

Asian Stainless Outlook 2004: Driving the Global Market

China – the Fundamental Reshaping of the Global
Stainless Steel Industry

10th March 2004



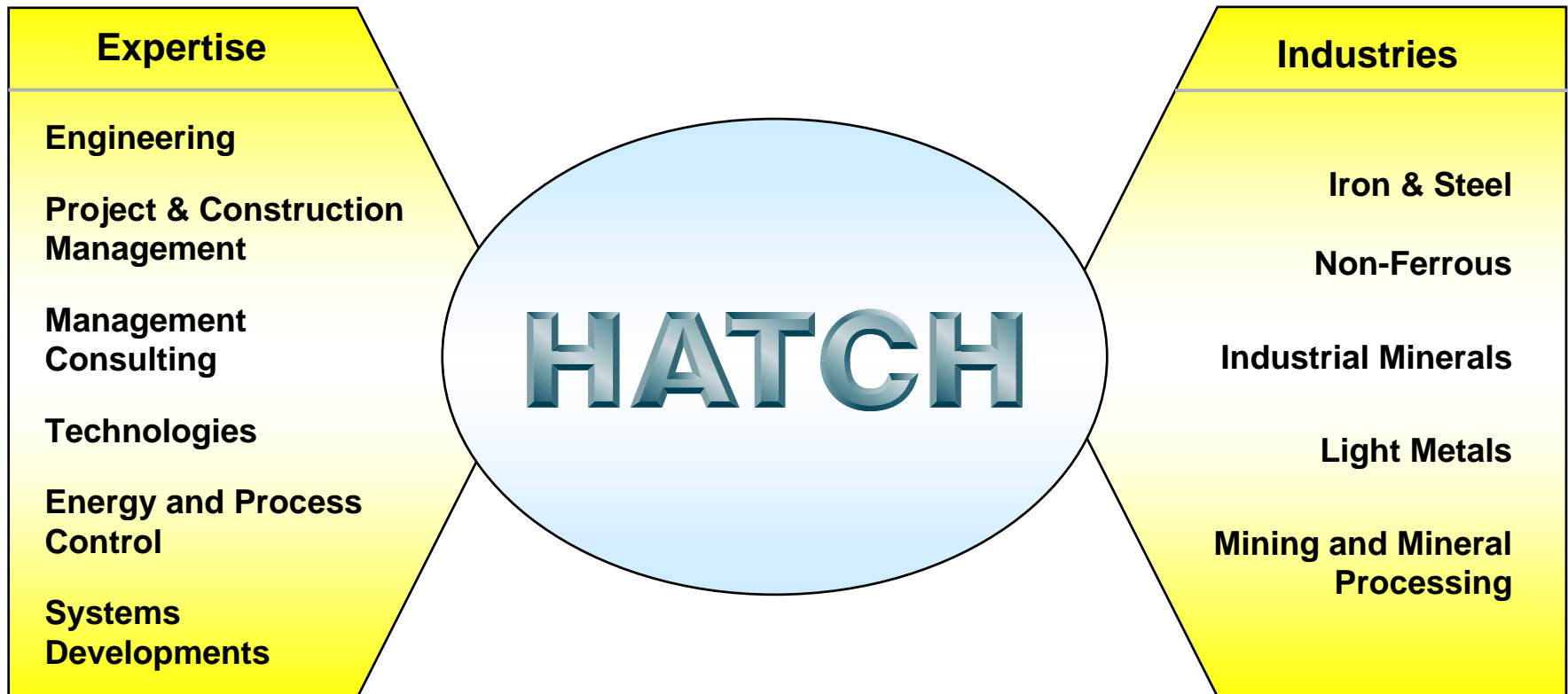
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Hatch Associates - Singapore

Hatch Beddows

Today's contents

- Quick introduction to Hatch / Hatch Consulting / Hatch Beddows
- Past, present and future of the Chinese stainless steel market
 - its impact on the global stainless steel industry
 - implications for raw material supply
- The shape of the industry in 2010
- Keys to maintaining the health of the industry

