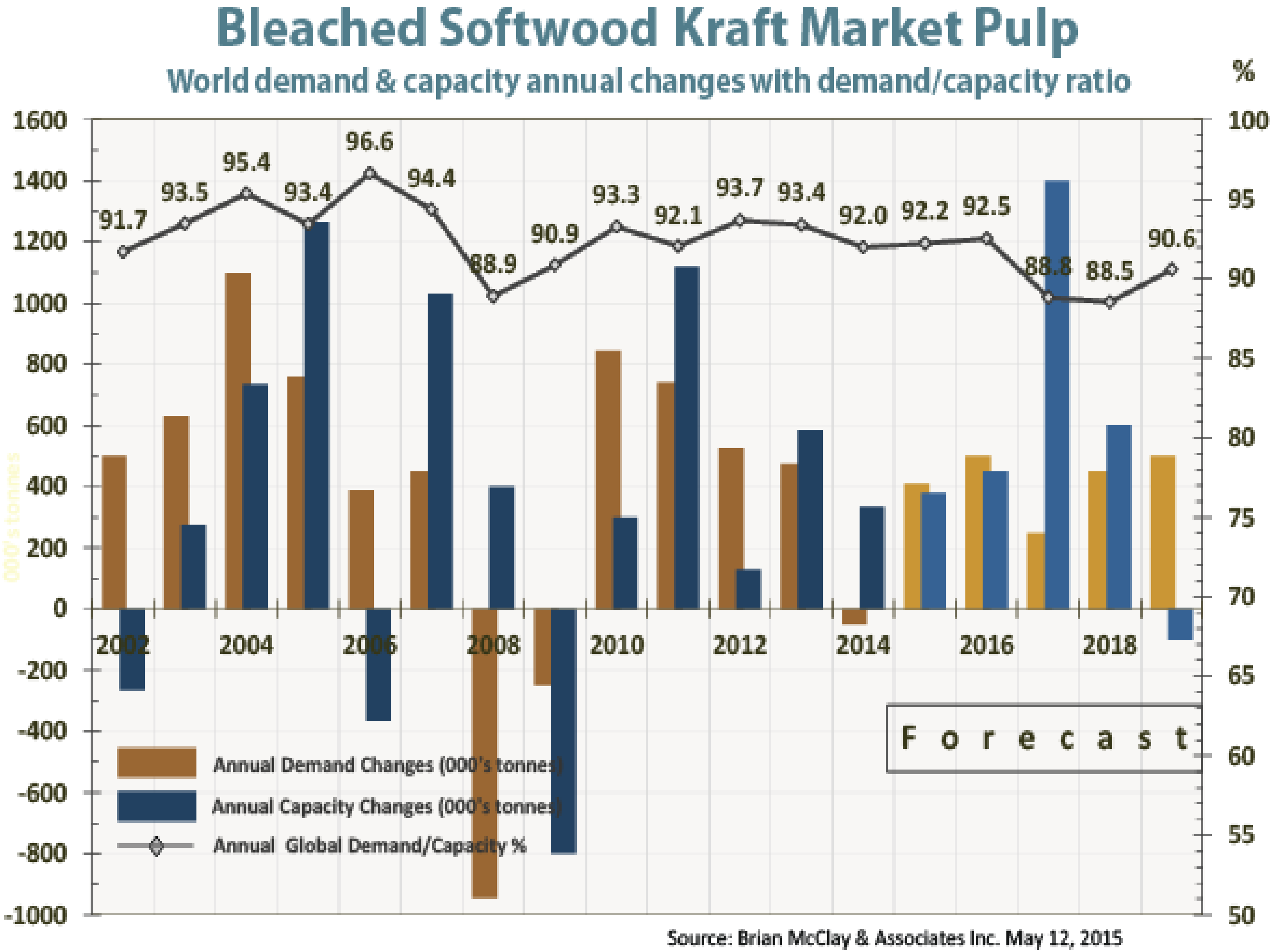


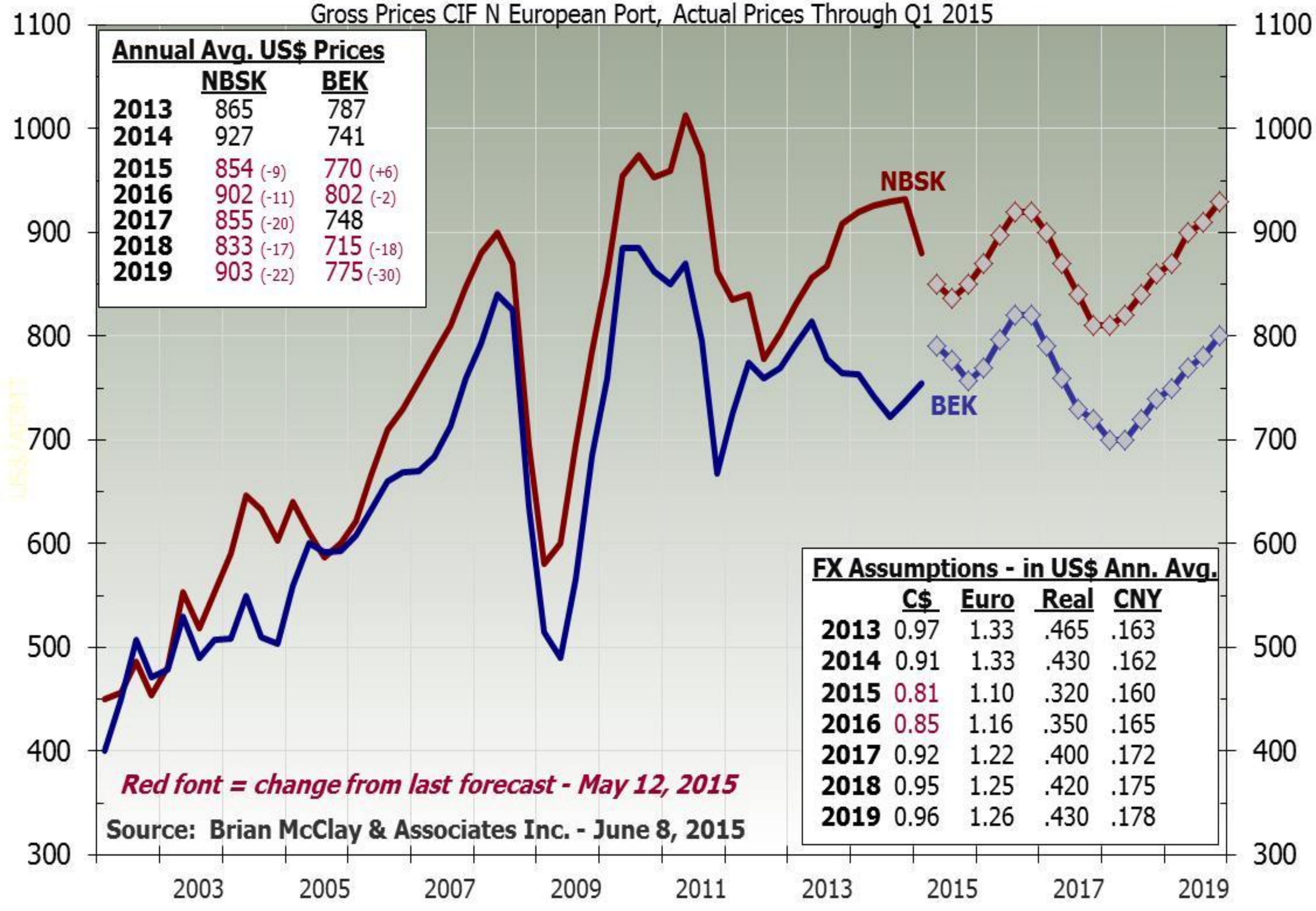


Bleached Hardwood Kraft Market Pulp
World demand & capacity annual changes with demand/capacity ratio
%
3200
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
-800
-1000
100
95
90
85
80
75
70
65
60
55
50
90.9
90.4
94.1
92.7
95.0
90.8
85.7
88.3
88.3
89.9
90.0
92.5
91.8
92.5
91.2
87.2
85.7
84.8
2002
2004
2006
2008
2010
2012
2014
2016
2018
Annual Demand Changes (000's tonnes)
Annual Capacity Changes (000's tonnes)
Annual Global Demand/Capacity %
F o r e c a s t
Source: Brian McClay & Associates Inc. June 4, 2015

