

# Asian steel and manganese alloy demand: whose demand is whose?

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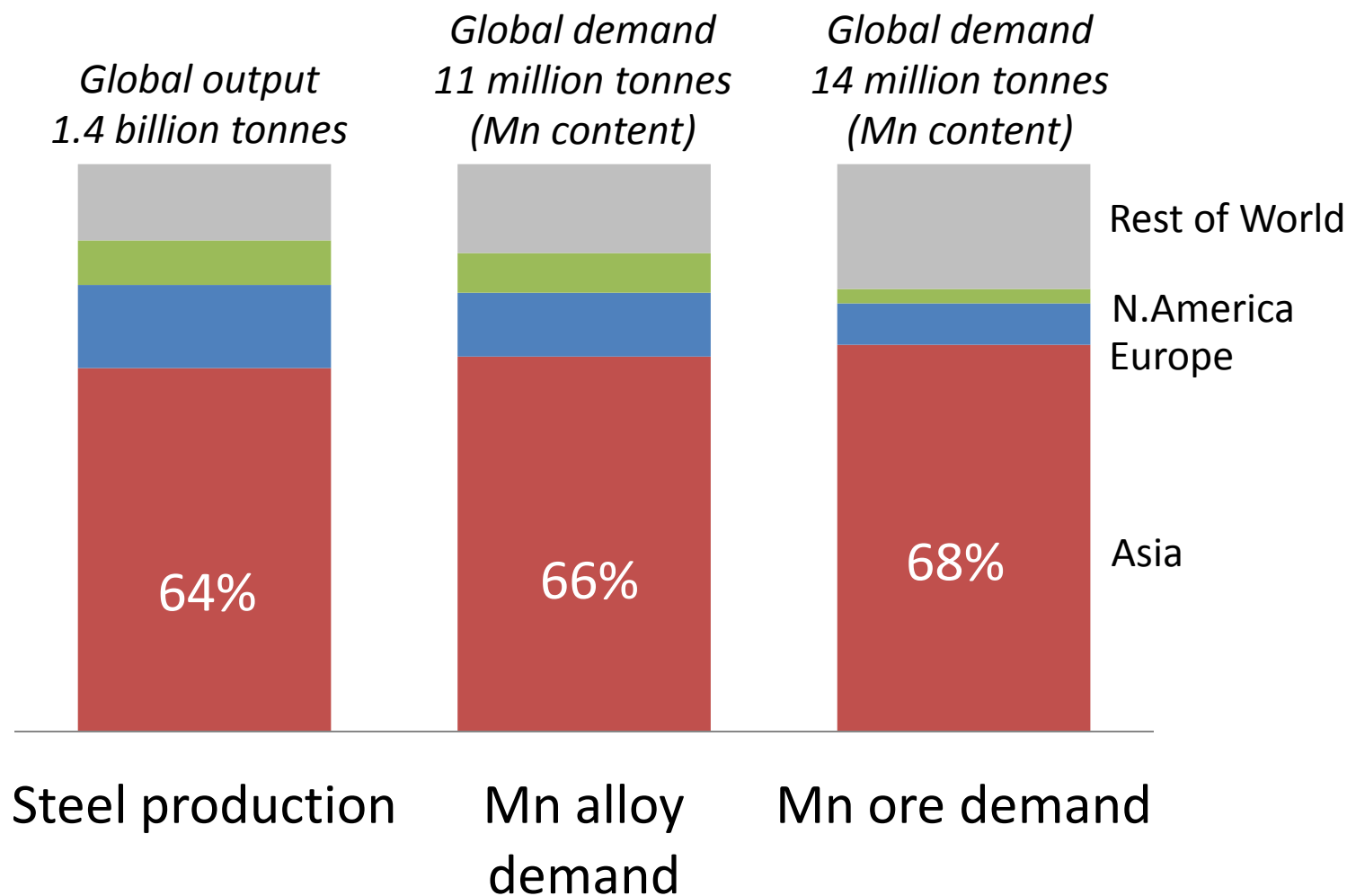


International Manganese Institute conference  
Jeju Island, South Korea  
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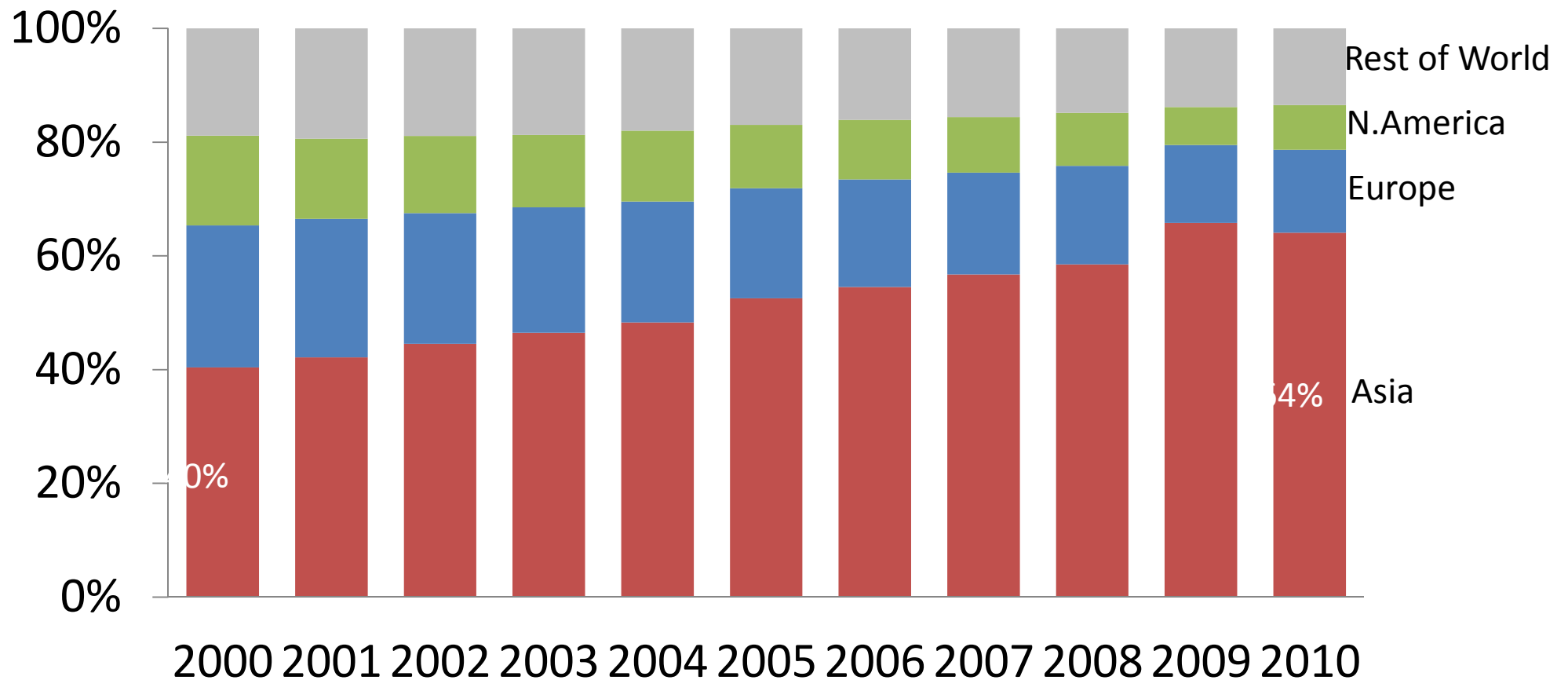
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# Asia now accounts for two thirds of global steel production and manganese consumption

