

# 2<sup>ND</sup> INDIAN STEEL CONFERENCE

World steel demand and supply dynamics by Region  
A perspective till 2010

13<sup>th</sup> – 15<sup>th</sup> March 2006

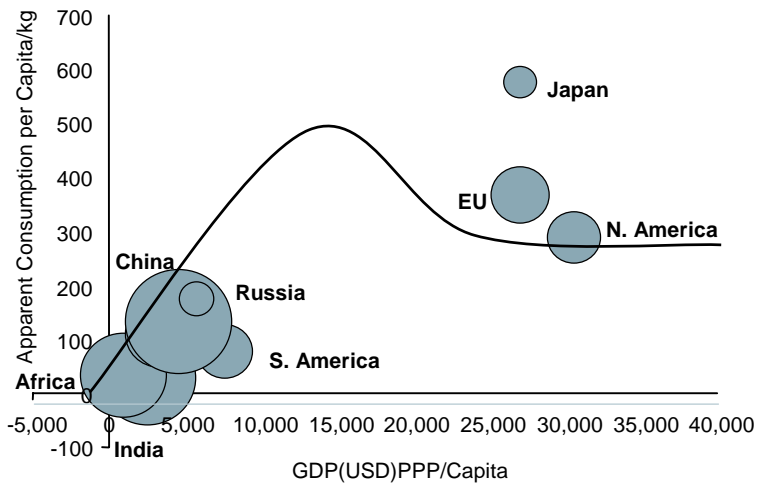


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# Trends in worldwide steel demand

## Steel consumption growth trajectory, selected regions



**Note**

Size of bubble represents population

- World steel is experiencing a growth phase similar to that between 1945 and 1973
- Only the population involved is 4 times as large

**Steel consumption is driven by population and GDP. Half of the world’s population lives in high growth areas**

## Expectations of steel requirements by region to 2015/20

	2003	% p.a. growth	2007	2015/20	Key differences
South America	26.2	1.0%	33	47	
Europe	178.3	1.4%	190	213	
CIS	27.8	3.7%	33	45	
North America	137.8	0.5%	141	146	
China	245.9	6.4%	349	554	205
Other Asia	177.2	4.8%	227	327	100
Oceania	8.5	1.0%	9	10	
Africa	17.1	3.7%	21	27	
Middle East	21.6	5.5%	29	44	
<b>Total</b>	<b>840.4</b>		<b>1,032</b>	<b>1,413</b>	

# Future steel requirements: raw material implications

## Virgin iron: world requirements

MT	2000	2015/20
Crude steel production	822	1,390
Required virgin iron volume	450	800
Required ore @ 65% Fe content	690	1,230
Ore actually used / required	960	1,700
Sea borne ore trade	445	795
Dry bulk vessels required	405	720

### Note

Assuming EAF % in steel make remains at ~ 36%

- Current estimates of iron ore requirements are underestimated
- Scrap supply growth is limited by the life cycle of scrap production
- Marginal iron ore resources will become economically viable
- Estimated that coke demand (seaborne and non-seaborne) was 390mt in 2004 and will be 500mt by 2015
- Coke demand growth rate is lower than iron ore
- PCI will flatten the growth curve

## Global scrap requirements

	Scenario 1 <sup>1</sup>			Scenario 2 <sup>2</sup>		
	1985	2000	2015/20	1985	2000	2015/20
Total metallics requirements (scrap and substitutes)	352	432	740	352	432	740
Total scrap available (home, prompt, obsolete scrap)	336	379	673	336	379	521
Total scrap substitutes (HBI, merchant pig iron)	17	53	66	17	53	219
Implied recovery rate (obsolete scrap)	30%	32%	55%	30%	32%	32%