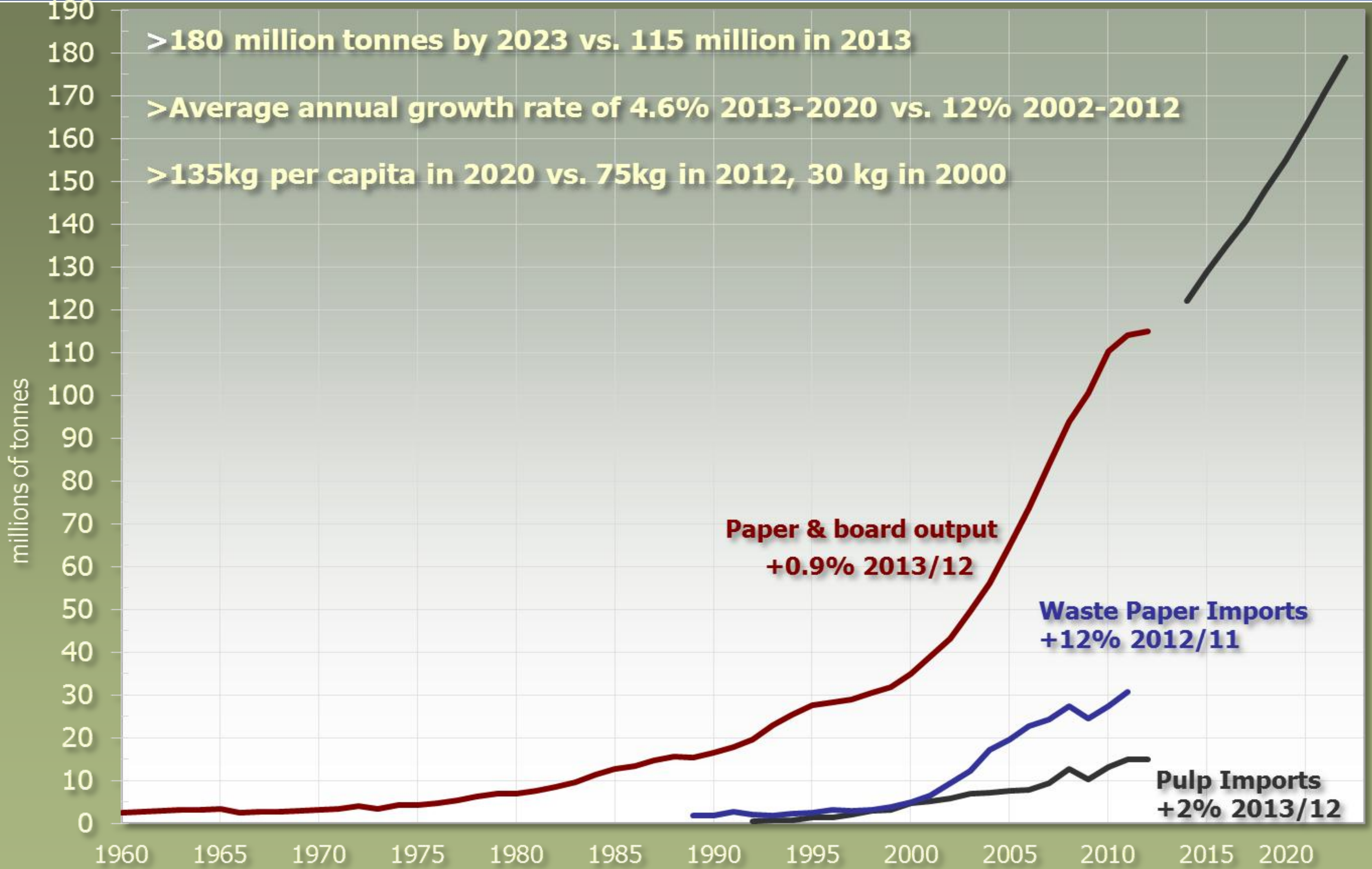


Bleached Softwood Kraft Market Pulp
World demand & capacity annual changes with demand/capacity ratio
%
000's tonnes
1600
1400
1200
1000
800
600
400
200
0
-200
-400
-600
-800
-1000
100
95
90
85
80
75
70
65
60
55
50
91.7
93.5
95.4
93.4
96.6
94.4
88.9
90.9
93.3
92.1
93.7
93.4
92.0
92.2
92.5
88.8
88.5
90.6
2002
2004
2006
2008
2010
2012
2014
2016
2018
Forecast
Annual Demand Changes (000's tonnes)
Annual Capacity Changes (000's tonnes)
Annual Global Demand/Capacity %
Source: Brian McClay & Associates Inc. May 12, 2015