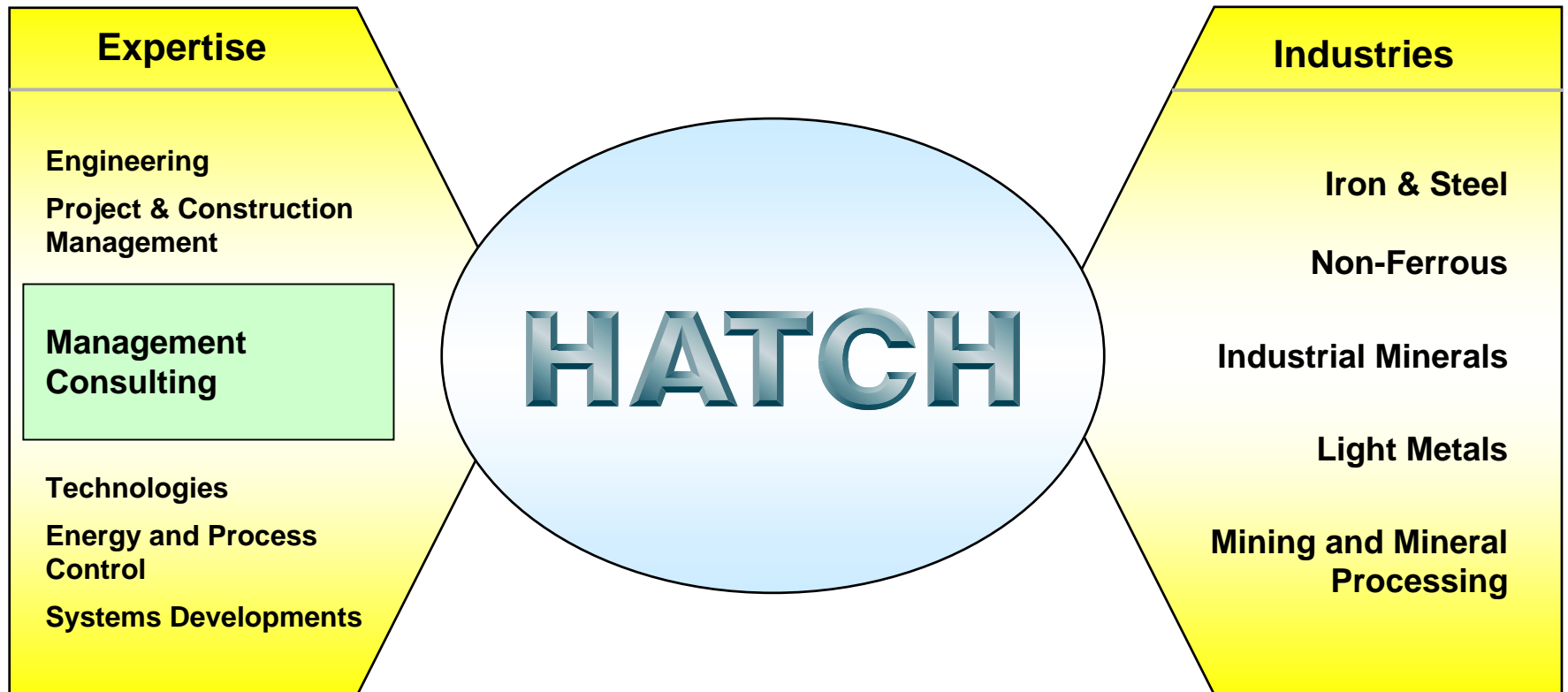
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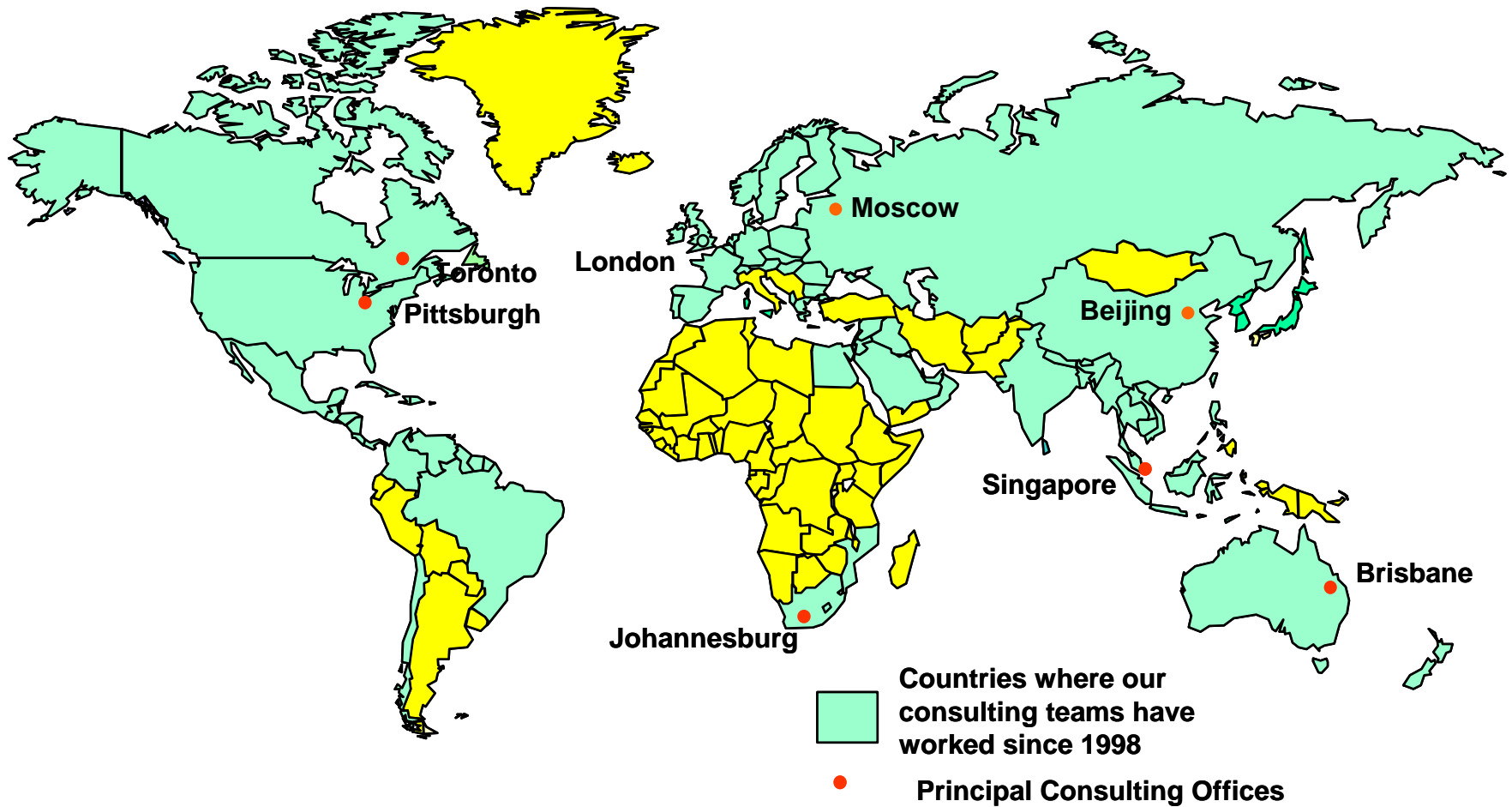
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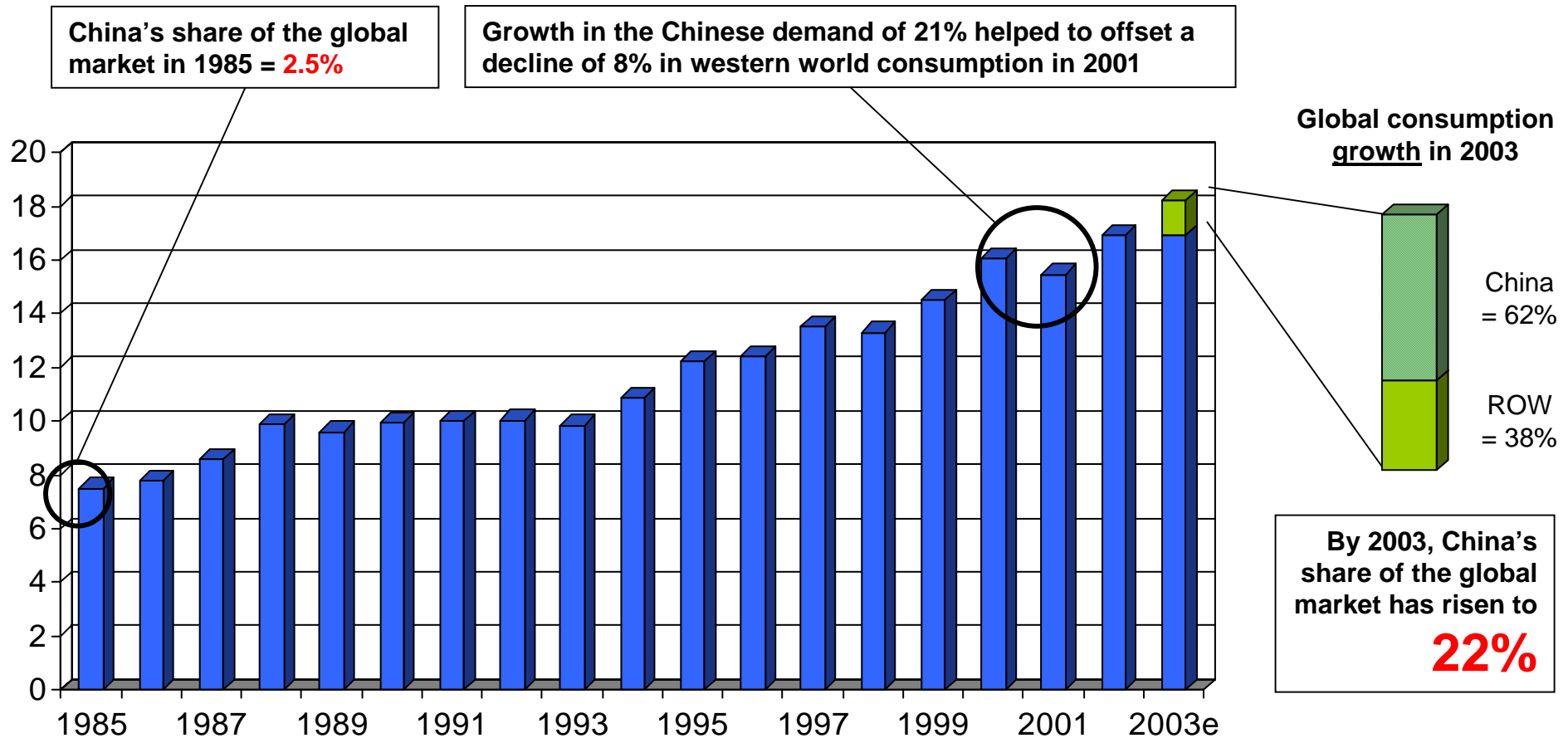


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It was only in 2001 when China became the single largest stainless steel market, but by 2003, it was already larger than the U.S. and Japanese markets put together

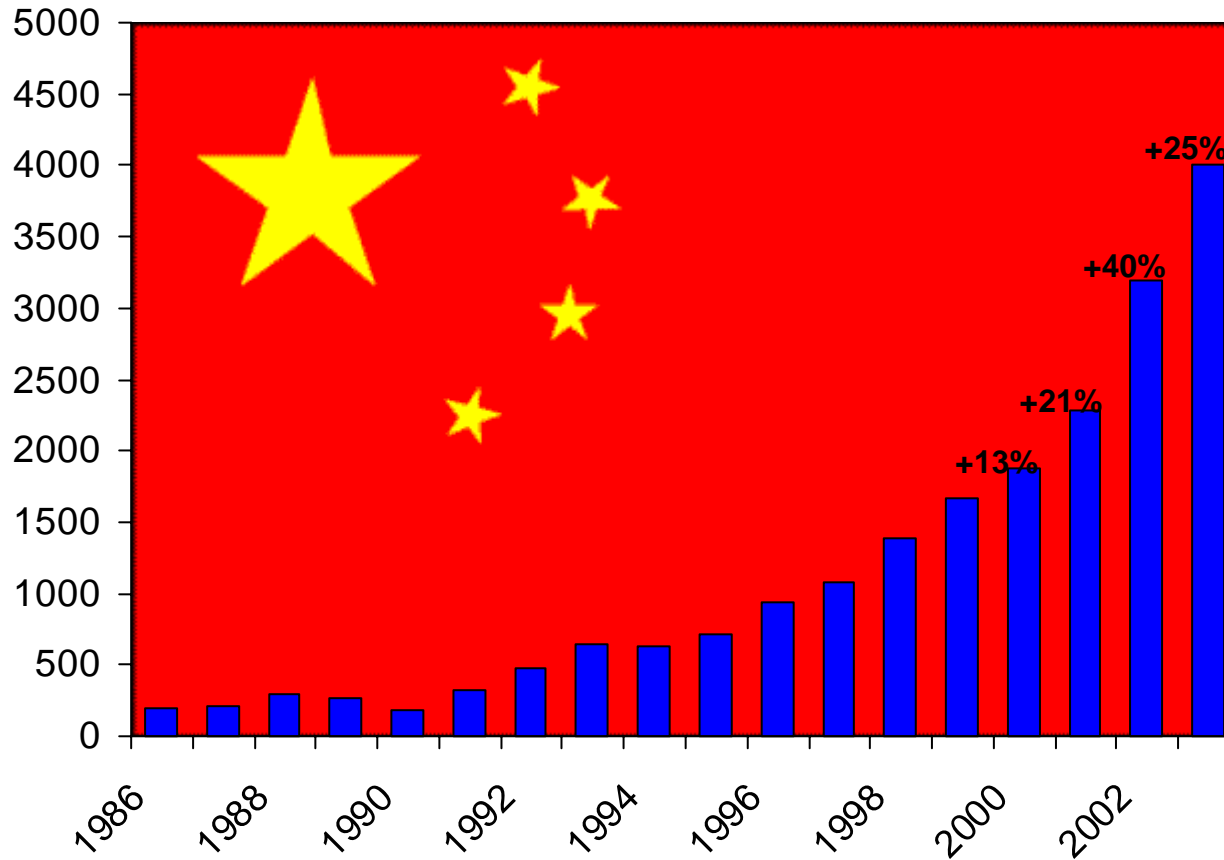
Global Consumption of Stainless Steel (1985-2003) (Mt)



