Trends and Developments in the Chinese Pulp and Paper Industry

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Agenda

Paper and paperboard consumption	**Will the growth continue?**
Production and capacity additions	**Where will the production be located and who will operate it?**
Future fibre supply	**Is there enough fibre? Where will it come from?**

Global Consulting and Engineering Group

- Client- and technology-oriented globally operating consulting and engineering firm
- Core operations based on three know-how clusters:
    1. forest industry
    2. energy, and
    3. infrastructure & environment
- Global market leader in forest industry
- Strong international position

Paper and paperboard consumption

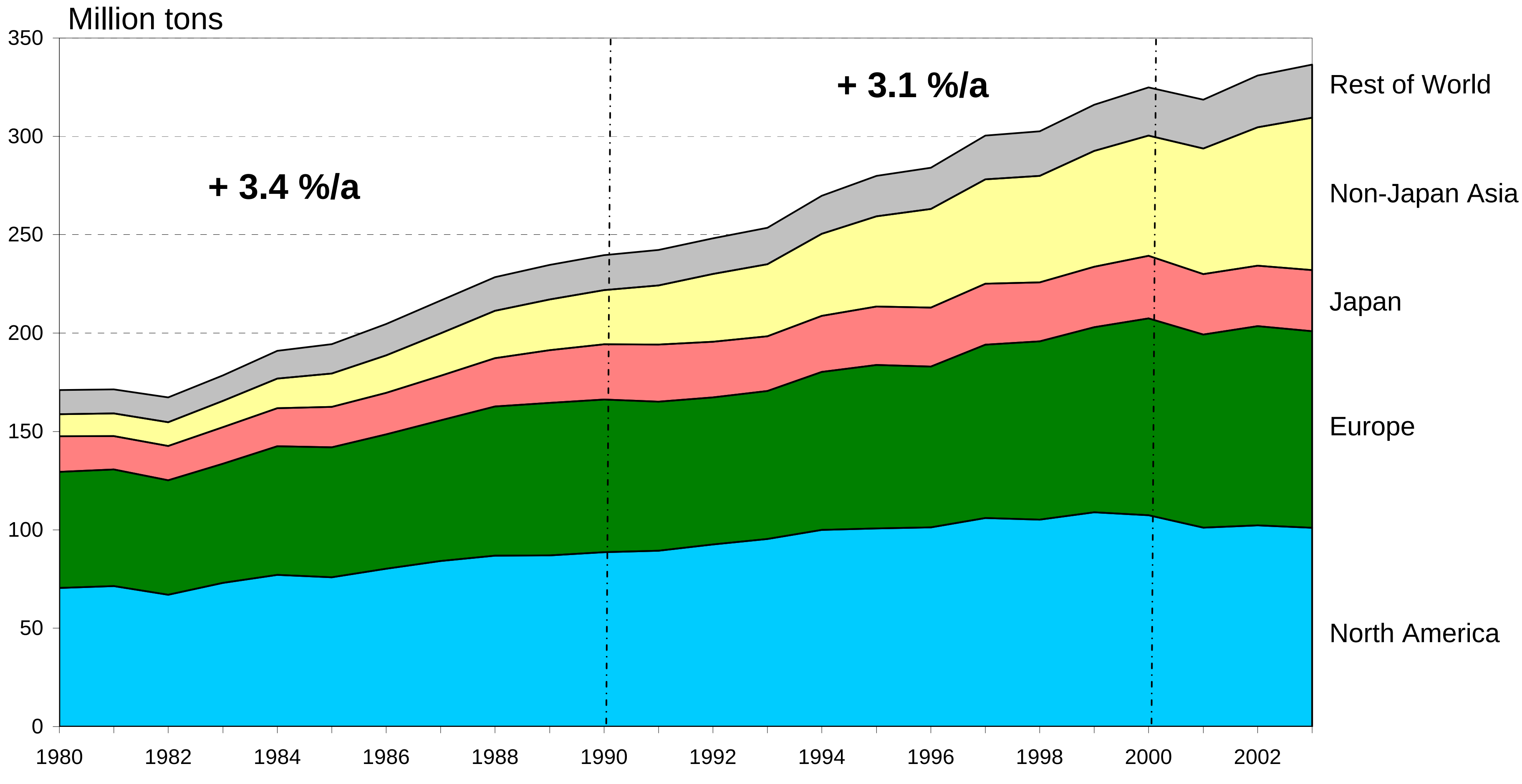
Will the growth continue?

Production and capacity additions

Future fibre supply

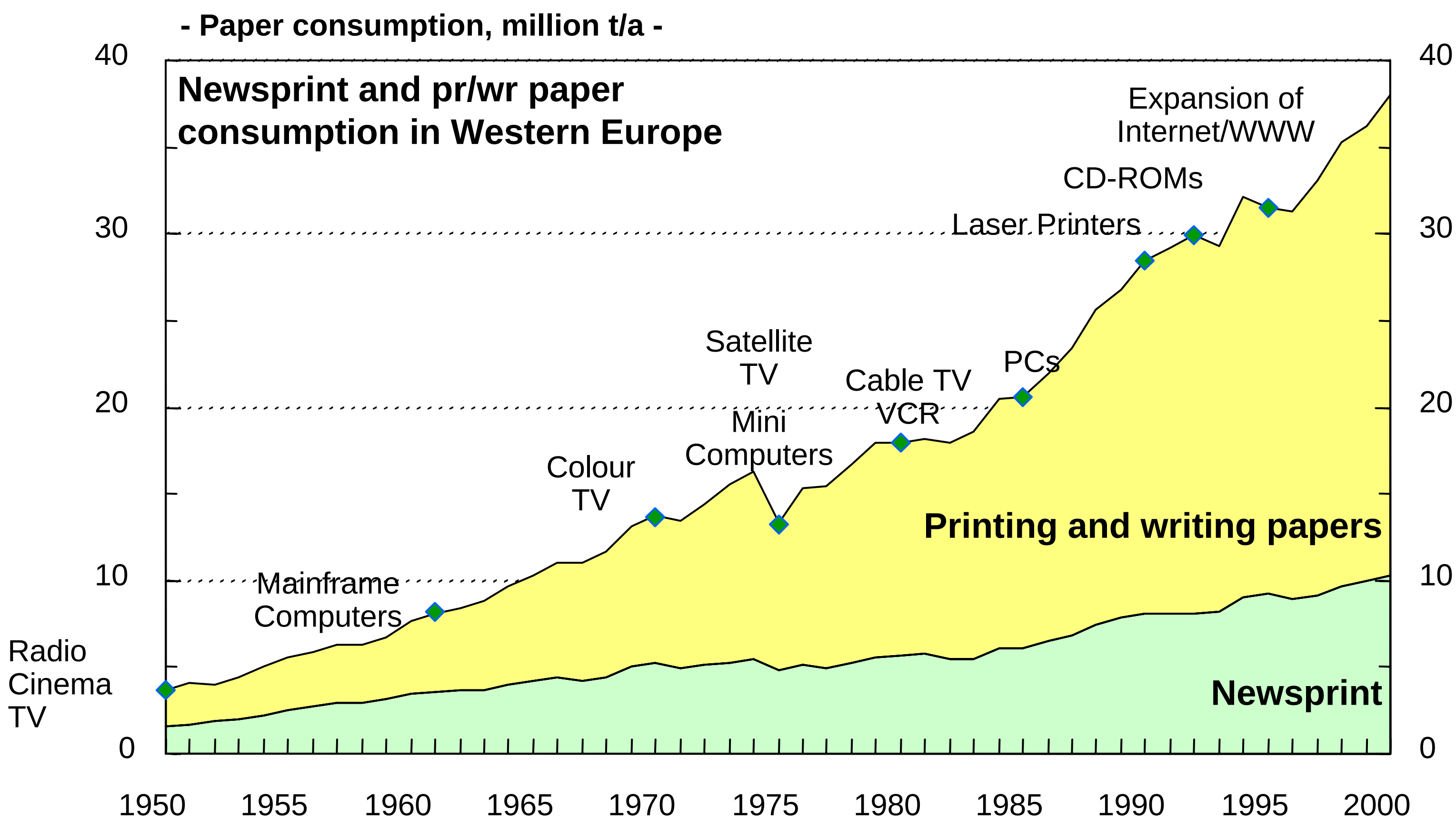
Global Paper and Board Consumption

Over the past 23 years, global paper and paperboard consumption has grown 3.0% a year or a total of 165 million tons.



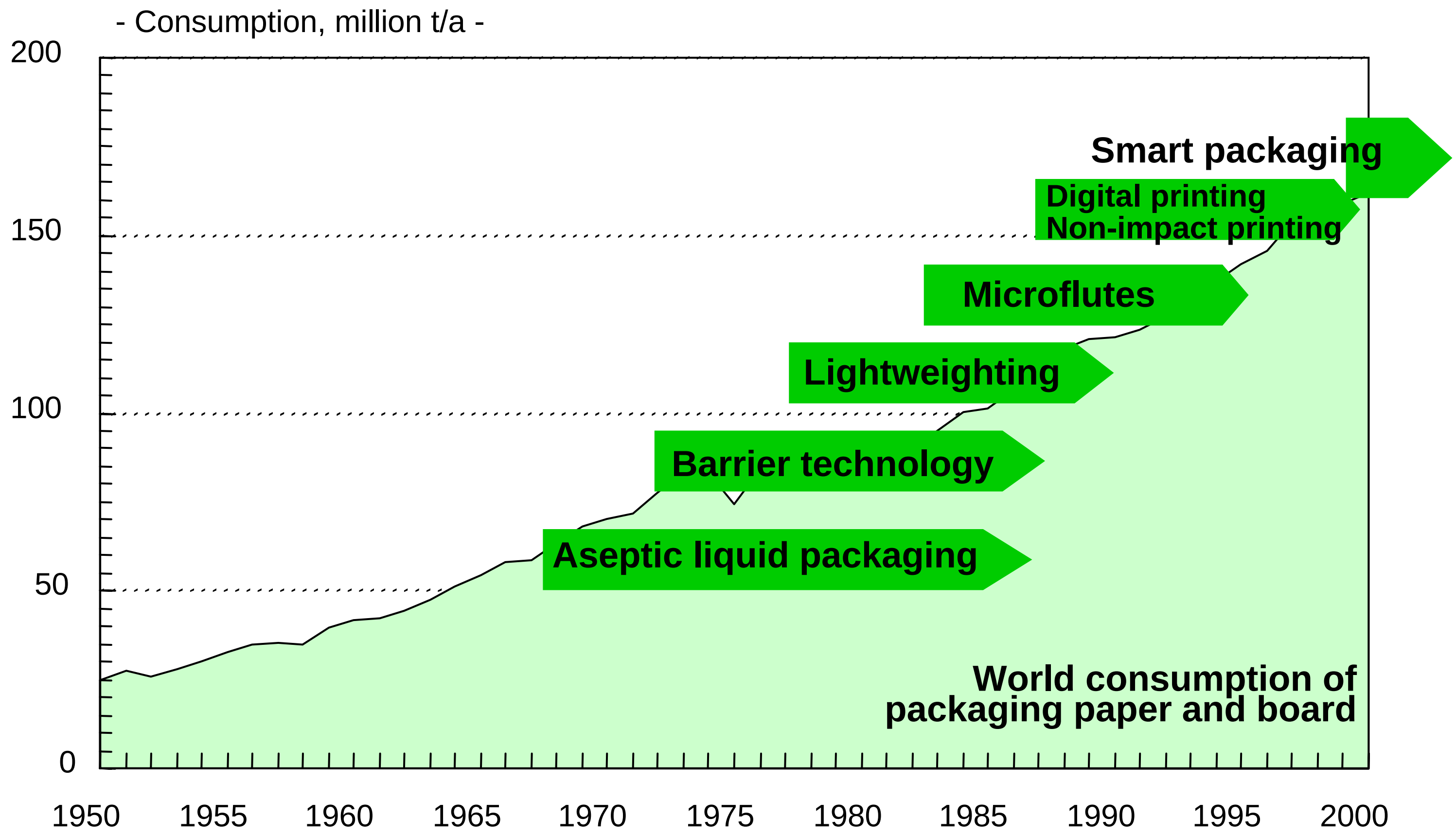
Co-existence of Media

Historically, electronic media has not threatened the growth of paper based communication – in many cases the paper industry has benefited from it.