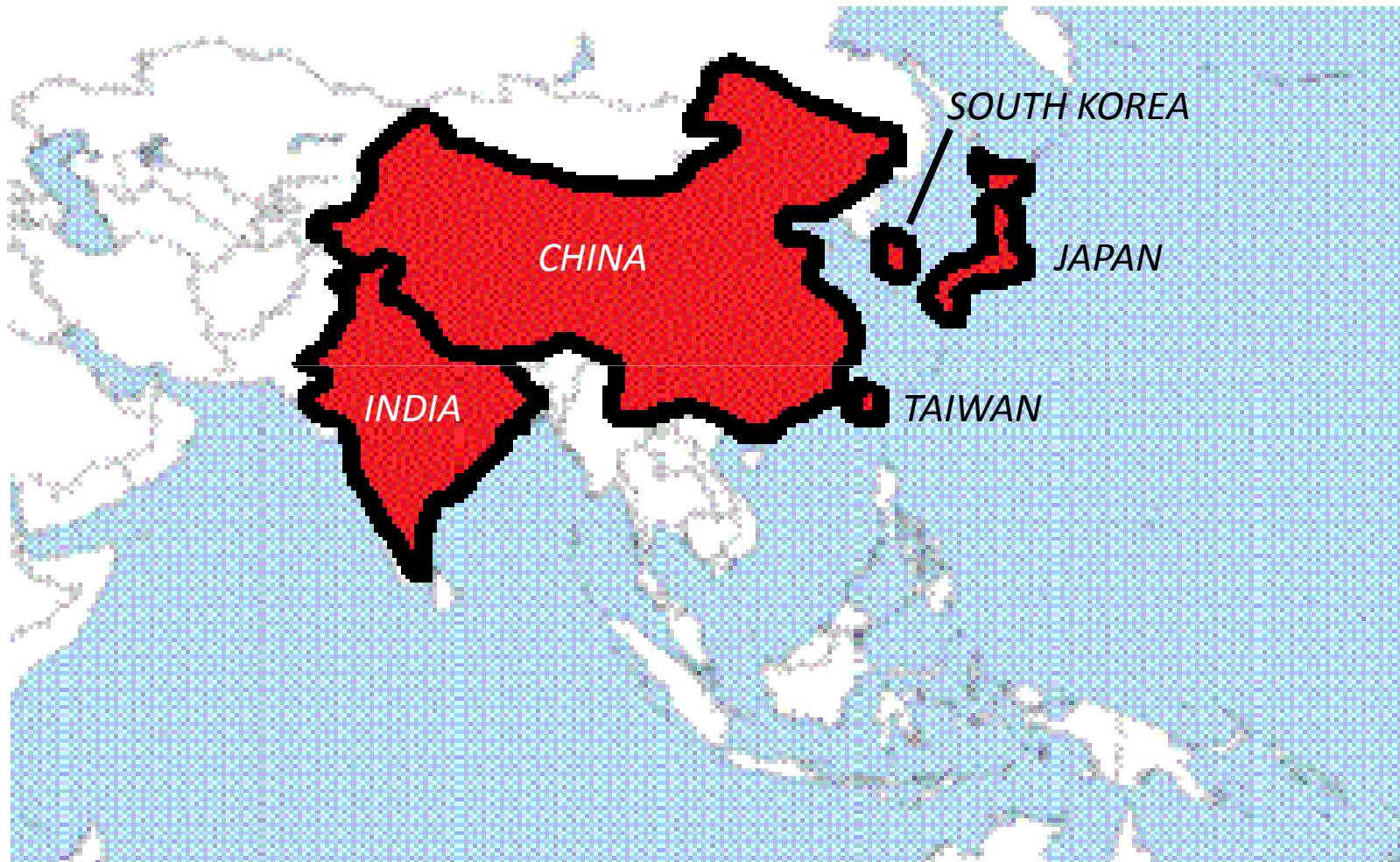


# Asia's share of global steel production has risen from 40% in 2000 to 64% in 2010

*World steel production by region*

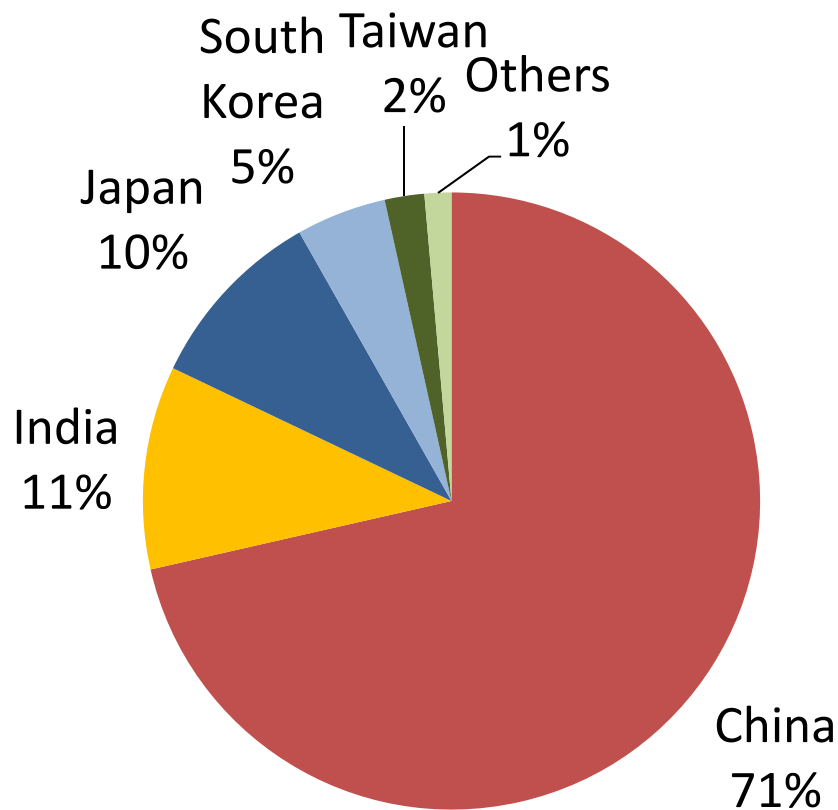


# Five countries account for 99% of Asia's Mn consumption



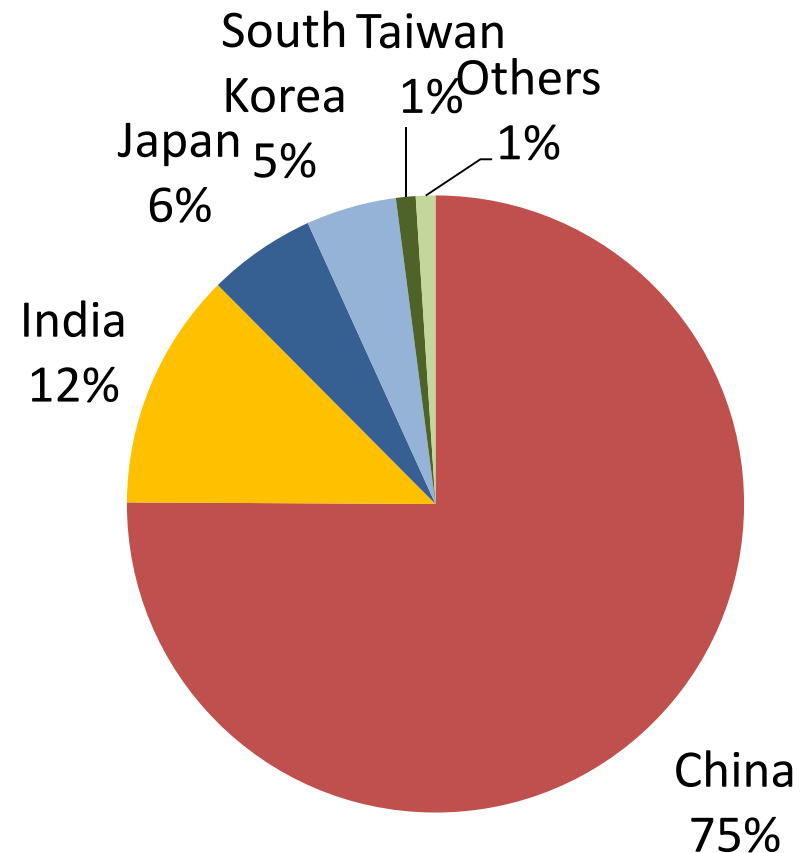
# Five countries account for 99% of Asia's Mn consumption, with China dominating

**Consumption of Mn alloys in Asia**



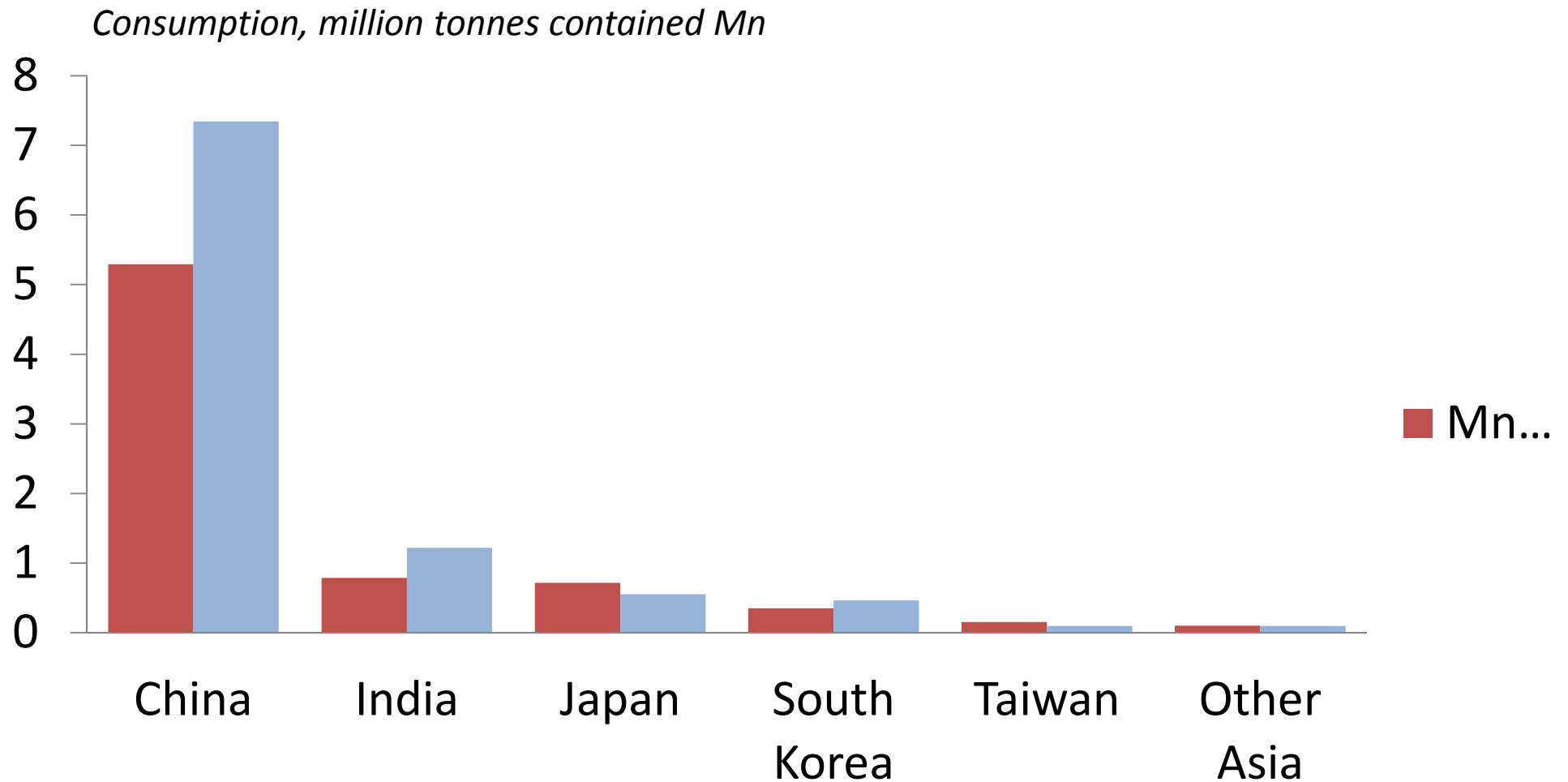
Total: 7.4 million tonnes

**Consumption of Mn ore in Asia**



Total: 9.6 million tonnes

# Five countries account for 99% of Asia's Mn consumption, with China dominating



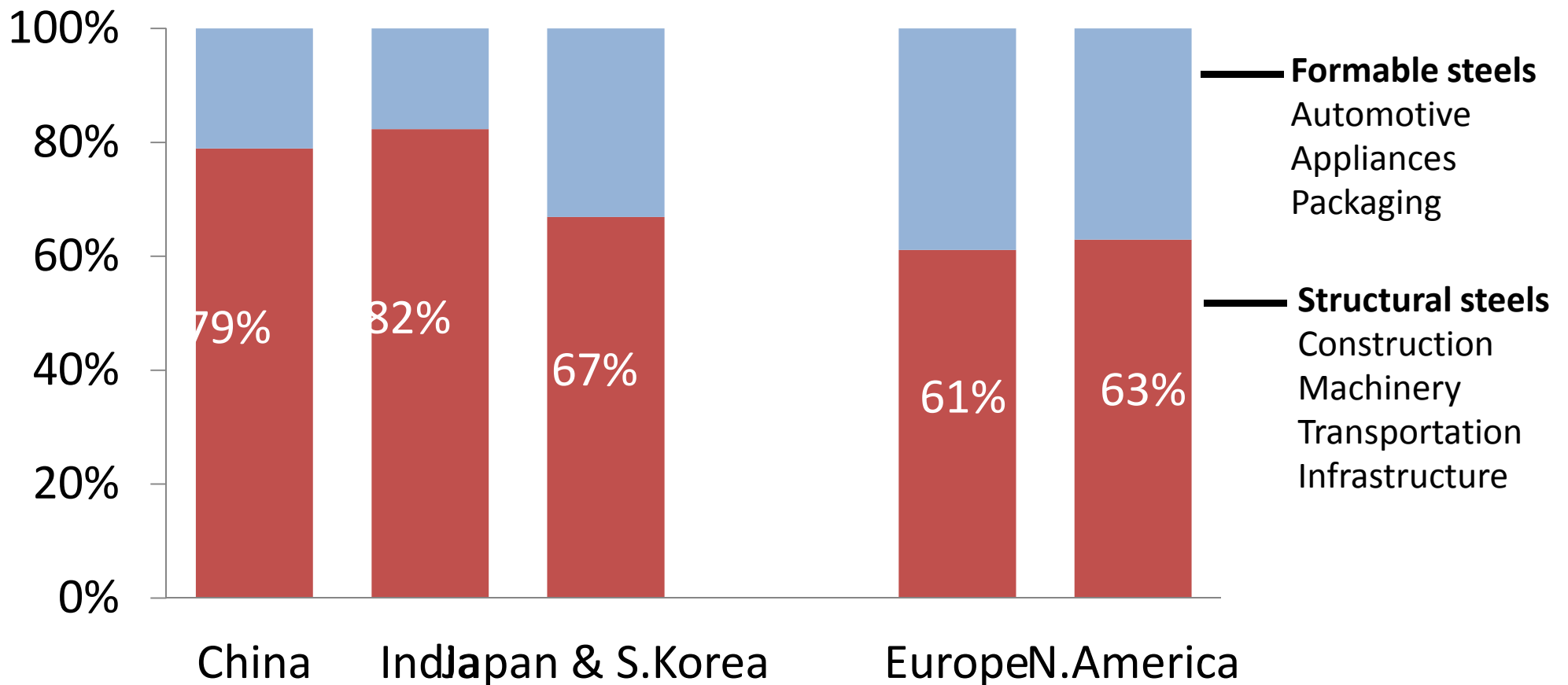
# Why is manganese used in steel?