Source: INCO, Gov't Stats Hatch Beddows Est'

China has been the most consistent and spectacular growth market over the past decade, registering double digit growth annually throughout the period

Chinese Finished Stainless Steel Consumption 1986-2003, (kt)

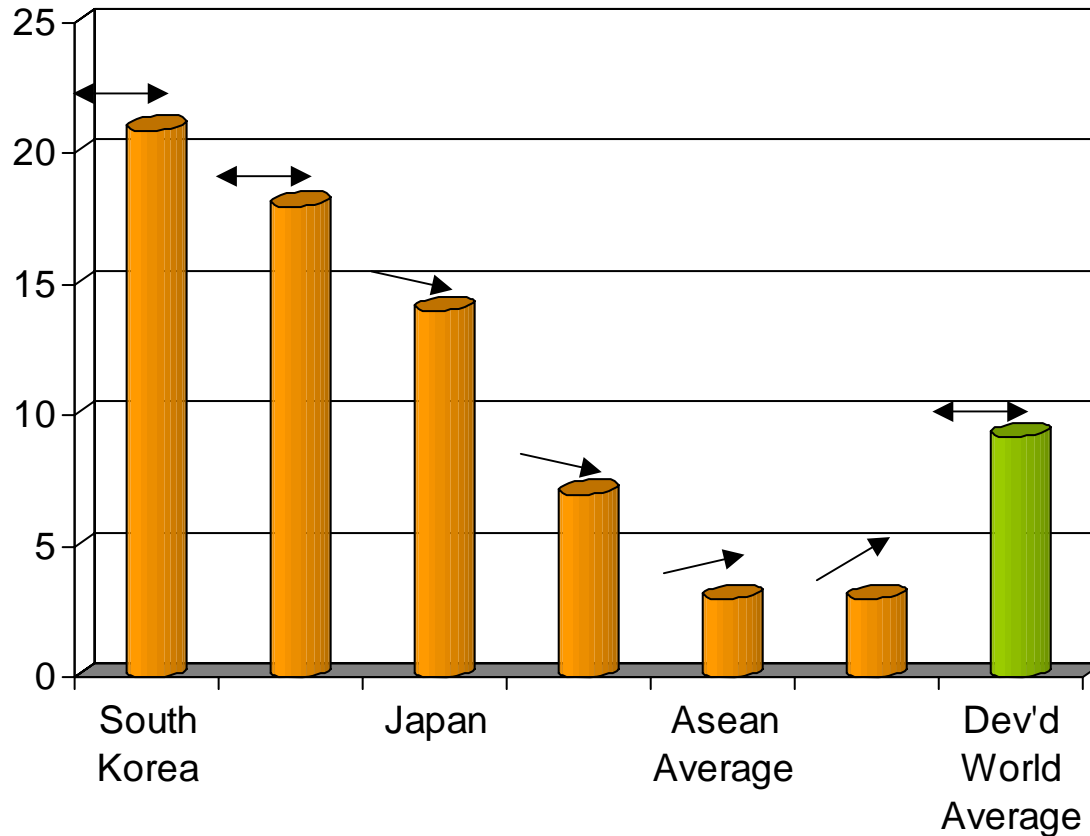


- Robust economic growth driven by rapid industrialisation
 - GDP 1998 = \$950bn
 - GDP 2003 = \$1,350bn
 - Average 8%p.a. c.f. 2% Global
- Exports of finished goods
 - % of GDP 1998 = 22%
 - % of GDP 2003 = 29%
- Consumer westernisation
 - Growth of the middle class
 - Personal income reached US\$1,000
- High stainless steel penetration in some applications sectors

Source: INCO, Hatch Beddows analysis

Although already the largest, the Chinese stainless steel market is still in its infancy on a per-capita basis

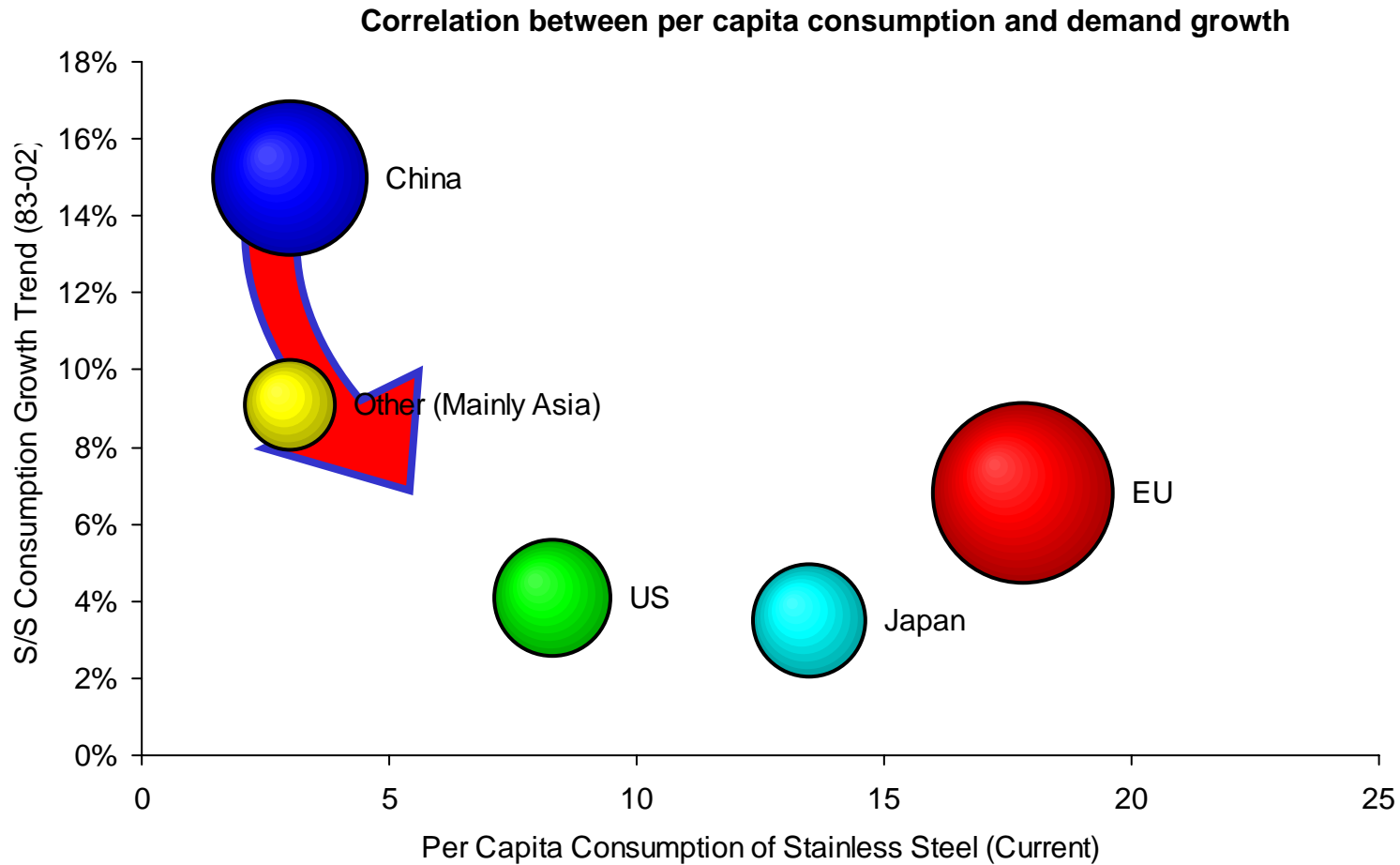
Stainless Steel Consumption Per Capita (2003)



- In Asia, Taiwan is highest at 30kg/person
- In Europe, Italy is highest at 24kg/person
- Chinese population 1.3bn, current s/s consumption is 3kg/person (i.e. global average)
- At developed world average (9kg/person), market size → 12mt