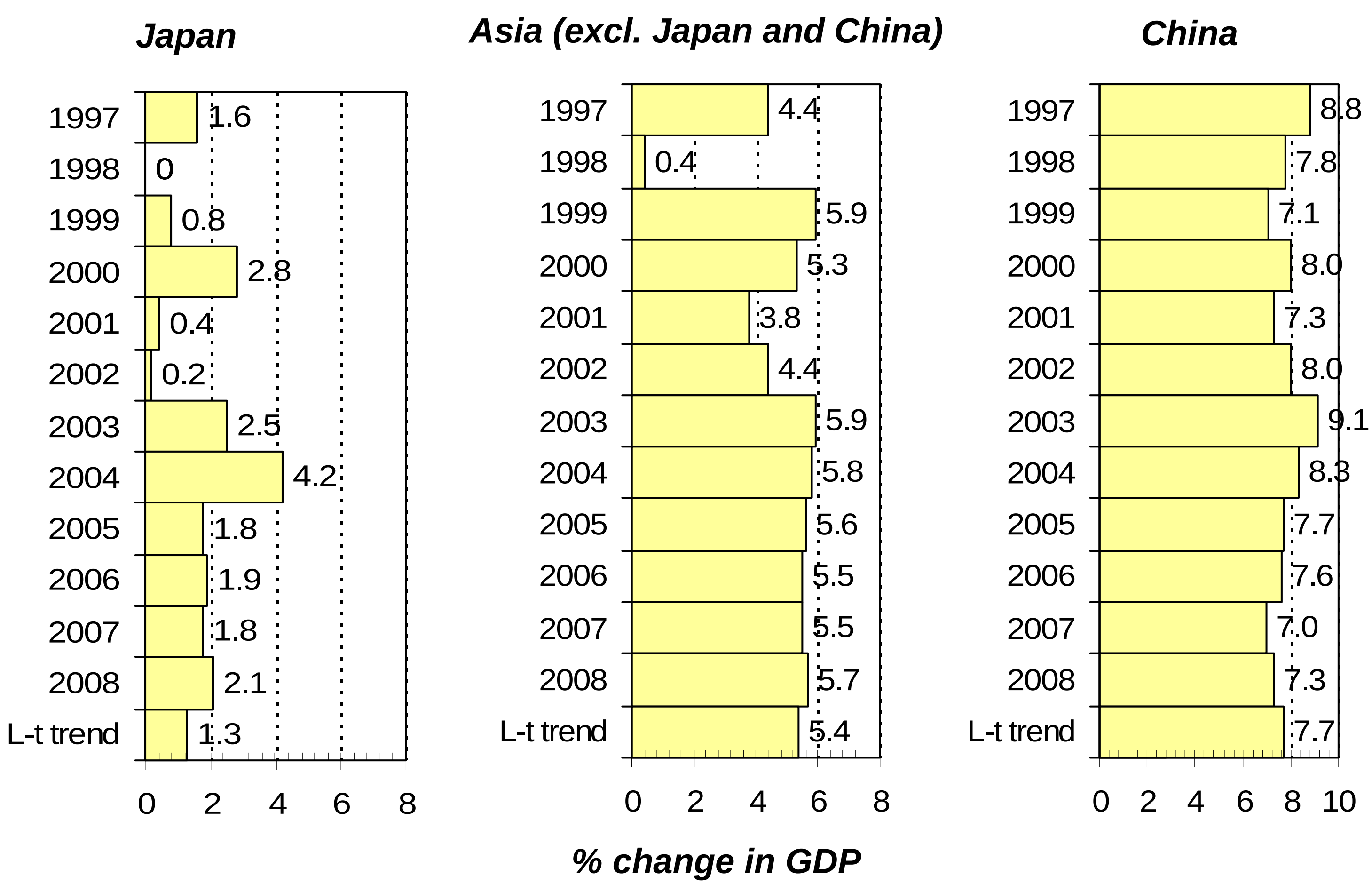
Innovations and Paper-based Packaging

Paper remains a very competitive packaging material. New innovations and applications help maintain its position against other materials and systems.



GDP Growth by Region

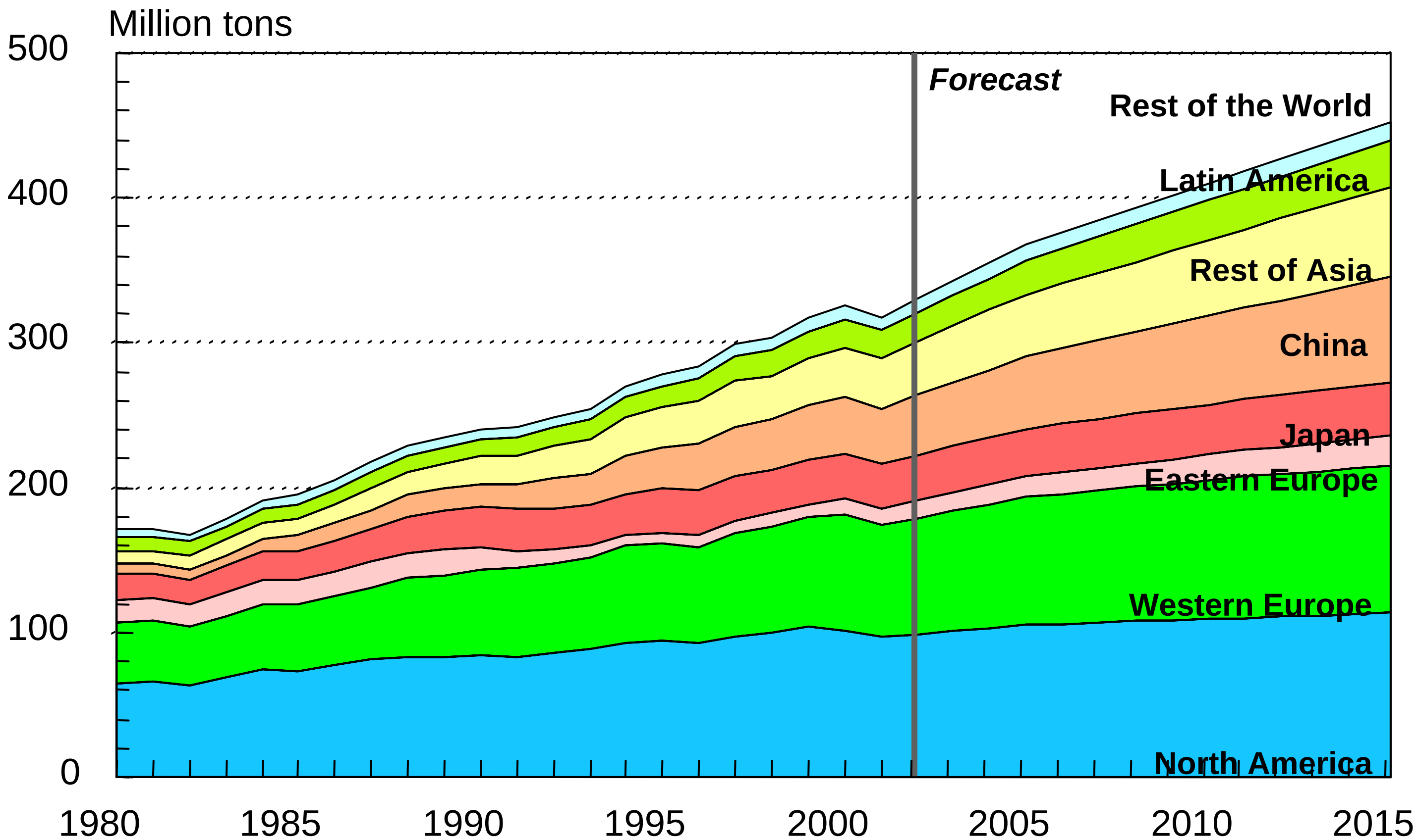
…and the rapid economic growth in Asia will underpin the growth in paper consumption.



Source: Consensus Forecasts and OECD

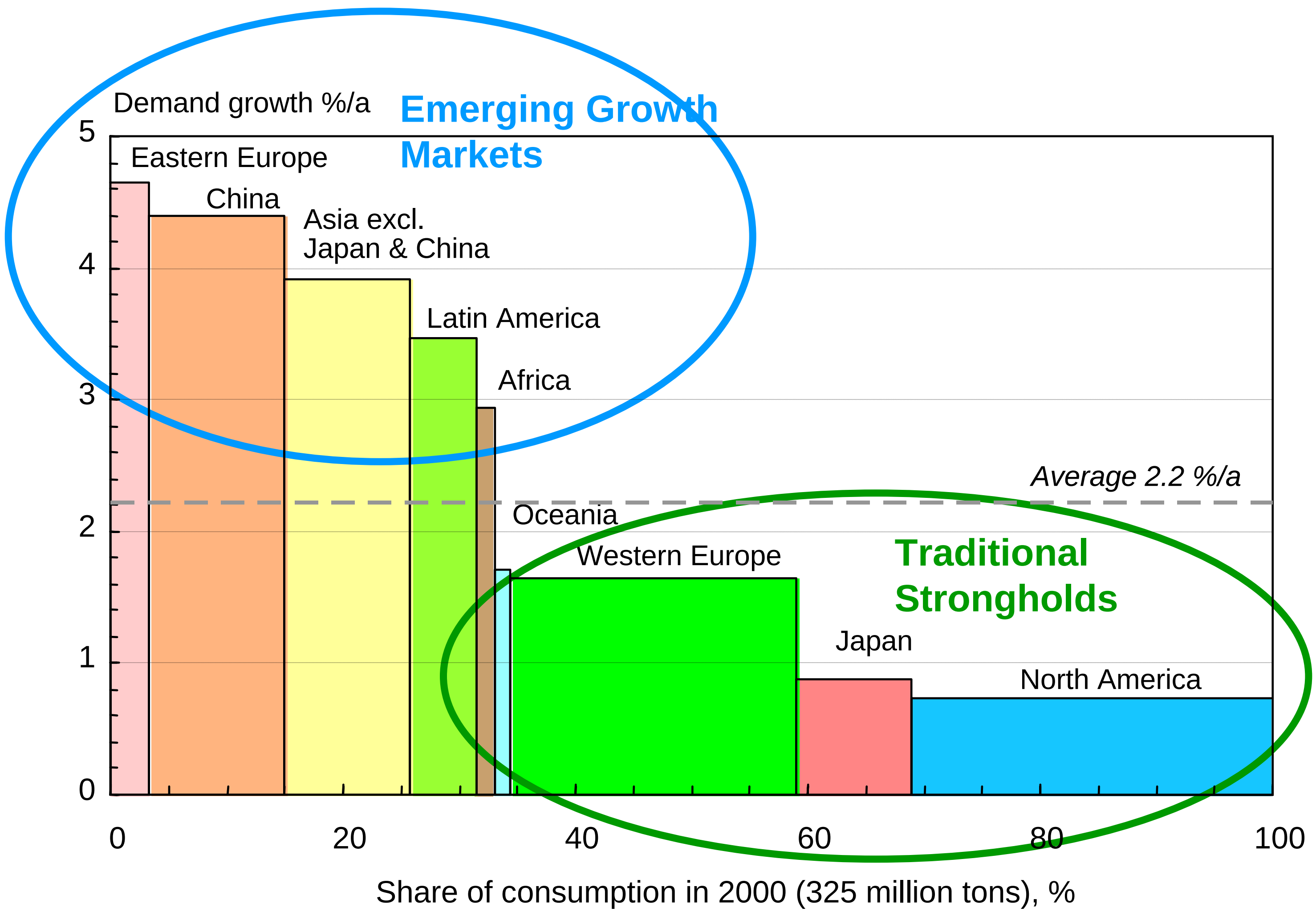
World Demand for Paper and Paperboard

World demand for paper and paperboard continues to grow. With an average growth rate of 2.2 percents a year, it will reach 450 million tons by the year 2015.