- Over 90% of manganese is used in steel
- All steels contain manganese
- Manganese removes sulphur from steel. There is no viable substitute for manganese in this application
- Manganese is also used to add strength to certain steels
- Manganese content of carbon steel ranges from around 0.4% to above 2%
- Stainless steel 200 grade is 8-15% manganese

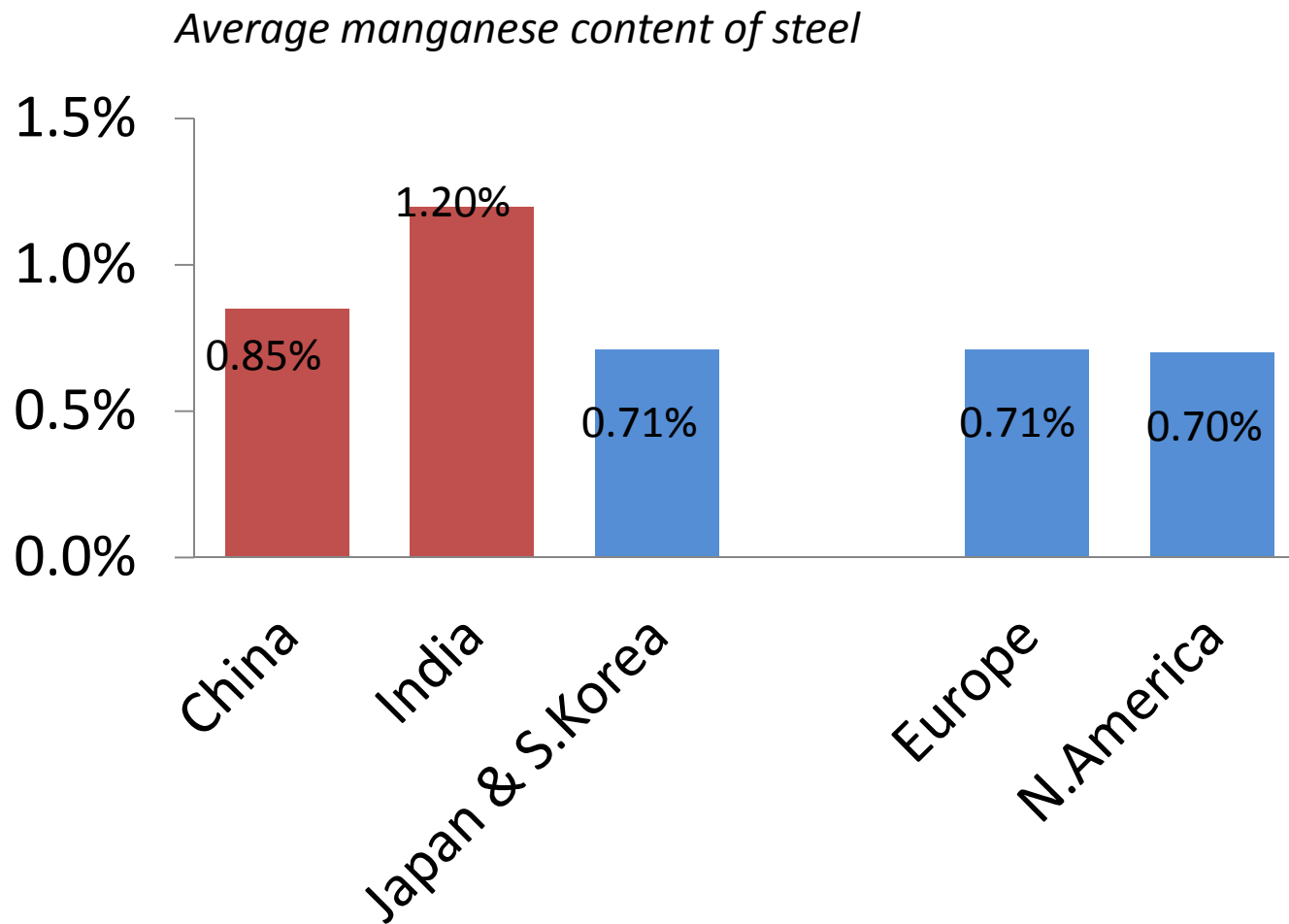


# Structural steels form a higher proportion of steel consumption in developing countries

Steel consumption by application



# Countries with a bigger share of structural steels have higher average Mn content in their steel



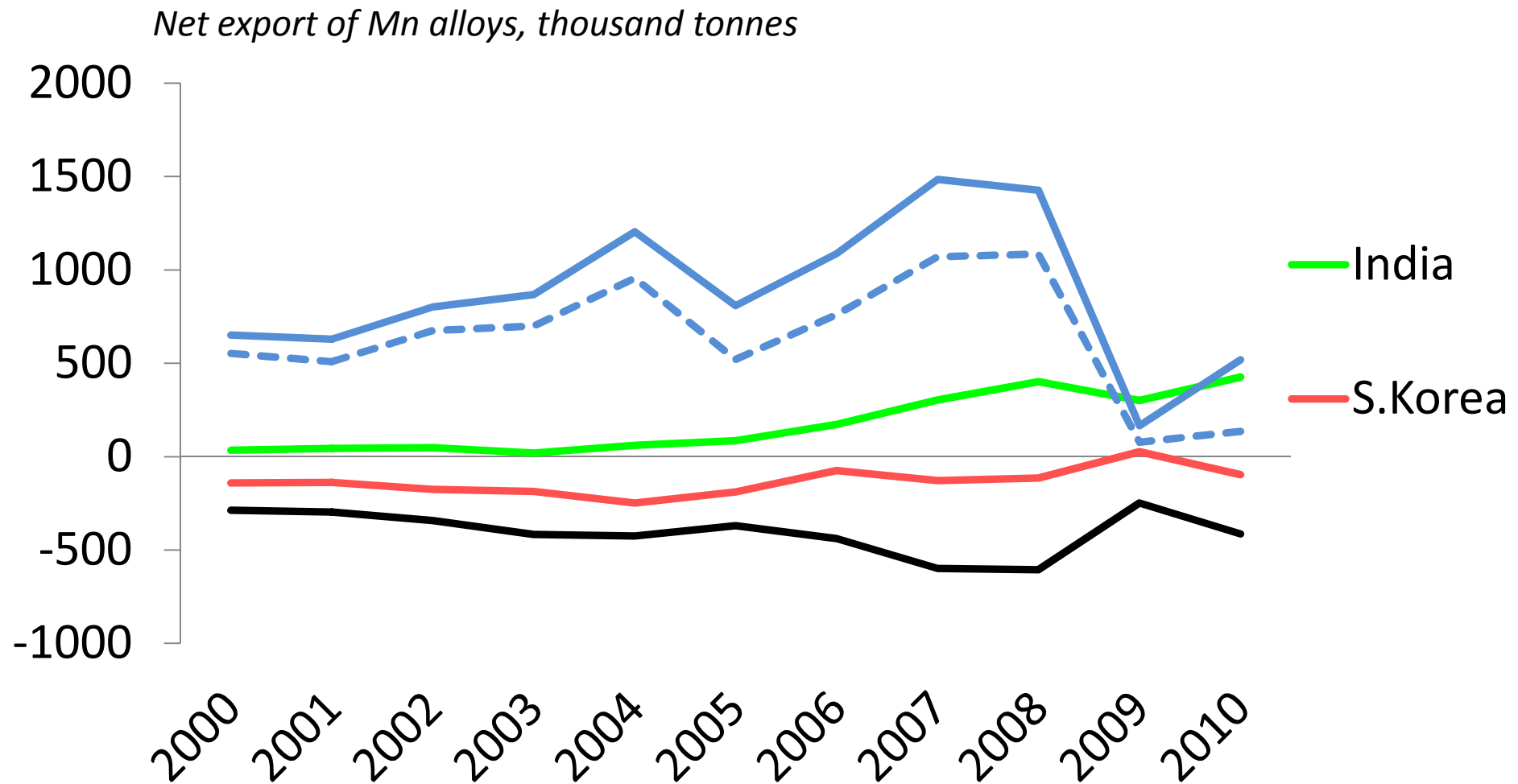
Structural steels require strength, so tend to have a high manganese content

Most formable steels do not require strength and tend to be lower in manganese

Developing countries focus on structural steel consumption – for infrastructure and buildings

Developed countries are more focused on consumer goods / automotive so use more formable steels

# Asia has seen its total net exports of Mn alloys fall sharply (but India and S.Korea have risen)



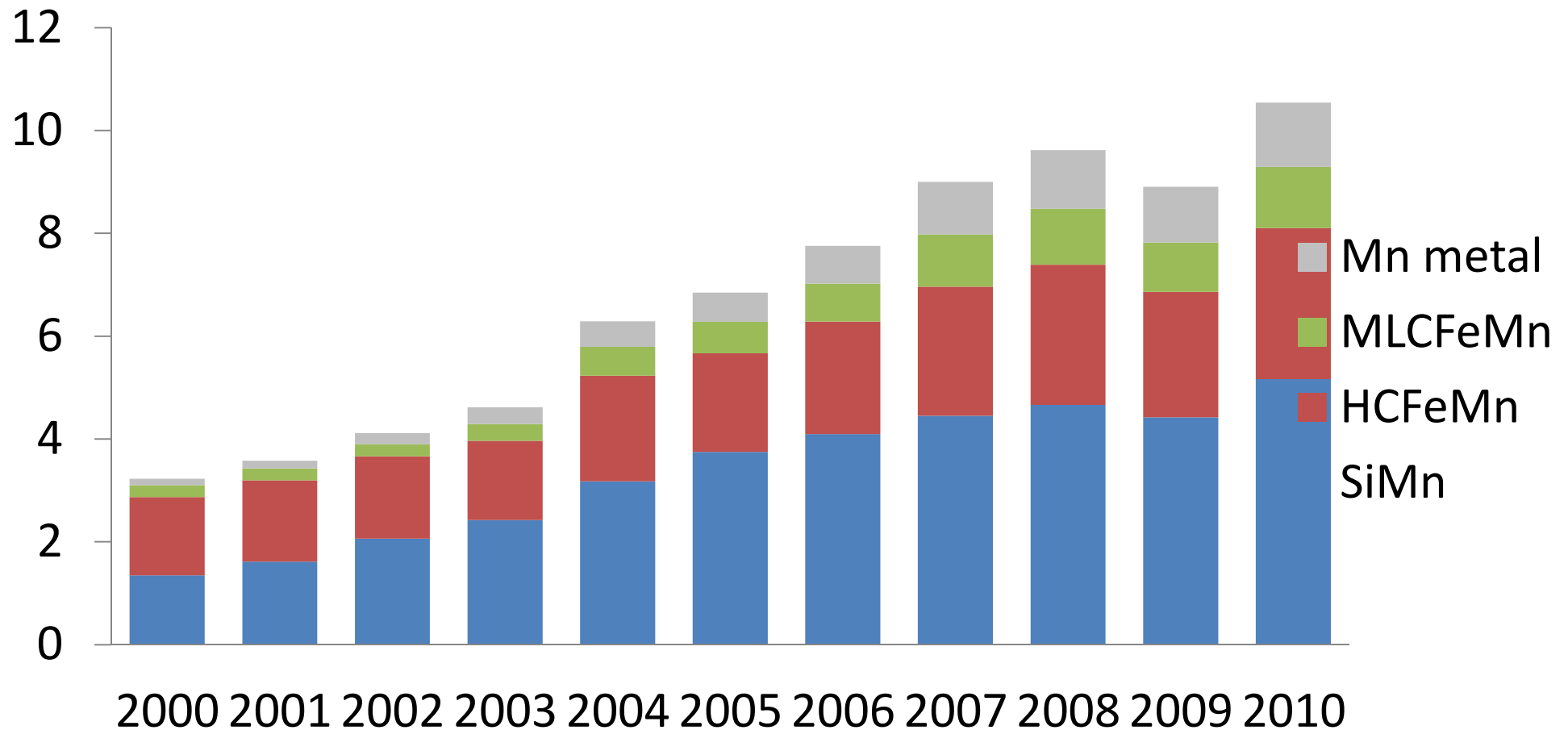
# The overall trend is that Asia is consuming more of its Mn alloy production and exporting less

