

Production and market strategies in a changing iron ore world

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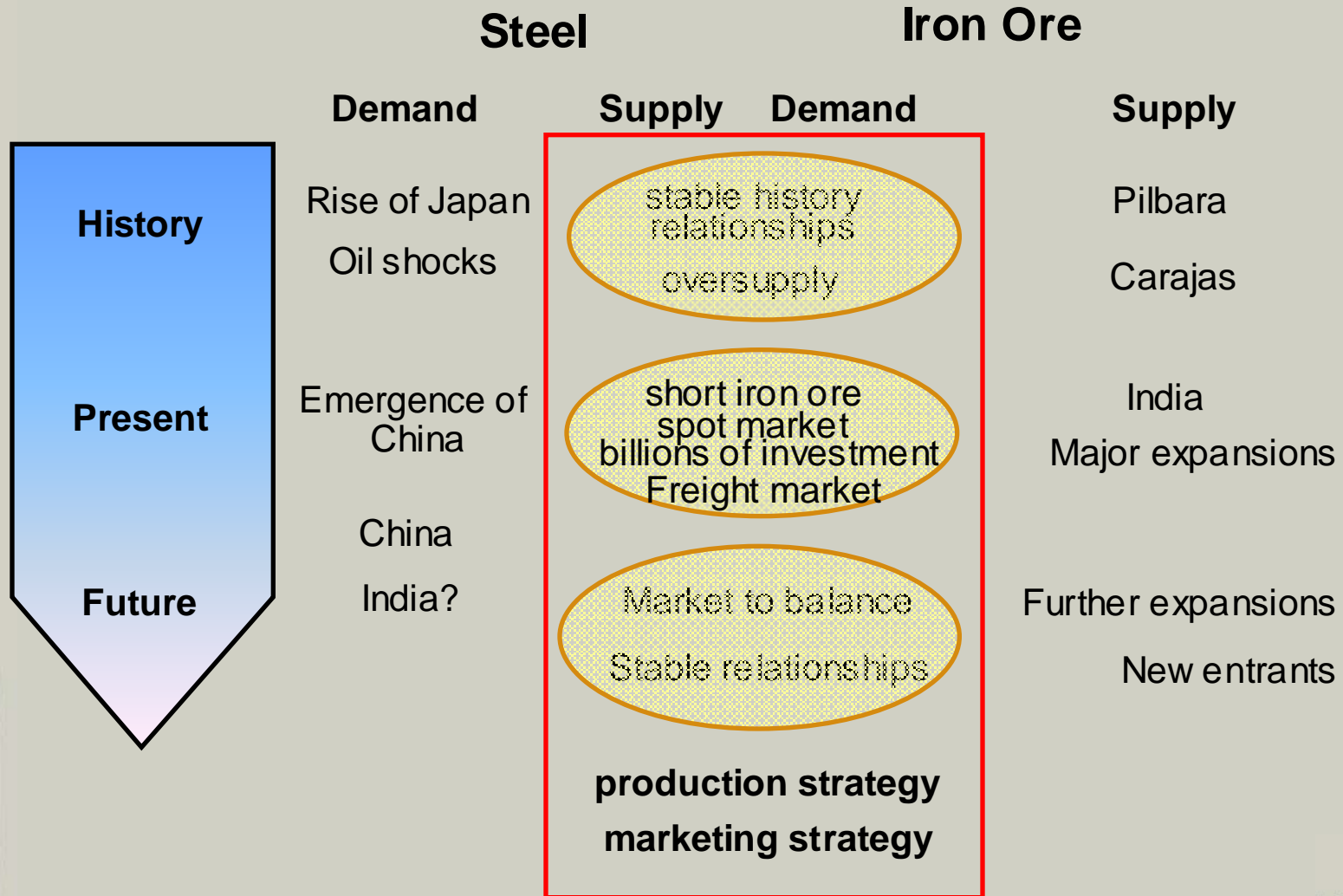


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Forecast Conference**

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The Iron Ore – Steel industry dynamics