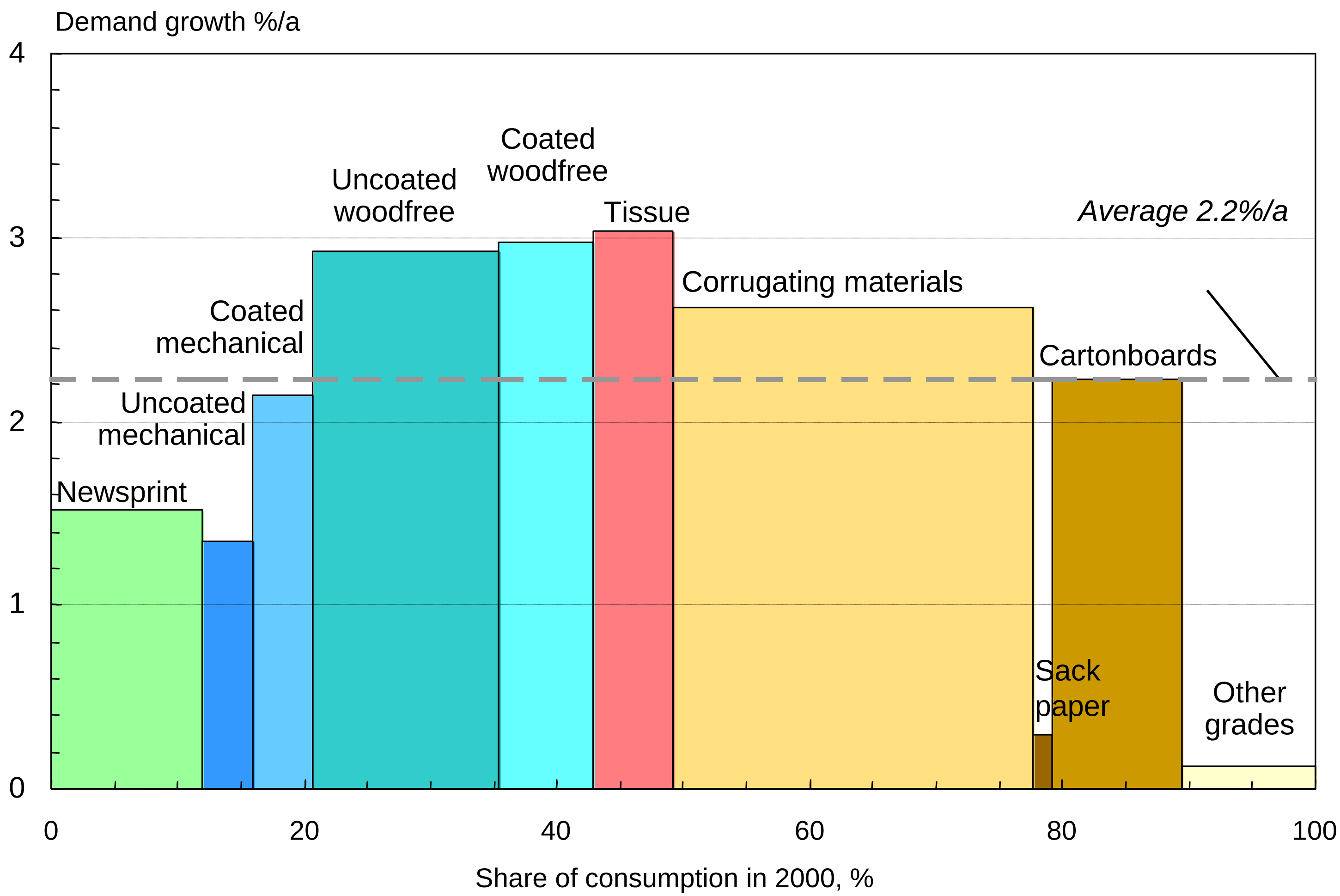
Growth of Paper and Paperboard Demand

Most of the growth will take place in more volatile emerging markets.



Growth of Paper and Paperboard Demand

Woodfree papers and tissue show highest growth rates, packaging boards account for substantial volume growth.



Paper and paperboard consumption

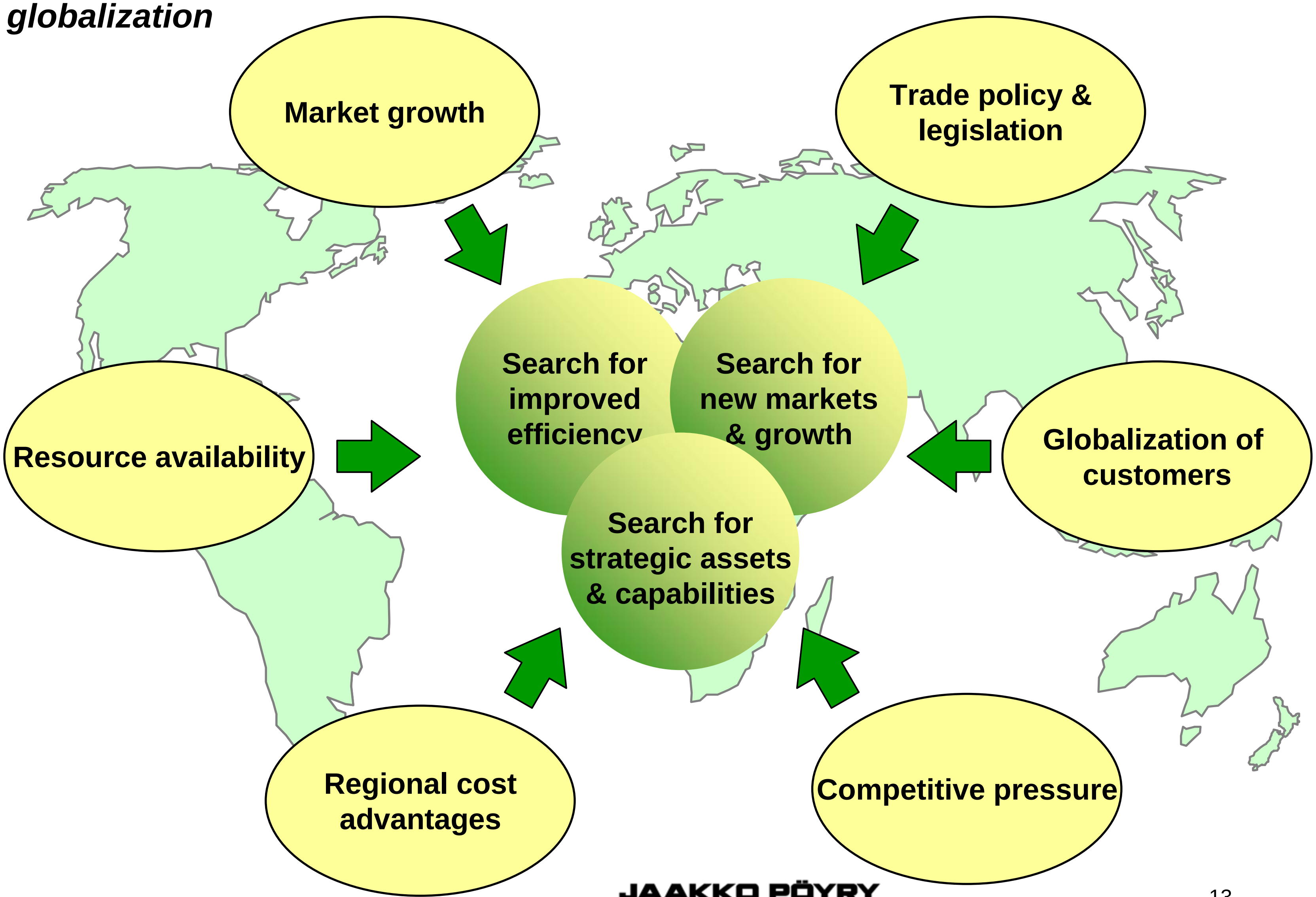
Production and capacity additions

Future fibre supply

Where will the production be located and who will operate it?

Consolidation and Globalization

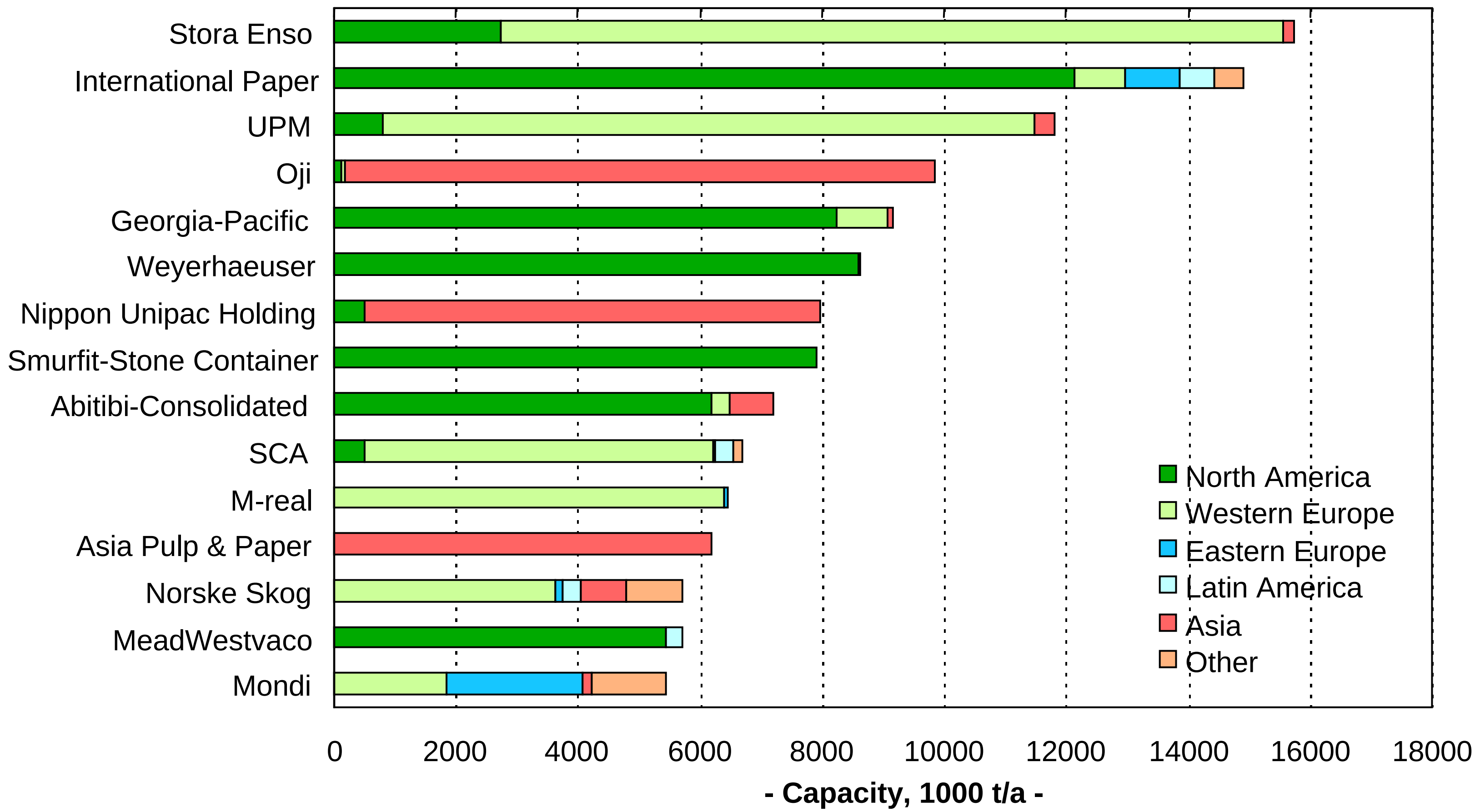
Search for markets, assets and competitive advantage drive consolidation and globalization



