KEVIN FOWKES' BIOGRAPHY

Kevin Fowkes is a Managing Consultant for Steel Business Briefing Ltd. He has 13 years experience working as an economist and consultant in the ferroalloy industry.

From 2007 to 2009, Kevin Fowkes was a business development manager in the metals division of Privat Group. Before that he was the senior market analyst for the Norwegian ferroalloy group Elkem, and a consultant for both Hatch and CRU International.

Kevin Fowkes is a graduate of the London School of Economics.

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

Kevin Fowkes
Managing Consultant

International Manganese Institute conference

Jeju Island, South Korea

25th May, 2011

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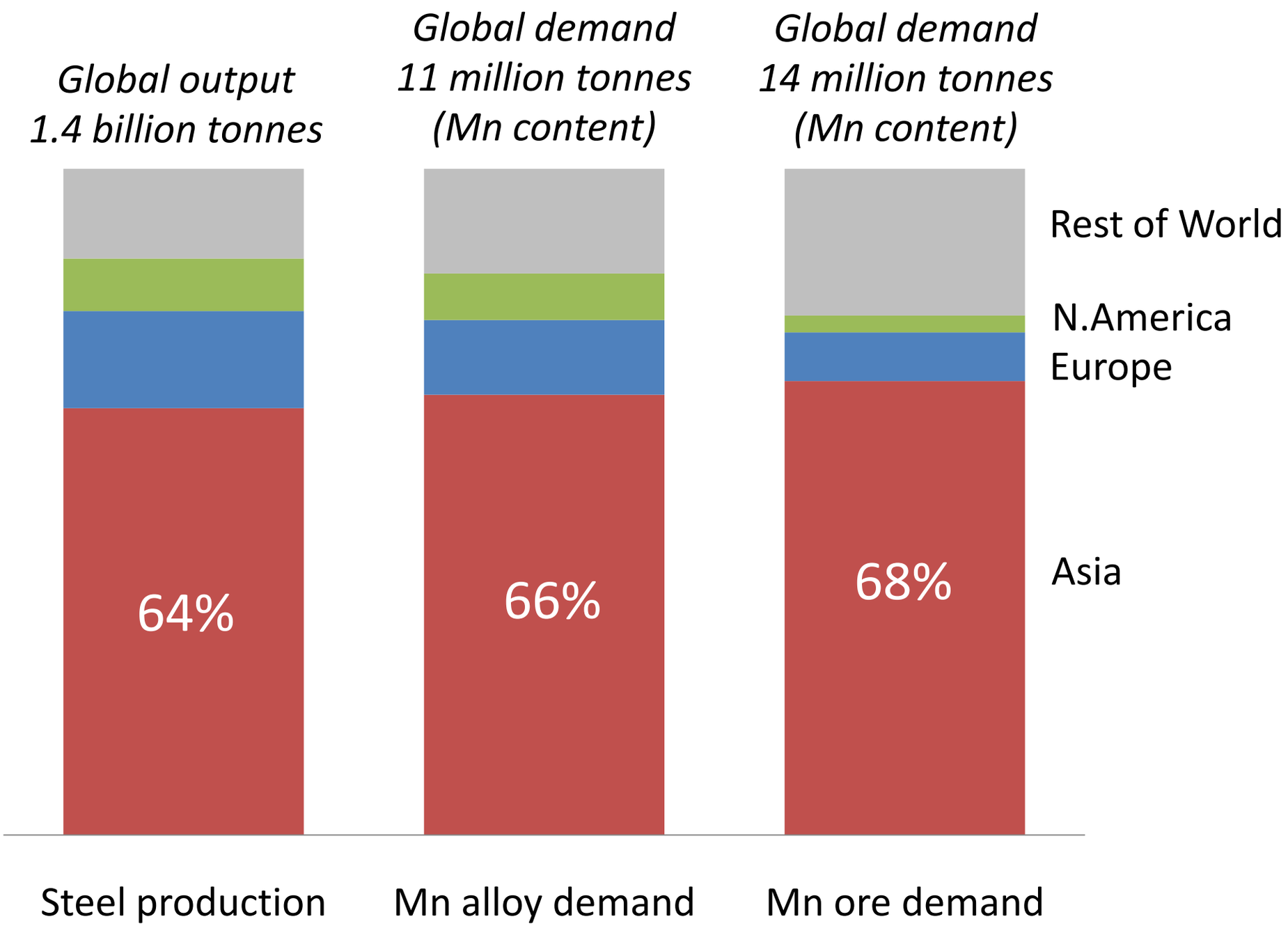
Asia now accounts for two thirds of global steel production and manganese consumption



Source: World Steel Association, SBB Analysis. 2010 data

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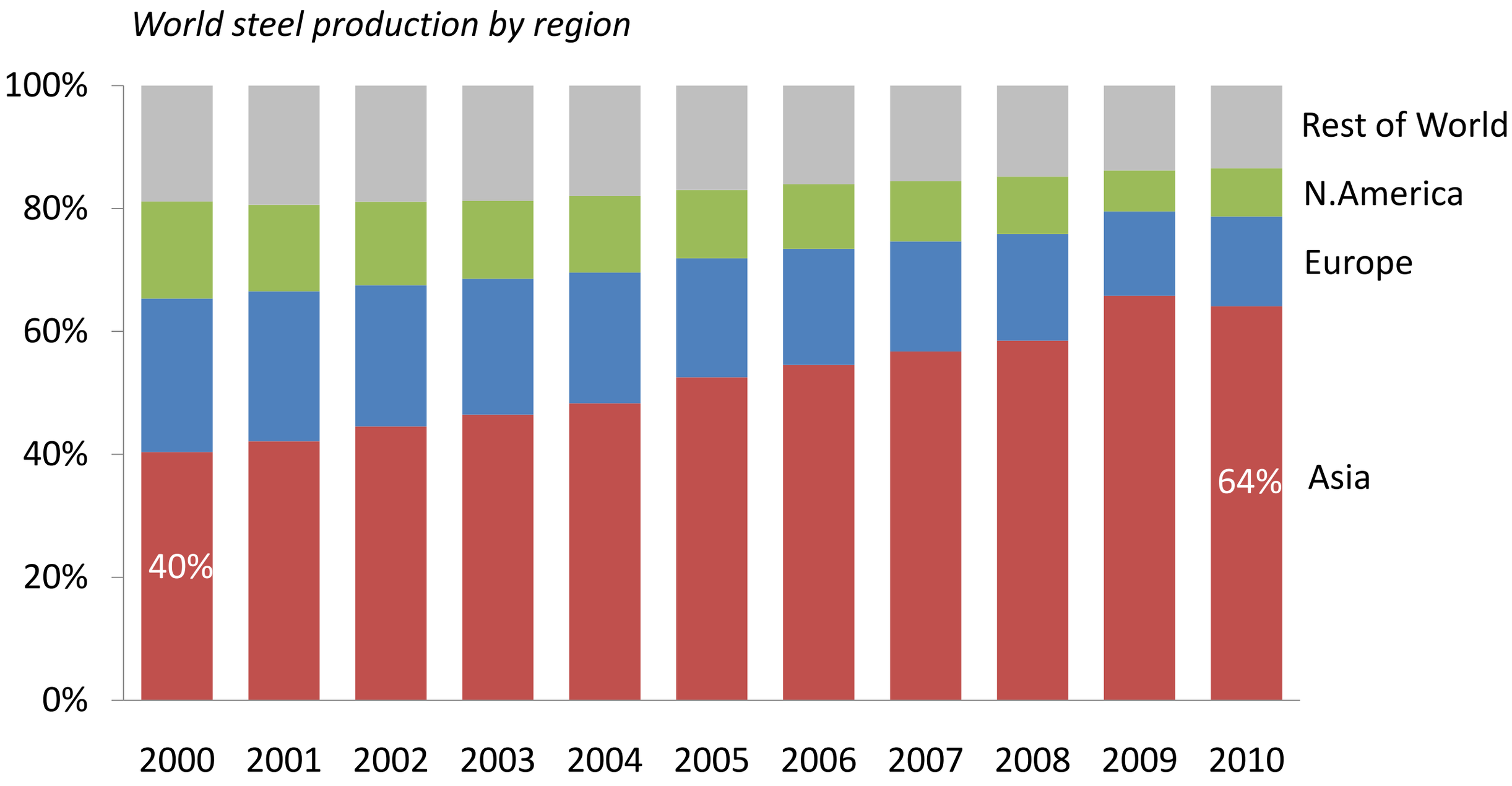
Asia's share of global steel production has risen from 40% in 2000 to 64% in 2010