*% of Asian Mn alloy production consumed in Asia*



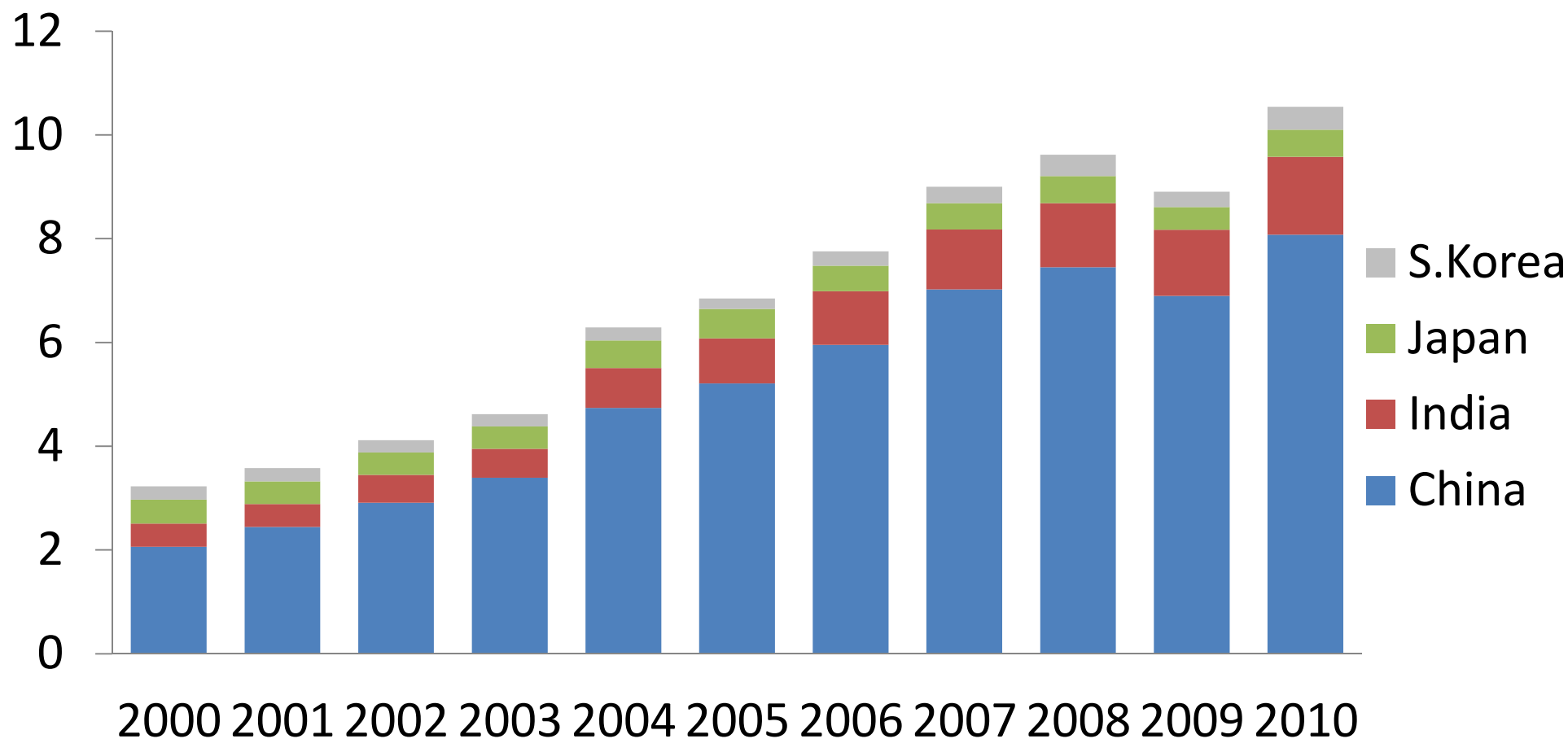
# In terms of volume, Asian production of Mn alloys has tripled over the past 10 years

*Asian production of Mn alloys, million tonnes, gross weight*



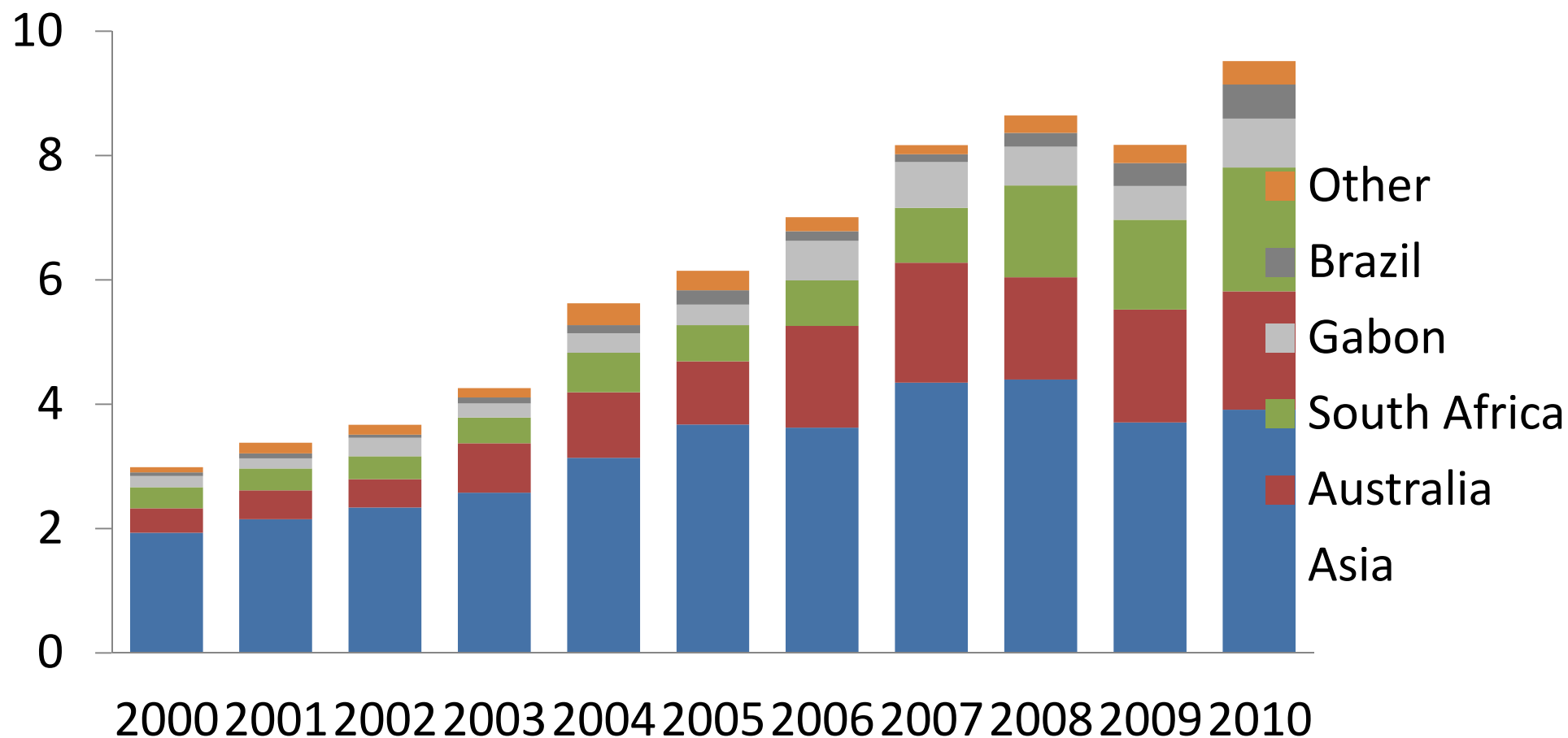
# China, and to a lesser extent India, have driven the increase in Asian Mn alloy production

*Asian production of Mn alloys, million tonnes, gross weight*



# The growth of Asian Mn alloy production has been fuelled largely by imported Mn ore

*Asian supply of Mn ore, million tonnes, contained Mn*

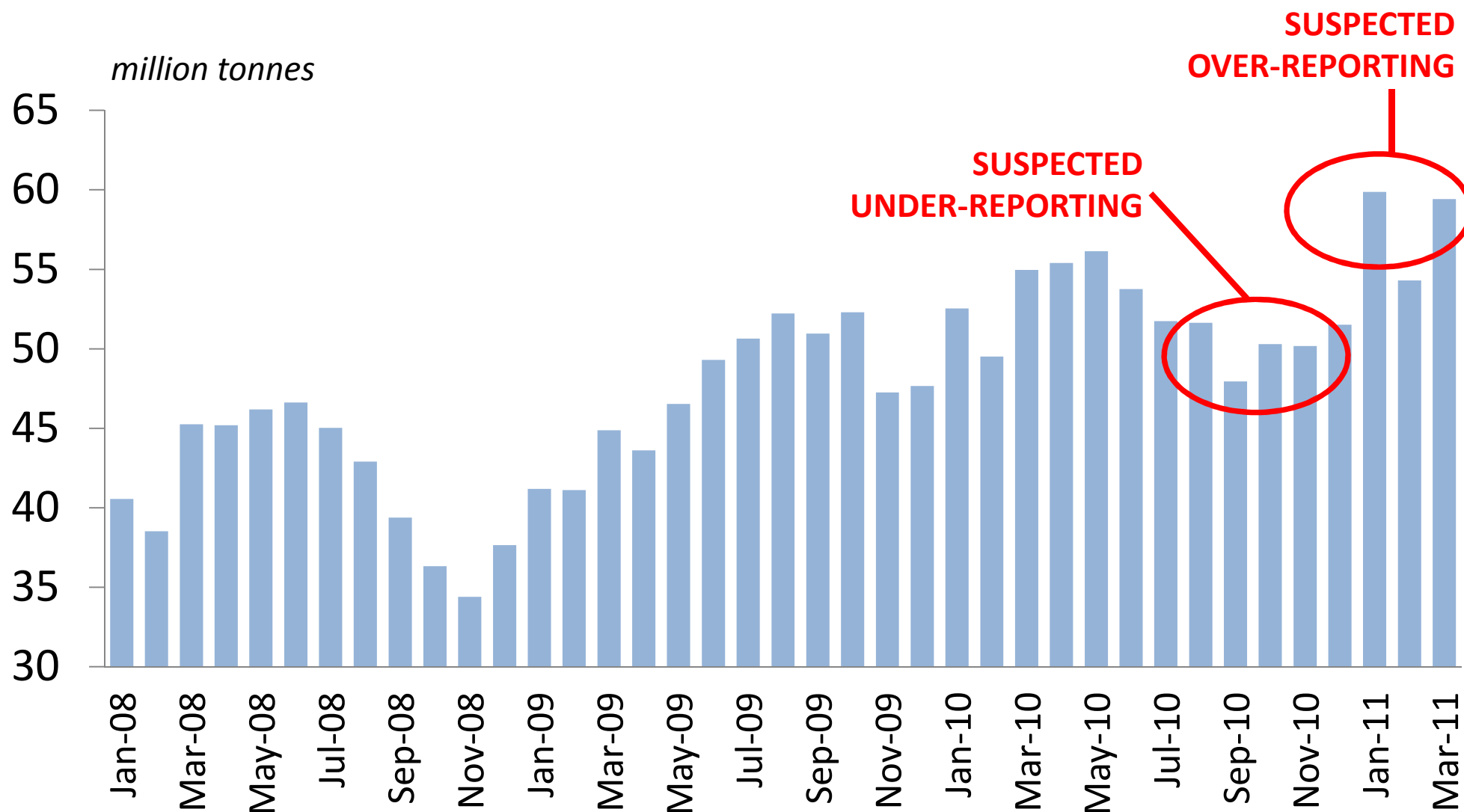


# China: accuracy of official steel production statistics has become a factor

- Strict government control measures in Q4-2010 led to a big decline in steel output as reported in official statistics
- There is strong evidence that steel producers under-reported their output during this period
- There is evidence that high Chinese steel output since Jan 2011 includes some over-reporting to compensate. Nevertheless, the over-reported tonnage is relatively minor (4Mt). It does not change the fact that Chinese steel production is at a record high
- SBB has 40 people in Shanghai analysing this for the “China Analytics” publication