Leading Global Paper and Paperboard Producers

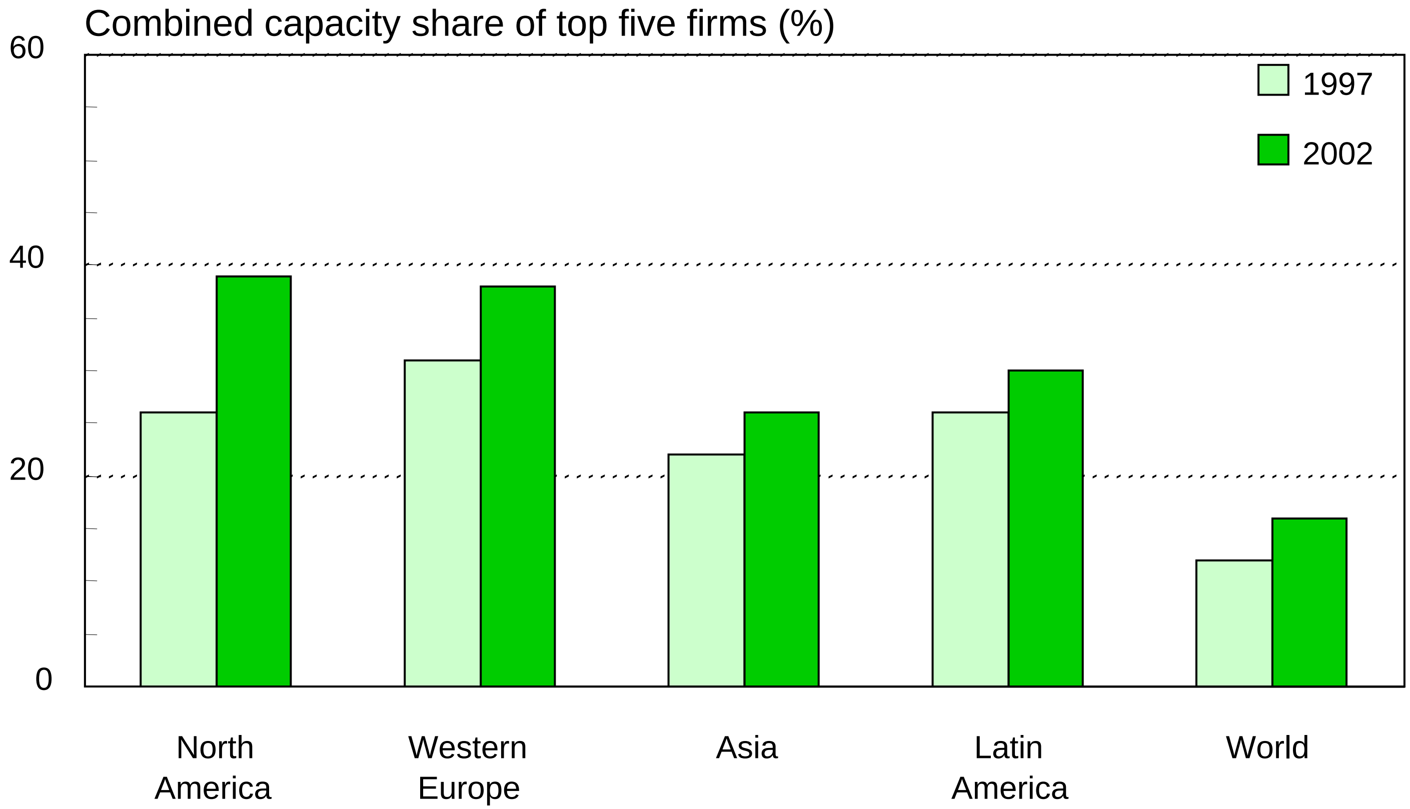
Truly global companies are yet to emerge but many companies have by now established Asian presence.

Regional Capacity Distribution, 2004/IIQ



Paper Industry Concentration 1997 vs. 2002

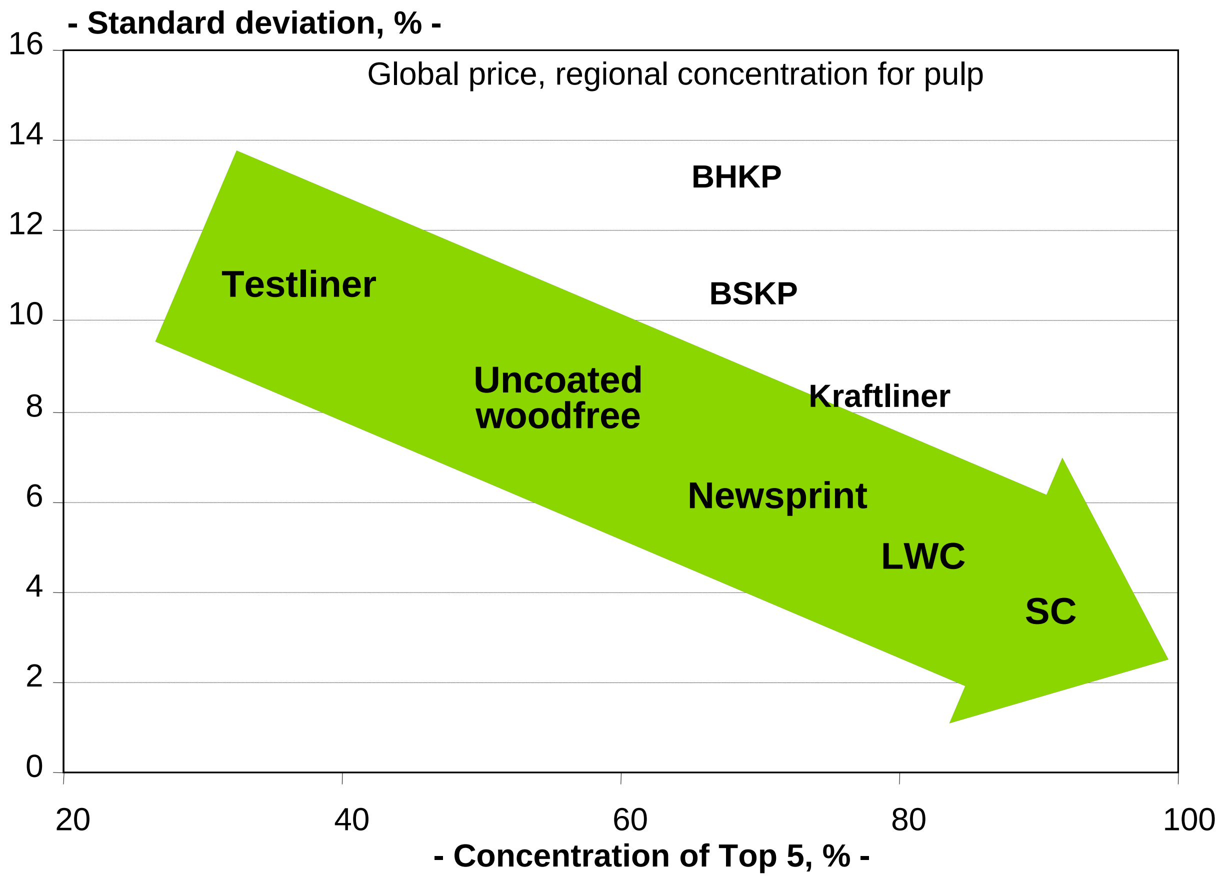
The pulp and paper industry is still relatively fragmented with top five firms controlling only 20-40% of regional capacity.



Industry-level Benefits of Consolidation

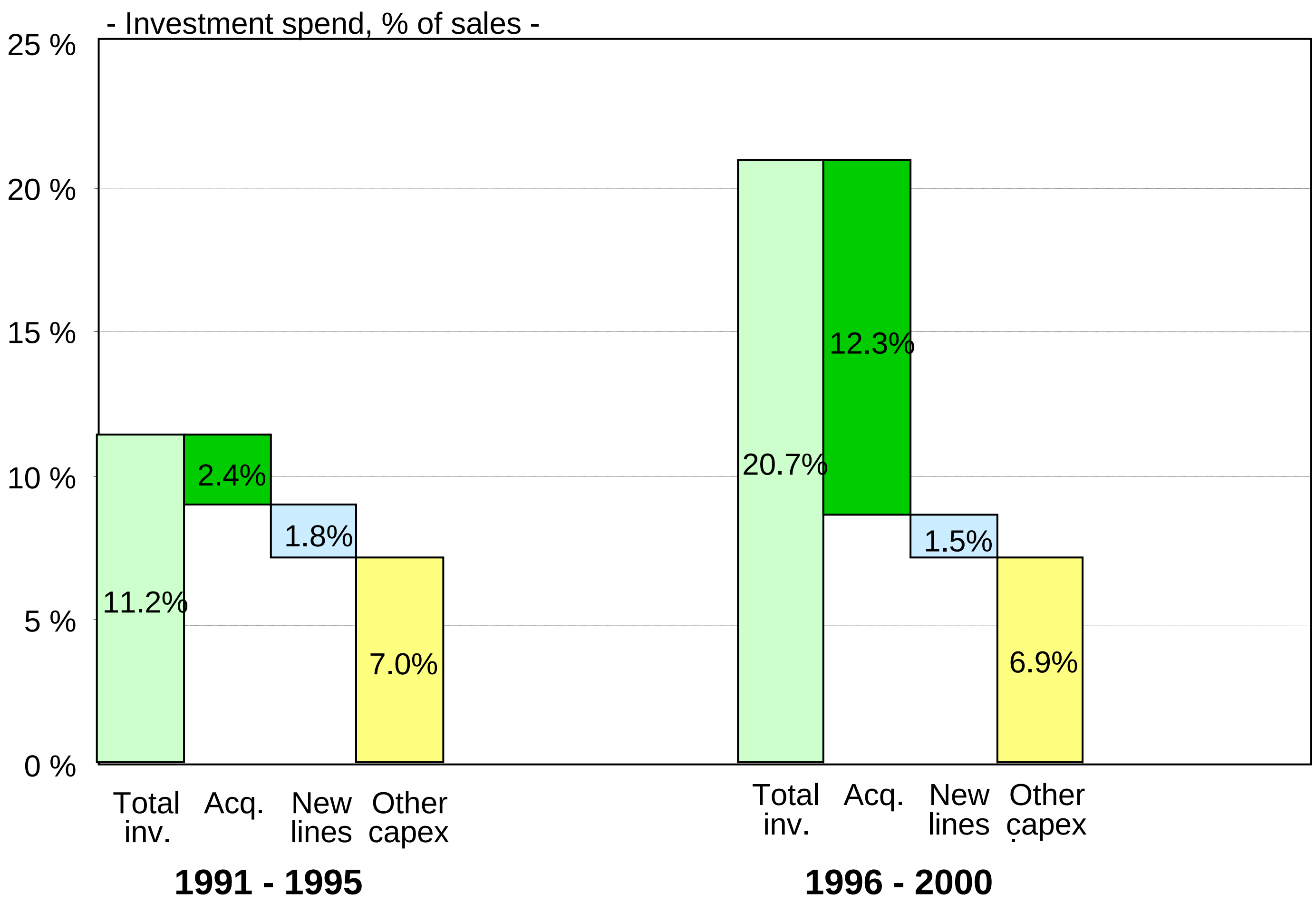
Consolidation helps to bring price stability.