Source: INCO, Hatch Beddows analysis

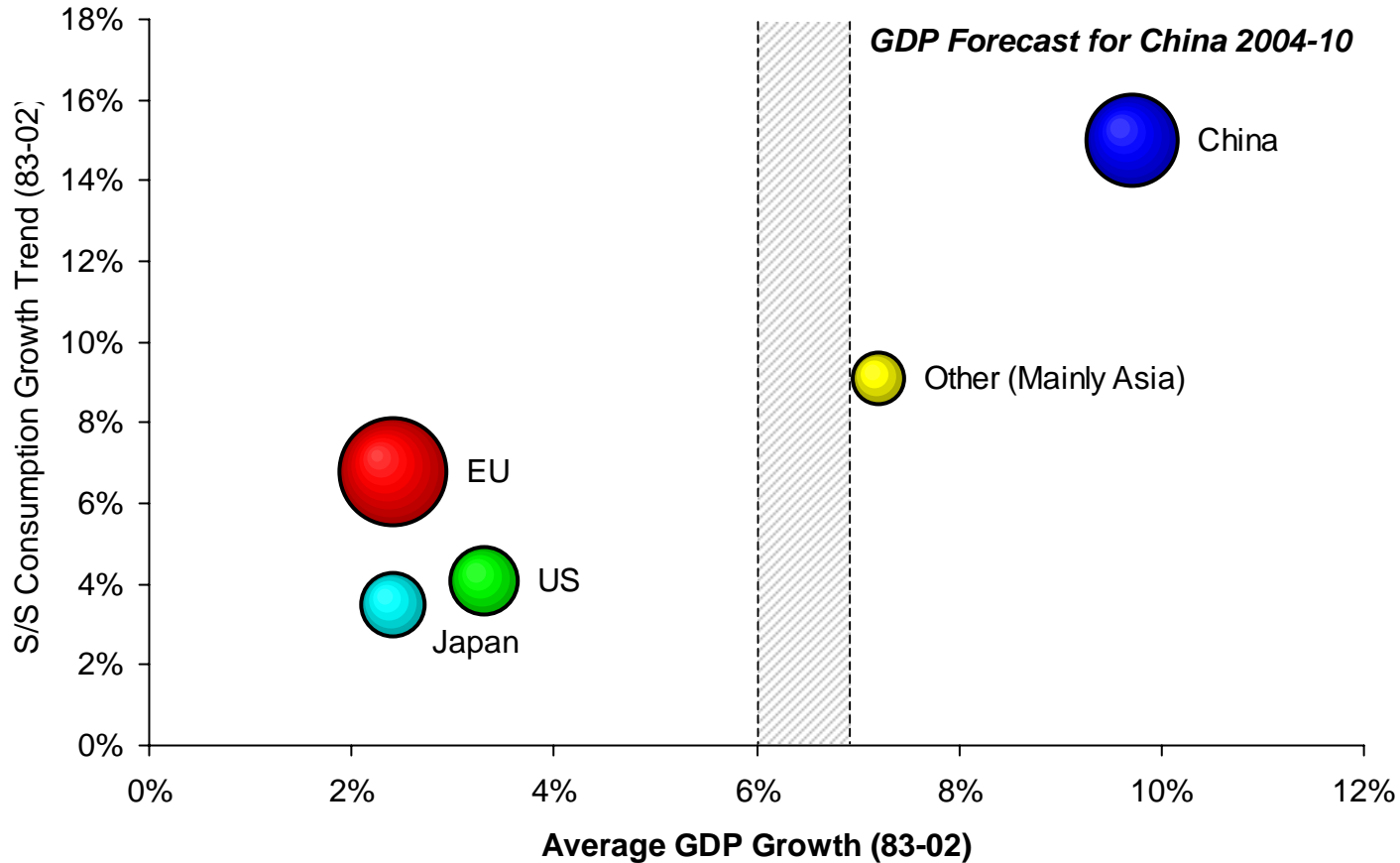
There exist a clear and distinct correlation between growth in consumption and the level of stainless steel intensity



Source: EIU, Euro monitor, Hatch Beddows analysis

Despite the economic achievement of late, expectations suggest there is ample room for the Chinese economy to expand further

Correlation between GDP Growth and Stainless Steel Consumption



Source: EIU, Euro monitor, Hatch Beddows analysis

Attempts to forecast the size of the future Chinese stainless steel market have been consistently conservative

Year	Actual Consumption (kt)	Consensus Forecast for <u>2005</u> (kt)
1995	717	1,200
1996	941	1,400
1997	1,080	1,700
1998	1,391	2,000
1999	1,663	2,200
2000	1,879	2,500
2001	2,282	2,900
2002	3,200	4,000
2003e	4,000	5,000

Source: INCO, Hatch Beddows analysis, historic forecasts from investment banks, industry analysts and central governments

The Chinese market surprises all with its appetite for stainless steel

There is no question about whether the Chinese market will continue to expand, it's just the case of how fast

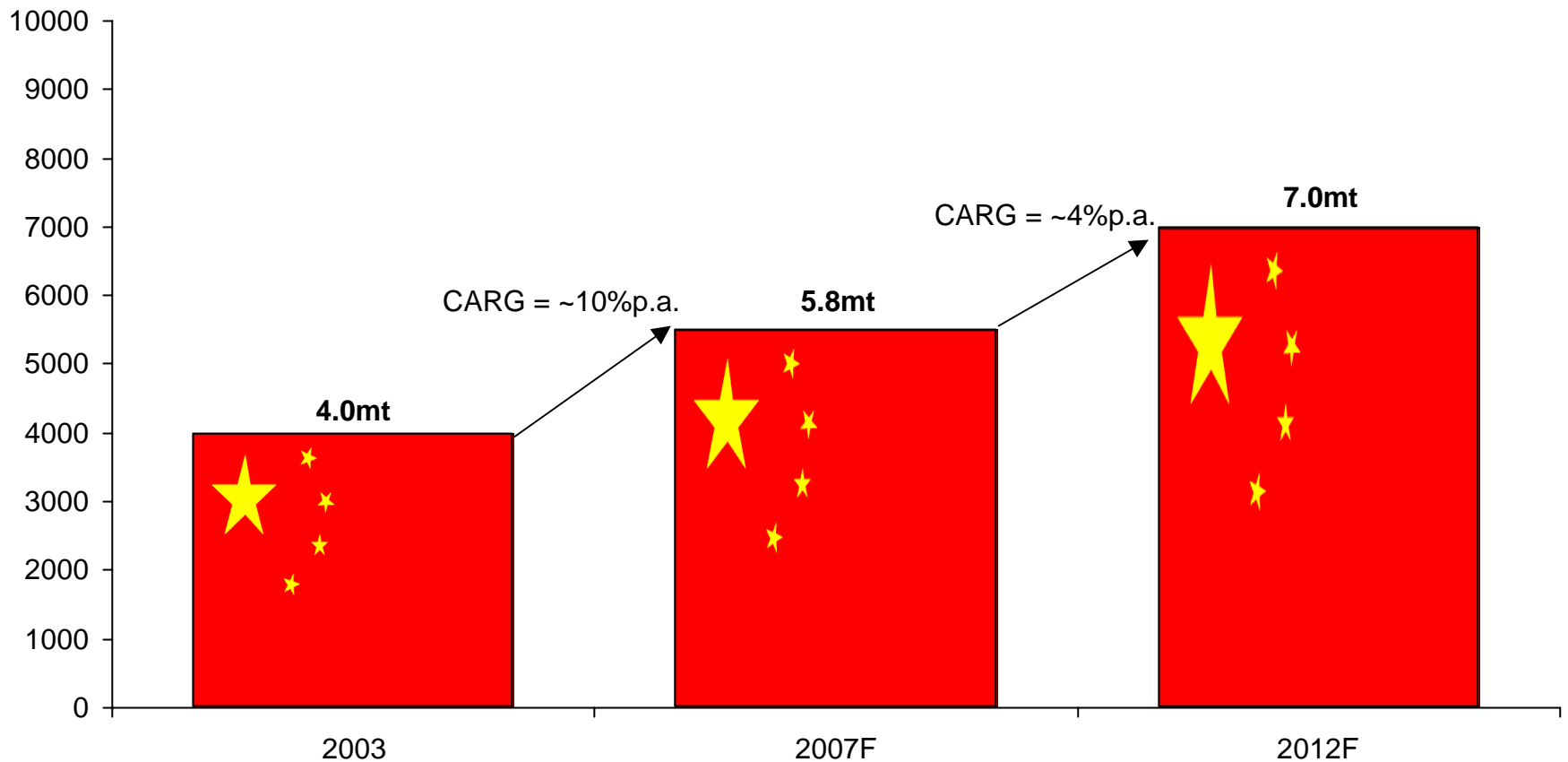
China...

- ...has massive domestic consumer and industrial markets
- ...is already the world's powerhouse for consumer and industrial goods
- ...is no longer just a imitator but an innovator
- ...is leap-frogging many other developing countries in terms of economic development
- ...has taken a quantum leap in its consumer tastes and behaviour
- ...has lots of people, people who like using stainless steel

And yet it is now just entering the metals-intensive phase in its growth

Underpinned by robust economic growth, China will continue to be the epicentre of stainless steel growth

Hatch Beddows Application-Based Forecast for Chinese Stainless Steel Market Growth (kt)



Source: Hatch Beddows forecast

2002 and 2003 saw a string of announcements from both local and foreign companies to install additional melting and rolling facilities in China

Historical and Planned Chinese Stainless Steel Production Capacity (kt)