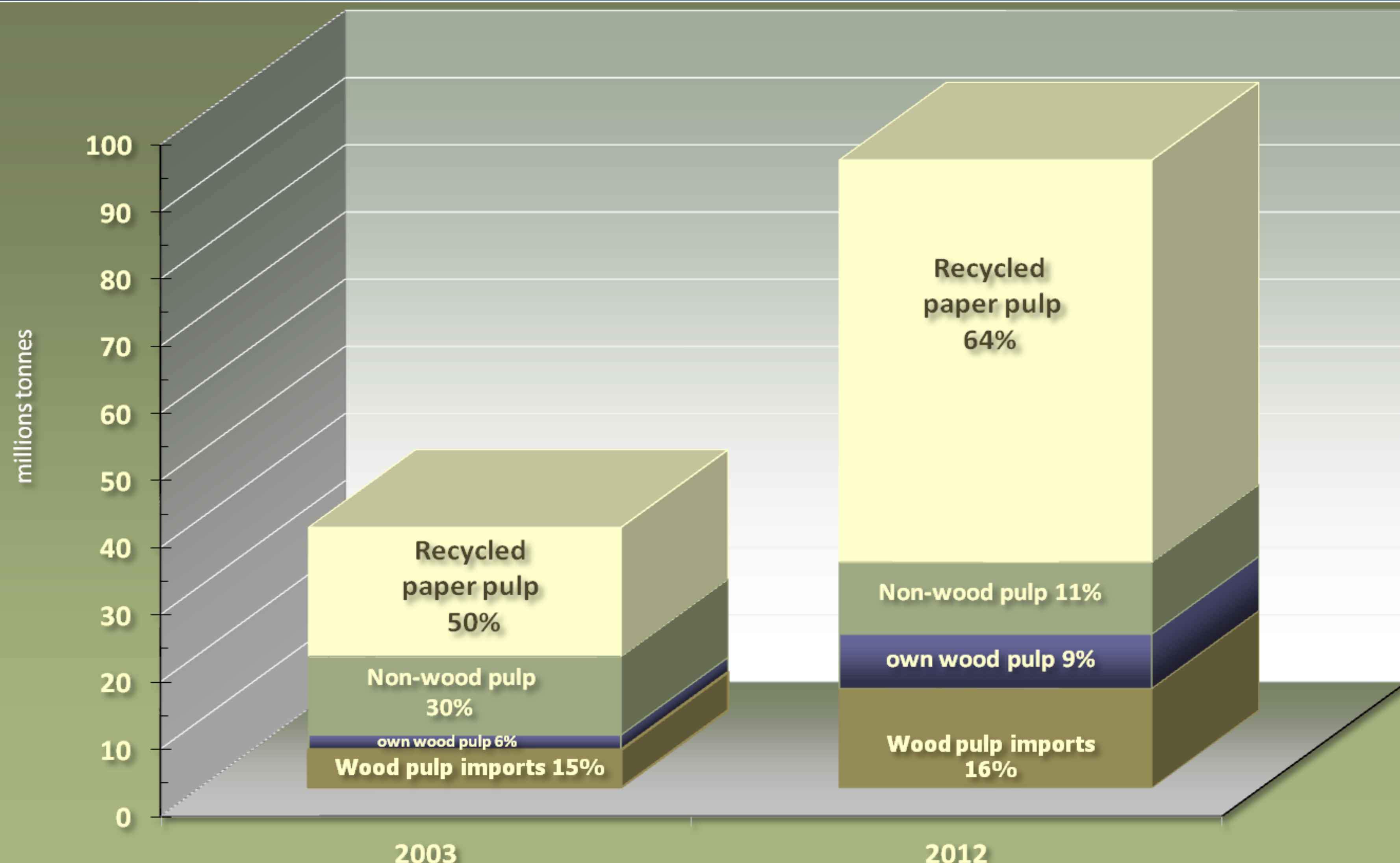
Quarterly NBSK/BEK US$ Prices in N Europe - 2019



Even with modest aagr of 4.6%, China's paper & board output will reach 180 million tonnes in 2023, 65 m tonnes over 2013.



China's Fibre Furnish for Paper & Board



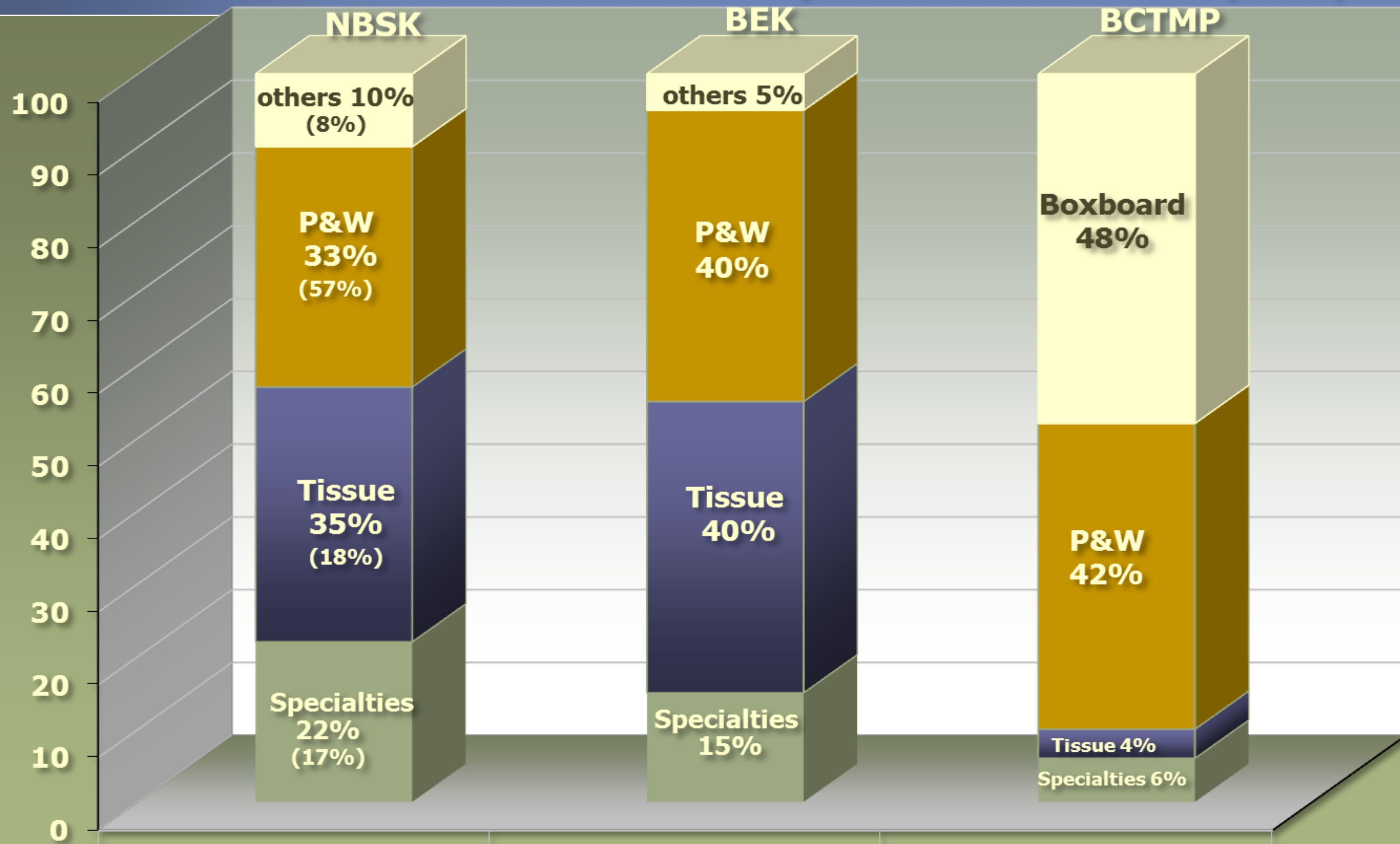
Source: PPI, PPPC, Brian McClay & Associates

Pulp Production 2005-2014										
(In 000m/t)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Wood pulp	3,710	5,260	6,050	6,790	6,510	7,160	8,230	8,100	8,820	9,620
Recycled pulp	28,100	33,800	40,170	44,390	49,970	53,050	56,600	59,830	59,400	61,890
Non-wood pulp	12,600	12,980	13,020	12,970	11,750	12,970	12,400	10,740	8,290	7,550
Reed pulp	1,380	1,440	1,440	1,500	1,440	1,560	1,580	1,430	1,260	1,130
Bagasse pulp	630	740	900	970	980	1,170	1,210	900	970	1,110
Bamboo pulp	860	950	1,200	1,460	1,610	1,940	1,920	1,750	1,370	1,540
Straw pulp	9,290	9,080	8,490	8,080	6,760	7,190	6,600	5,920	4,010	3,360
Other pulp	440	690	990	970	970	1,110	1,090	740	680	410