Price volatility vs. industry concentration



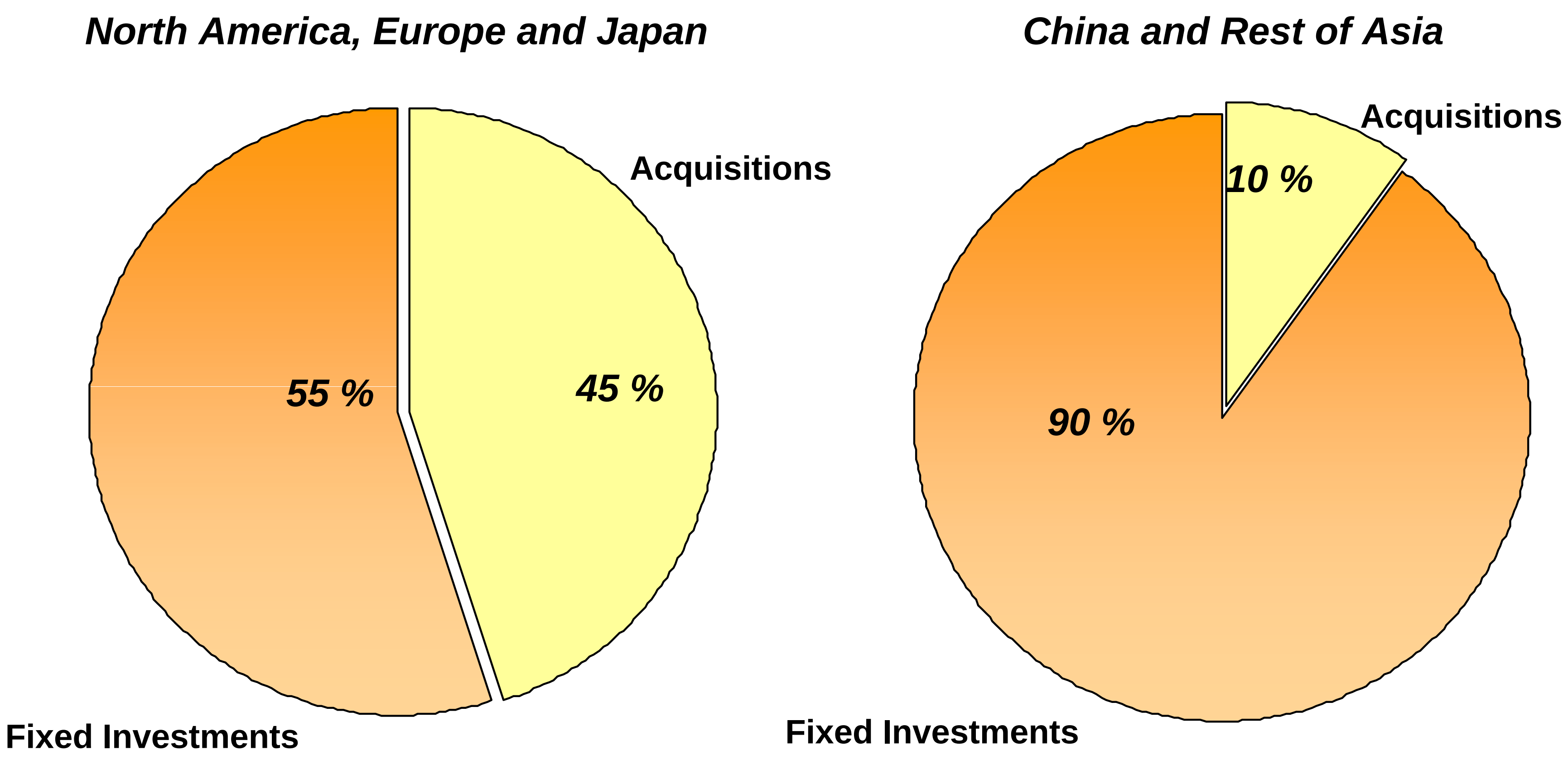
Changes in Investment Conduct

The past 10 years has been a decade of acquisitions.



Acquisition and Investment Activity

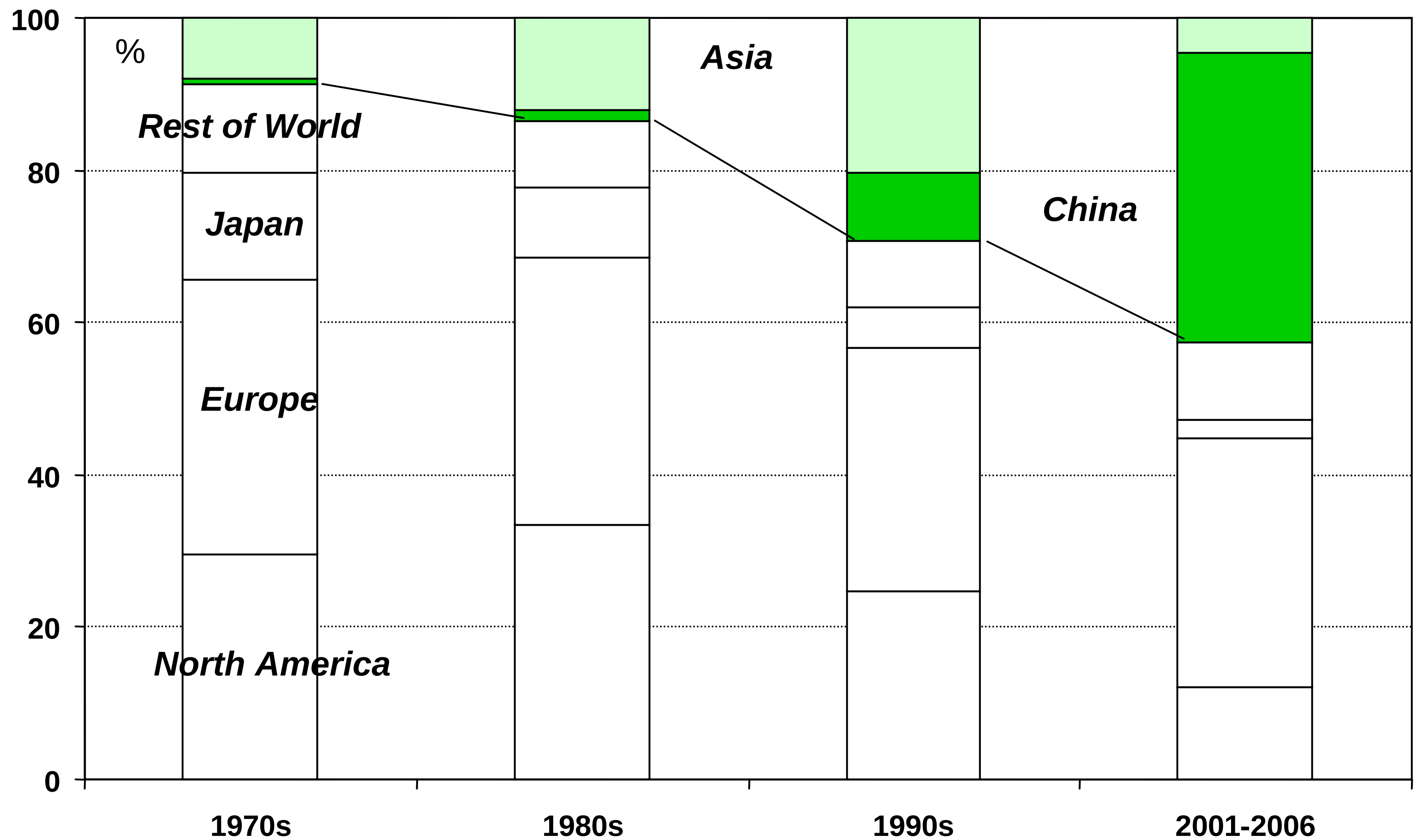
Consolidation has mainly taken place in developed, slow growing, mature markets. Asian companies are still growing through new investments.



Source: JP Research

Global Capacity Growth

Non-Japan Asia's share of global capacity investments has grown significantly



Source: JP Research

Capacity Expansion Projects in China

Over the next five years, China will lead the world in capacity growth.

Company	**Capacity 1000 t/a**	**Grade**	**Location**	**Time**
APP Ningxing Zhonghua	700	Duplex board	Zhejiang	2004
APP Hainan Jinhai Pulp	1000	Bl hardwood pulp	Hainan	2005
APP Gold East Paper	700	Coated woodfree	Jiangsu	2005/2006
APRIL	400	Uncoated woodfree	Guangdong	2006/2007
APRIL	1000	Bl hardwood pulp	Shandong	n.a.
Daewoo Paper	300	Coated woodfree	Heilongjiang	2006
Dongguang Jia Hui (Sun)	300	Duplex board	Guangdong	June 2004
Dongguang Jia Hui (Sun)	300	Duplex board	Guangdong	August 2005
Foshan Huafeng	300	Duplex board	Guangdong	2005
Hebei Pan Asia Long-Teng	330	Newsprint	Hebei	2005
Jiangxi Chenming Paper	400	LWC	Jiangxi	2004
Lee & Man Paper Mfg.	250	Unbl testliner	Jiangsu	2004
Lee & Man Paper Mfg.	350	Recycled medium	Jiangsu	September 2004
Lee & Man Paper Mfg.	400	Testliner/medium	Guangdong	2005
Nine Dragons	250	Recycled medium	Guangdong	August 2004
Nine Dragons	250	Recycled medium	Guangdong	August 2004
Nine Dragons	300	Unbl testliner	Guangdong	2005
Ningxia Meili Paper Industry	300	Folding boxboard/duplex	Ningxia	2005
Oji Paper	400	Coated woodfree	Jiangsu	2006
Shandong Cheming	400	Folding boxboard	Shandong	2005
Shandong Cheming Qihe	300	Recycled medium	Shandong	n.a.
Shandong Huatai	450	Newsprint/LWC	Shandong	2005
Shandong Jin Feng Yuan	450	Duplex board	Shanghai/Fengxian	n.a.
Shanghai Zhonglong Paper	300	Testliner/medium	Shanghai/Pudong	2004
StoraEnso Suzhou Paper	450	Coated woodfree	Jiangsu	n.a.
UPM-Kymmene	450	Uncoated woodfree	Jiangsu	2005
Wuhan Chenming	300	Cartonboard	Hubei	n.a.
Wuxi Long Chen Paper	400	Testliner/medium	Jiangsu	2007
Yuen Foong Yu Paper	500	Testliner/medium	Jiangsu	2006
Yuen Foong Yu Paper	500	Testliner/medium	n.a.	n.a.
Yueyang Paper	300	Folding boxboard	Hunan	n.a.
Zhanjiang Wood Pulp Mill	700	Bl hardwood pulp	Guangdong	n.a.
TOTAL ABOVE	**13730**			