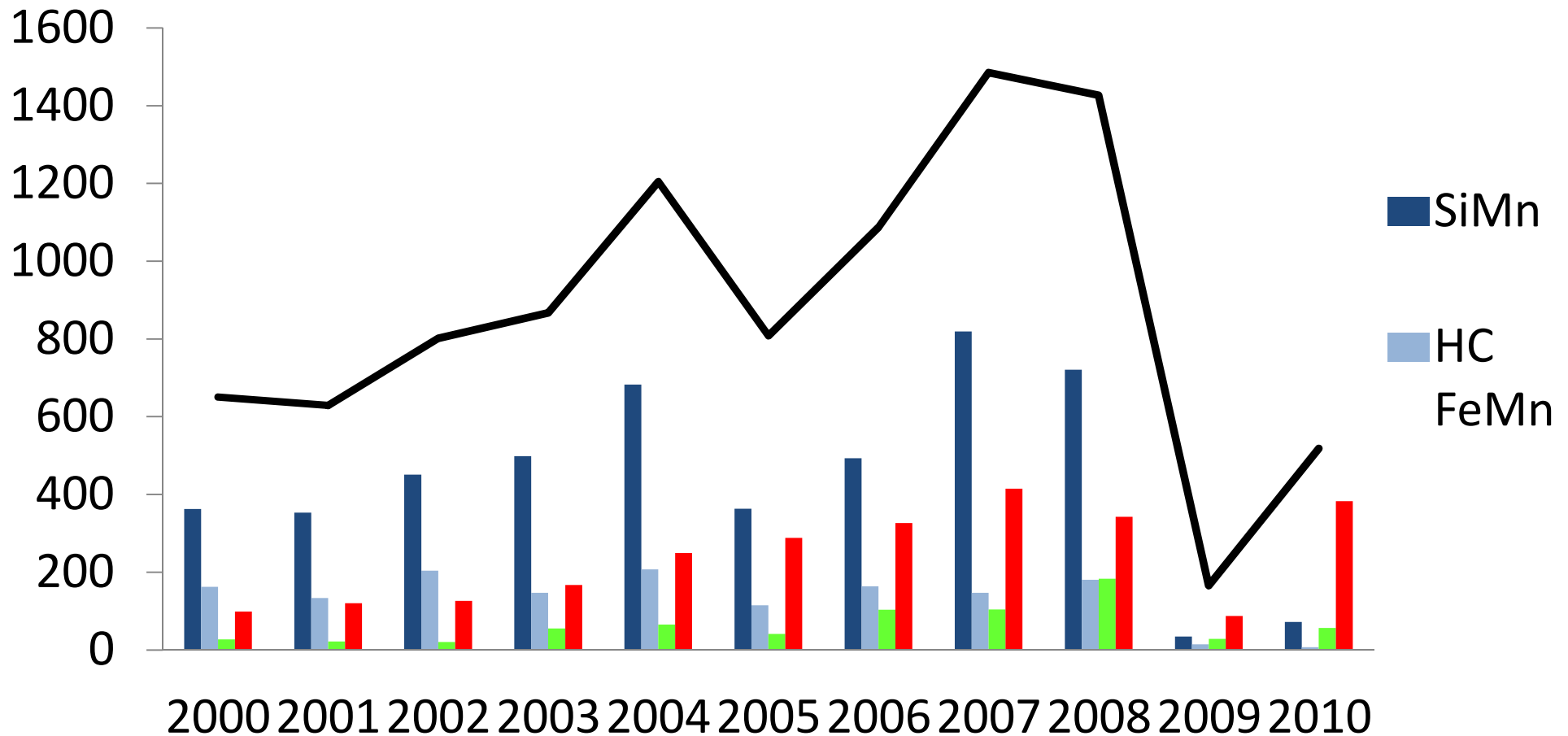


# China: monthly steel production



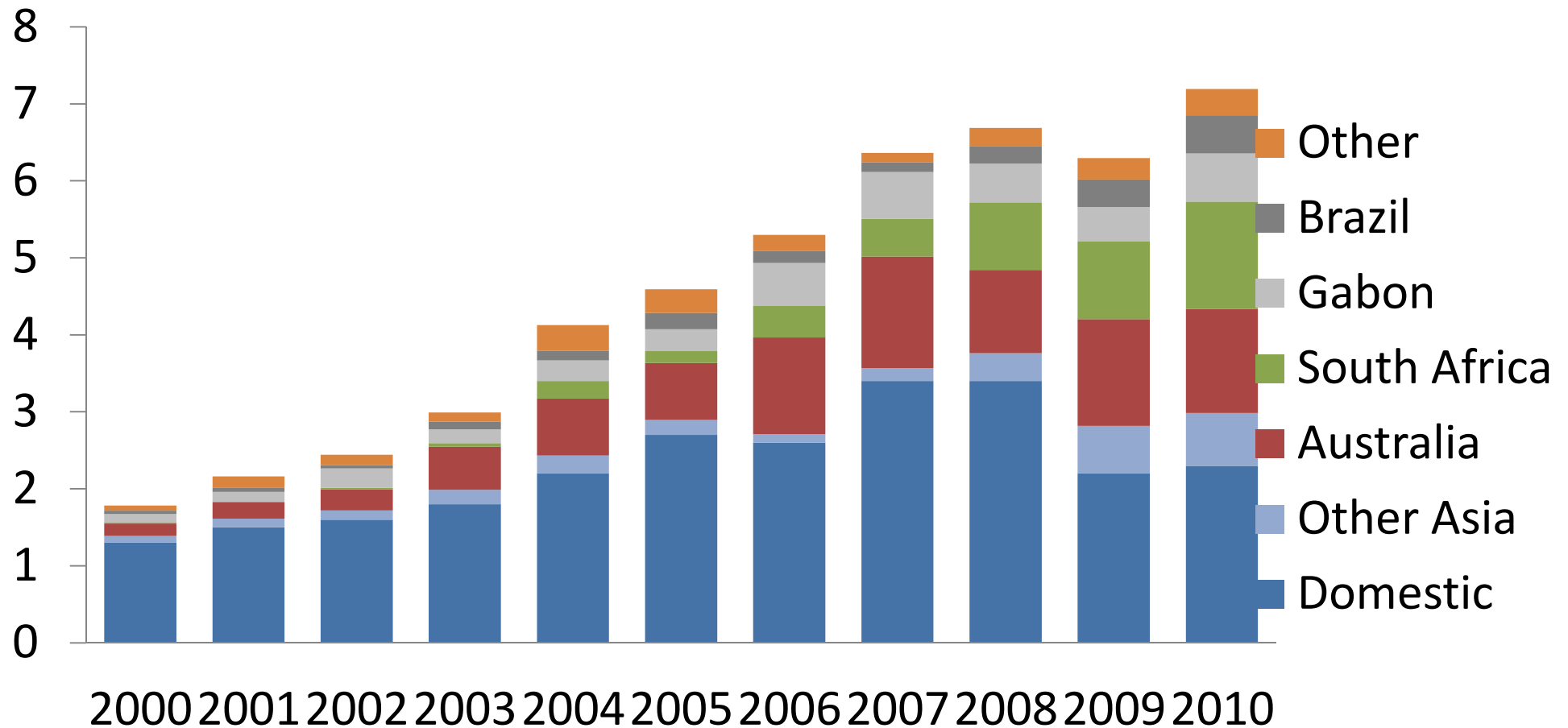
# China: no longer a significant exporter of Mn alloys, except for Mn metal

China net export of Mn alloys, thousand tonnes

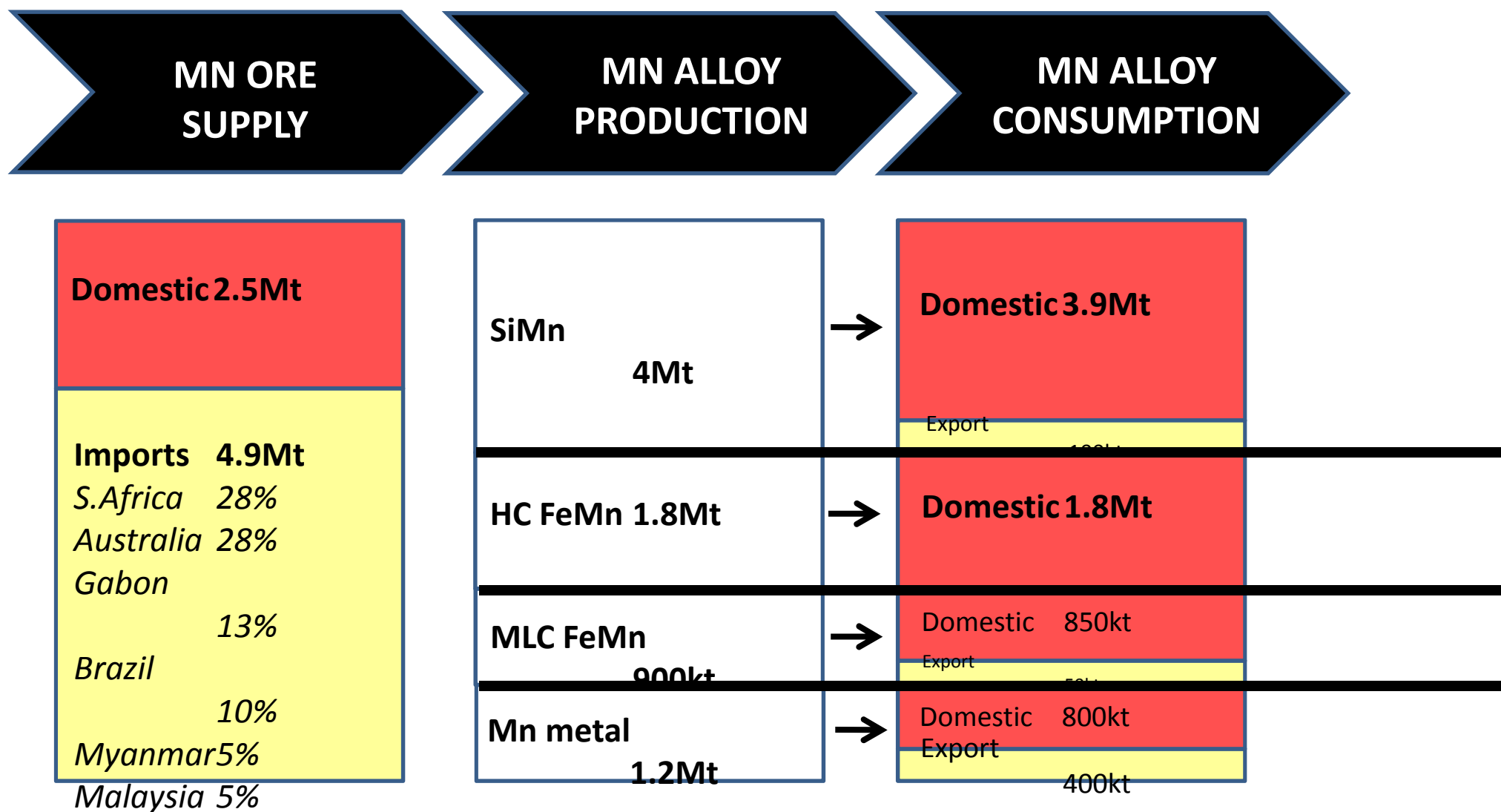


# China: over 60% of Mn ore supply is now imported

*Chinese supply of Mn ore, million tonnes, contained Mn*



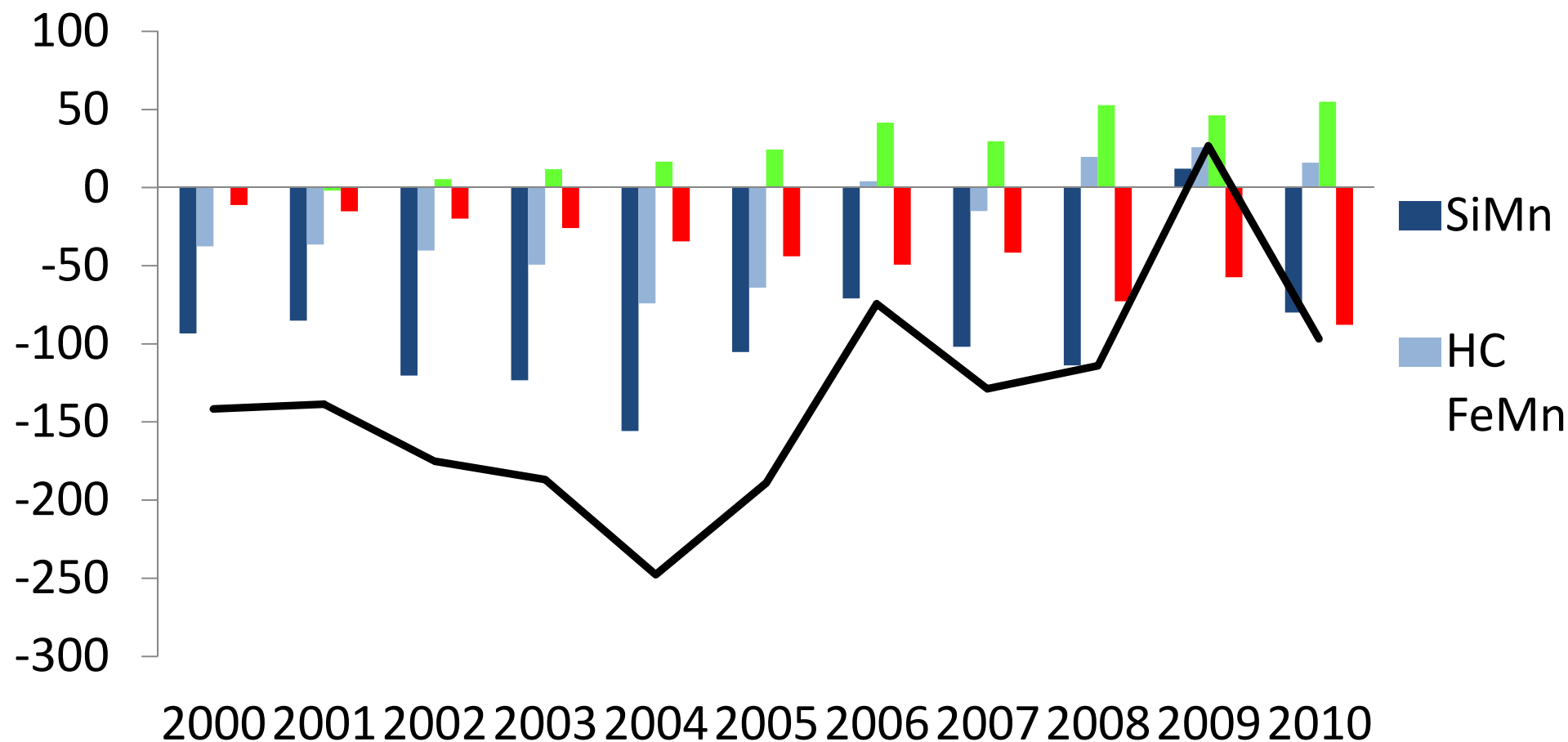
# China: summary of Mn product flow



Source: SBB analysis. 2010 data. All Mn ore data expressed in terms of Mn content