Source: World Steel Association

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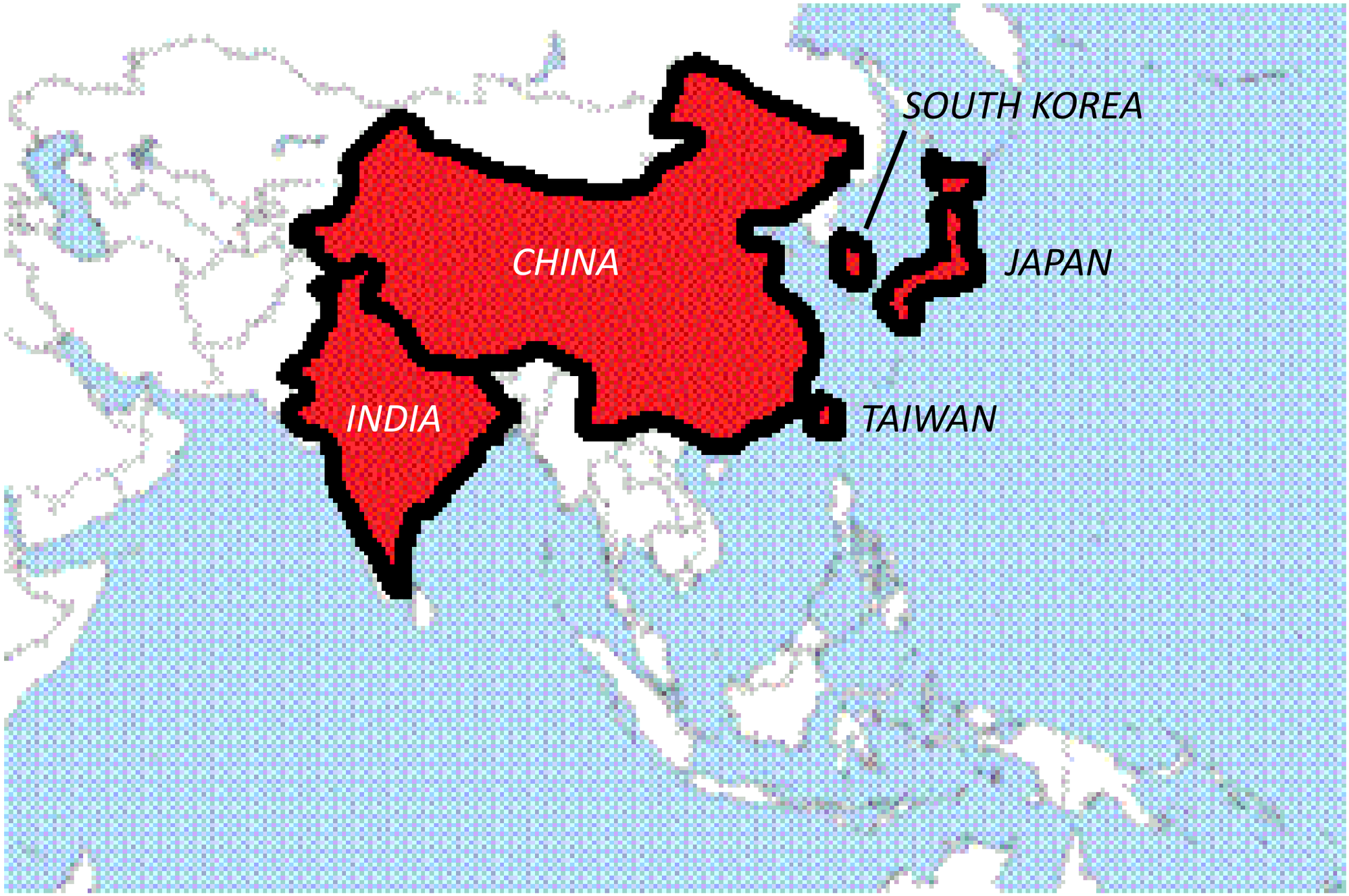
Five countries account for 99% of Asia's Mn consumption