Building airports in China does not use much paper

But using airports does

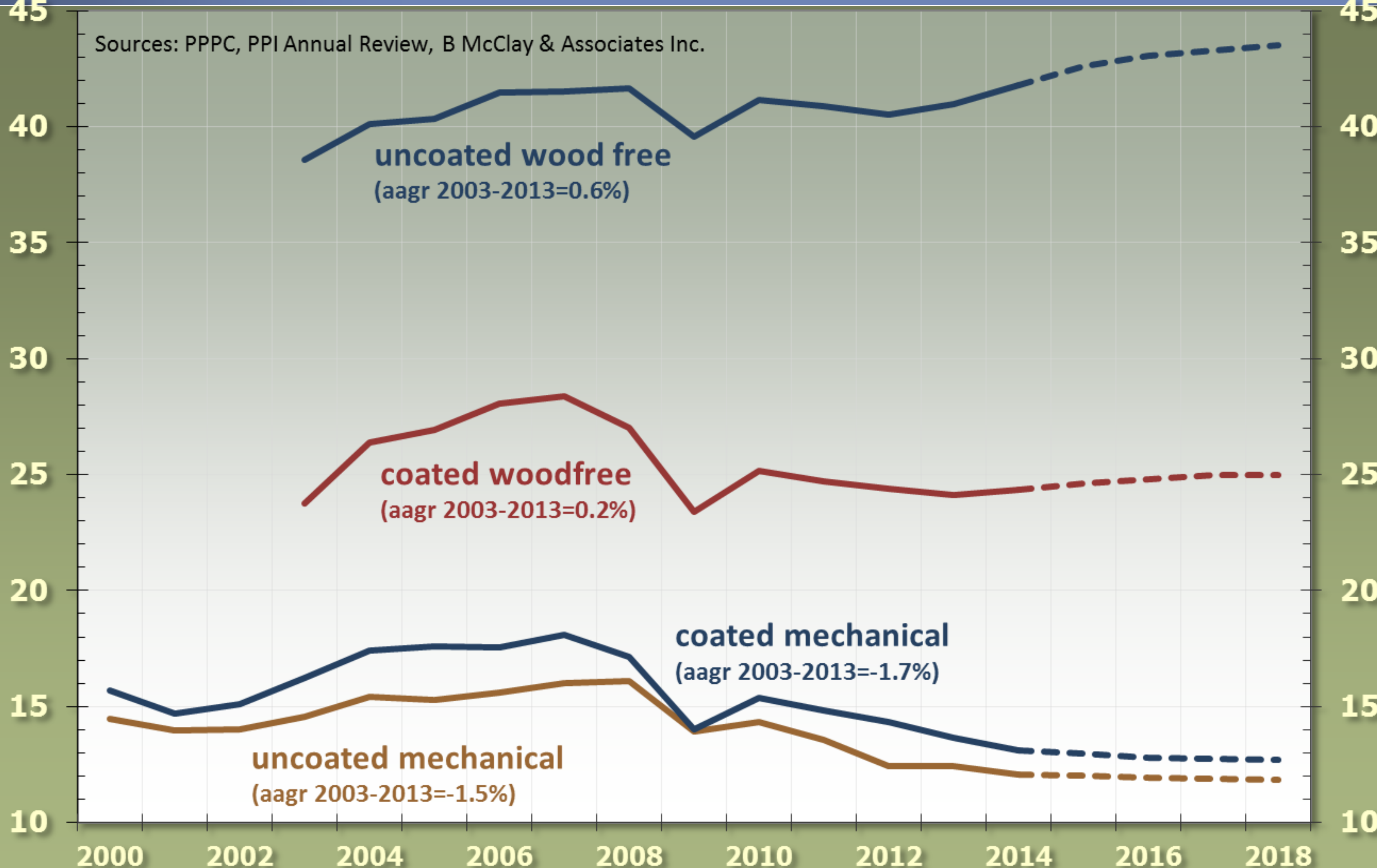
Est. World end-uses for NBSK, BEK & BCTMP - 2012 (2003)



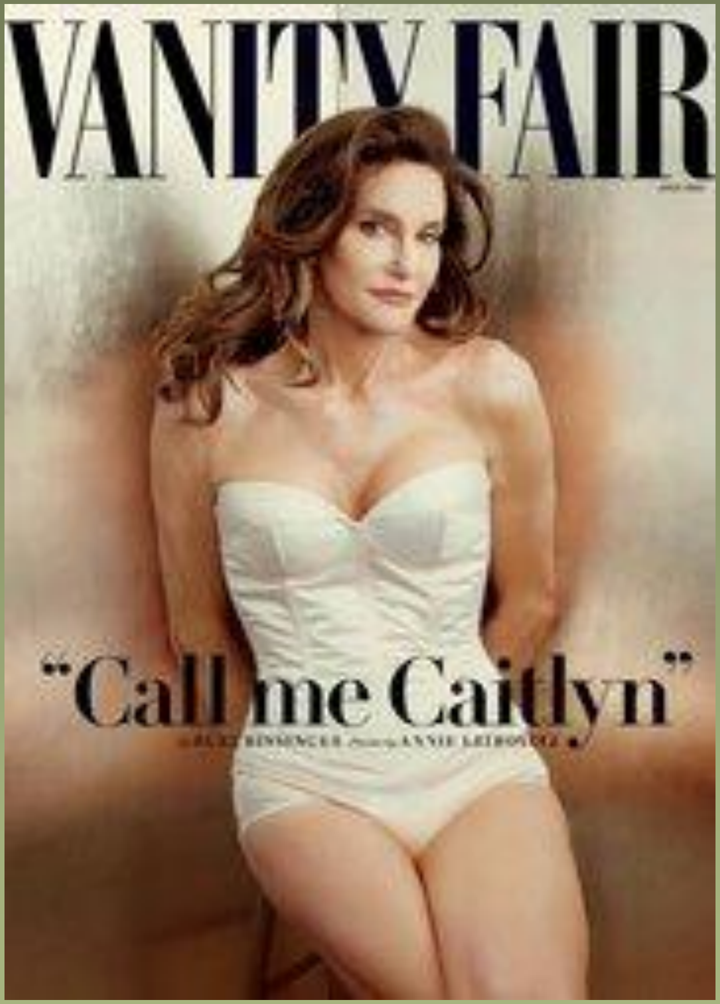
Sources: Brian McClay & Associates Inc., PPPC, Poyry