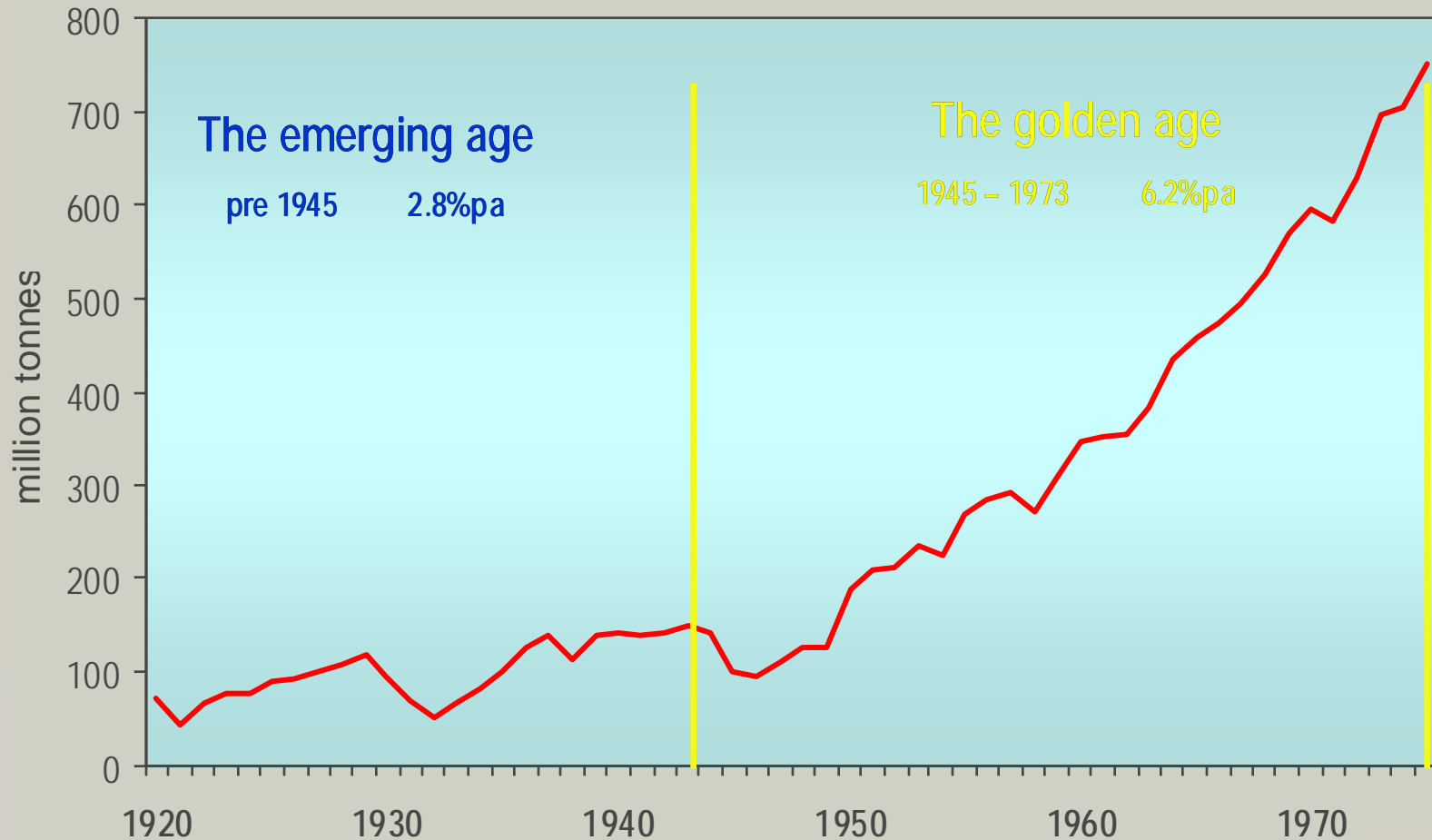


Background – The Early Years



Global Steel –the new golden age?

The Golden Age initially based on reconstruction after Second World War and was long product focused. Later domestic consumption by emerging middle class was flat product focused.

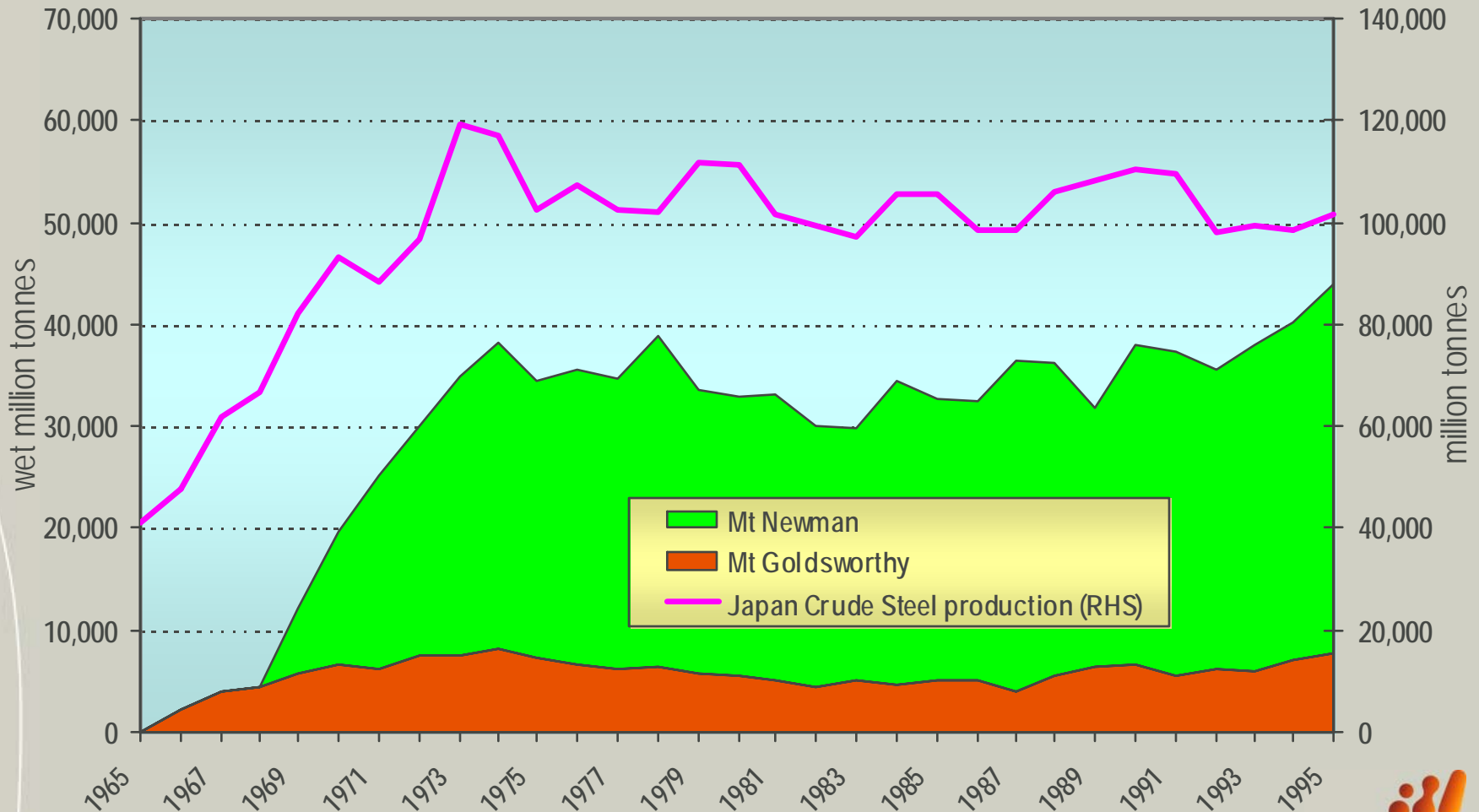


The Middle Years – Oil shocks and the emergence of China



BHP Billiton response to demand during 'The Golden Age'

BHP Billiton early iron ore expansions supported the growth of the Japanese steel industry. There was little expansion of capacity during the difficult 20 year period from the 1970's to early 1990's.