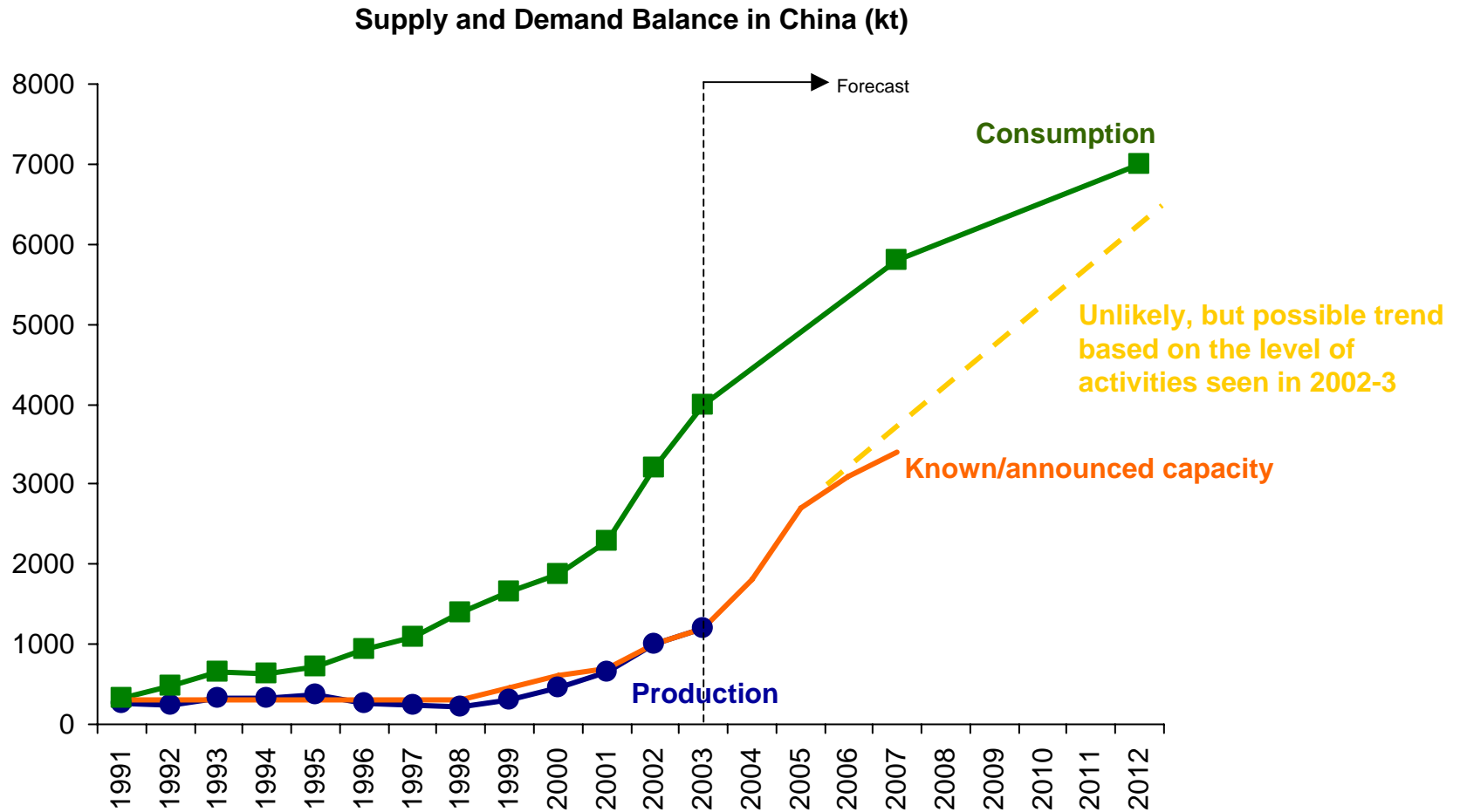
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Melting Capacity	200	200	200	500	500	900	2,000	2,000	2,500	3,000
HRC/Plate	150	150	250	250	320	420	1,200	1,200	1,700	2,000
CRC	100	250	400	400	500	600	1,500	2,000	2,100	2,500
Bar and Rod	100	100	100	100	150	400	800	900	900	1,100

- Attempt to seek self-sufficiency?
- Ambitions to become a stainless steel exporter?
-
- Or simply jumping on the bandwagon?

But is China a logical place to be producing stainless steel?

- **Yes...**
 - Rising local demand
 - Rising freight cost
 - Unlimited pool of economical labour, although of limited benefit
 - Diminishing technology & quality barriers
- **...and No**
 - Political instability?
 - Imminent re-valuation of the Renenbi
 - Lack of (local) raw material supply – particularly nickel and s/s scrap
 - Unreliable and expensive power supply

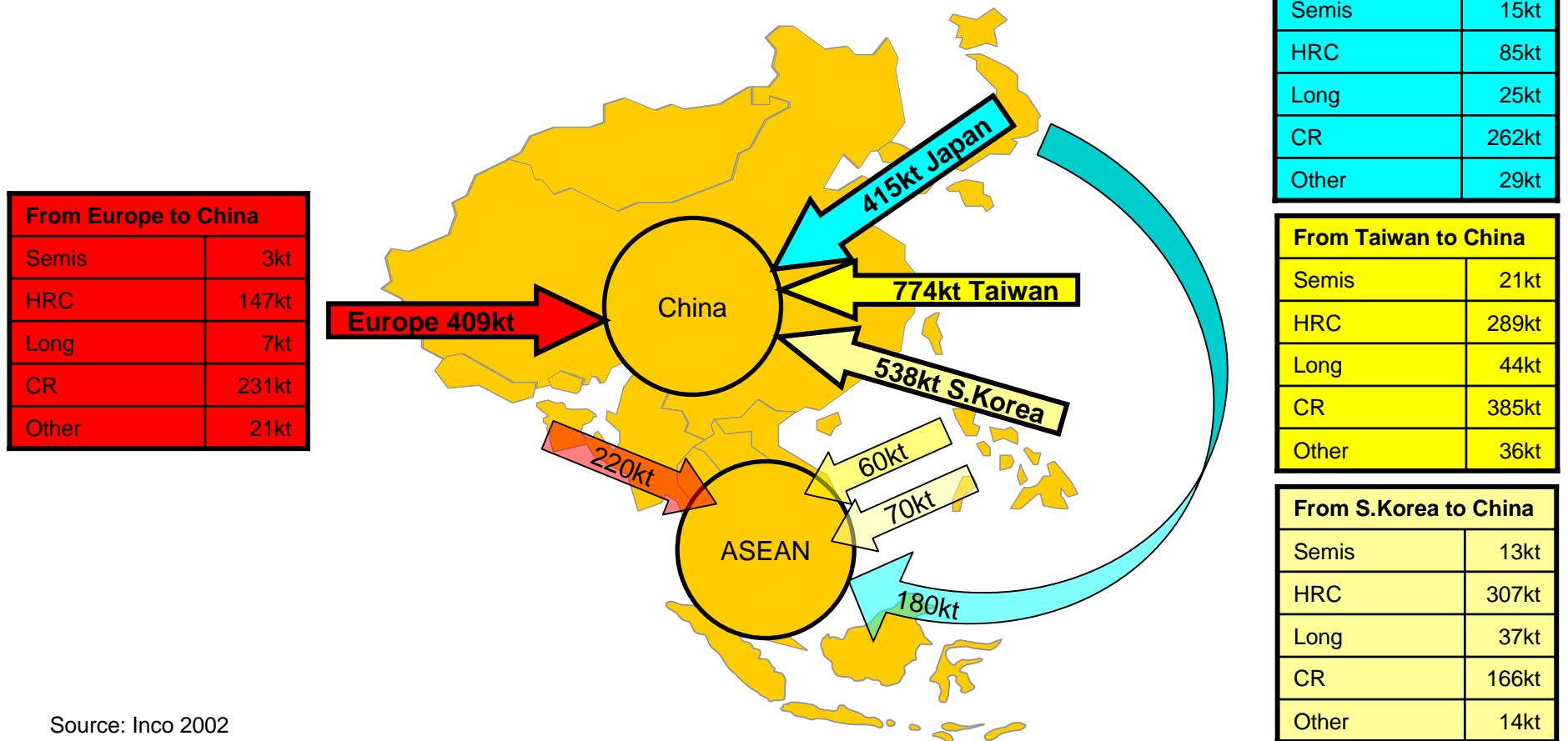
Over the next 10 years supply by Chinese mills could grow faster than demand, resulting in the shrinkage of the imports gap



Source: Hatch Beddows forecast

China is currently the destination for more than 20% of total world exports

Principal Stainless Steel Trade Flows in Asia-Pacific 2001

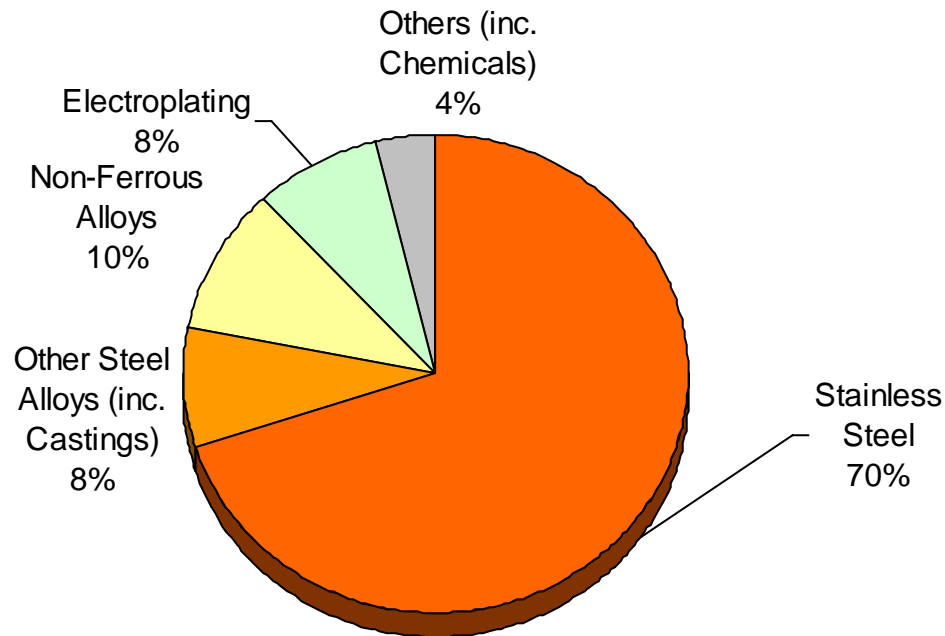


Source: Inco 2002

Note: Europe include West, East and Central European countries ASEAN include Indonesia, Malaysia, Singapore, Thailand