Paper and paperboard consumption

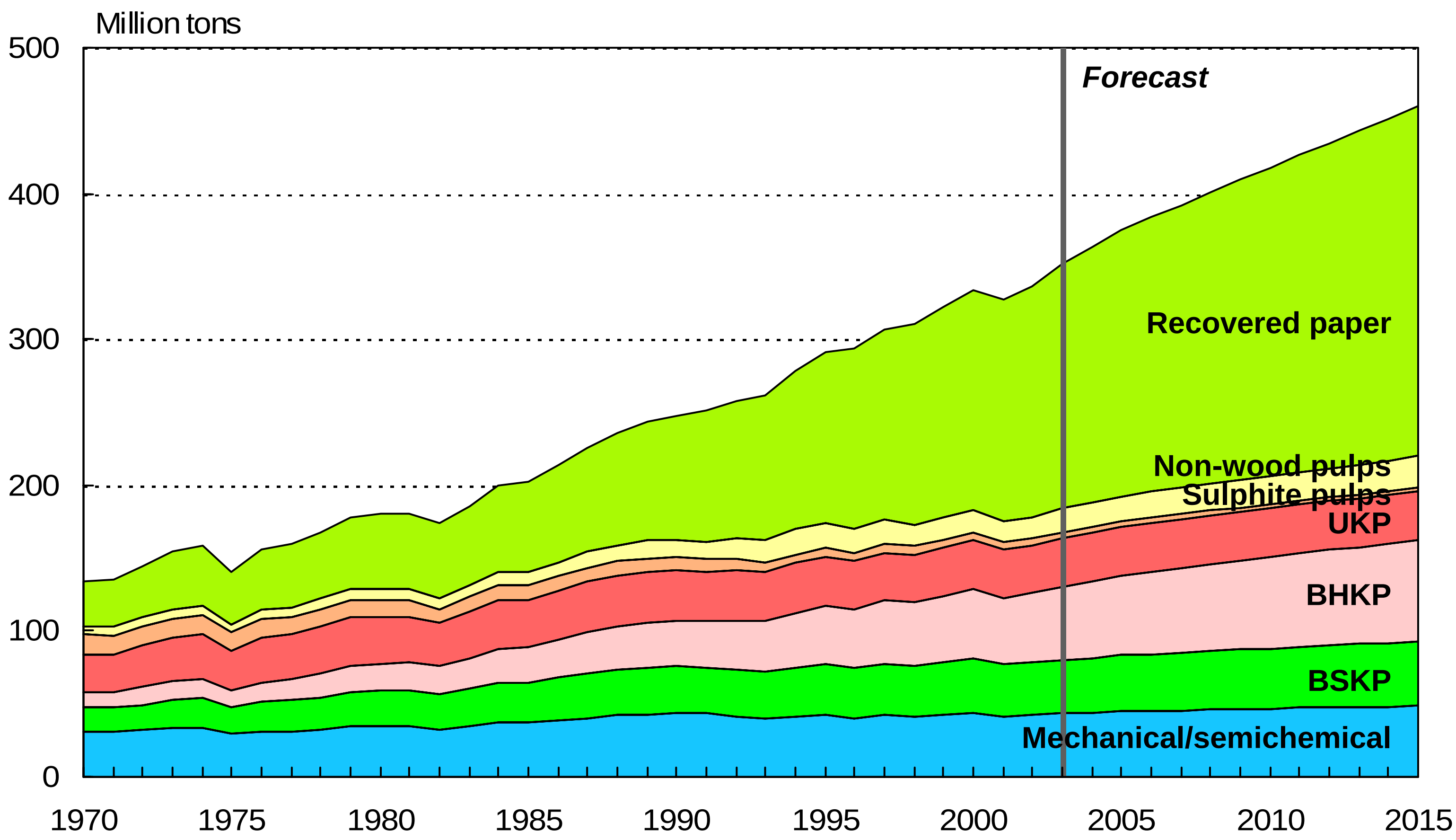
Production and capacity additions

Future fibre supply

Is there enough fibre?
Where will it come from?

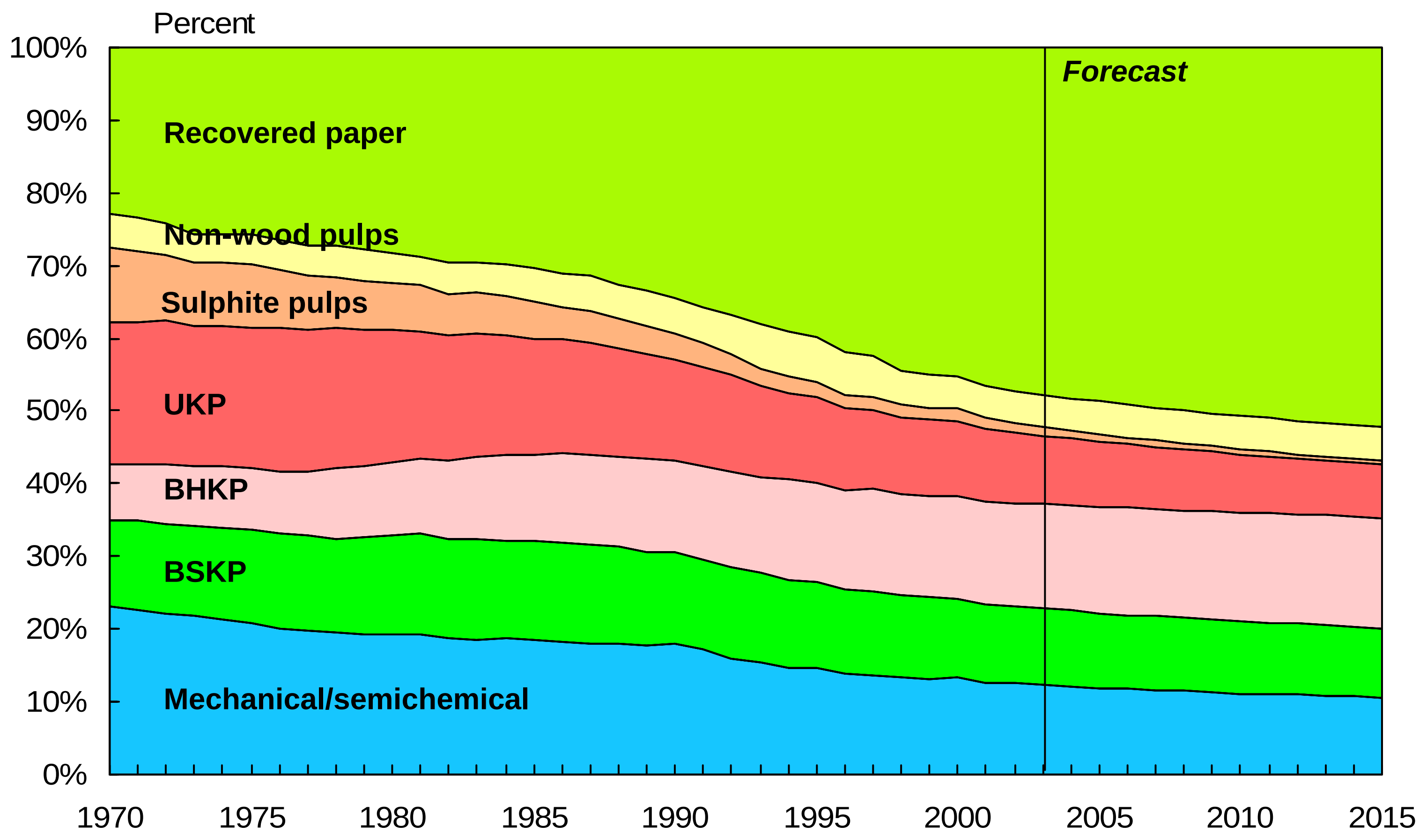
Global Consumption of Papermaking Fibre

World consumption of papermaking fibre is forecast to grow from 350 million tons in 2003 to 460 million tons by the year 2015, or 2.3%/a on average.



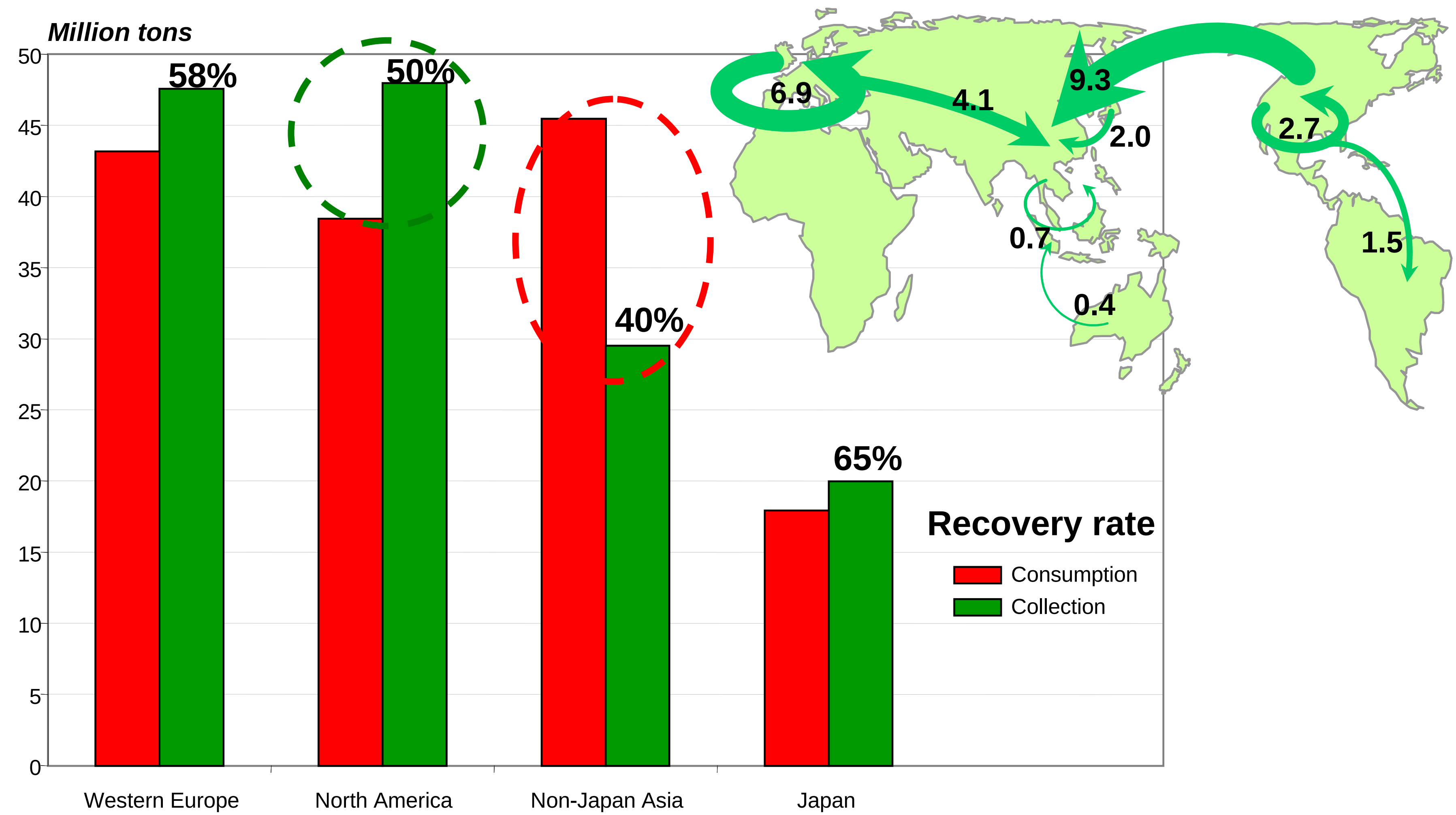
Average Papermaking Fibre Furnish in the World

Wood pulp is still the most important papermaking raw material, but recovered paper continuously increases its share of the total – today about 48% of the total