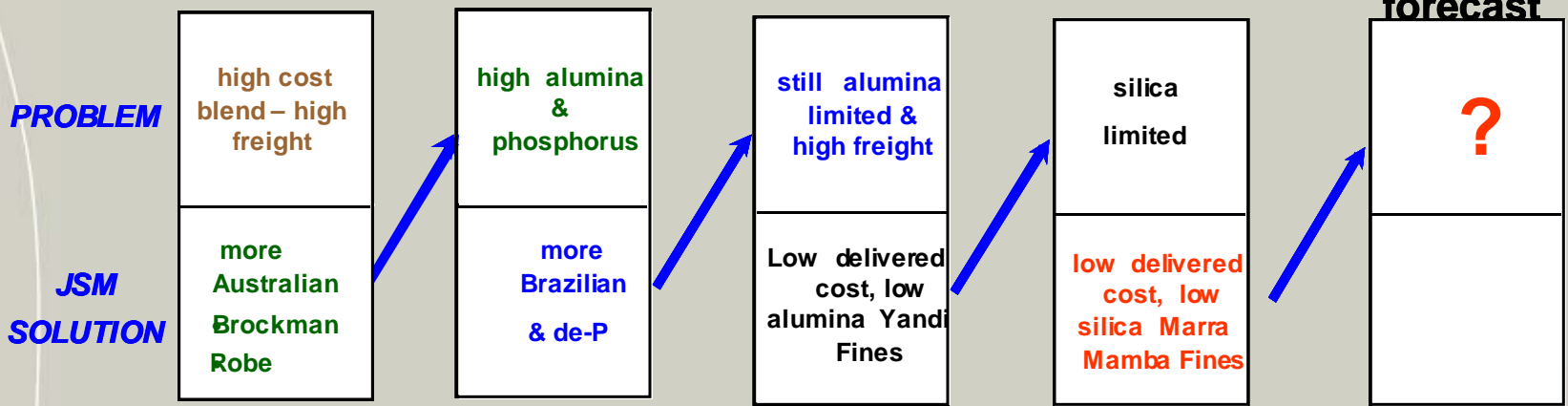
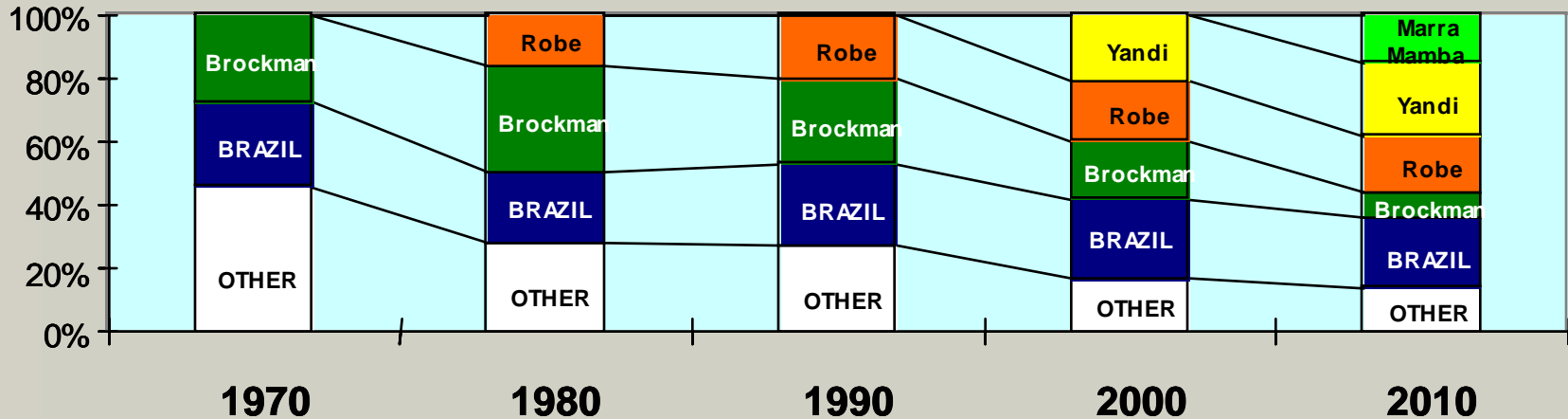


Data source: Tex, Japanese Iron and Steel statistics

Relationship between steel producers and iron ore suppliers

Introduction of Yandi and Marra Mamba ores demonstrates the symbiotic relationship between steel production and iron ore suppliers.