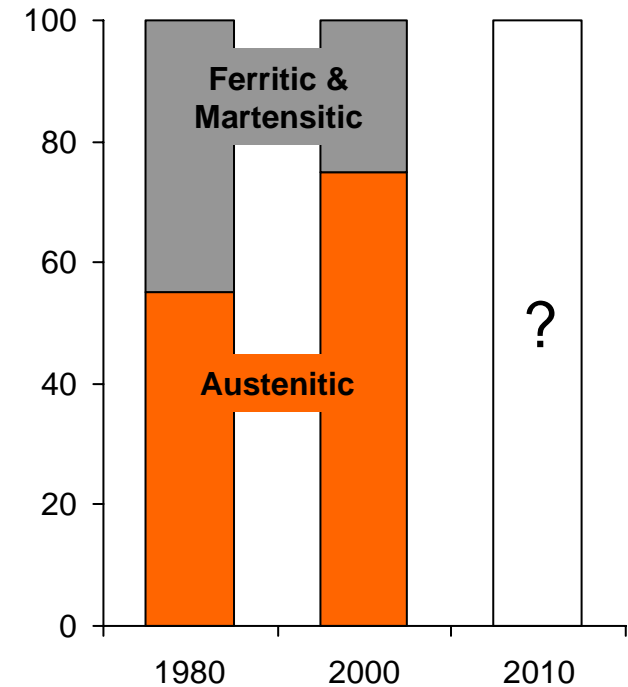
Too much stainless steel, too little nickel?

Breakdown of Primary Nickel First Use



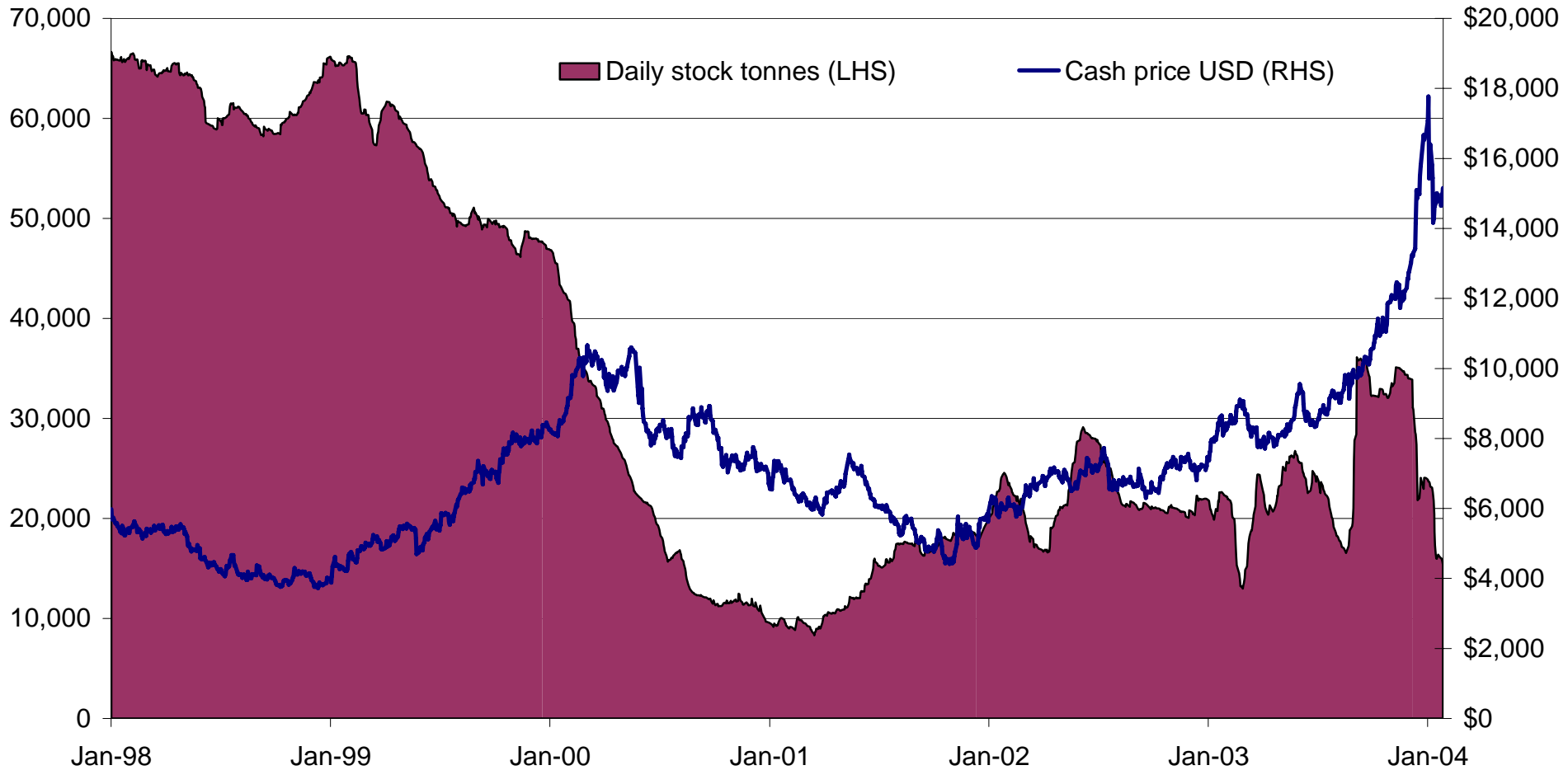
TOTAL (2003)
= 1.15mt

Share of Austenitic Material (%)



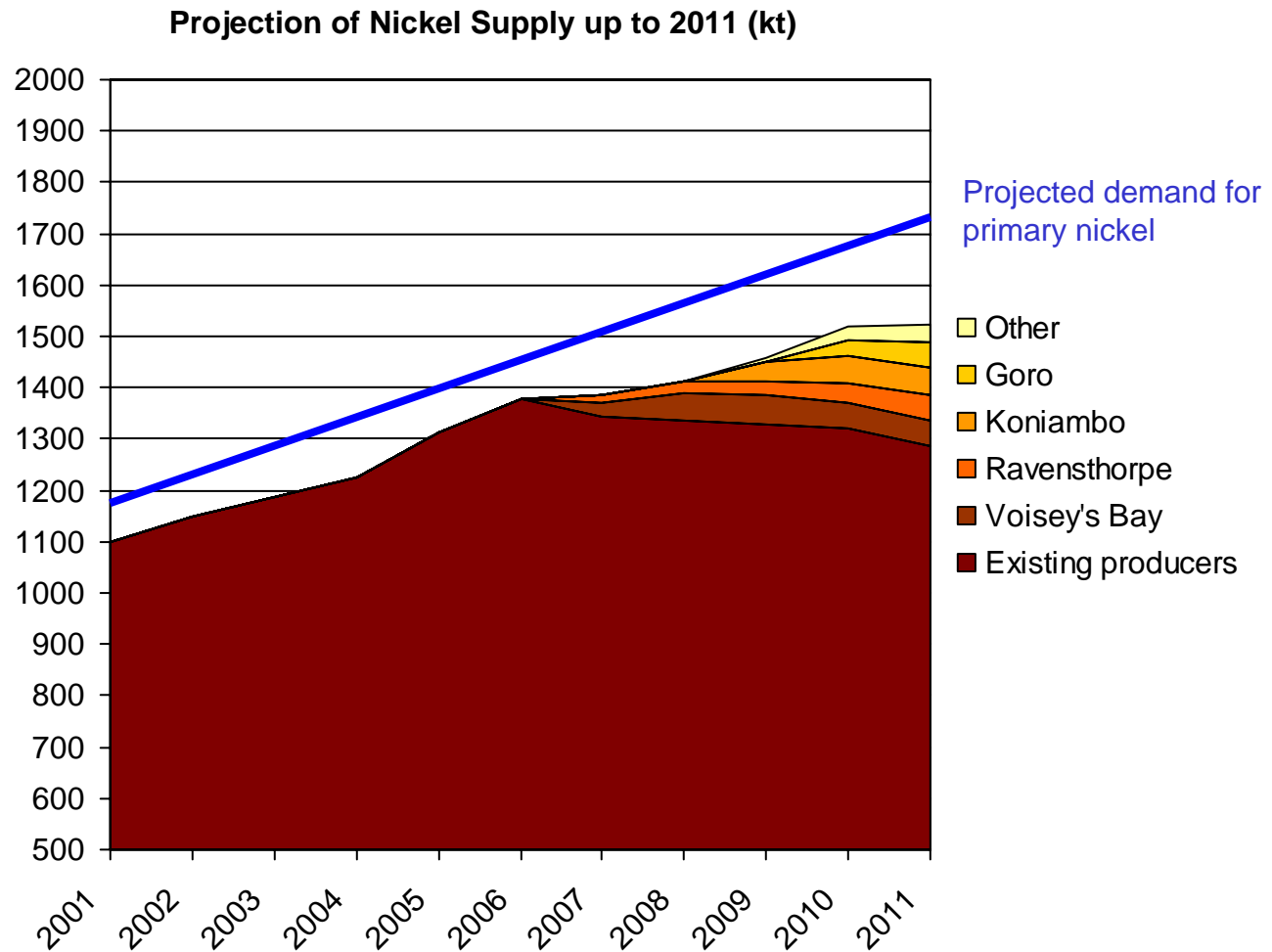
Nickel prices make the NASDAQ index look tame