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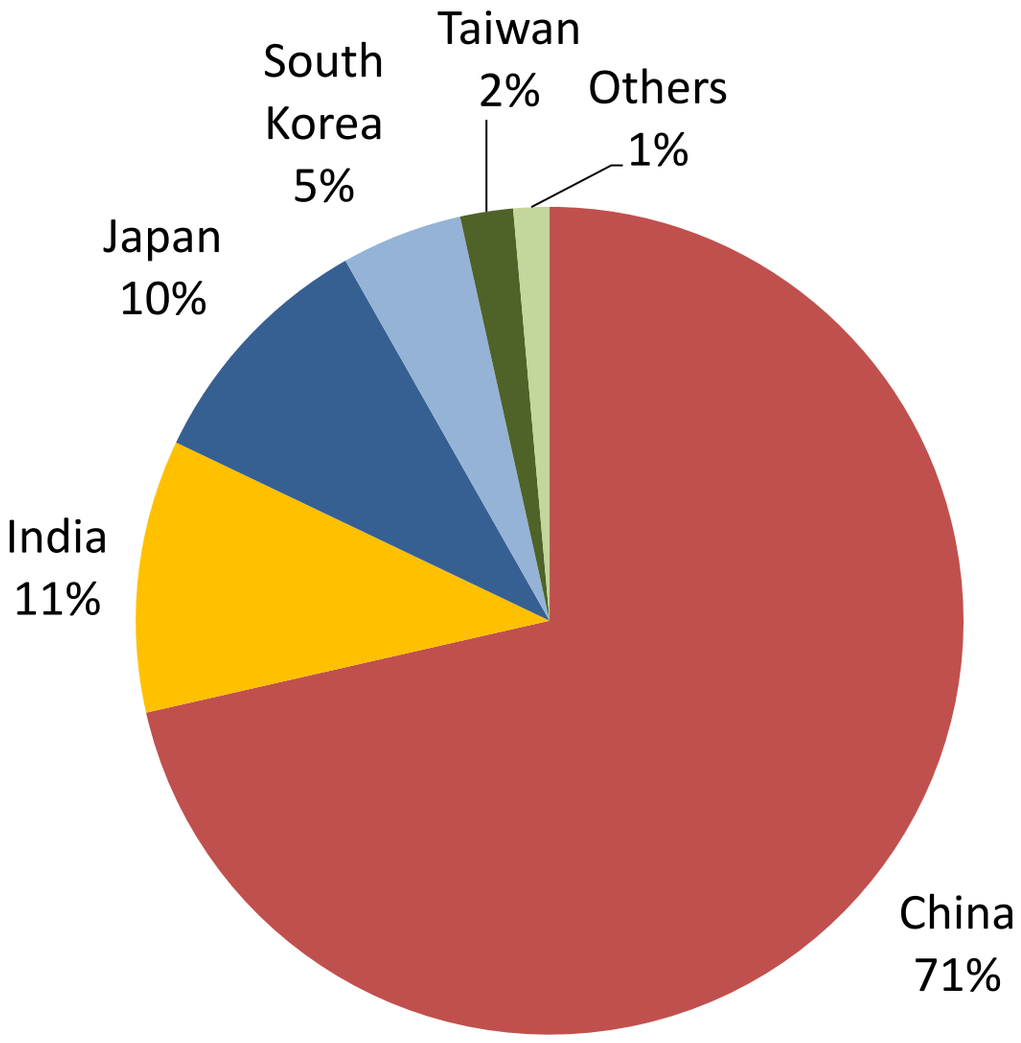
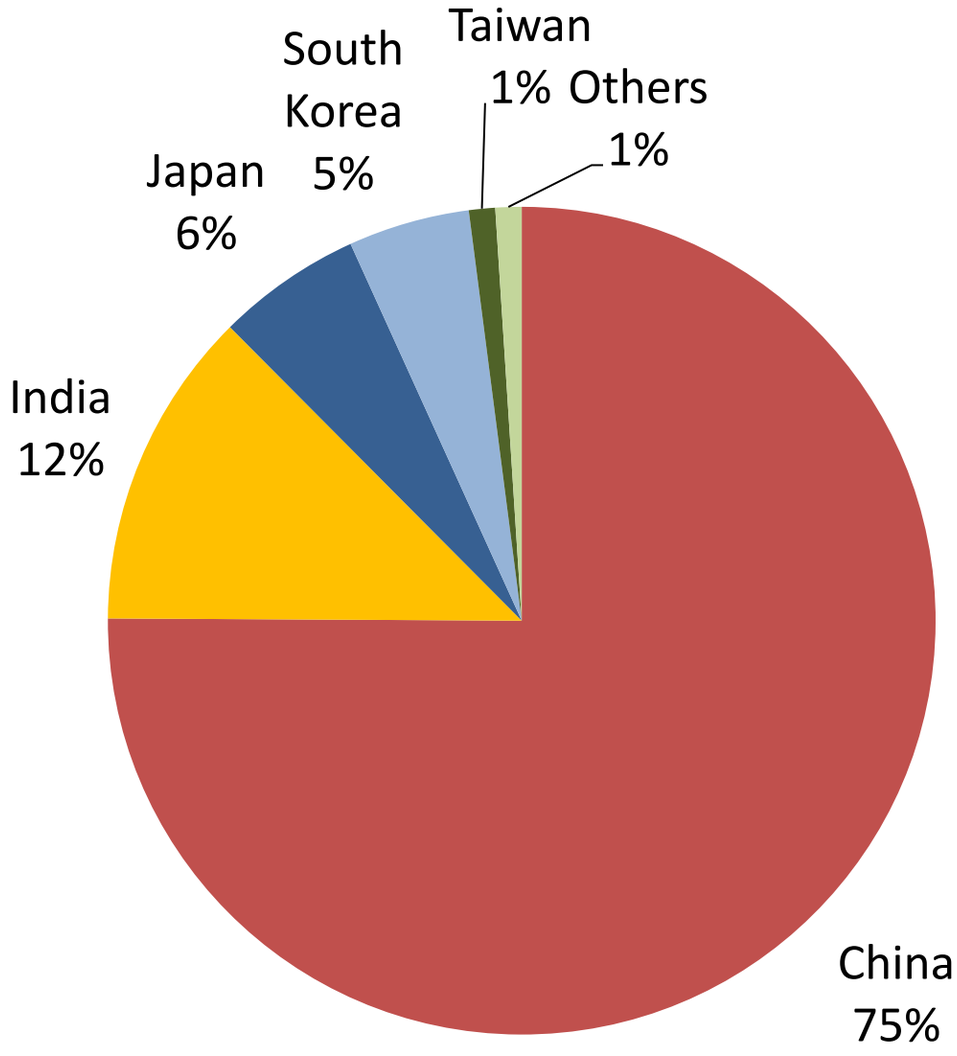
Five countries account for 99% of Asia's Mn consumption, with China dominating