World Printing & Writing Paper Demand by Grade

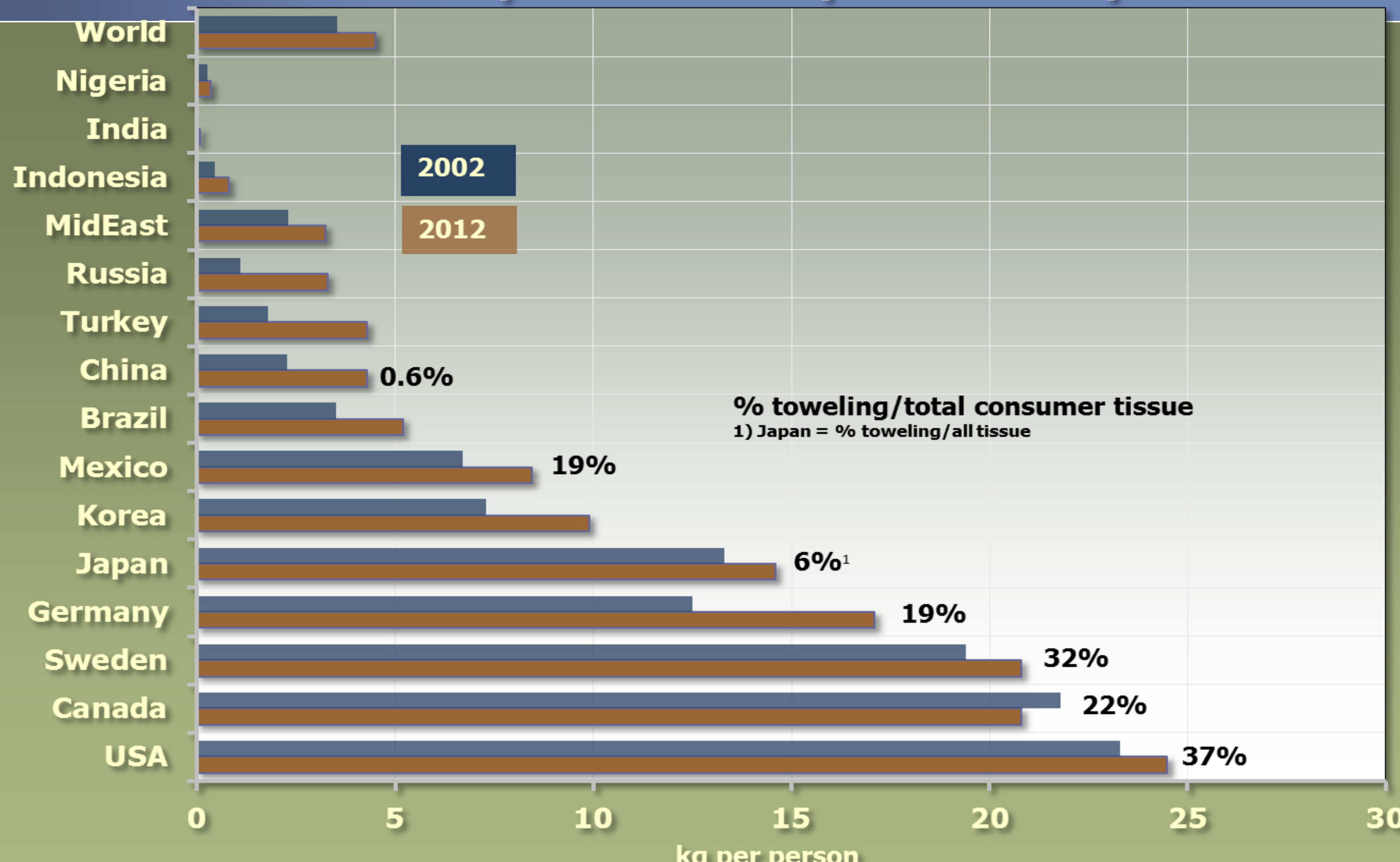
million tonnes



Print still important, screens a crowded space