LME Nickel Prices and Stock 1998-2004



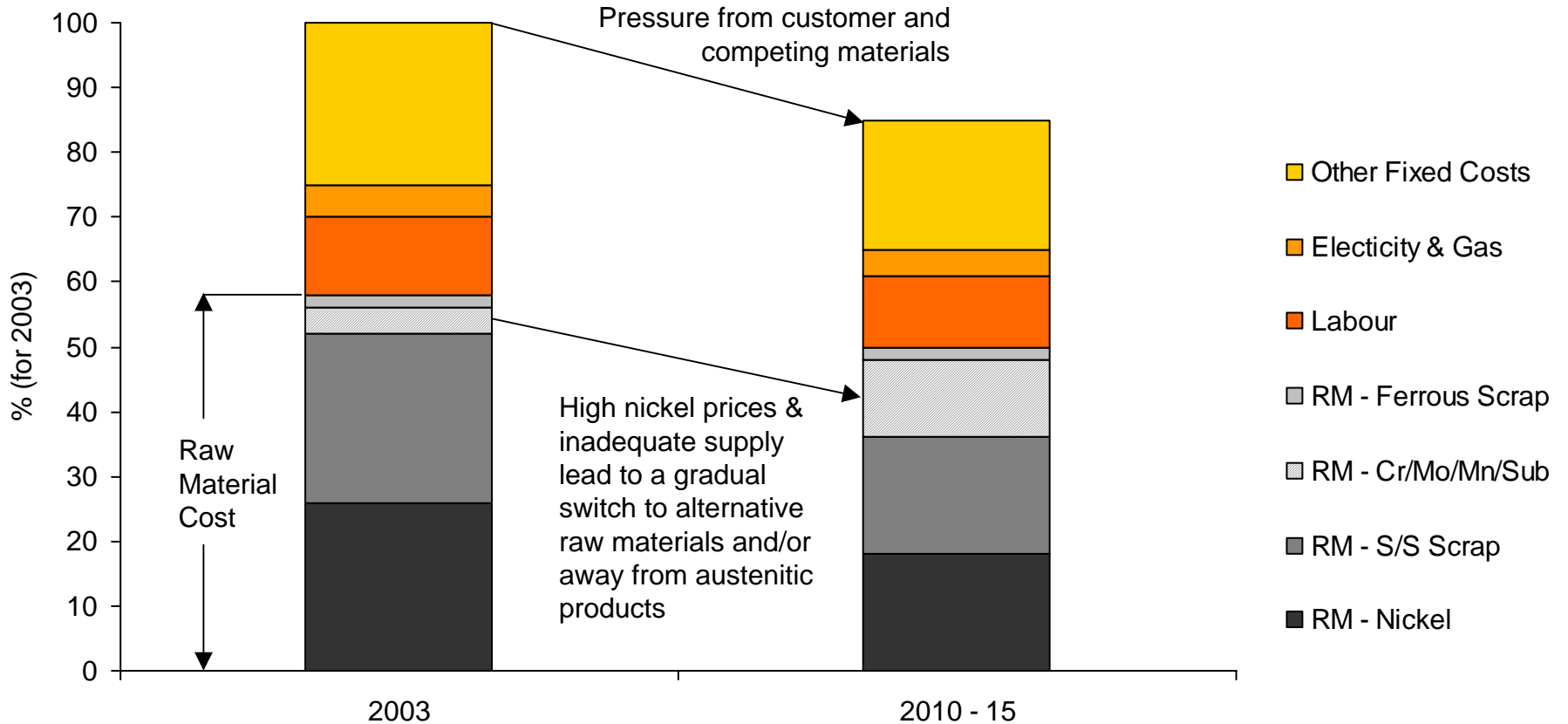
Source: LME

Will there be enough nickel to go around?



Will the (prolonged) nickel situation lead to the discovery of viable alternative input materials and yield a whole new set of industry dynamic? Or even a new industry?

Global Average Cost Structure 2003 vs. Med/Long term



Availability and prices of stainless steel scrap (a key source of nickel) will also come under immense pressure

Stainless Steel, Nickel and Scrap Balance Sheet

	1980	1990	2000	2010
Stainless steel production (crude)	7mt	12mt	18mt	28mt
Nickel unit requirement	0.4mt	0.8mt	1.4mt	2.2mt
Primary Nickel supply	300kt	520kt	750kt	1,100kt
Scrap requirement (nickel content)	100kt	280kt	650kt	1,100kt
Implied obsolete scrap <i>RECOVERY RATE</i>	33%	40%	49%	68%!!!

Note: Obsolete scrap recovery rate is an indicator of how much of old recyclable material is (or needs to be) recovered in a given year

- Export restriction in CIS since the late nineties – followed by USA and the EU?
- China will not generate any significant amount of scrap in the near future

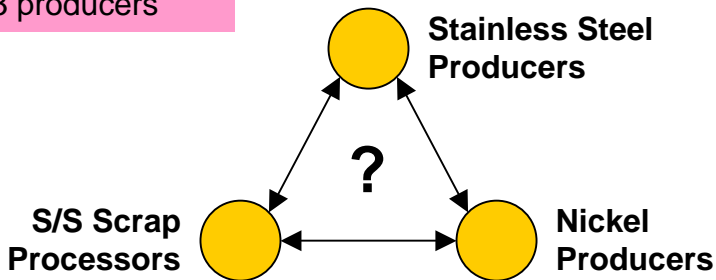
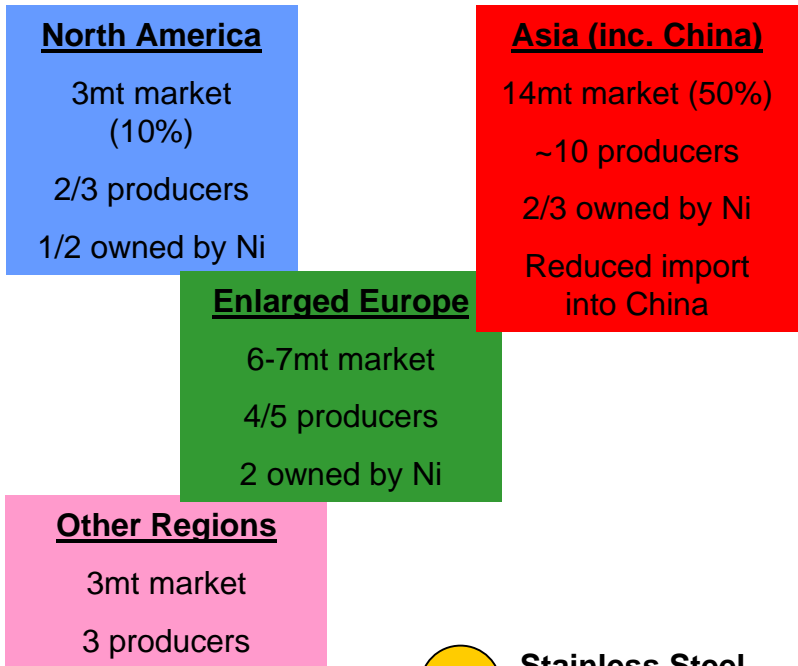
Nickel shortages threaten the growth of stainless steel

- Nickel has become even more of a key determining factor to the cost of producing stainless steel and hence its competitiveness against other materials (e.g. aluminium/plastic/titanium)
- The future health of the stainless industry is increasingly reliant on nickel and its derivatives
- Supply of nickel will be very tight over the rest of this decade, yielding erratic and undesirable price behaviour
- Nickel-bearing stainless steel scrap is also very scarce. In order to satisfy the growing s/s production, recovery rate (and collection practices) of retrieving/processing obsolete scrap needs to improve significantly
- The limited availability of both primary and secondary nickel will inevitably place upward pressure on stainless steel producers, who are concurrently under pressure from customers to lower prices
- Technological improvements in the production processes have been significant over the last 30 years. However, to counteract the adverse effects of the nickel situation and achieve the necessary cost reduction many producers are seeking alternative raw material solutions

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This decade will see some of the most dynamic changes in the stainless steel industry since the 1960's