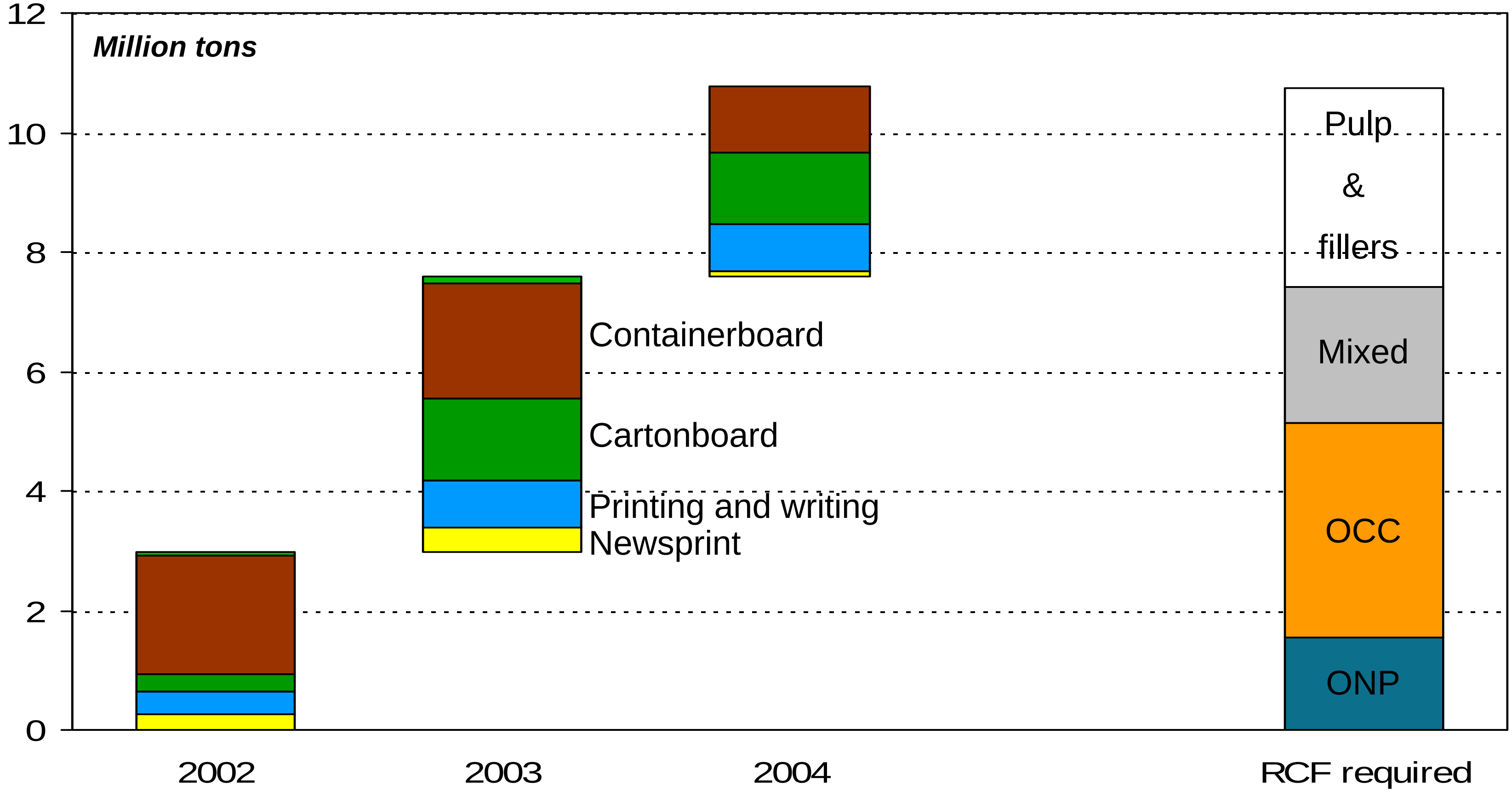
Recovered Paper Collection and Consumption – 2003

North America is the great provider of recovered paper for Asia.



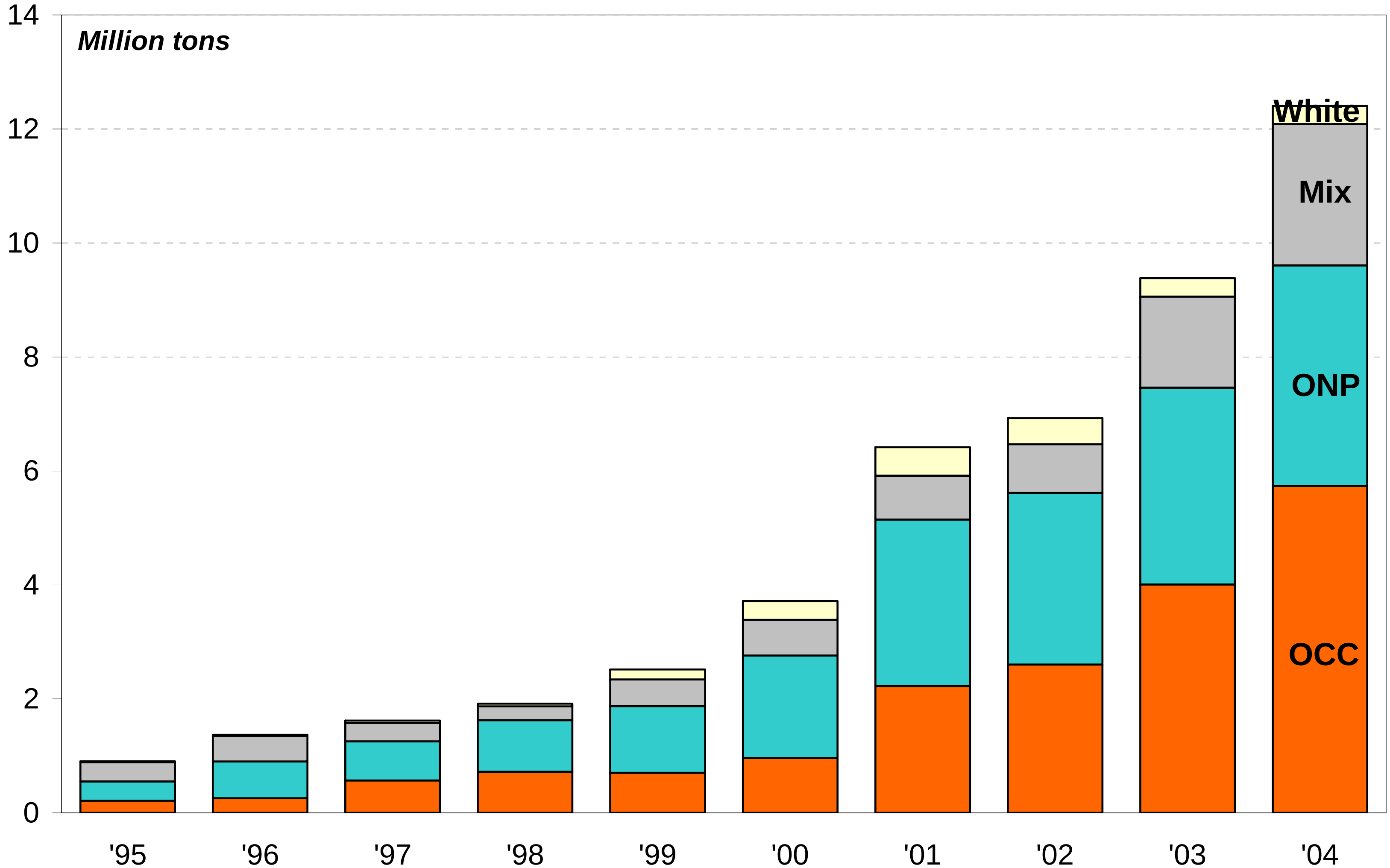
New Capacity in China

11 million tons of new papermaking capacity came on stream in China during the past three years. To keep these machines running requires nearly 8 million tons of recycled fibre as well as virgin wood pulp.



Recovered Paper Imports into Mainland China

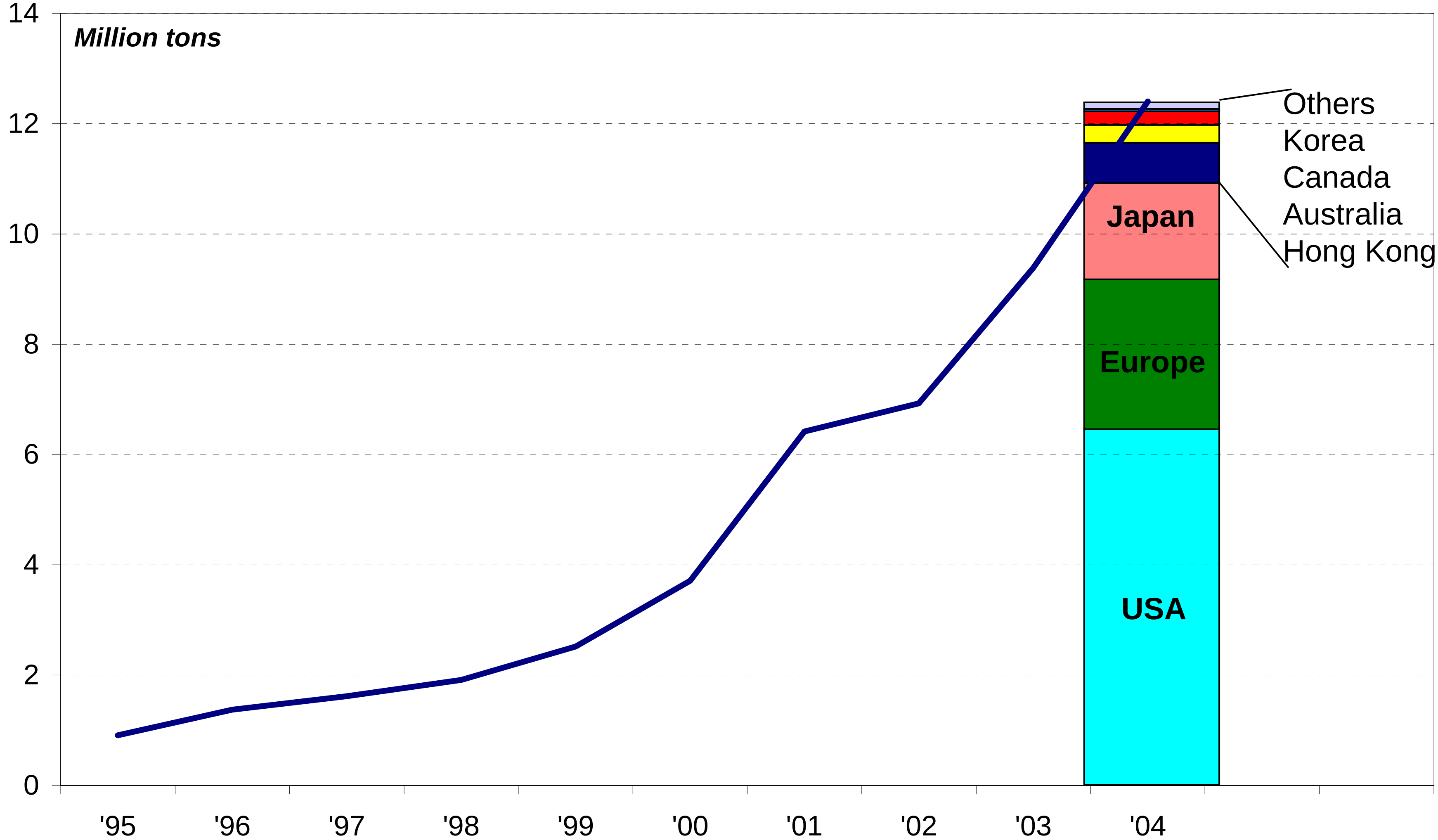
Large part of the increase in consumption has come from imports.