Consumption of Mn alloys in Asia



Total: 7.4 million tonnes

Consumption of Mn ore in Asia



Total: 9.6 million tonnes

Source: SBB Analysis. 2010 data

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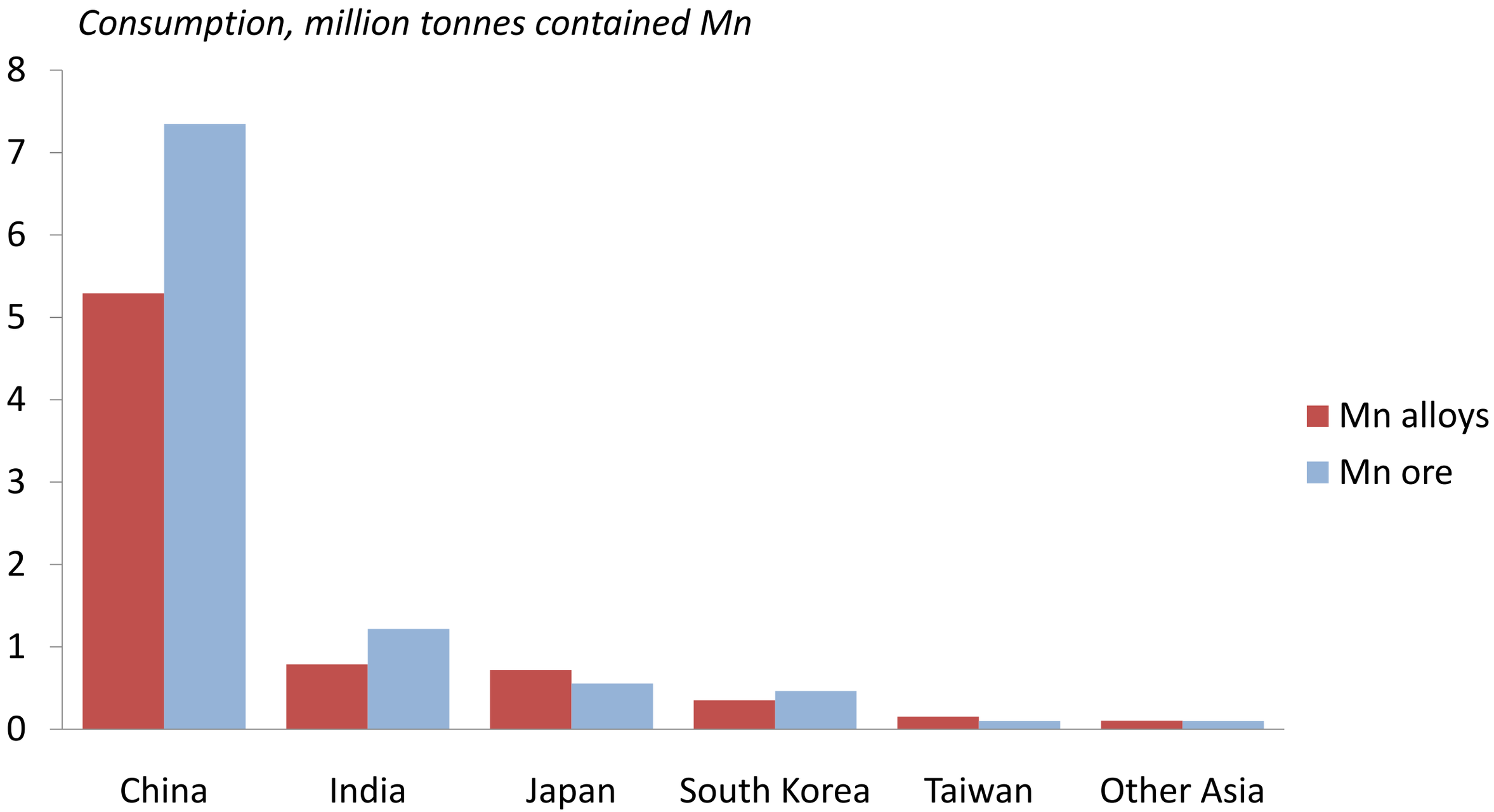
Five countries account for 99% of Asia's Mn consumption, with China dominating



Source: SBB Analysis. 2010 data

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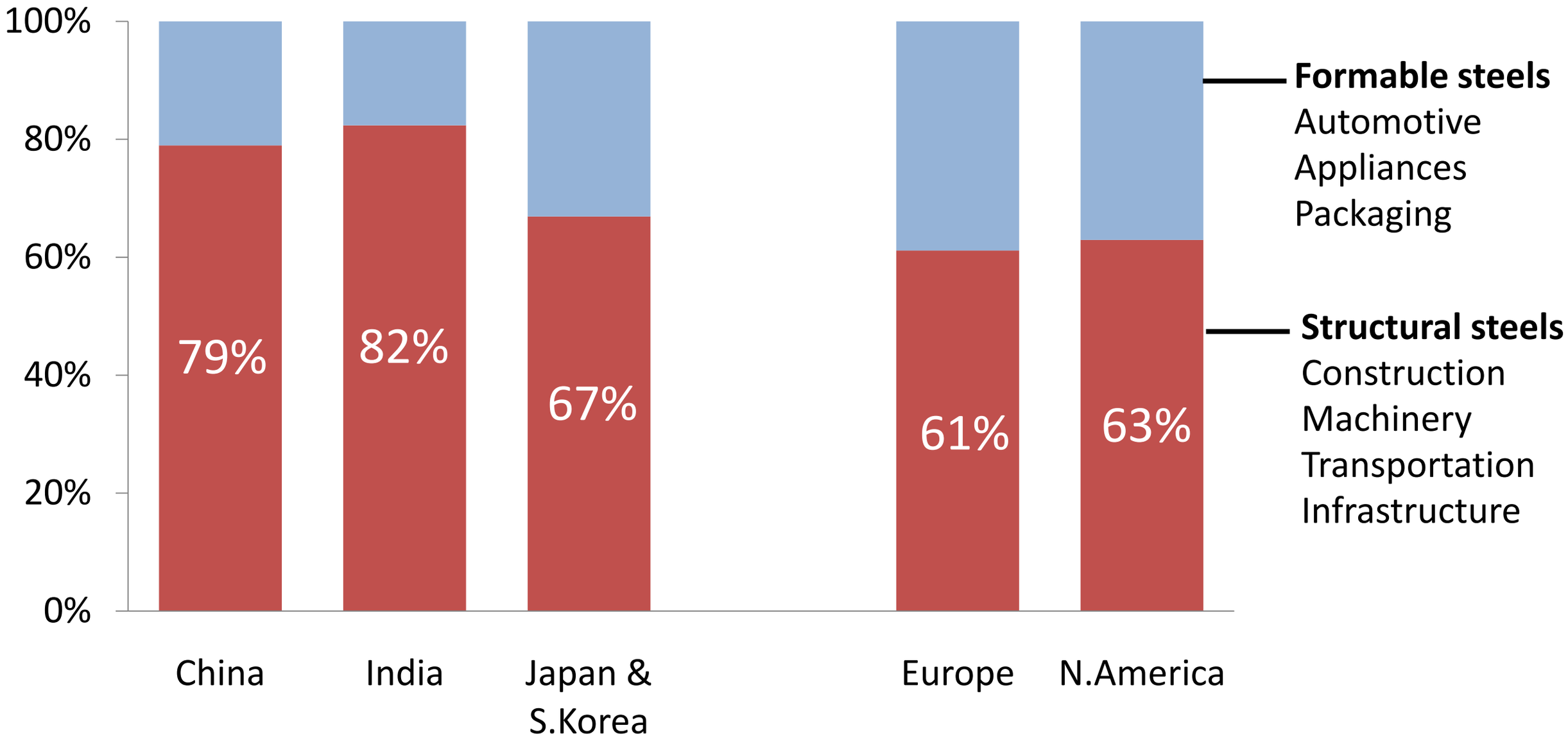
Why is manganese used in steel?

