MANGANESE METAL COMPANY

The first choice in pure manganese

Capacity drivers in electrolytic manganese metal

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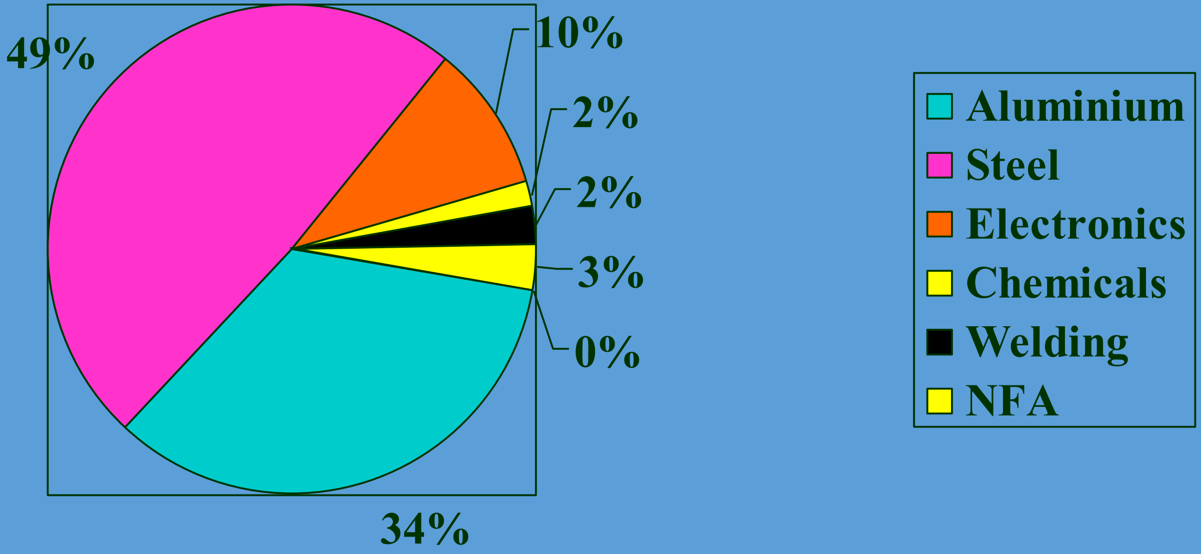
IMnI Rio de Janeiro - June 2003

World demand for ElMn by industry (2002)