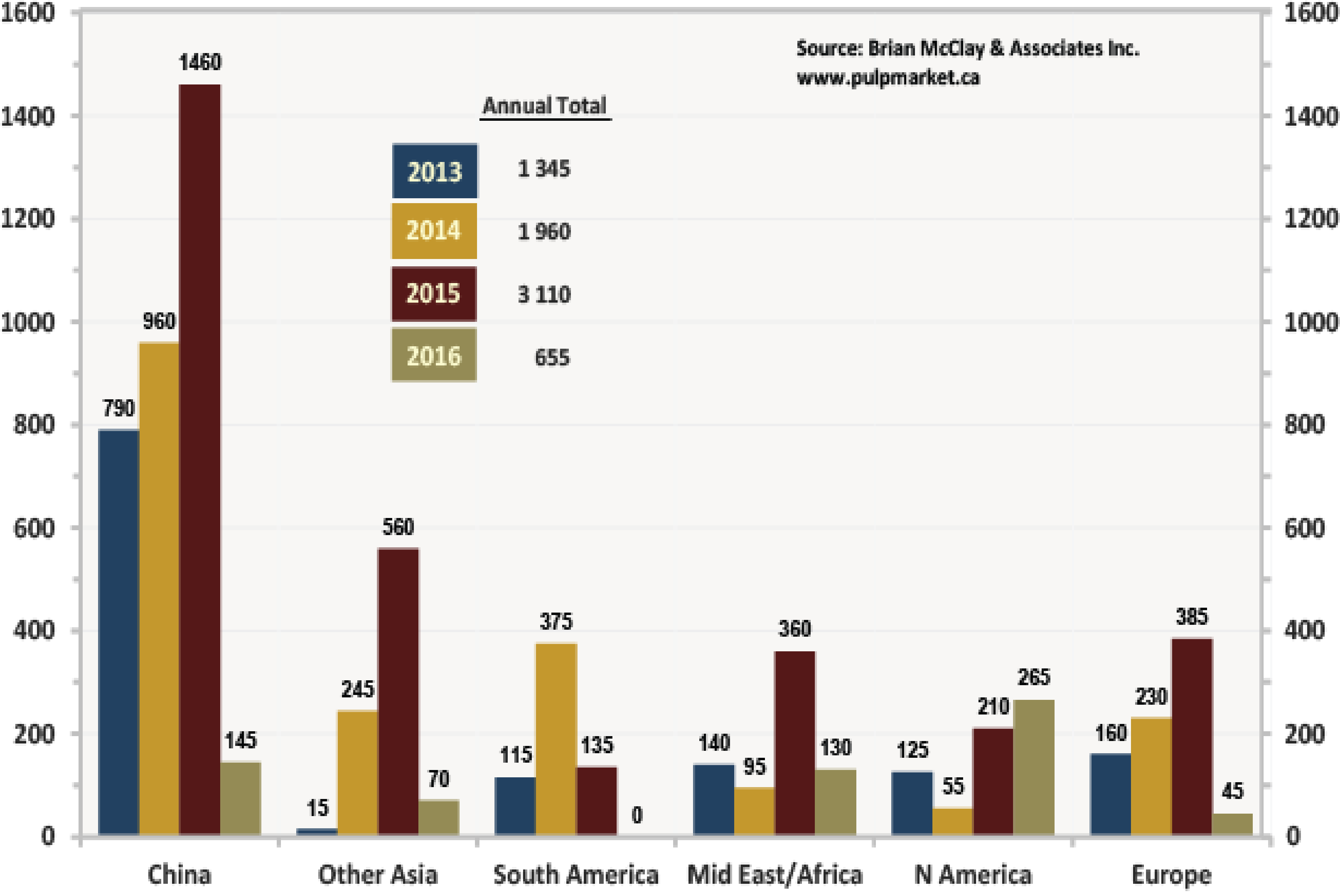
Per Capita Tissue Paper Consumption



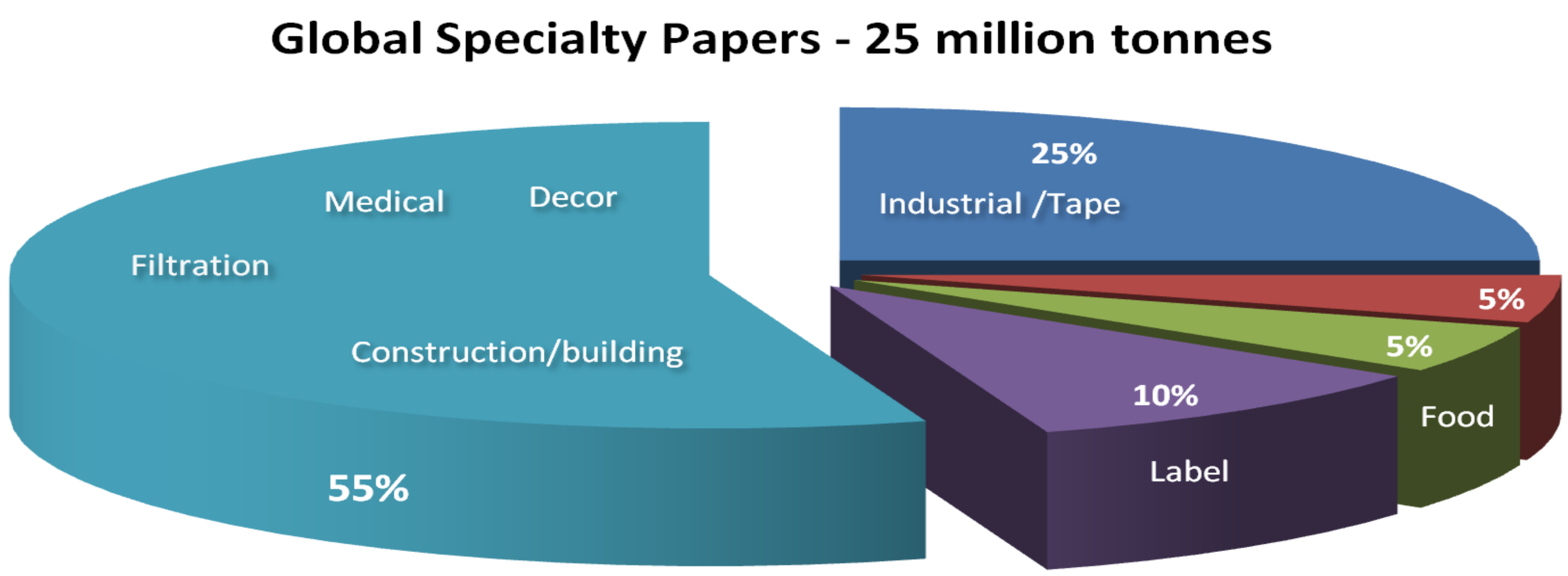
Print may be seen as old, tissue is modern, sophisticated