Japan Fine Ore Blend



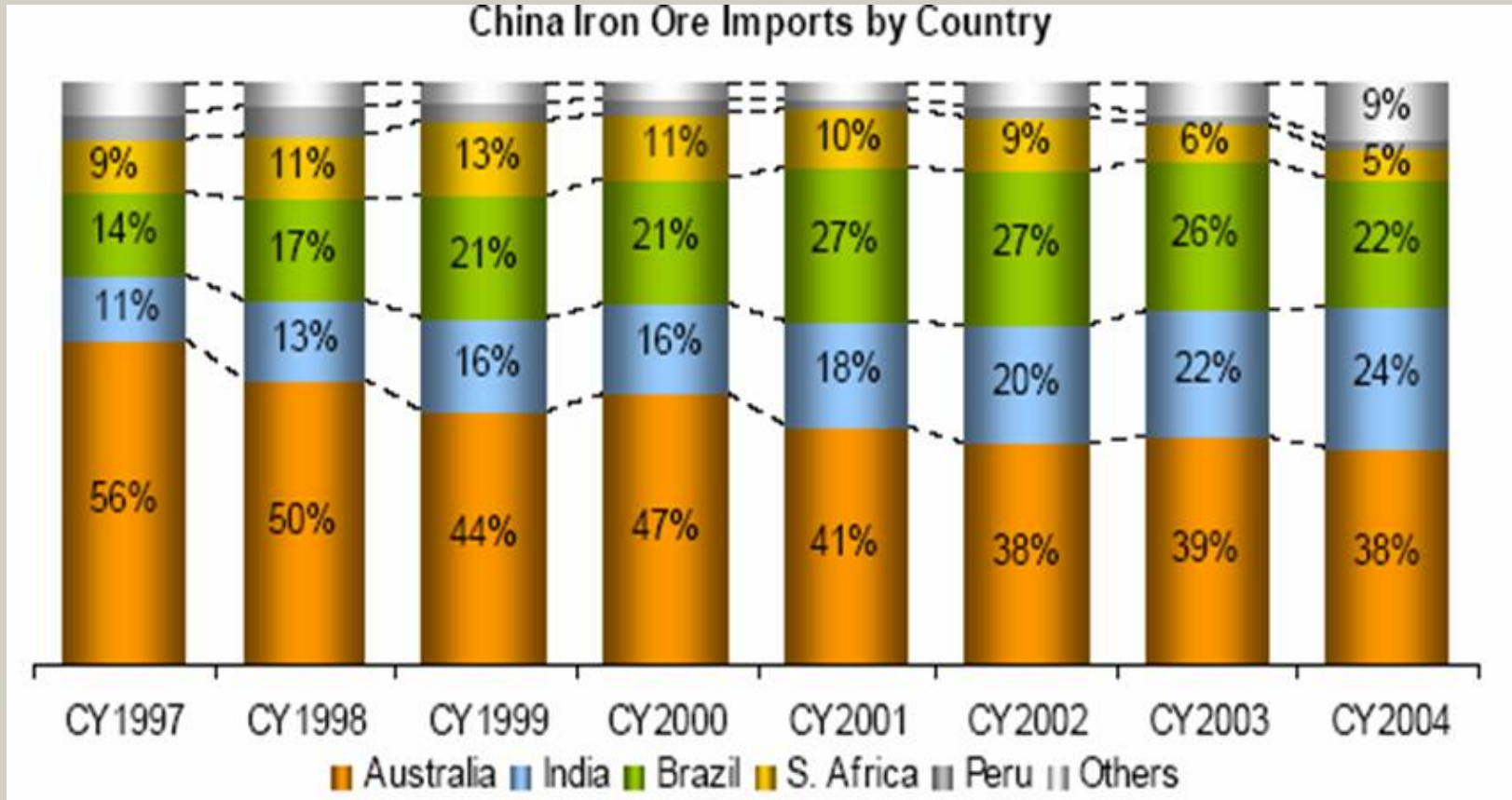
Data source: Tex, company discussions

The Current Era – the China challenge



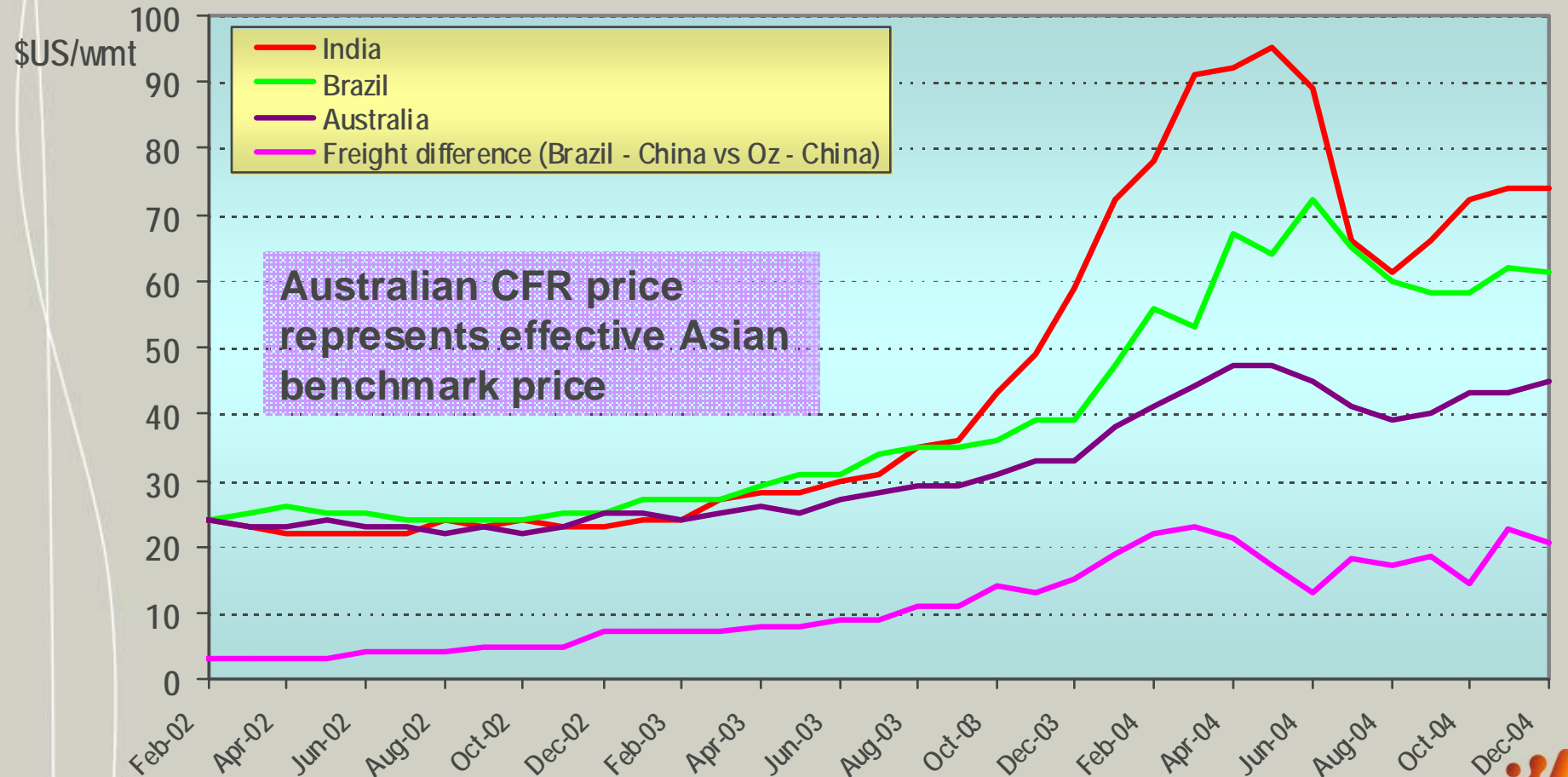
The changing face of Chinese iron ore imports

Indian and small iron ore producers have increased their market share in China as the major producing nations of Australia, Brazil and South Africa have not been able to fully meet demand.



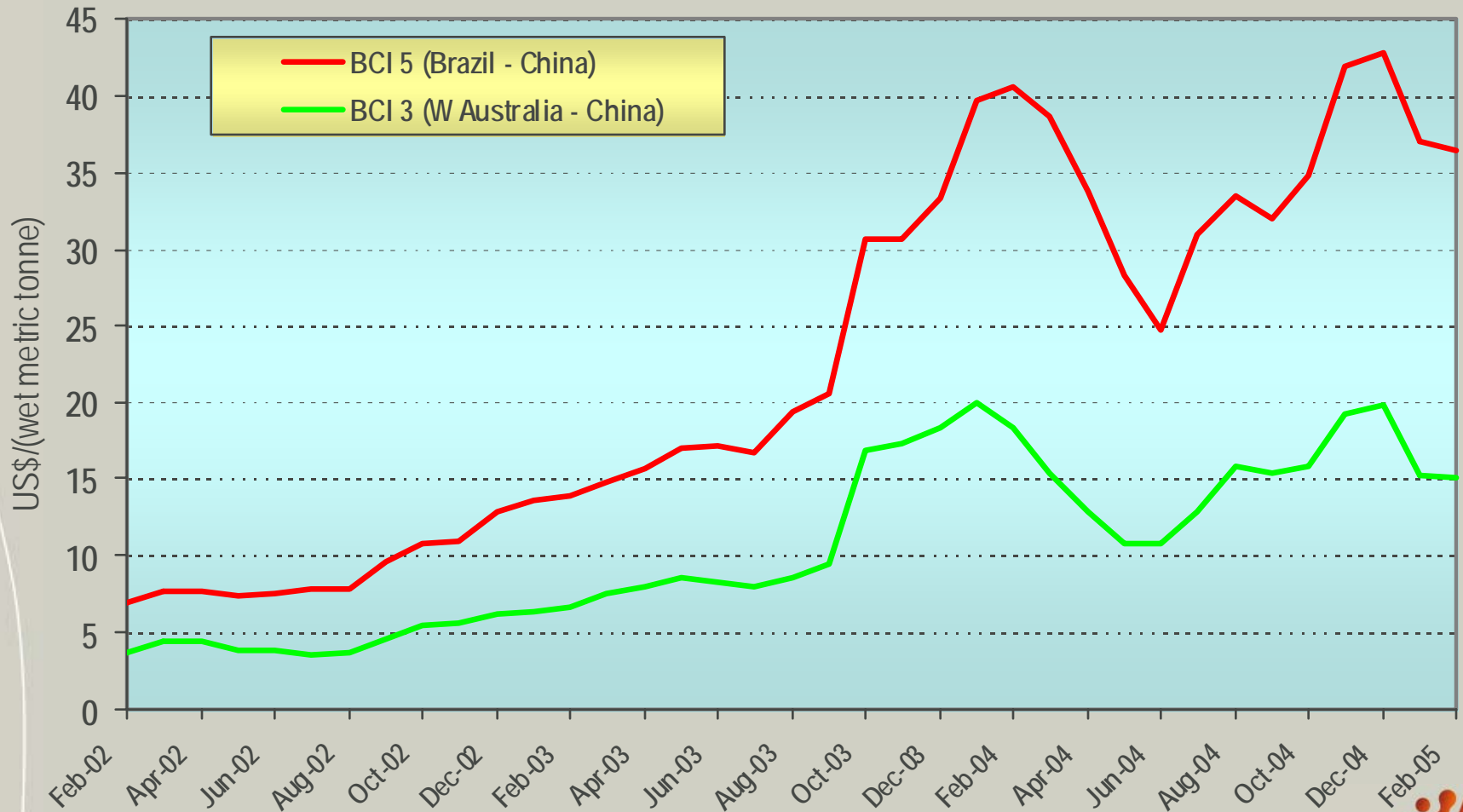
Indication of spot market prices in China (CFR)