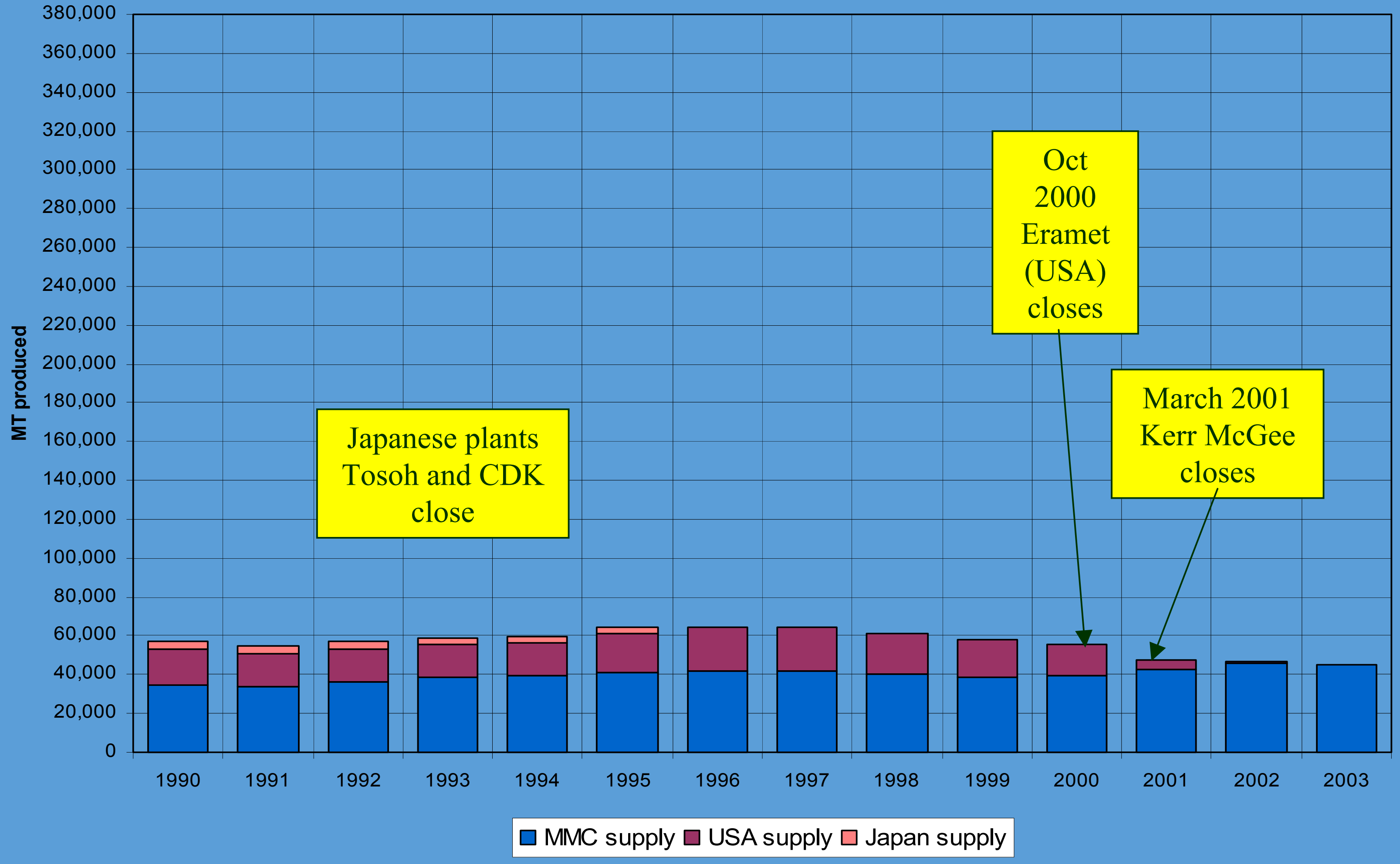


Mn unit options in steel

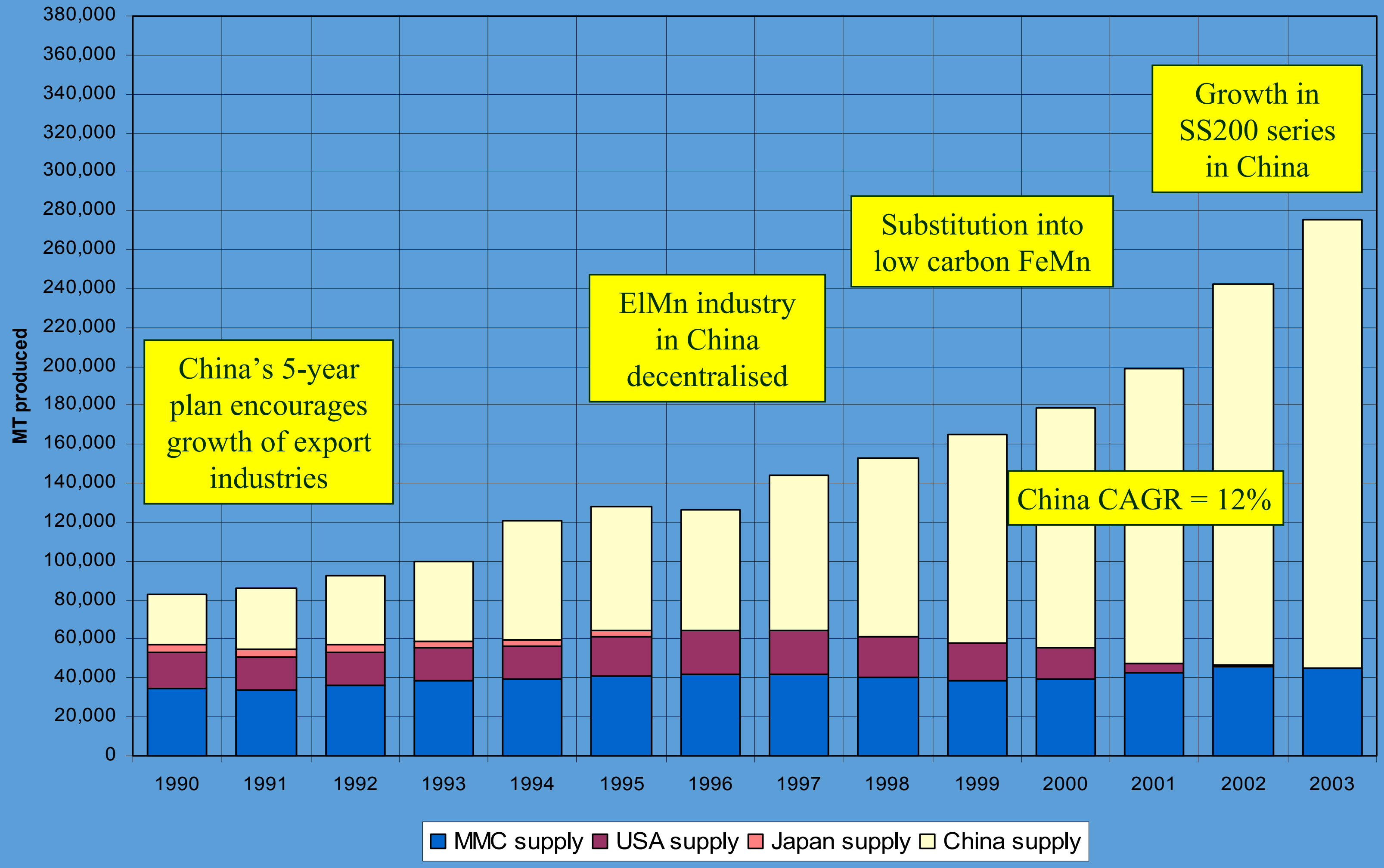
- HCFeMn 78% Mn, >7% C, <0.025% S, <0.10% P
- MCFeMn 80% Mn, <1.5% C, <0.025% S, <0.10% P
- LCFeMn 80% Mn, <0.5% C, <0.010% S, <0.10% P
- ULCFeMn 90% Mn, <0.10% C, <0.015% S, <0.10% P
- ULCSiMn 59% Mn, <0.10% C, <0.01% S, <0.10% P
- Mn metal 99% Mn, <0.01% C, <0.03% S, <0.001% P