- 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



Source: SBB analysis

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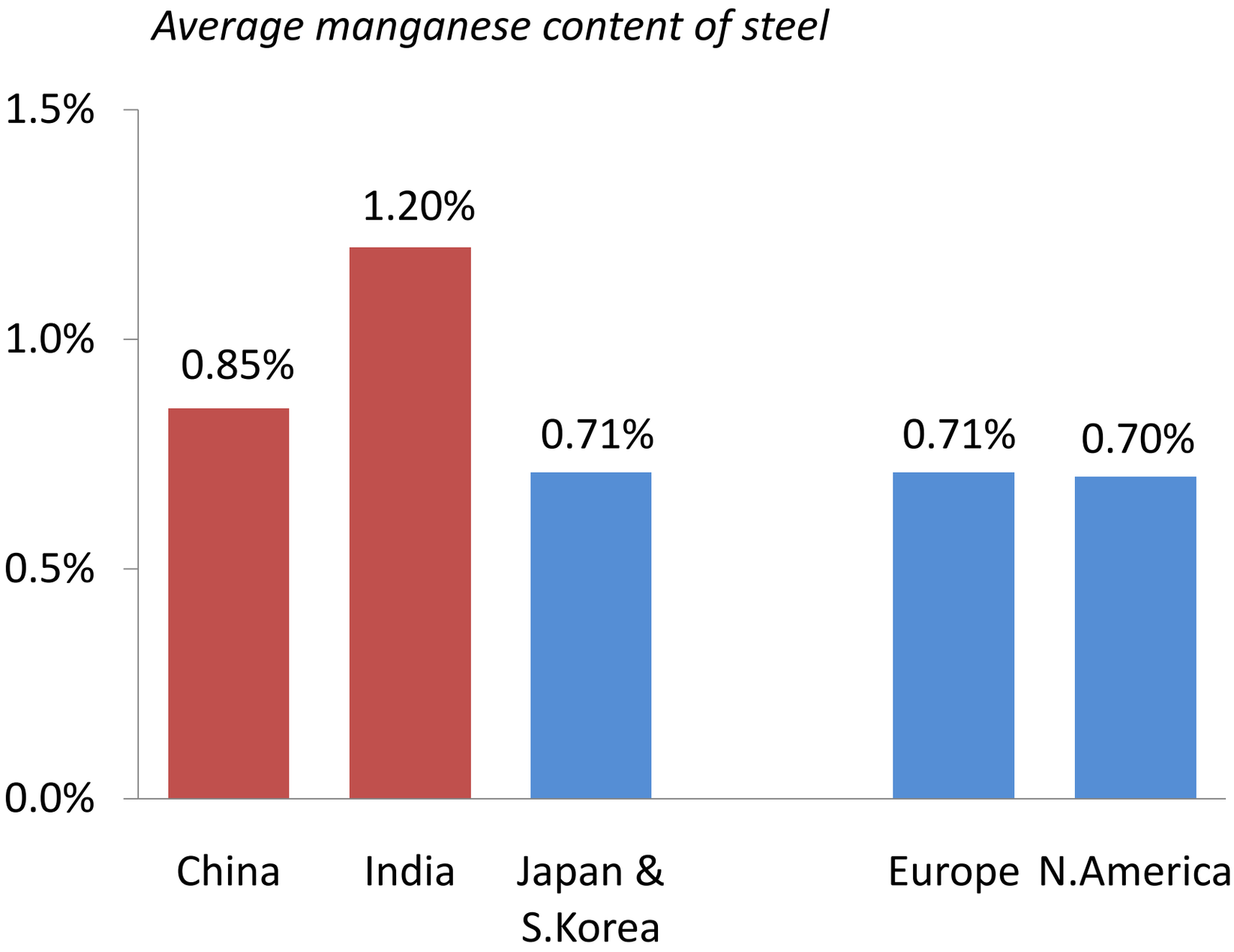
Countries with a bigger share of structural steels have higher average Mn content in their steel



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

Source: SBB analysis. 2010 data

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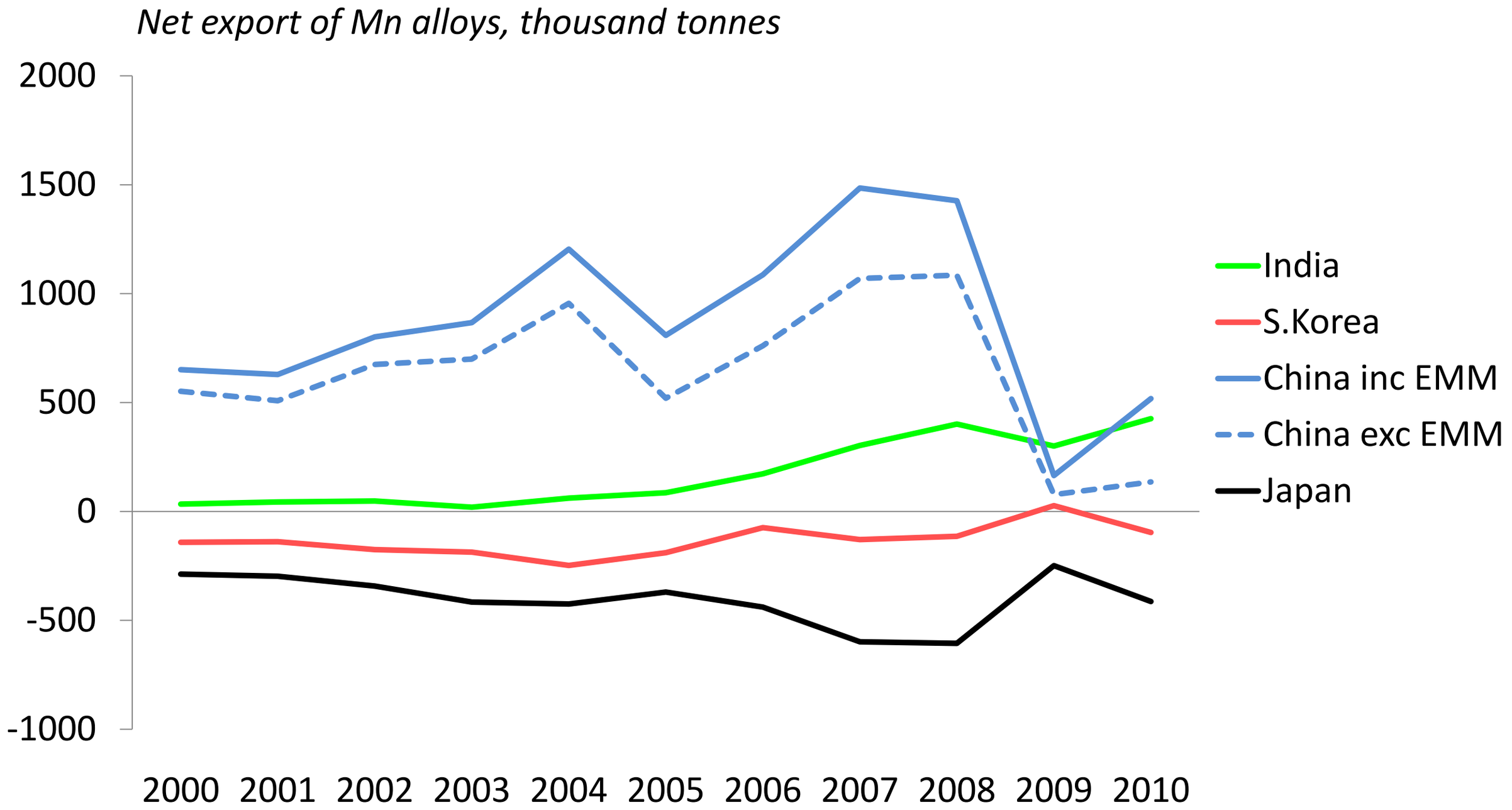
Asia has seen its total net exports of Mn alloys fall sharply (but India and S.Korea have risen)