Annual Tissue Capacity Growth by Region

000's tonnes

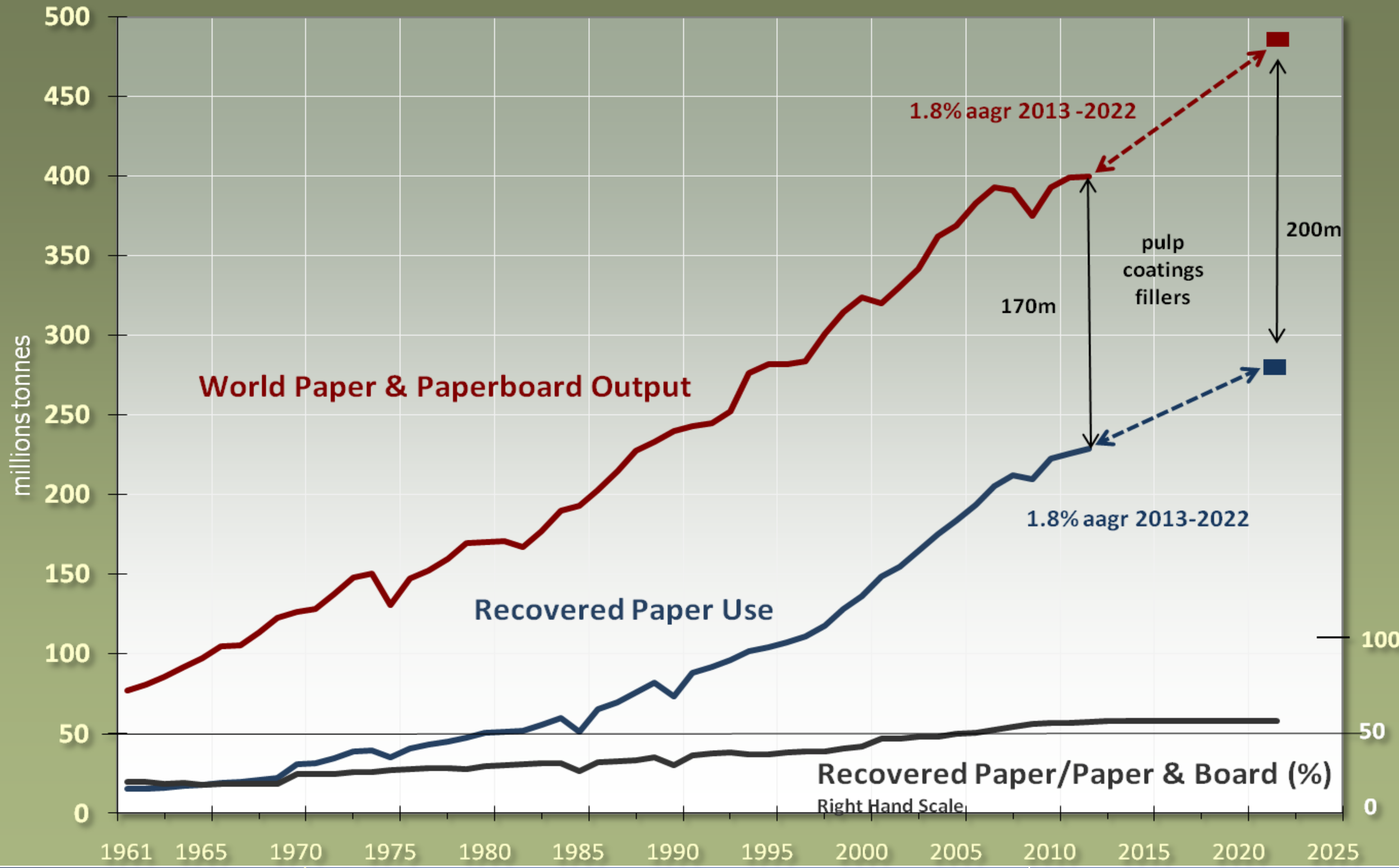


Growing Specialty Paper business is NBSK-centric



Peak Recovered Paper

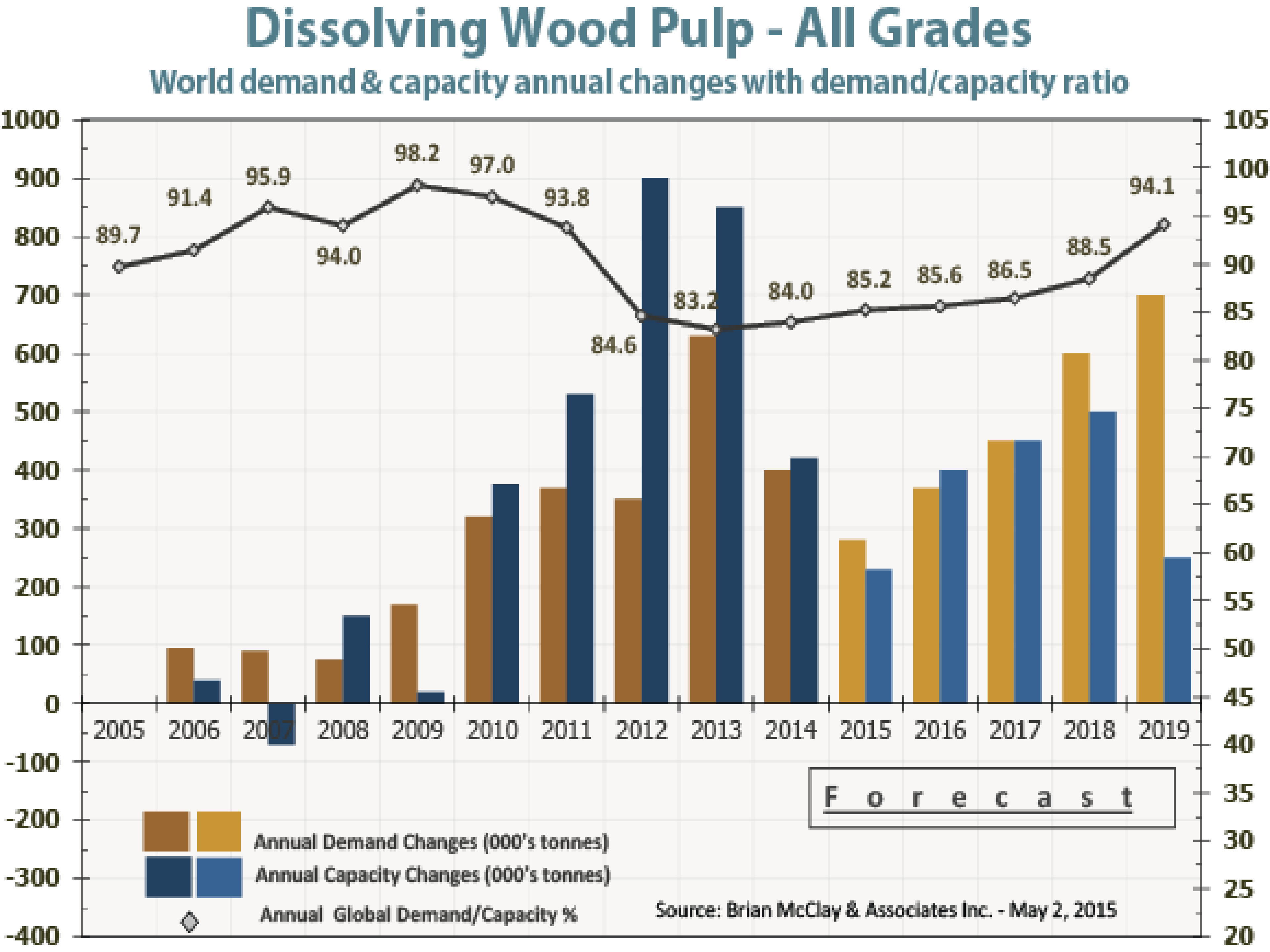
Supply growth slows, quality declines, costs rise – market pulp gains share



Source: FAO. PPI. Brian McClay & Associates

Good growth prospects for dissolving pulp (DP)

- China, India surging consumer classes
- Peak cotton
- Sustainability – land and water use, virtuous forest products loop
- World demand for textile fibres growing 3% per year
- Dissolving pulp based fibres 4% of total textiles, huge leverage
- If DP got all textile growth, would need 2.7 million tonnes/year
- DP demand growth rate at 6-8%/y, (RISI has 10%)
- 3.2 mmt of pulp converted to 2.5 mmt DP since 2011, 5% less, 40% more


Dissolving Wood Pulp - All Grades
World demand & capacity annual changes with demand/capacity ratio
1000
900
800
700
600
500
400
300
200
100
0
-100
-200
-300
-400
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
89.7
91.4
95.9
94.0
98.2
97.0
93.8
84.6
83.2
84.0
85.2
85.6
86.5
88.5
94.1
2005
2006
2007
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2011
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2013
2014
2015
2016
2017
2018
2019
F o r e c a s t
Annual Demand Changes (000's tonnes)
Annual Capacity Changes (000's tonnes)
Annual Global Demand/Capacity %
Source: Brian McClay & Associates Inc. - May 2, 2015


There's a great future in plastics.

Plastic pollution in the oceans consumed by corals

Posted Mar 2, 2015 by Tim Sandle

Scientists studying Australia's Great Barrier Reef have discovered that coral will eat microplastic pollution. Microplastics are the remains of plastic pollution discarded into the oceans.

As Digital Journal has previously reported, many parts of the world's oceans are replete with plastic junk – the waste products of modern life. Plastic is now the main form of ocean debris, causing serious concerns about its impact on the health of ocean communities.