Price

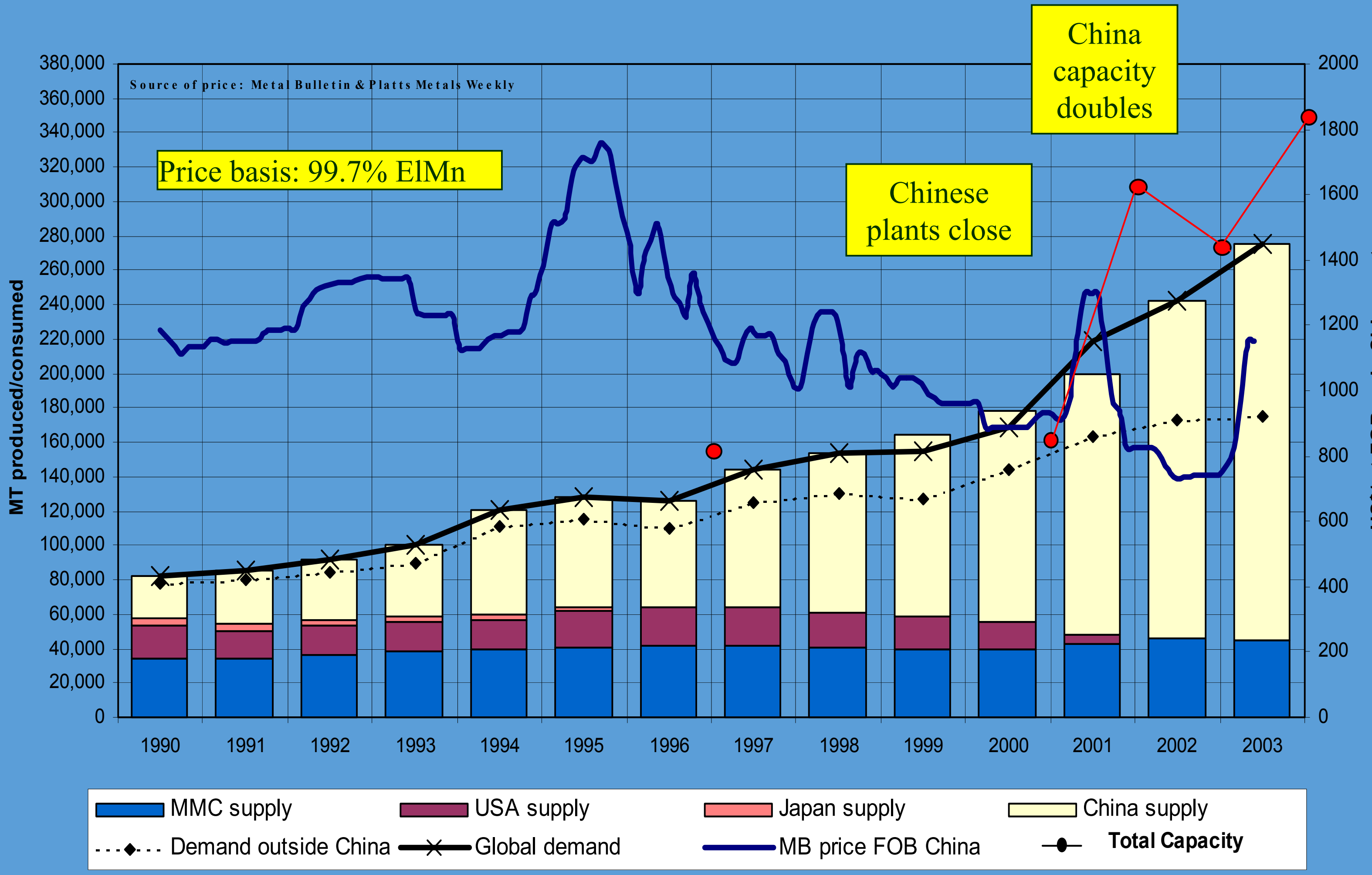
World Output excluding China



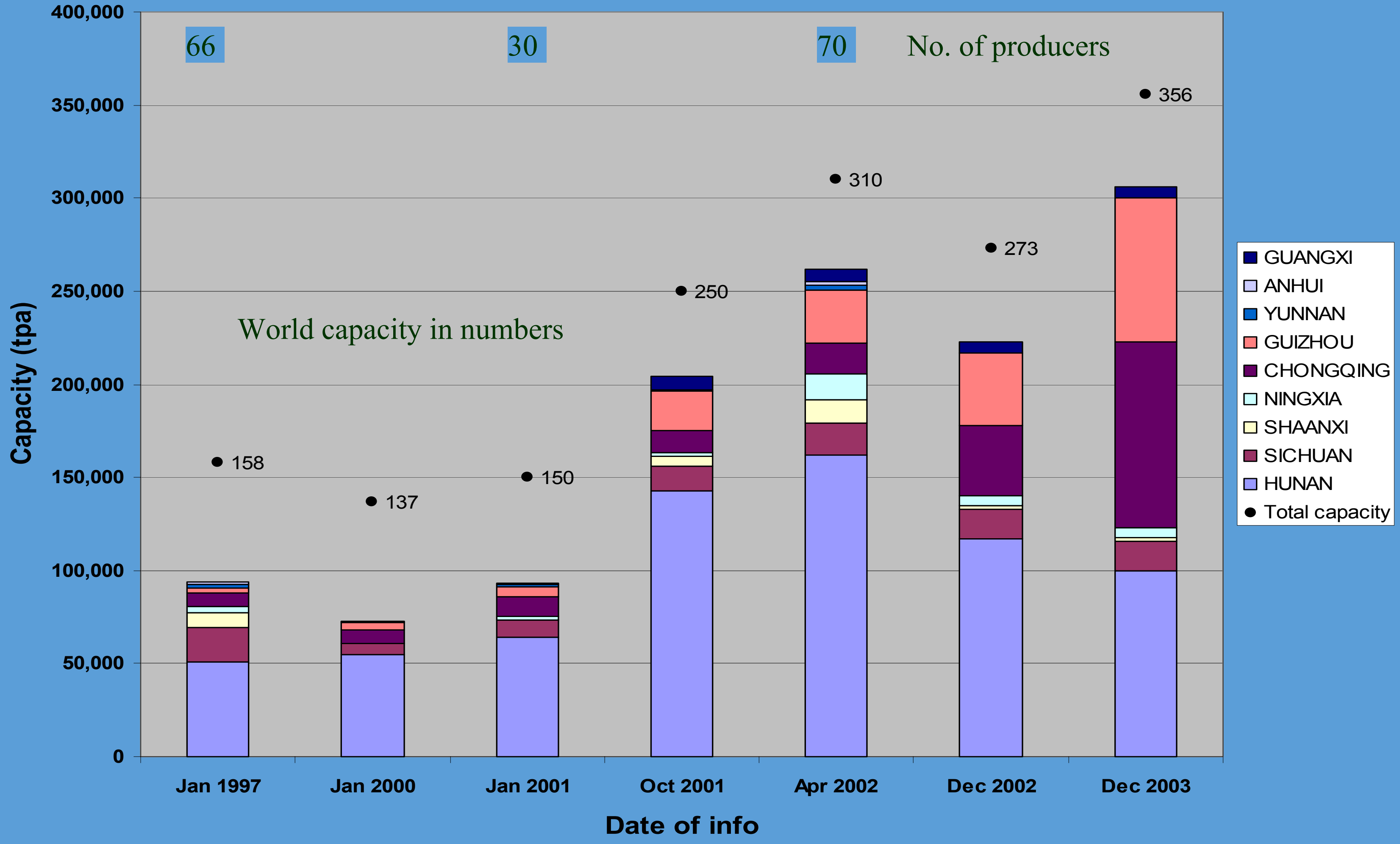
Total World Output



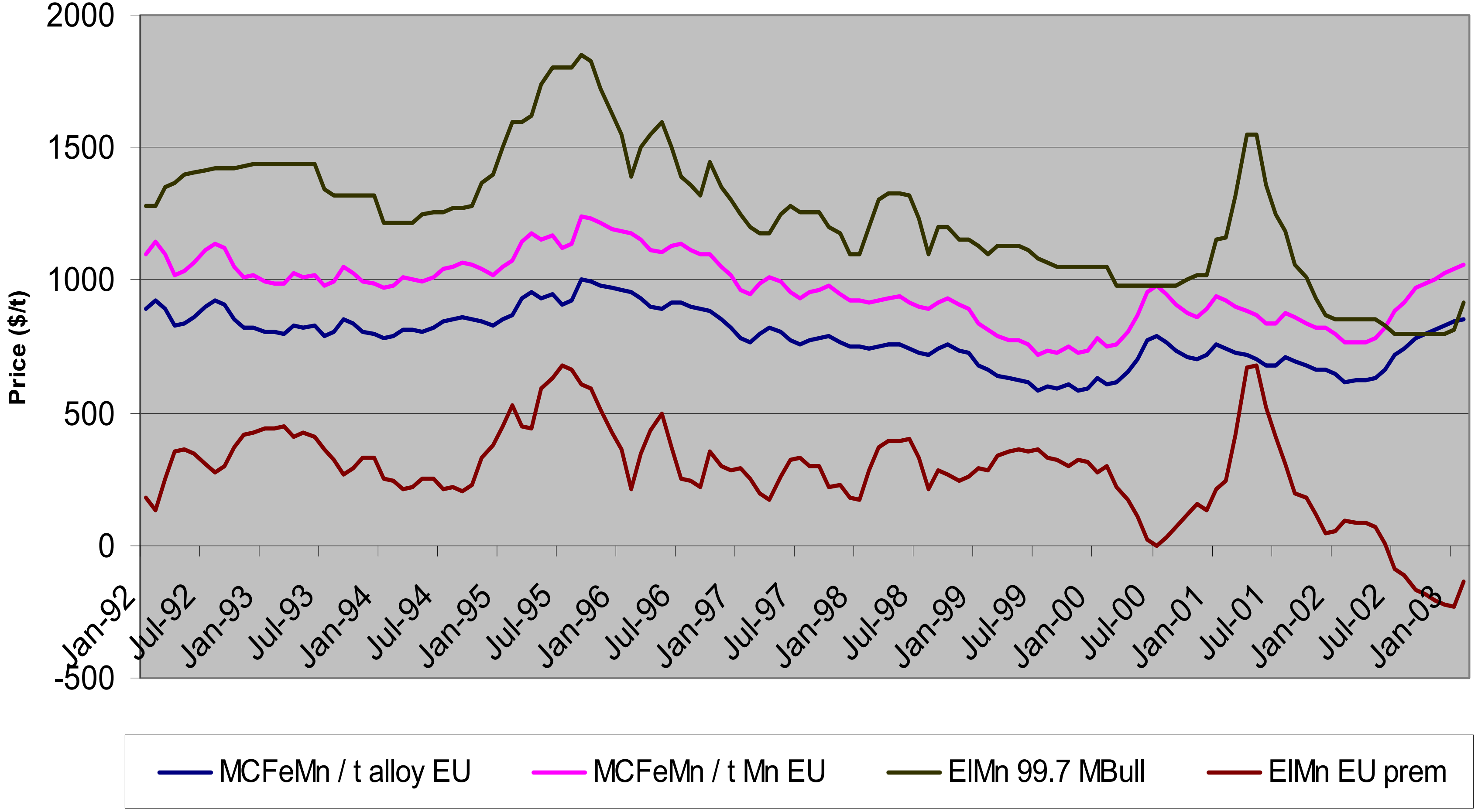
Demand, Output, Price & Capacity



Capacity changes in China



MCFeMn vs ElMn in $/t Mn



Substitution

- Steel sector sensitivity to substitution
- High growth rates due to substitution of refined FeMn
- ULC FeMn substitution largely completed
- MC substitution a threat at current prices
- ElMn average premium (Jan ’92 – Feb ’03) = $275/t or 35% on Mn basis
- China’s steel industry shows a propensity to use ElMn in preference to refined alloys
- Reverse substitution at about $1200/t

Pricing (99.7%)

- 1999-2000: Plants close at \$850/t FOB
- 2002 oversupply – low of \$670/t FOB
- Upward pressure on ElMn prices due to
  - High growth in ElMn in China
  - Low ElMn premium over MCFeMn
  - Expensive (and increasingly erratic) electricity supply
  - Environmental scrutiny from authorities
  - Availability of cheap ore

Capacity

- Capacity driven by price <u>and</u> perception of future demand
- Incorrect assumptions about market size leads to opportunistic capacity increases and wild price swings
- "Old" capacity seldom disappears
- Average plant size in China increasing
- Current capacity growth premised on assumptions about SS200 series growth
- Relocation of capacity in China due to environmental concerns and ore shortages

THANK YOU FOR YOUR ATTENTION