Source: SBB Analysis

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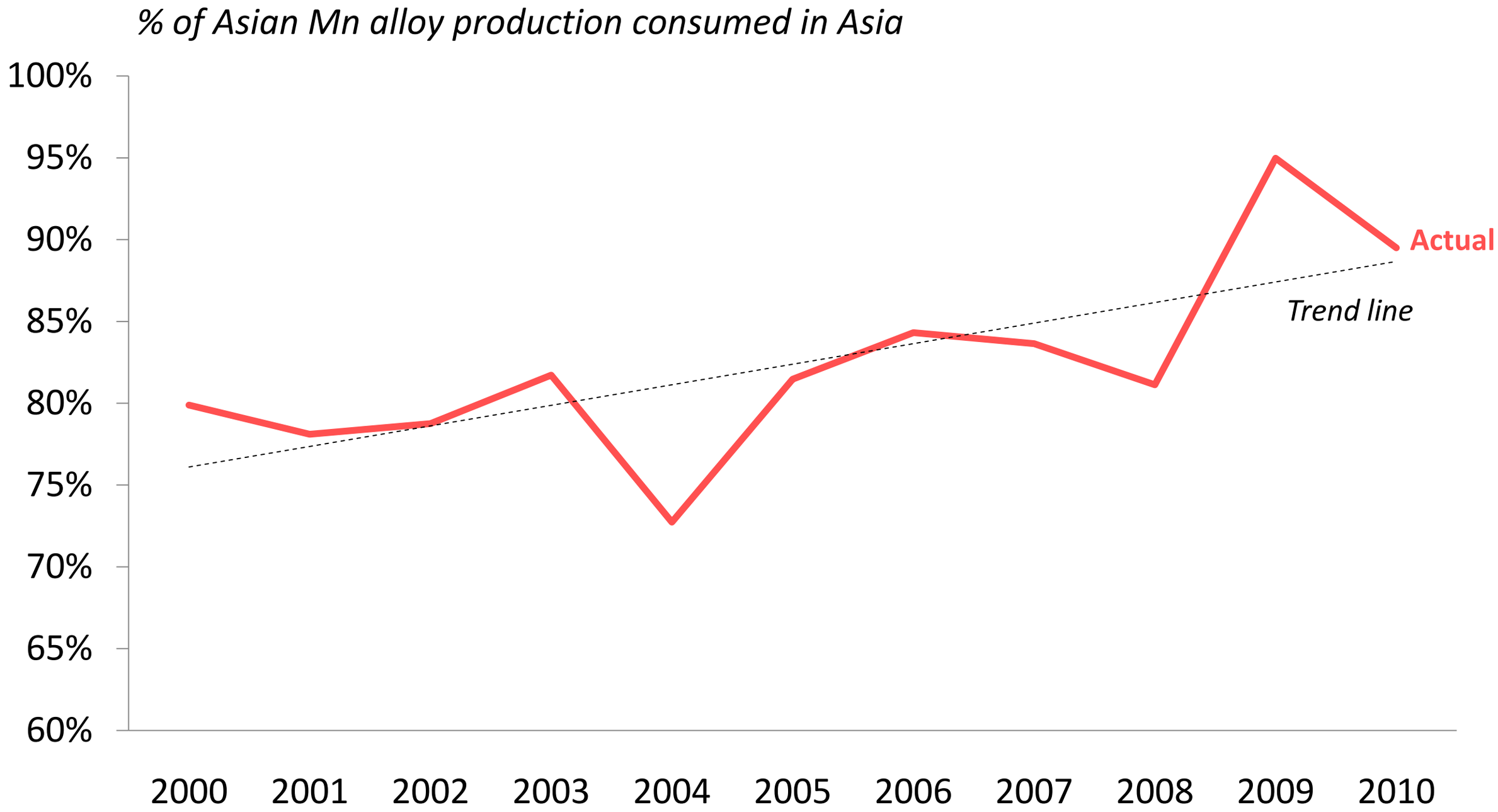
The overall trend is that Asia is consuming more of its Mn alloy production and exporting less



Source: SBB Analysis

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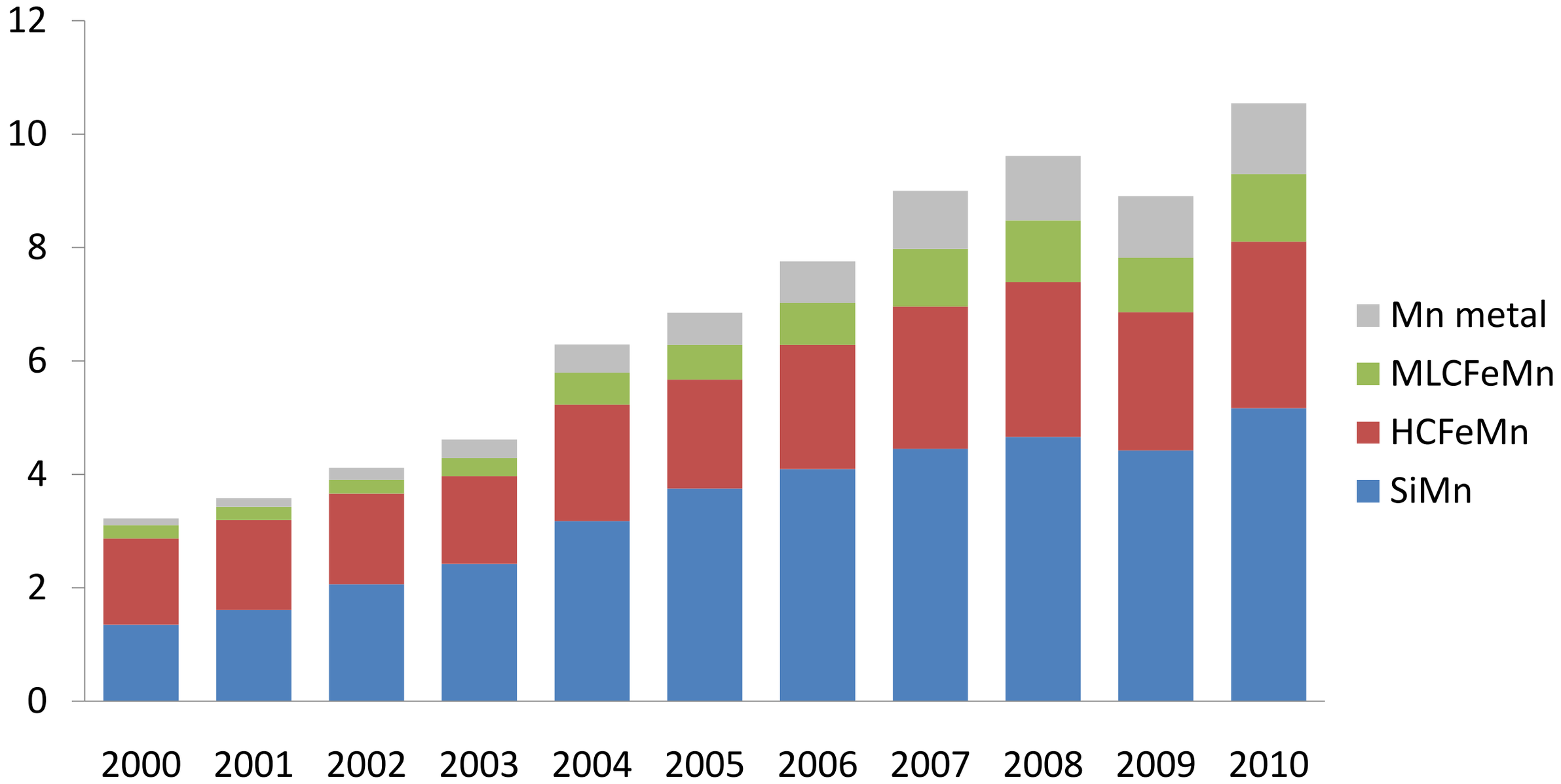
In terms of volume, Asian production of Mn alloys has tripled over the past 10 years