Note: 2004 estimated based on Jan-Jul statistics

Recovered Paper Imports into Mainland China

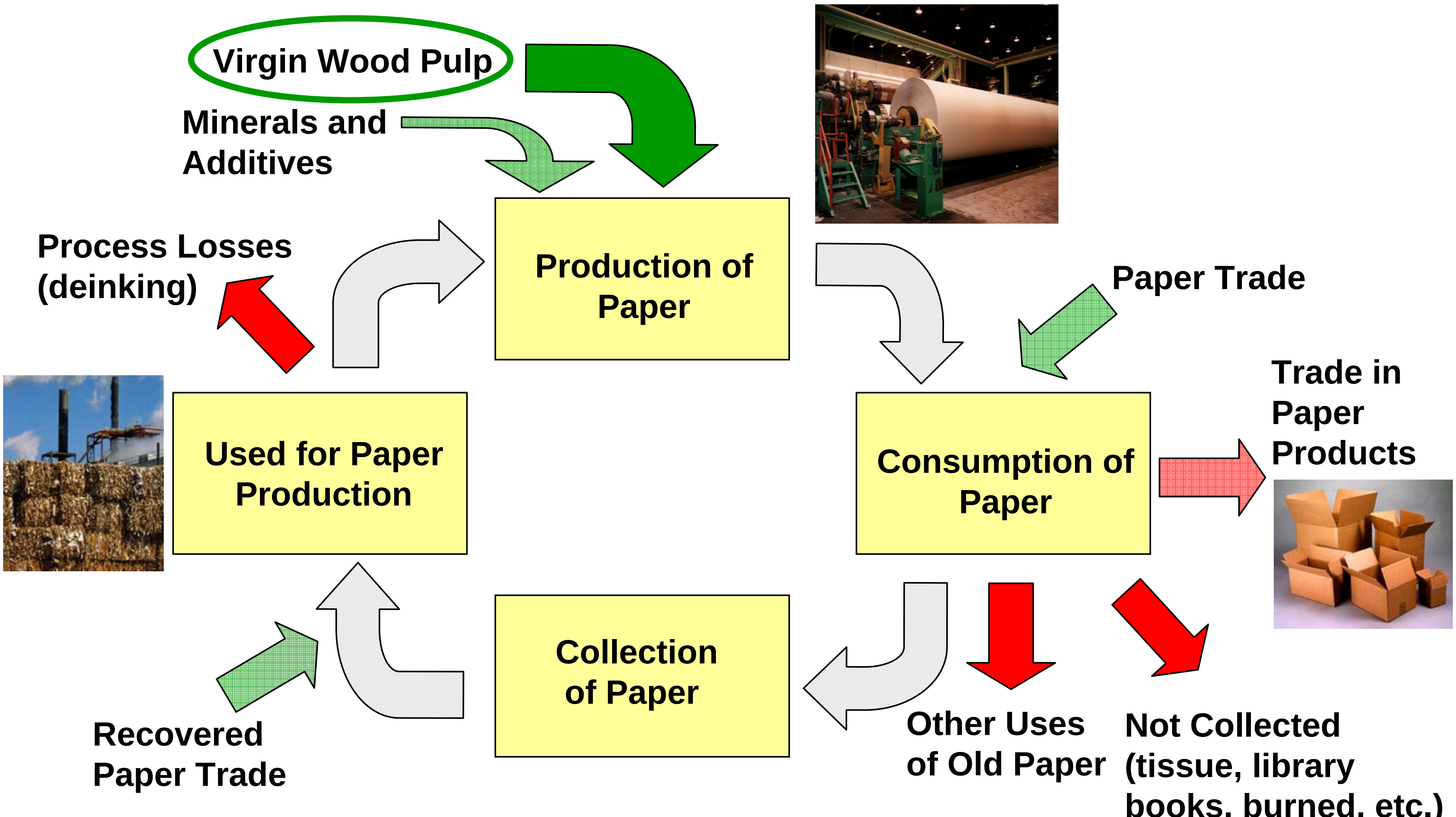
USA, Europe and Japan are the largest import sources, but they have just about reached their limits. Other countries cannot export more, either.



Note: 2004 estimated based on Jan-Jul statistics

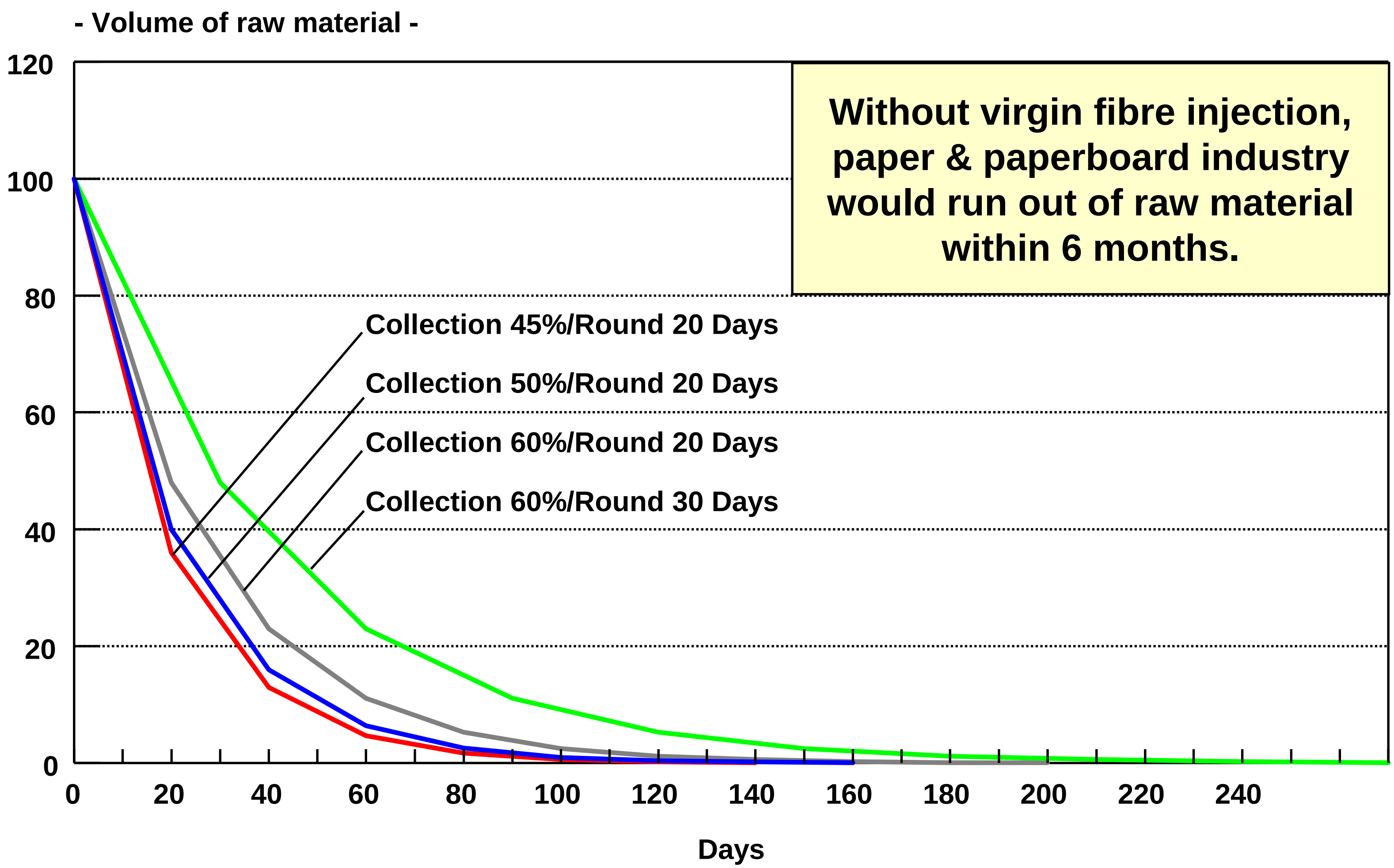
Paper Recycling Water Wheel

Continuous additions of fibre are needed to offset losses.



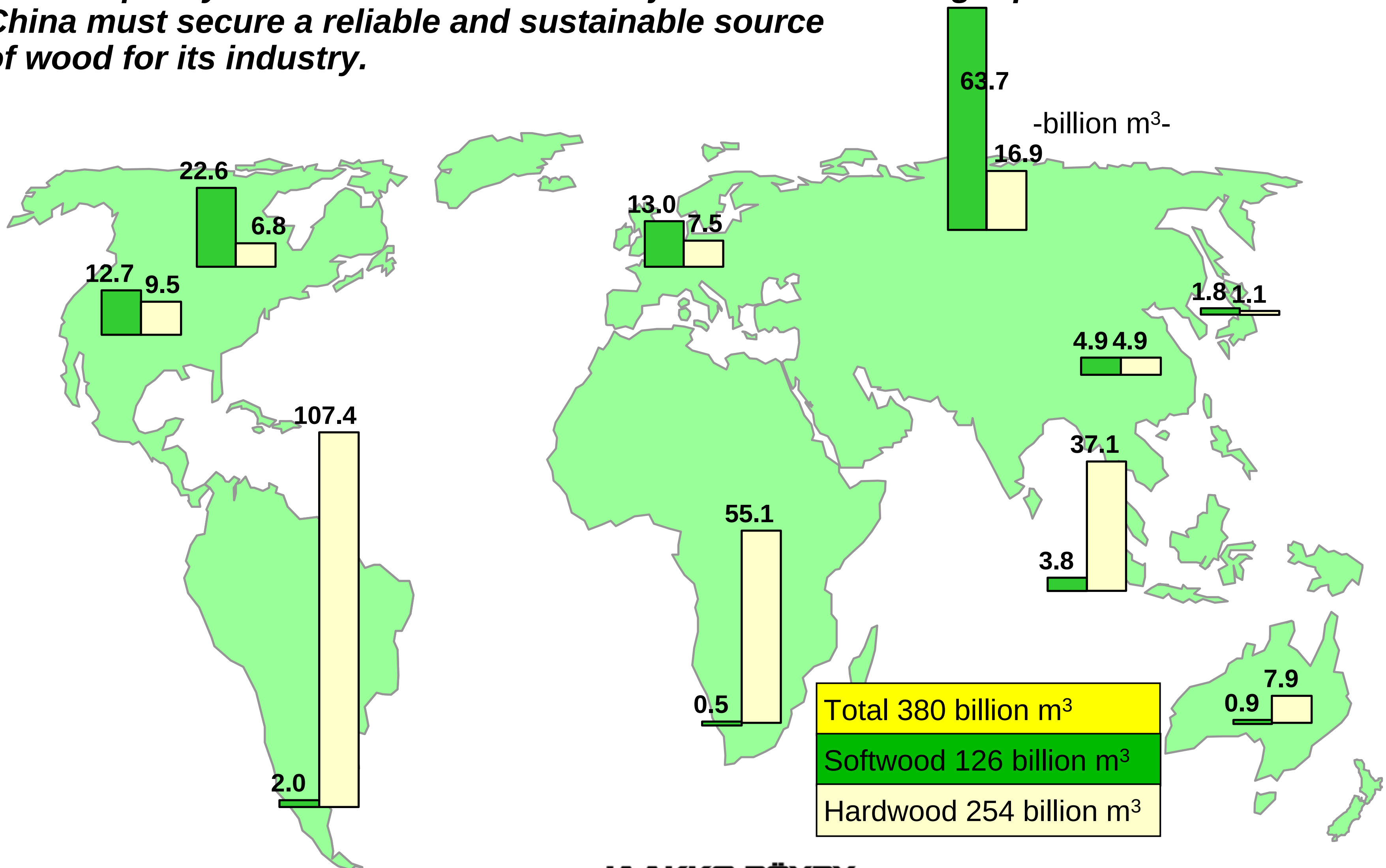
Paper and Paperboard Collection Cycle

Fibre quality decreases over time until it disappears in the recycling process.



Growing Stock of Forests

There is plenty of wood in the World. It is just not all in the right places. China must secure a reliable and sustainable source of wood for its industry.



Total 380 billion m^3
Softwood 126 billion m^3
Hardwood 254 billion m^3

Conclusions

- The global demand for paper and paperboard continues to grow
- The industry growth is shifting outside traditional supply areas, especially to Asia and increasingly to China
- The industry remains fragmented, especially in Asia
- Acquisitions have become an important driver of corporate growth, but capacity growth continues in China
- Recycled fibre will soon constitute over 50% of global paper industry's fibre raw materials
- Traditional supply sources cannot continuously increase their exports of recovered paper
- Domestic collection must be developed and improved to meet a growing part of the fibre mix
- Non wood pulp must be developed into a viable alternative
- World has enough wood to meet the growing demand but it is not all located in the right places.
- China will have to develop sustainable source of wood to help meet its growing demand for fibre.