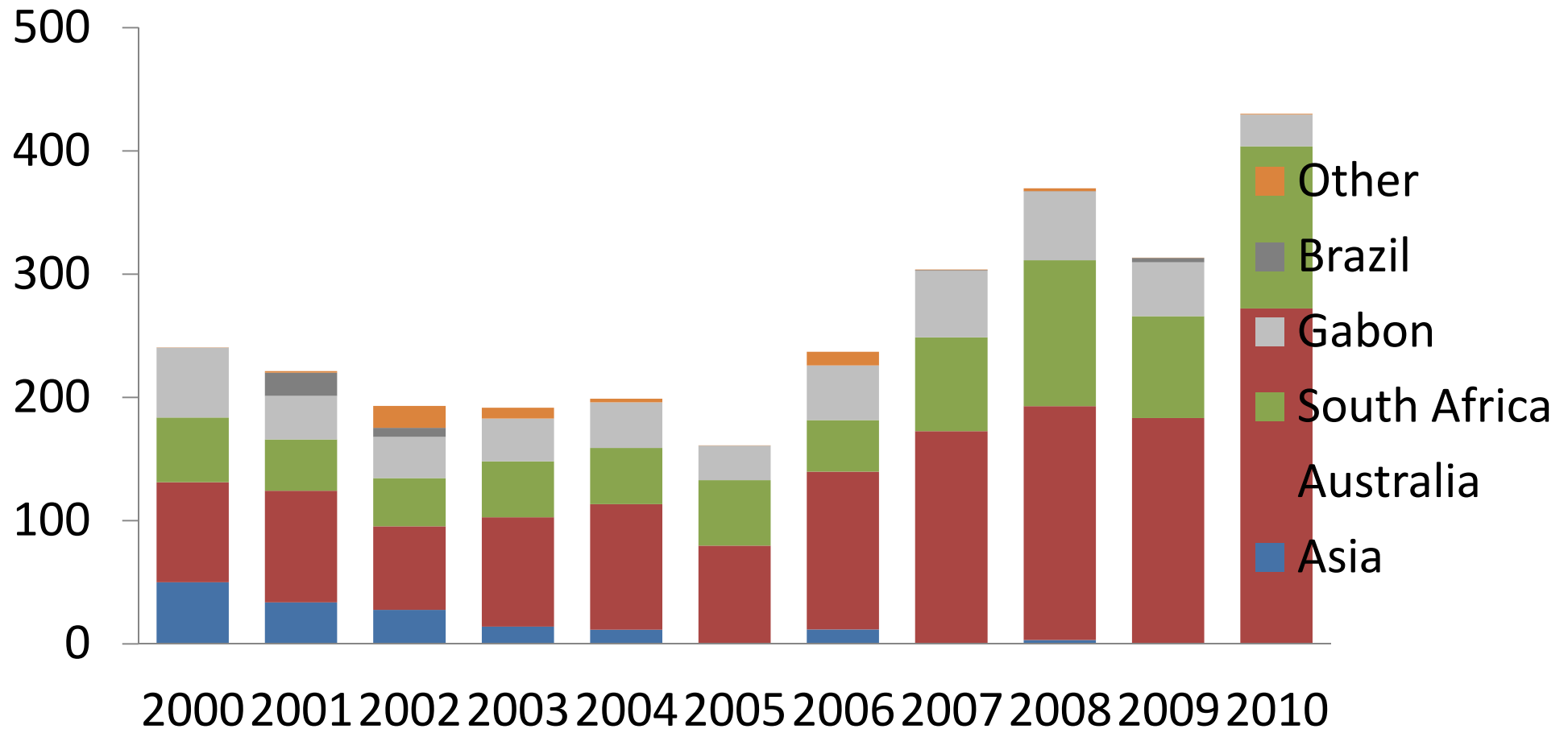
# South Korea: now a net exporter of FeMn, and a smaller net importer of Mn alloys overall

South Korea net export of Mn alloys, thousand tonnes

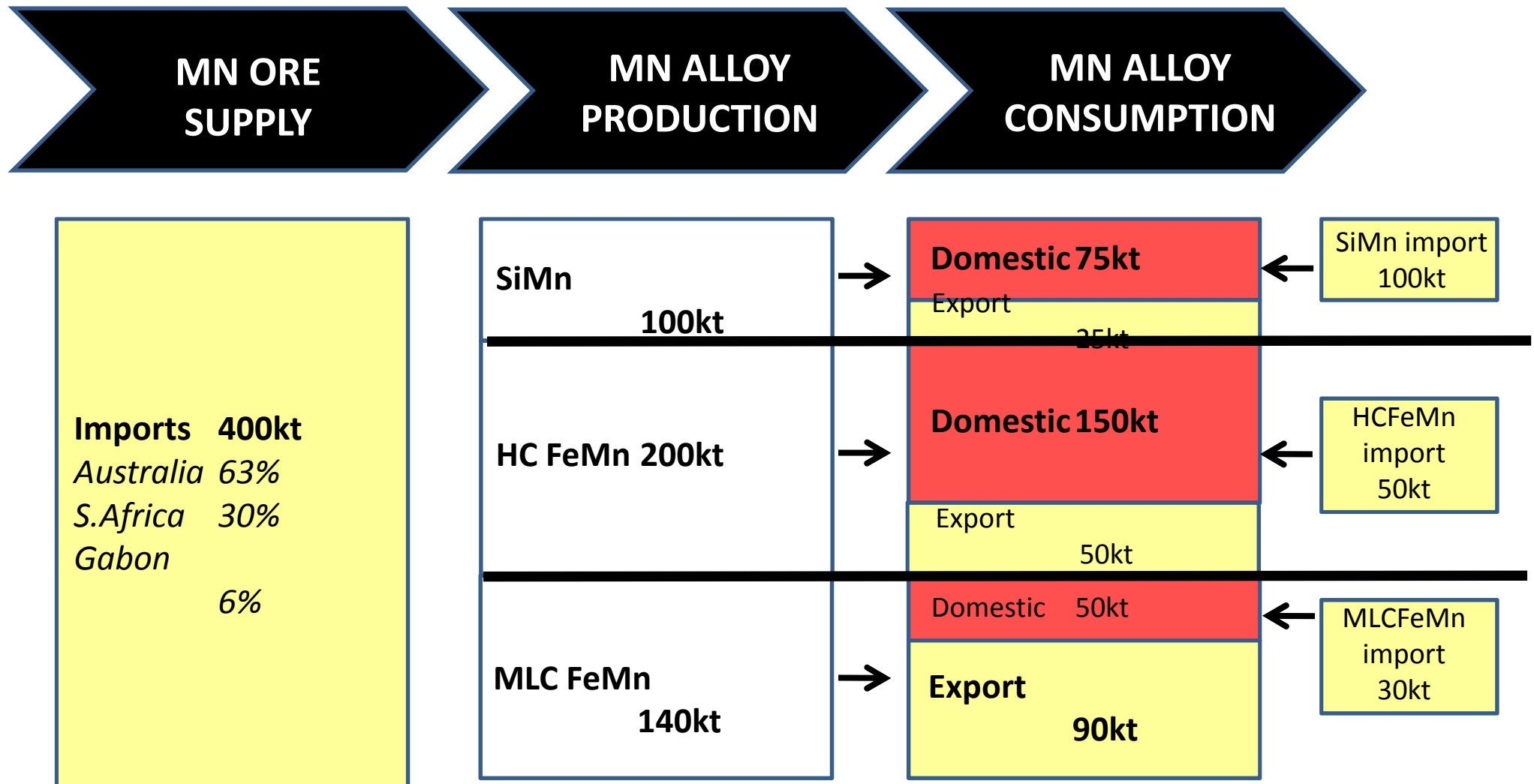


# South Korea: rising Mn ore imports, with Australia the major supplier

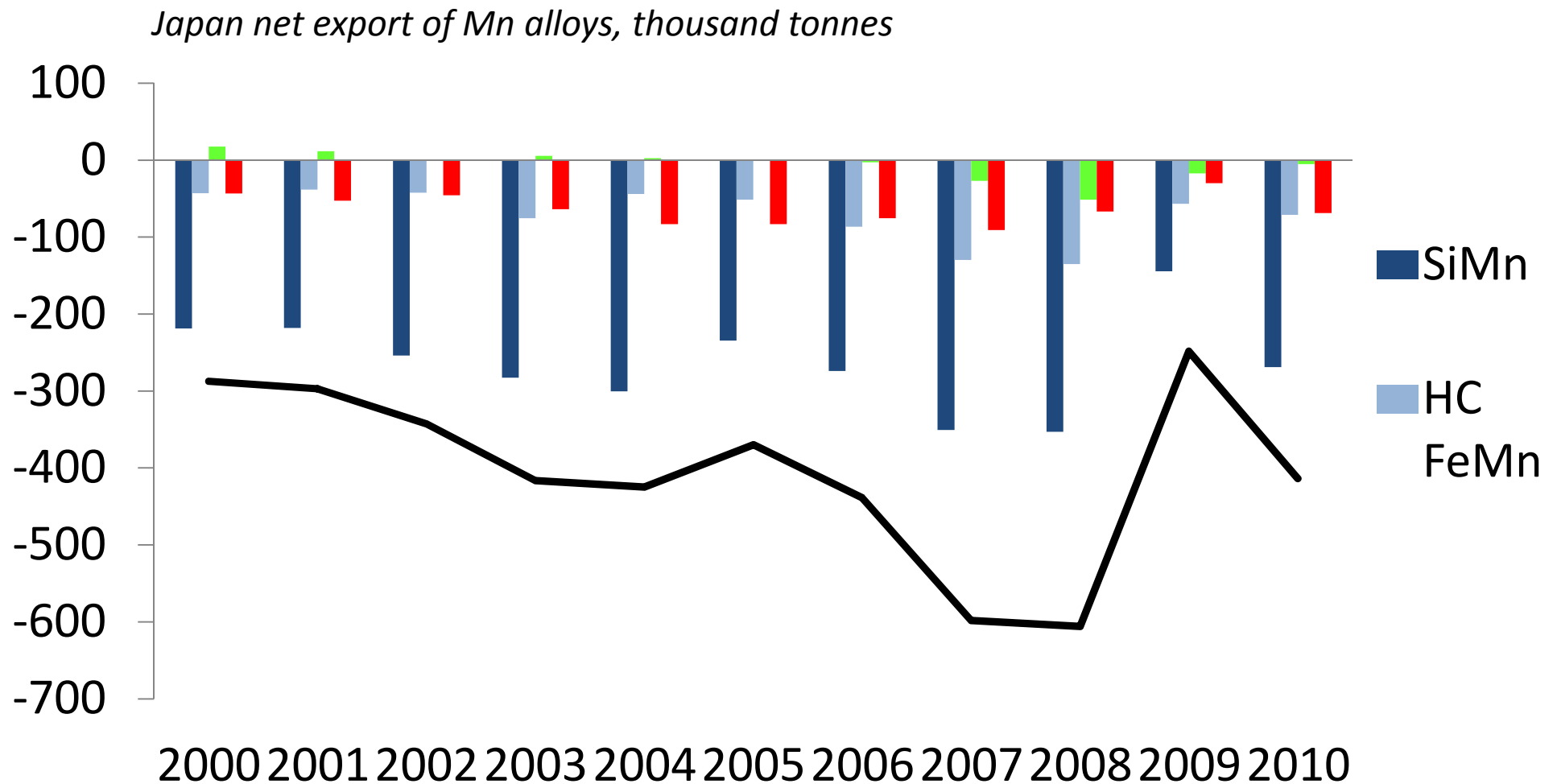
*South Korean supply of Mn ore, thousand tonnes, contained Mn*