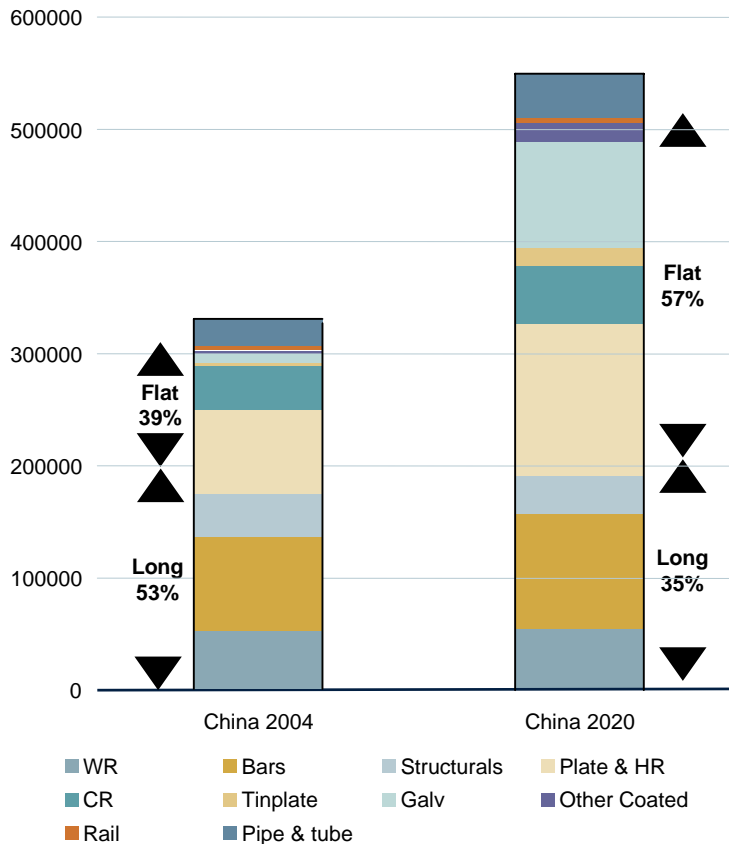
### Notes

- 1 Hold HBI production at current levels
- 2 Hold scrap recovery levels constant

***The future raw material supply structure will be different and more complex than the past***

# Future evolution in the Chinese market

## Structure of consumption



## Comment

- Consumption patterns will evolve as the economy matures and consumer goods become of increasing quality and importance.
- CRC, Tinplate, Galv, Other Coated (High Value Products) will be an increased proportion of consumption; rising from 16% in 2004 to 32% in 2015/20
- This forecast is derived from NA and EU patterns
- This increased technical and market complexity will need investment
- This will be most efficiently deployed if it coincides with consolidation to reap economies of scale.
- This evolving market also requires sophisticated distribution and processing capability

***The emerging focus in the Chinese industry is value added product development, distribution and consolidation to achieve a world best industry***

## Strategic consequences for the industry of a Mittal/Arcelor merger

- Would create steel company with global capacity of 110m tonnes
  - Combined market shares likely to prevent further significant acquisitions in Europe or the US**
    - Reaching maximum allowed in flat rolled in Europe
    - Reaching maximum allowed in sections and wire rod in Europe
    - Close to maximum in flat rolled in North America
  - Mittal/Arcelor business model will be substantial competitive threat**
    - Combined business would be 50% self sufficient in iron ore and 20% in coking coal
    - Mittal is actively seeking to increase iron ore capacity and looking at opportunities in coking coal
    - Should Mittal/Arcelor's flat roll assets in Europe become self sufficient in iron ore, this would pose a threat to commercial product producers (Corus, Riva, Salzgitter)
    - Iron ore self sufficiency would reduced fixed costs to \$60 per tonne and provide significant pricing flexibility, particularly in a downturn

## Strategic consequences for the industry (cont)

### Electric Arc Furnace producers likely to be affected

- Currently in Europe, BOF Steel is \$30 per tonne cheaper than EAF steel due to discrepancies in the price of scrap vs iron ore and electricity costs
  - This difference will be enhanced for a producer who is backward integrated into raw materials
  - Steel industry would therefore be split into 3 groups
    1. BOF producers backward integrated
    2. BOF producers not backward integrated
    3. EAF producers
- } 1 is advantaged over 2 and 3

Responses to this are likely to be

- BOF producers backward integrate
- BOF producers seek substantial price reductions from suppliers
- Seek new commercial relationships between steel producer and raw material supplier : indexation?