Very young coral-

Corals are not especially fussy about what they consume, and they will

Plastic starting to choke the worlds oceans

9 million tonnes of plastic into world's oceans every year

Dr. Mark Anthony Brown: *Current Biology* Volume 23, Issue 23

85% of ocean solid waste pollution is micro-plastics – ocean smog

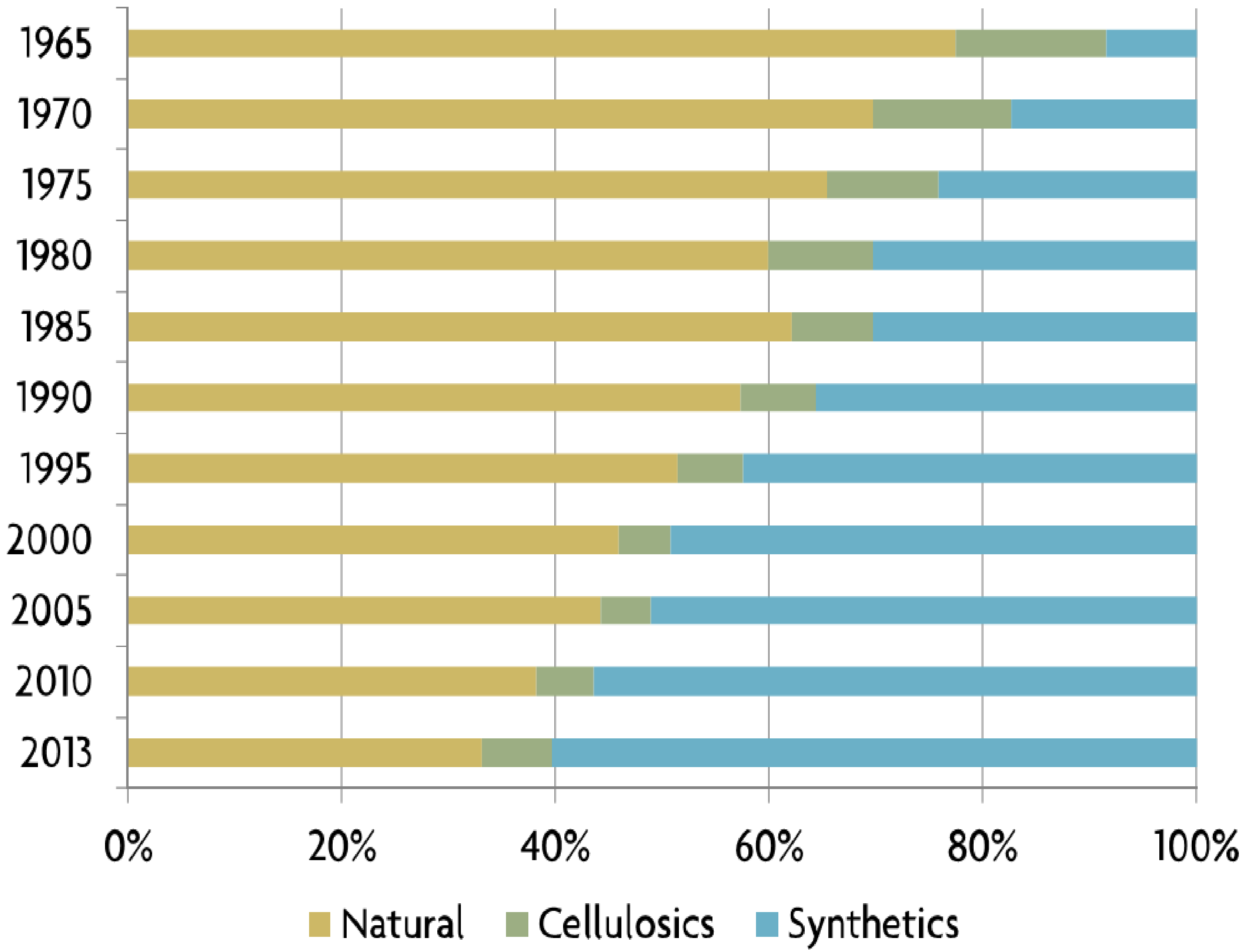
Linked to polyester textile fibres – non-biodegradable, toxic

1900 micro-fibrils released each washing of polyester garment

No effective way to screen, must stop at source

Illinois and New Jersey ban products with micro-plastic beads

Market Share of Major Fiber Types



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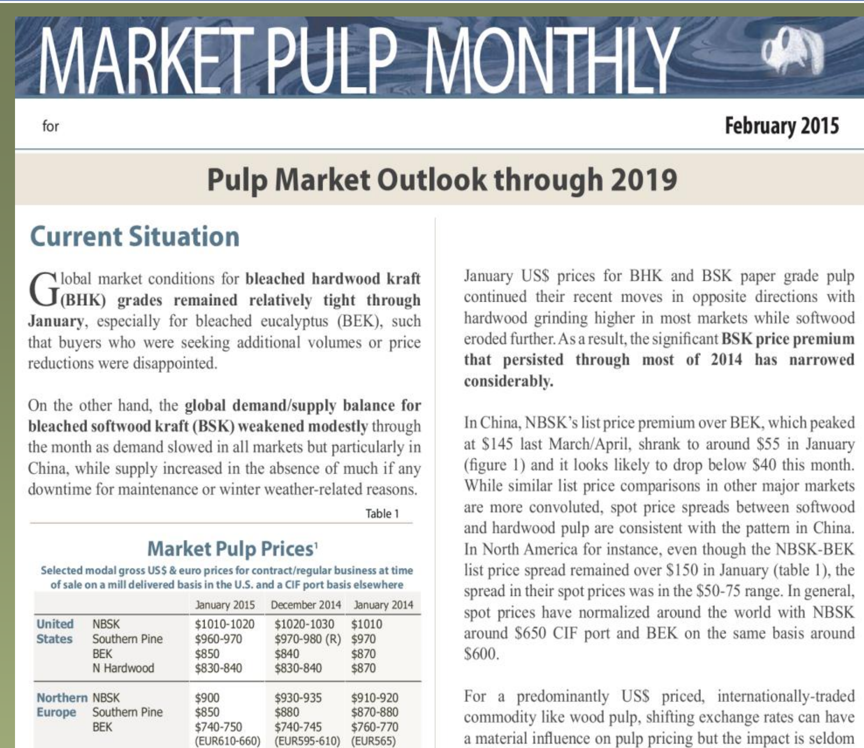
P.I.G
Pulp Info Global



MARKET PULP MONTHLY

for February 2015

Pulp Market Outlook through 2019

Current Situation

Global market conditions for **bleached hardwood kraft (BHK) grades remained relatively tight through January**, especially for bleached eucalyptus (BEK), such that buyers who were seeking additional volumes or price reductions were disappointed.

On the other hand, the **global demand/supply balance for bleached softwood kraft (BSK) weakened modestly** through the month as demand slowed in all markets but particularly in China, while supply increased in the absence of much if any downtime for maintenance or winter weather-related reasons.

Table 1

Market Pulp Prices[1]

Selected modal gross US$ & euro prices for contract/regular business at time of sale on a mill delivered basis in the U.S. and a CIF port basis elsewhere

		January 2015	December 2014	January 2014
United States	NBSK	$1010-1020	$1020-1030	$1010
	Southern Pine	$960-970	$970-980 (R)	$970
	BEK	$850	$840	$870
	N Hardwood	$830-840	$830-840	$870
Northern Europe	NBSK	$900	$930-935	$910-920
	Southern Pine	$850	$880	$870-880
	BEK	$740-750 (EUR610-660)	$740-745 (EUR595-610)	$760-770 (EUR565)

January US$ prices for BHK and BSK paper grade pulp continued their recent moves in opposite directions with hardwood grinding higher in most markets while softwood eroded further. As a result, the significant **BSK price premium that persisted through most of 2014 has narrowed considerably.**

In China, NBSK's list price premium over BEK, which peaked at $145 last March/April, shrank to around $55 in January (figure 1) and it looks likely to drop below $40 this month. While similar list price comparisons in other major markets are more convoluted, spot price spreads between softwood and hardwood pulp are consistent with the pattern in China. In North America for instance, even though the NBSK-BEK list price spread remained over $150 in January (table 1), the spread in their spot prices was in the $50-75 range. In general, spot prices have normalized around the world with NBSK around $650 CIF port and BEK on the same basis around $600.

For a predominantly US$ priced, internationally-traded commodity like wood pulp, shifting exchange rates can have a material influence on pulp pricing but the impact is seldom

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