Chinese spot market prices (represented by the Indian import price) started to escalate in mid 2003. The prices peaked at levels in excess of double the effective Asian benchmark landed cost price.



Large increases in freight rates

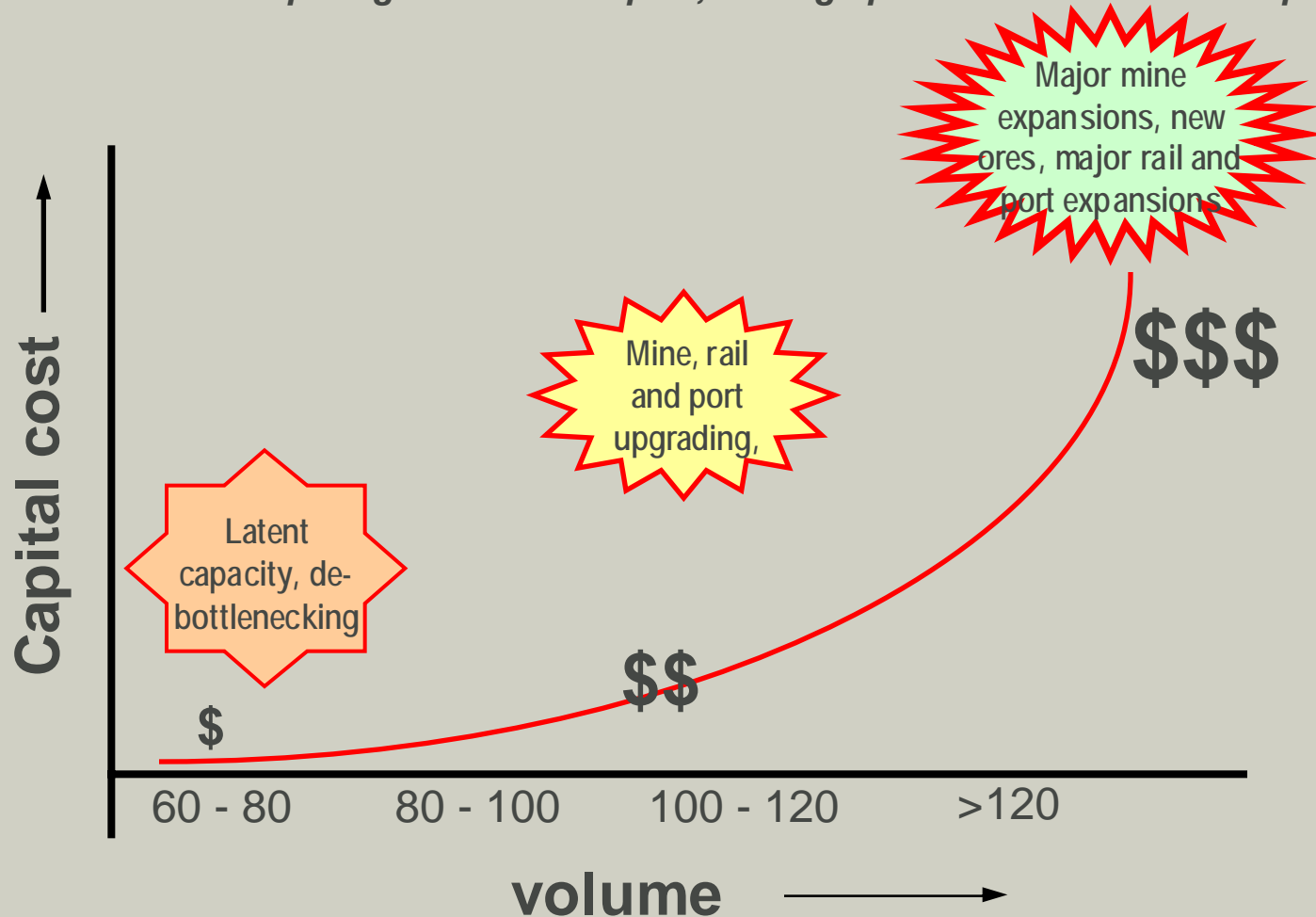
Increases in seaborne freight tonnages and capacity constraints at ports tying up ships have both contributed to dramatic increases in freight rates.



Data source: Baltic Indices

Cost, capacity relationship

Large capacity increases require serious levels of capital spending. Capacity expansions across many industries are competing for various inputs, driving up the costs of iron ore expansions.