Asian production of Mn alloys, million tonnes, gross weight



Source: SBB Analysis

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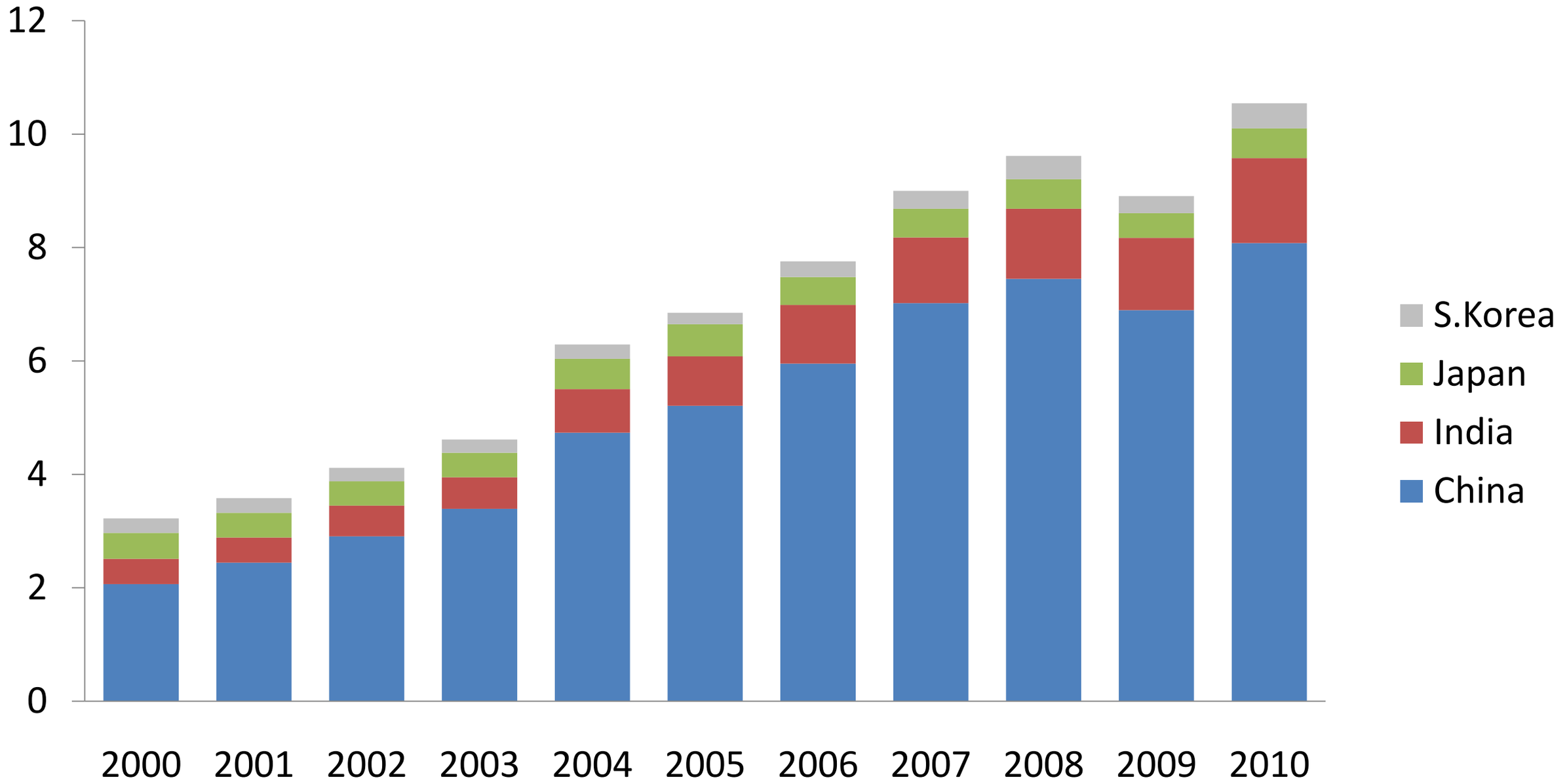
China, and to a lesser extent India, have driven the increase in Asian Mn alloy production