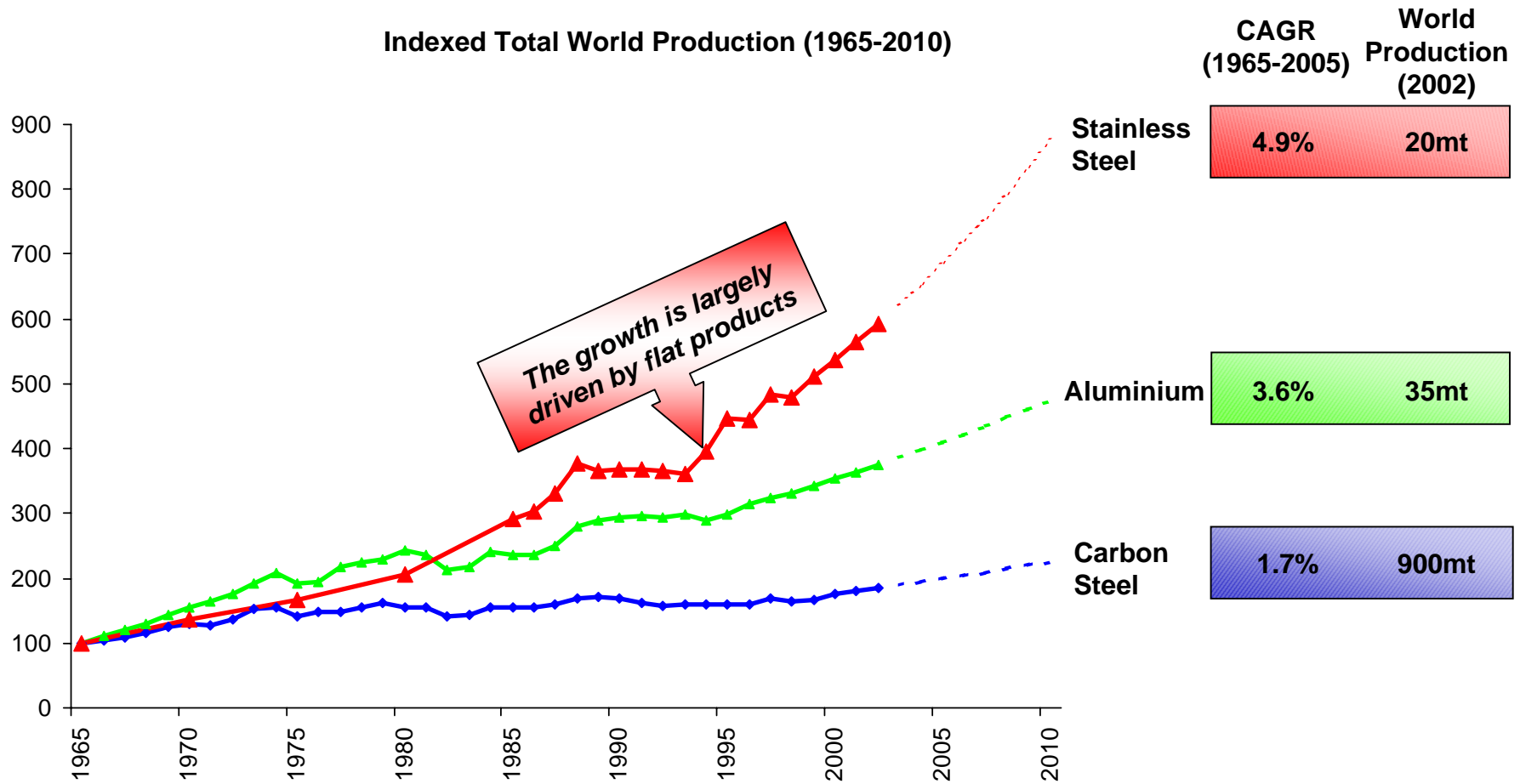


- The rationalisation seen in Europe will start to take place in Asia, particularly in downstream
- Melt shop economy of scale → 2mt
- Further vertical integration between stainless steel producers and nickel companies
- Increased investment in scrap collection and processing by stainless and/or Ni producers
- Market growth will focus on the Asia region, especially China and India
- Reduced inter-regional stainless steel trade flow but intra-regional trade will remain/increase
- China, the large single market by a factor of 3, remains an net importer of stainless steel

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Stainless steel possesses some of the best fundamentals to become the material of choice, but can it overcome the current barriers and keep on going?



Source: INCO, Kaiser Engineering, IISI

Managing price volatility – a Key Challenge

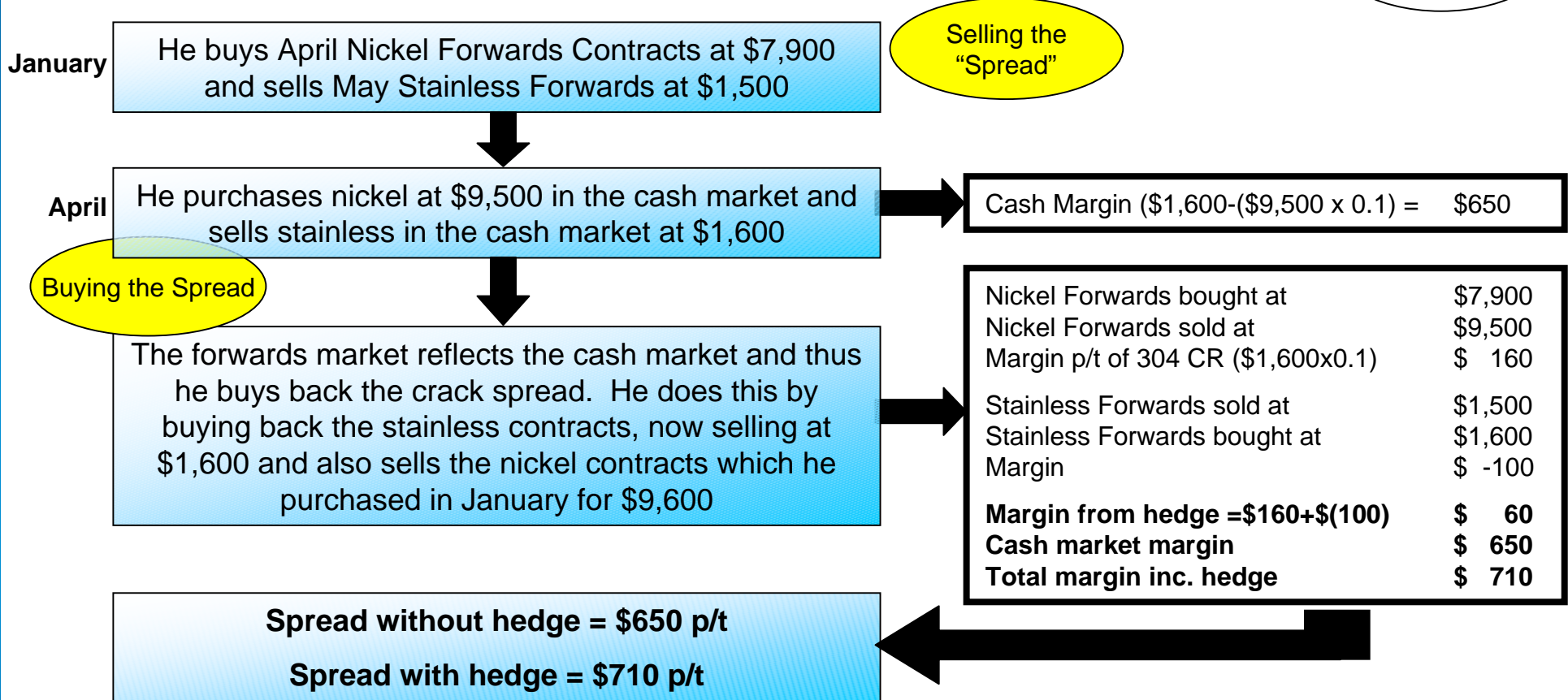
- Price volatility (of stainless steel and nickel) plagues the industry and is one of the most detrimental factor affecting the growth of the material by inhibiting the penetration of its markets
- Only the large volumes stainless steel consumers can benefit from the existing nickel forward contract by hedging through their producers whereas low volume users are exposed to the volatility and uncertainty, subjected to high and erratic alloy surcharges, deterring some from using the material
- A growth material such as stainless steel relies on pioneering applications where cost and material performance are not the only important factor but also cost stability
- And even in mature end use sectors there are applications where material cost represents a high proportion of the overall cost and thus demanding raw material with low and predictable prices

The solution? – A forward contract for stainless steel!

A stainless steel contract would allow producers to hedge the spread between their raw materials and finished products

Assuming 10% nickel content

E.g. A producer sees the spread between the April Nickel Forwards price (\$7,900/t) and the April CR 304 Forwards price (\$1,500/t) presents a favourable spread of \$710 (1,500-(7,900x0.1)) per tonne which he would like to lock in to...



A stainless steel contract will bring invaluable benefits to all parties

- The **nickel contract** allows **nickel producers** and **stainless steel producers** to offset the risk that exists in the physical market against risk in a financial market
- A **stainless steel contract** would allow **stainless steel producers** and **stainless steel consumers** to offset the risk that exists in the physical market against risk in a financial market
- The combination of the two contracts would allow **stainless steel producers** to hedge their **conversion spread**
- Additional benefits...
 - Unambiguous and indisputable prices will facilitate internal and external discussions
 - Front end capital investment decision taking
 - Dampening the volatility of stainless steel and nickel prices
 - Attract a higher number of material applications

Other issues and Conclusions

- The stainless steel industry is going through the most exciting period since the 1960s
- According to the strategic fundamentals, China (and South East Asia) offer attractive opportunities for stainless steel suppliers
- But careful consideration must be given to the exact nature of the opportunities and then approaches designed to create maximum value
- The vision for the future should build on the lessons of recent international experience in the stainless and carbon steel industry
- Understand the market. Insufficient understanding of the market + slow reaction = very high risk investment decisions
- Technology must play an increasing role to counteract adverse effect of rising cost of raw material

The Challenge is to turn growth into value

THANK YOU FOR YOUR ATTENTION!!!

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