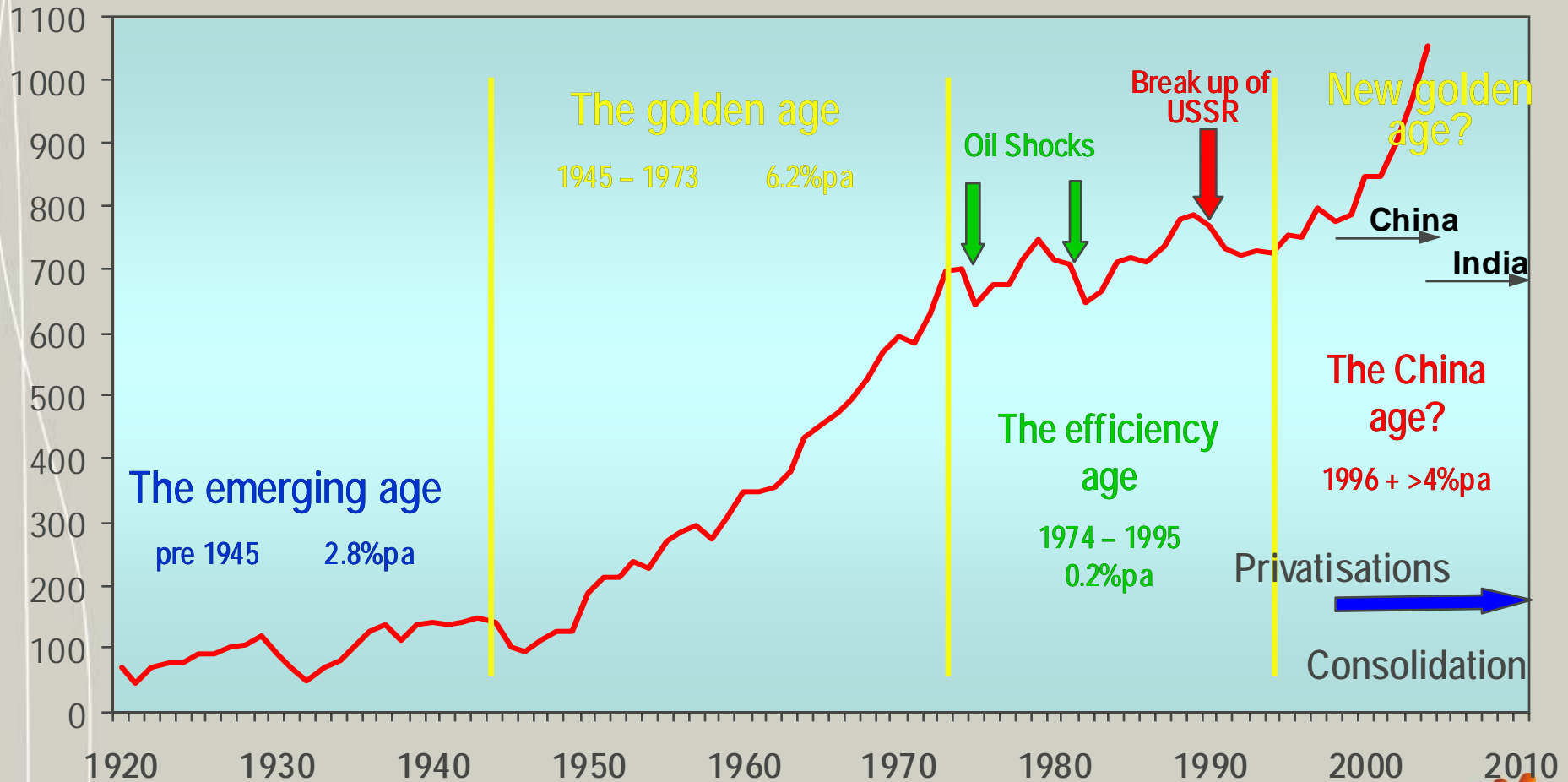


The Future – China and beyond



Global Steel –the new golden age?

4th age of steel firmly established, parallels between post 1995 and post 1945, industrialisation and rise of China, can it be continued with India? $\frac{3}{4}$ of population < world steel average consumption.