# South Korea: summary of Mn product flow



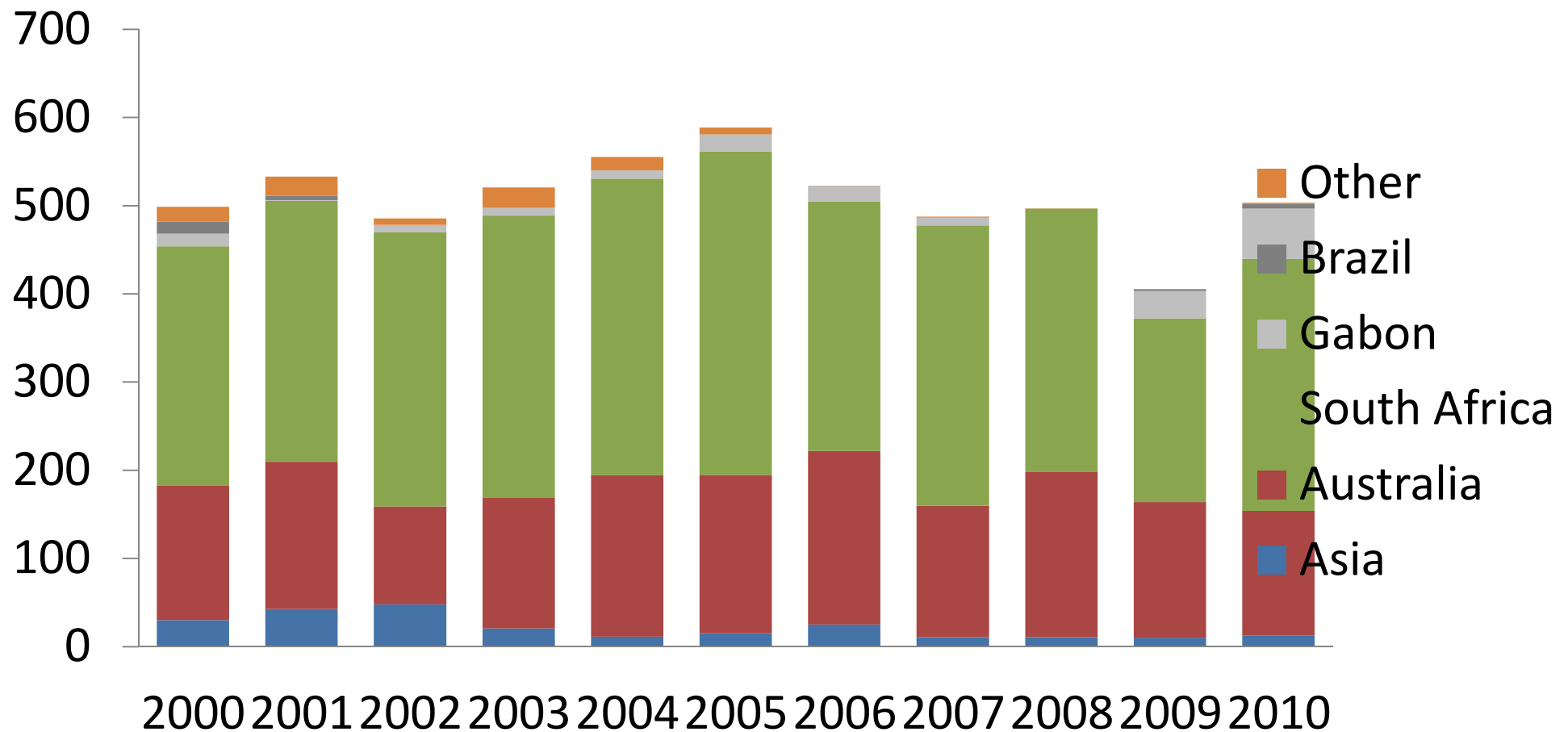
# Japan: consistently a major net importer of all Mn alloy products