### Producers self sufficient in iron ore and partially in coking coal will be increasingly dominant

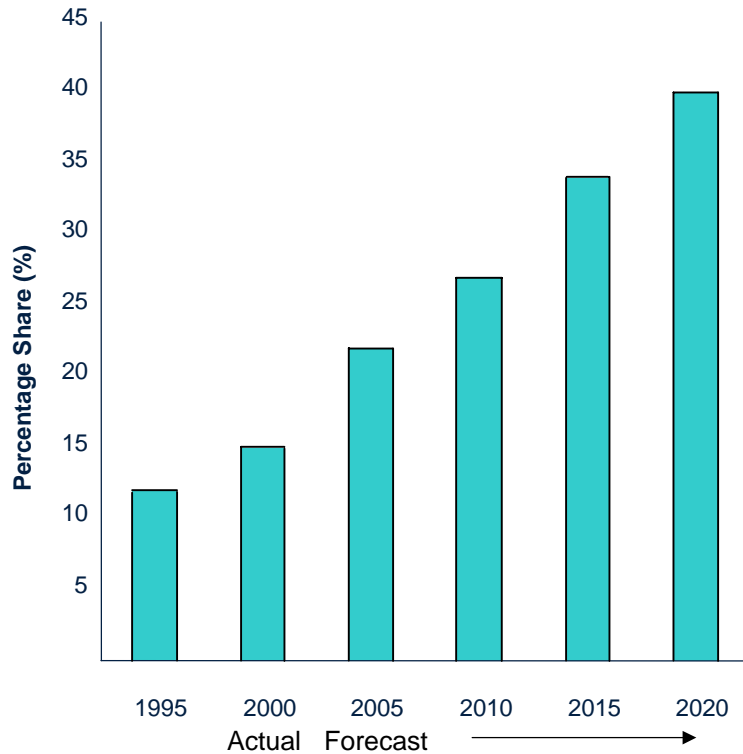
- Russian producers, most Indian producers, some Brazilian producers, some Ukrainian producers and possibly Mittal

### An enhanced Mittal is unlikely to stop at 110mt. Perhaps a target of 150-200mt

- India? Russia? The Americas? Ukraine? China?

# Consolidation trends and rationale

## Forecast share of top five producers of crude steel



**Note** Based on historic trend of industry consolidation

## Guy Dolle's View

- World steel consumption will be around 1,400mtpy by 2015
- Some markets will remain very local, more will be globalised, and not only in automotive, domestic appliances or packaging
- When top 5 to 10 steel producers represent 50% of world production, cyclicalities will be reduced
- Major players in the range of 70 to 140 Mt per year will arise, through alliances, acquisitions or mergers
- Subsidies must be withdrawn and more discipline must be developed to back fair competition, voluntary or under an international authority as it has been done in Europe in the past
- Unpredictable events, such as sustainability of the Chinese steel growth trend remain a threat. Agile corporations will be needed to adapt quickly

***Strong companies will attract capital to become stronger***

***Weaker companies will be acquired***

# Opportunities and challenges for the Indian steel industry

## Raw Materials

- Mining approval laws are very complex
- Multi-staged, unpredictable, approval process
- Coking coal shortage
- Scrap shortage

## Regulatory Environment

- Exit Route for unviable units very difficult
- Legal systems slow in delivery of justice

## Infrastructure

- High Railway Freight Costs
- Poor Road networks
- Low productivity ports
- Higher cost of power

## Consumption

- Low per capita consm. 30 kgs
- GCF = 26% of GDP
- 40% of steel demand from roads, ports and housing construction



- Higher operating costs
- Lower returns on capital
- Long lead times to set up new projects
- Effects viability of downstream industries

No other country offers more attractive actual and potential conditions for steel making as India and as such we should expect a greater proportion of the world's steel to be produced in India and of the top ten steel companies to be Indian