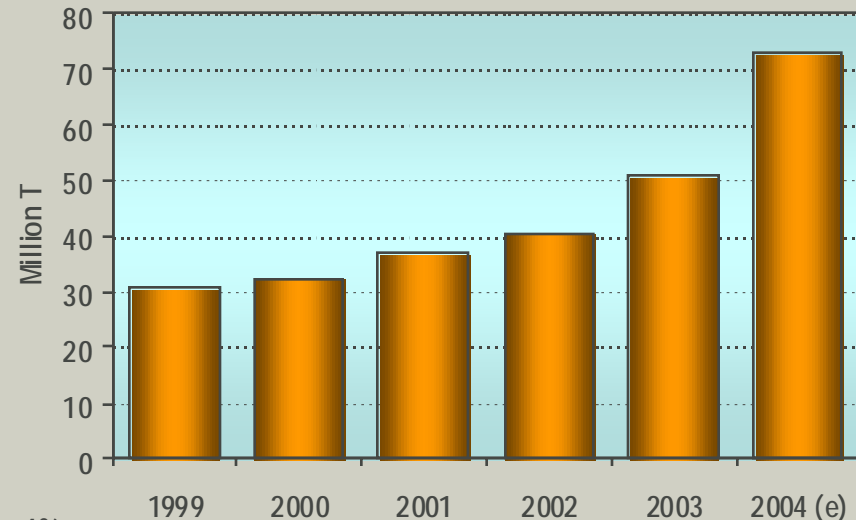


Data source: IISI

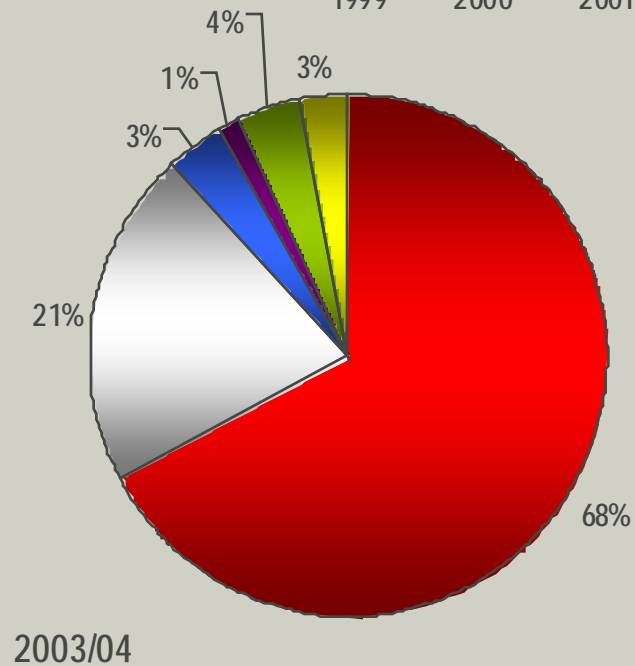
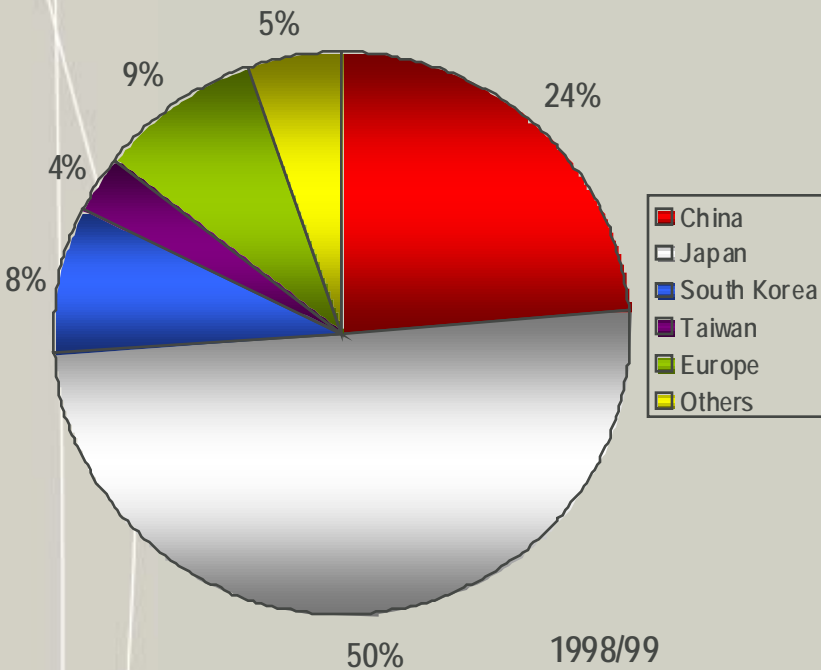
Growth in Indian exports

Indian exports have grown sharply over 2003 and 2004 and doubled since 2000. China as a destination has grown from 24% to 68% of total iron ore exports.

Will domestic demand and infrastructure challenges limit this growth in the future?

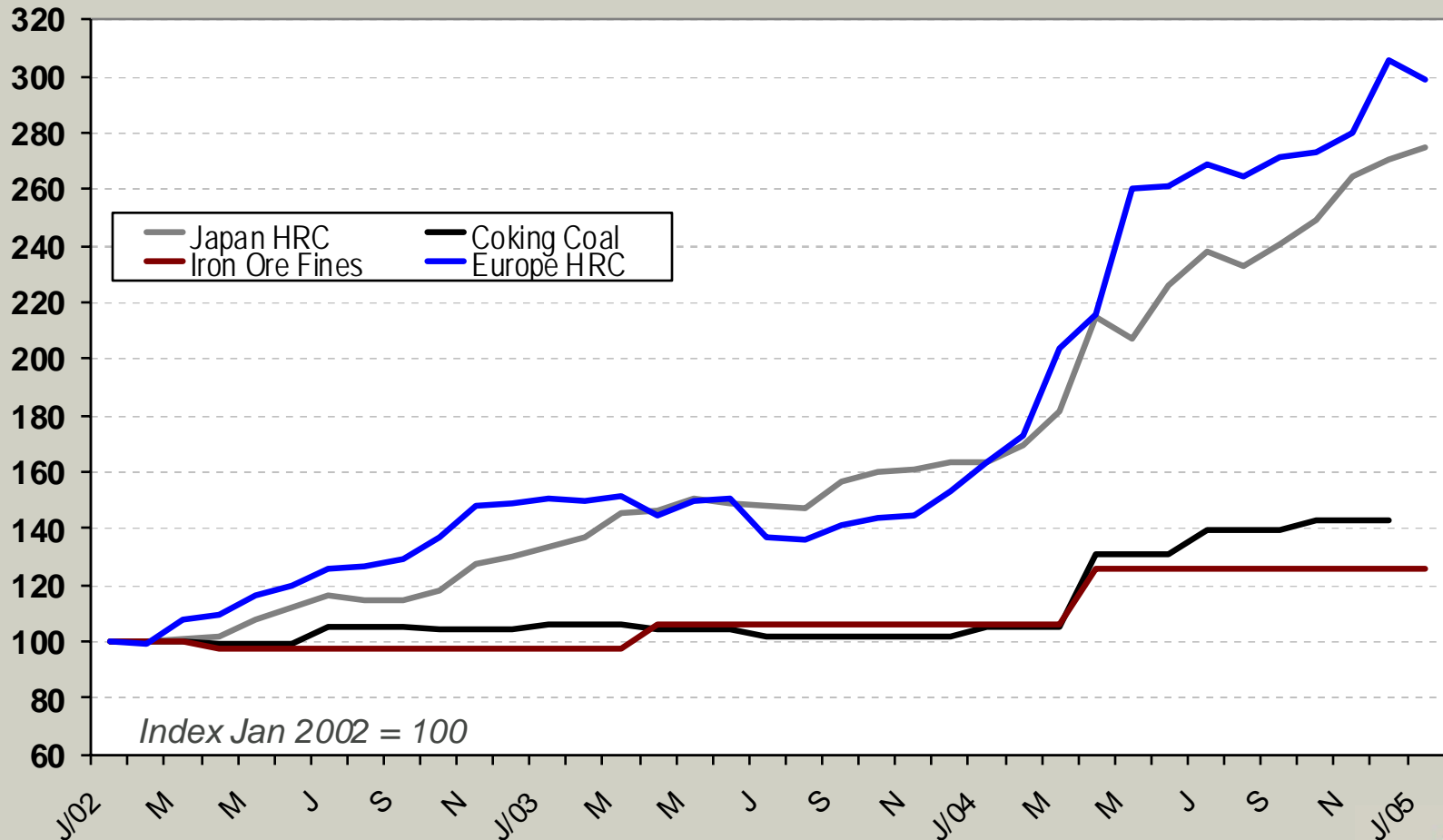


Data source: CRU



Steel price increases relative to iron ore and coking coal

Steel price increases have been higher relative to iron ore and coking coal increases. The strong steel prices have assisted the global steel industry to achieve unprecedented profitability.