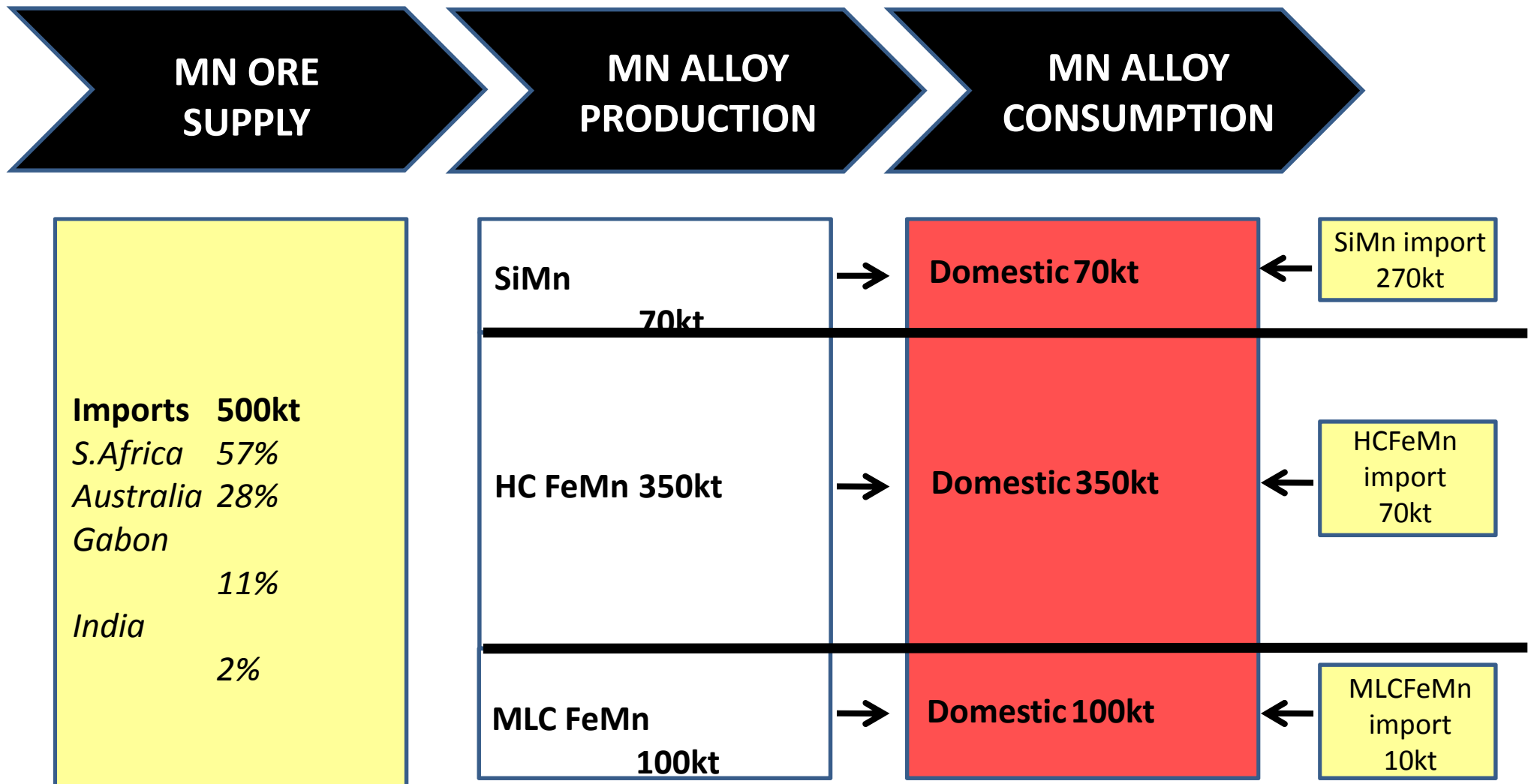


# Japan: Static/declining Mn ore imports, with South Africa the major supplier

*Japanese supply of Mn ore, thousand tonnes, contained Mn*

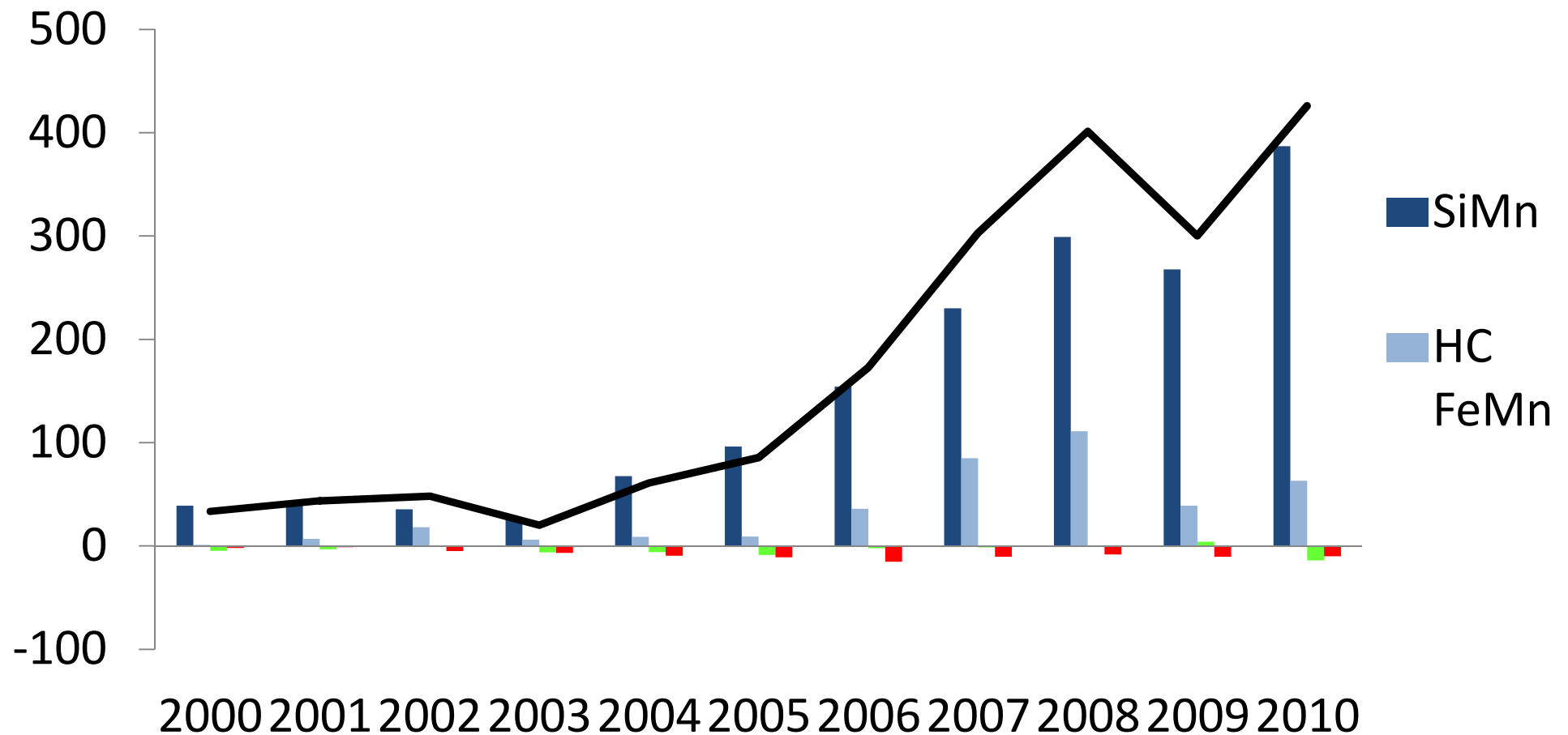


# Japan: summary of Mn product flow



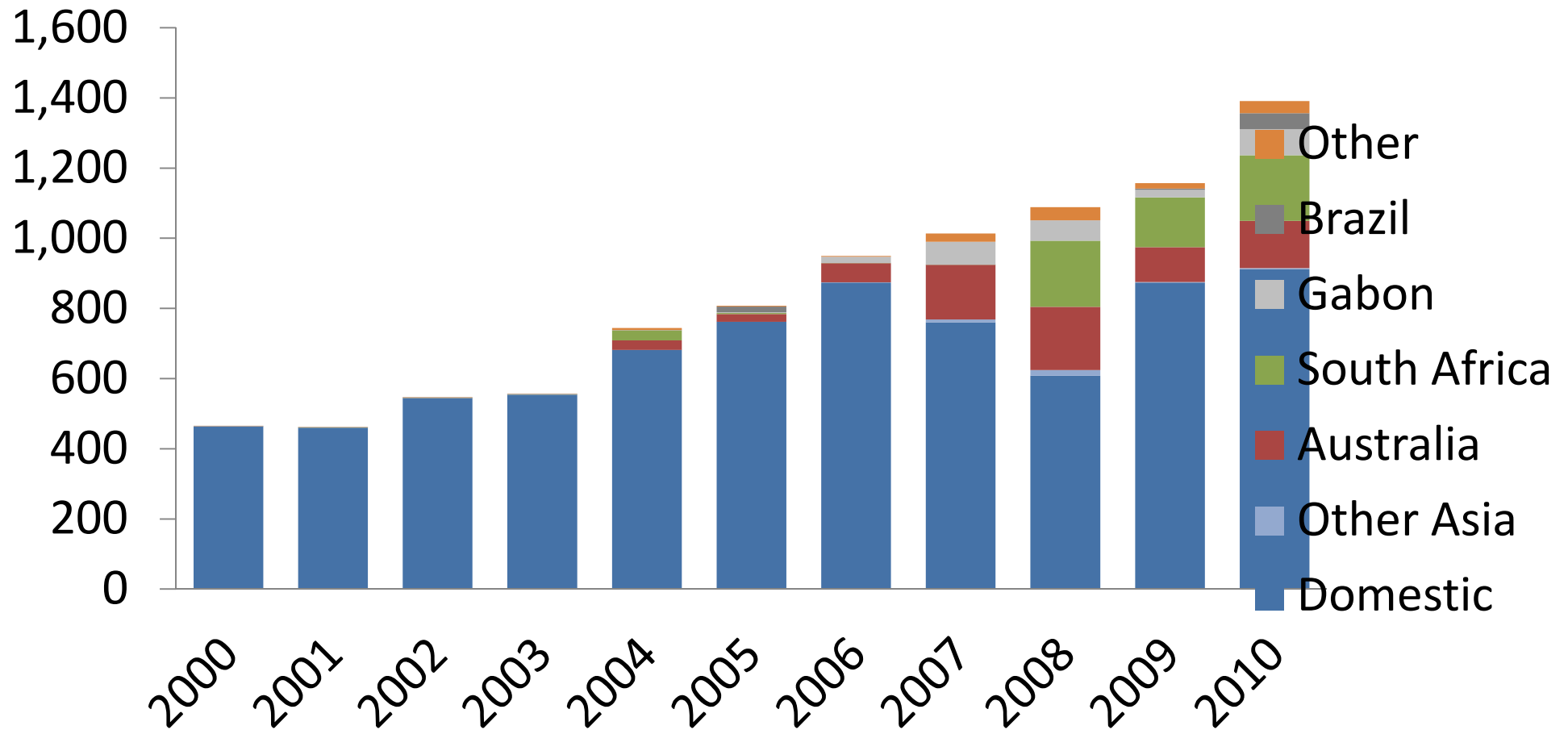
# India: now a major net exporter of Mn alloys, SiMn especially

India net export of Mn alloys, thousand tonnes

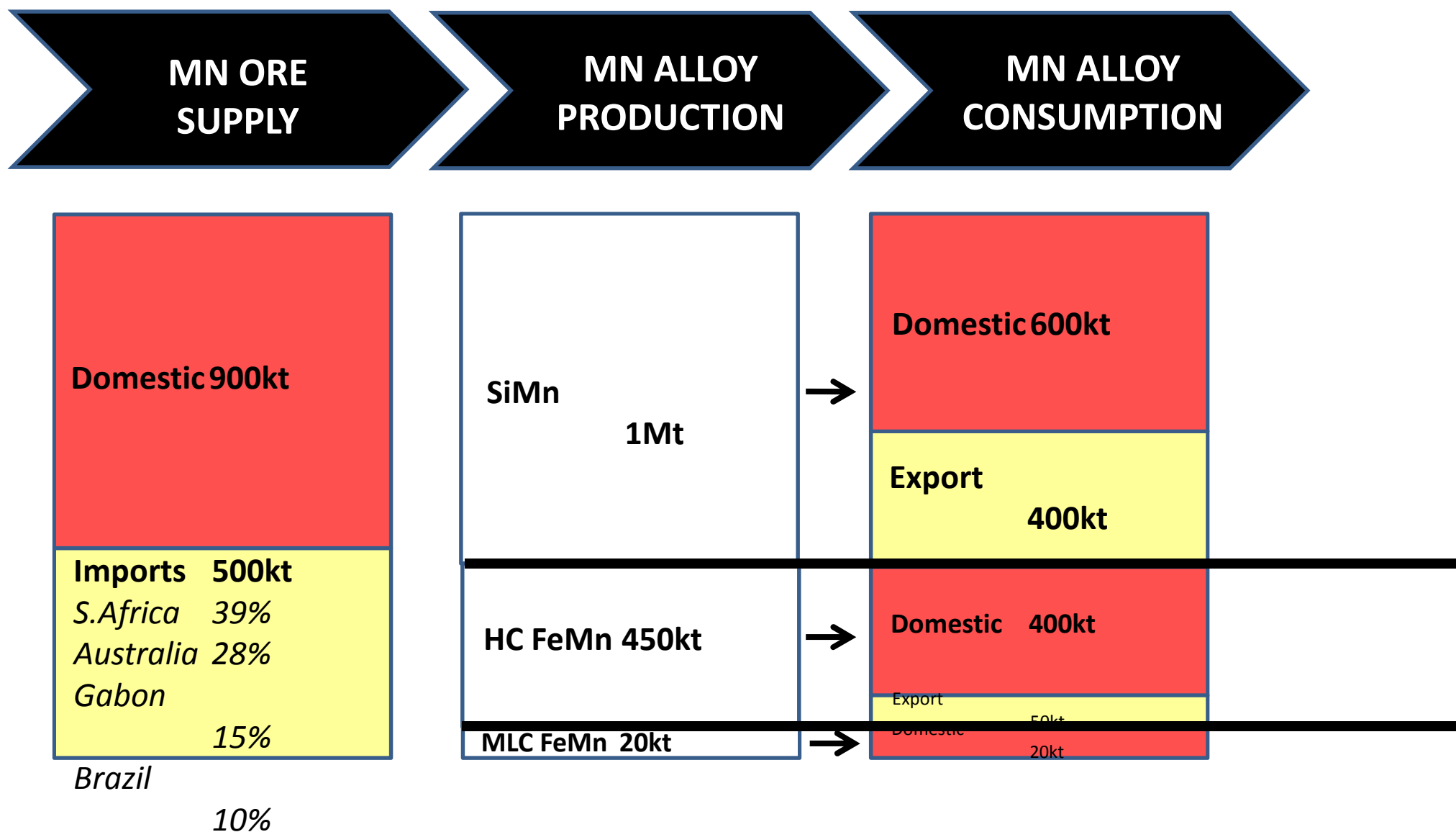


# India: one third of Mn ore supply now comes from imports

Indian supply of Mn ore, thousand tonnes, contained Mn



# India: summary of Mn product flow



Source: SBB analysis. 2010 data. All Mn ore data expressed in terms of Mn content

## In summary (1)

- Asia is the key region for manganese demand, accounting for two thirds of global consumption
- China is 70% of Asian consumption. Japan, India and South Korea also significant
- Asia will continue to increase as a percentage of global demand, fuelled by need for structural steels for construction and infrastructure in developing countries
- Asia overall is now consuming >90% of the Mn alloys it produces and is exporting less

## In summary (2)

- Declining overall Mn alloy net exports obscures the detailed picture – large decline in Chinese net export; increasing net exports from India and South Korea
- The region's Mn alloy production is largely non-integrated, and increasingly dependent on imports of Mn ore from outside of Asia
- Integrity of data on China increasingly becoming a concern

# Thank you for your attention

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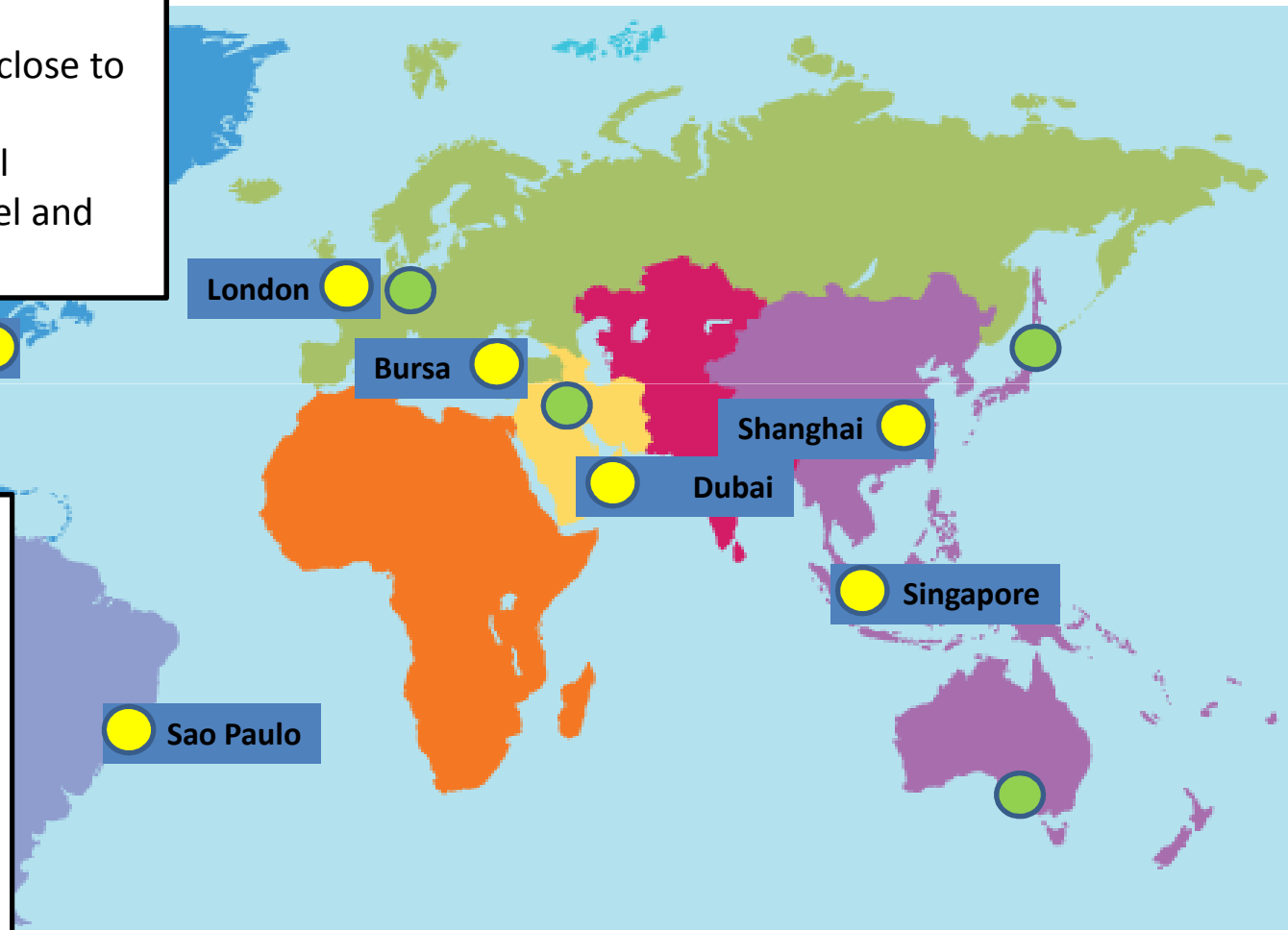
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