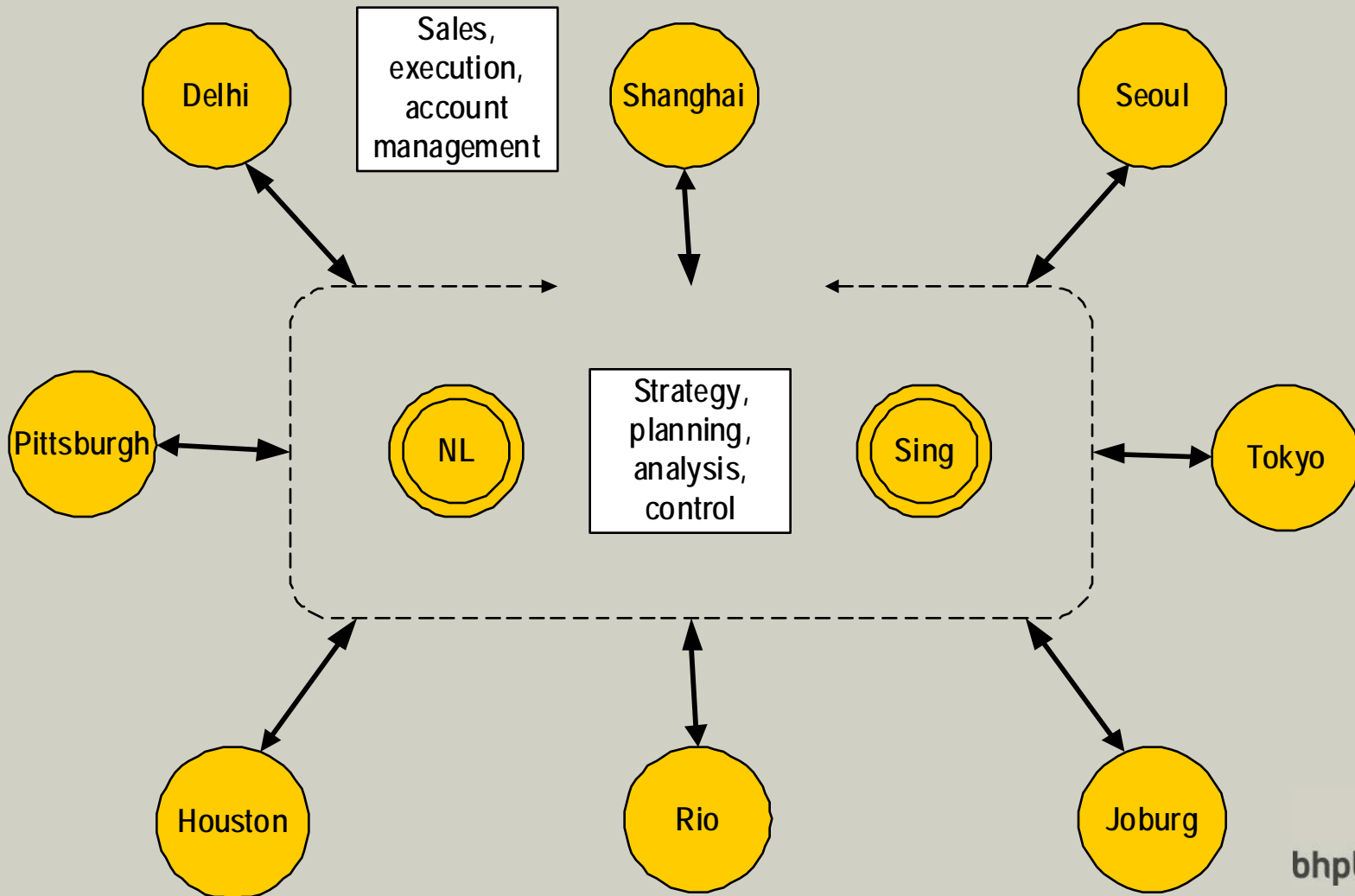


Strategies for the New World



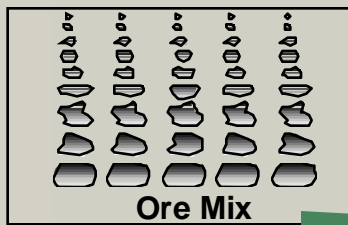
BHP Billiton marketing model

Hub and spoke design for Marketing group allows close customer contact

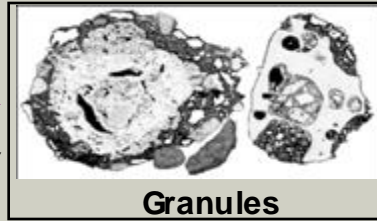


The capabilities of NTC

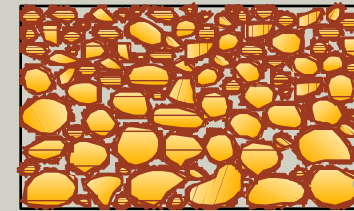
BHP Billiton's NTC is a world leader in the studies of fundamental iron ore reactions. It is also at the forefront of work on sintering and the utilisation of pisolite and marra mamba iron ores.



1. **Coarsening by granulation**



2. **Charging on machine**

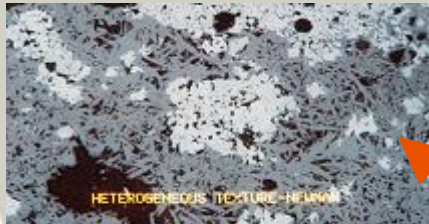
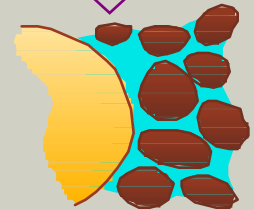


Humidification by water condensation



3.

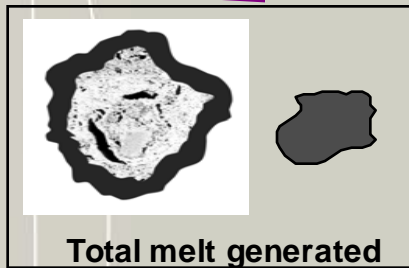
Humidified Granules



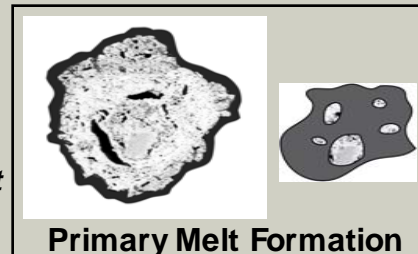
These sub-processes influence overall sintering performance.

The response of goethitic ores can be quite different.

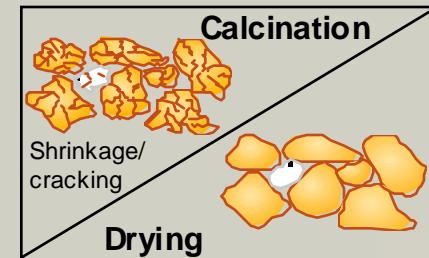
7. **Sinter and solidification**
Cooling



6. **Solid-melt reactions**



5. **Solid-solid reactions**



Drying and calcination

4.

**Thank you
for your
attention**