Asian production of Mn alloys, million tonnes, gross weight



Source: SBB Analysis

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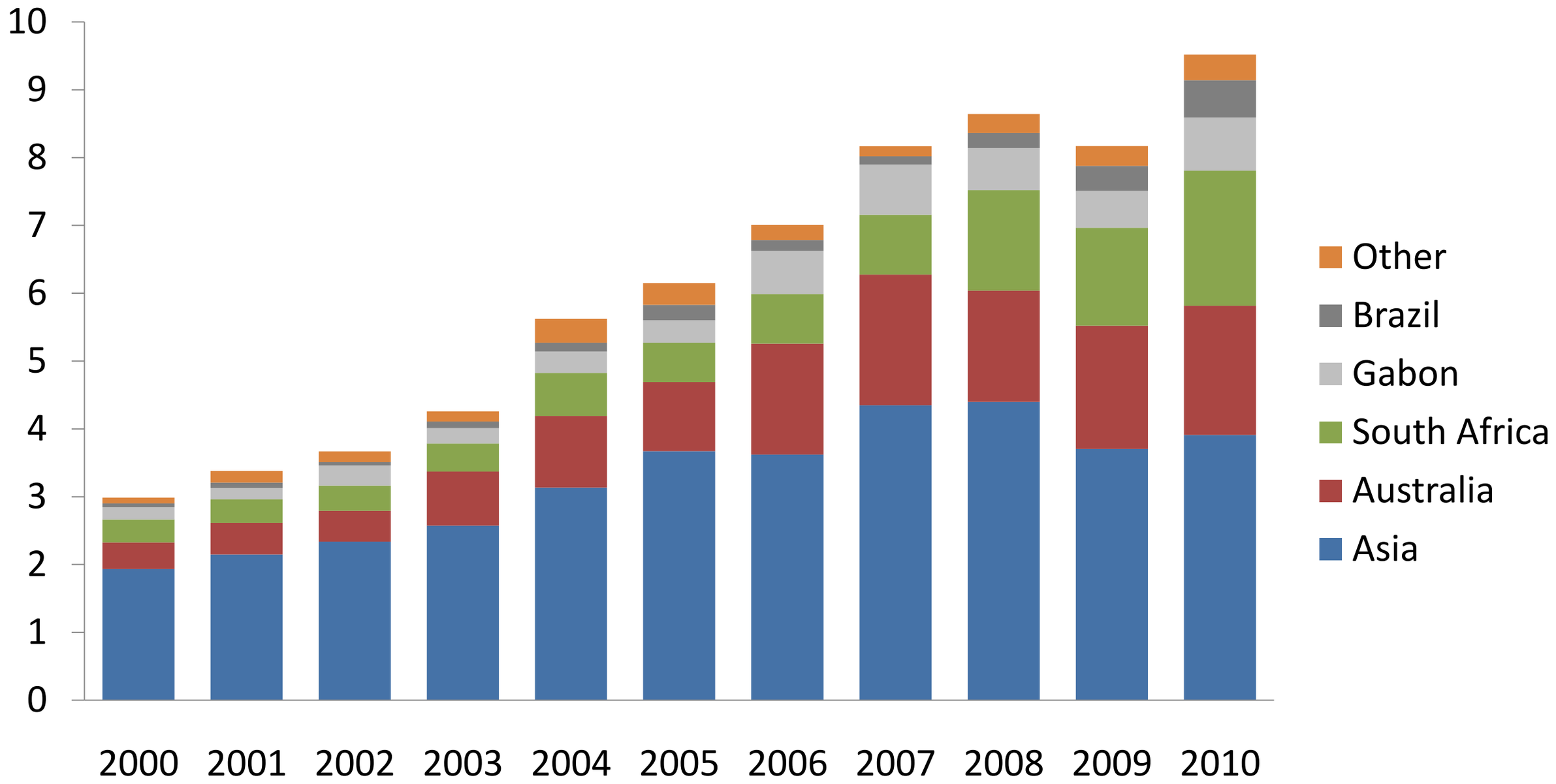
The growth of Asian Mn alloy production has been fuelled largely by imported Mn ore

Asian supply of Mn ore, million tonnes, contained Mn



Source: SBB Analysis

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

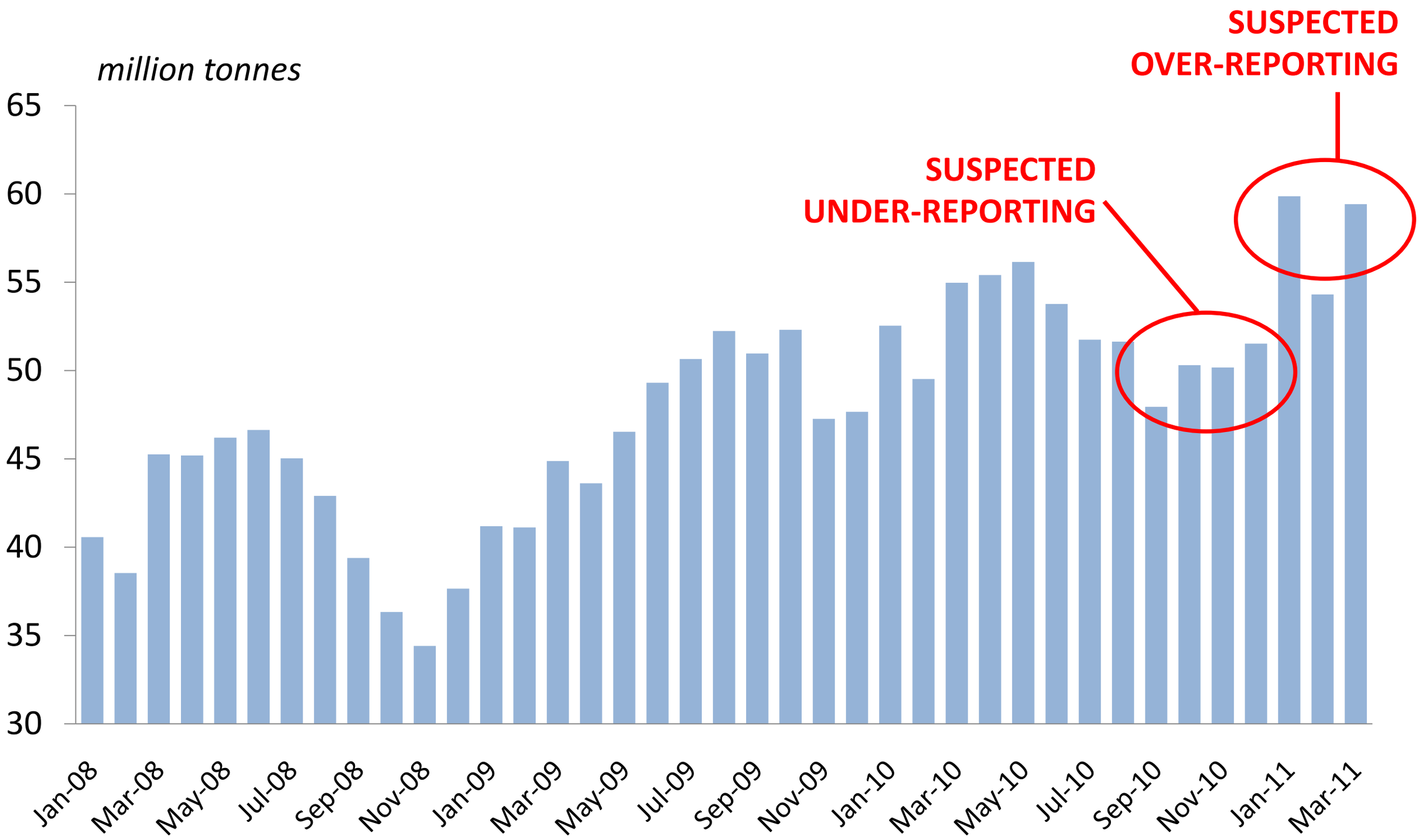
- Strict government control measures in Q4-2010 led to a big decline in steel output as reported in official statistics

- 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



Source: World Steel Association, SBB analysis

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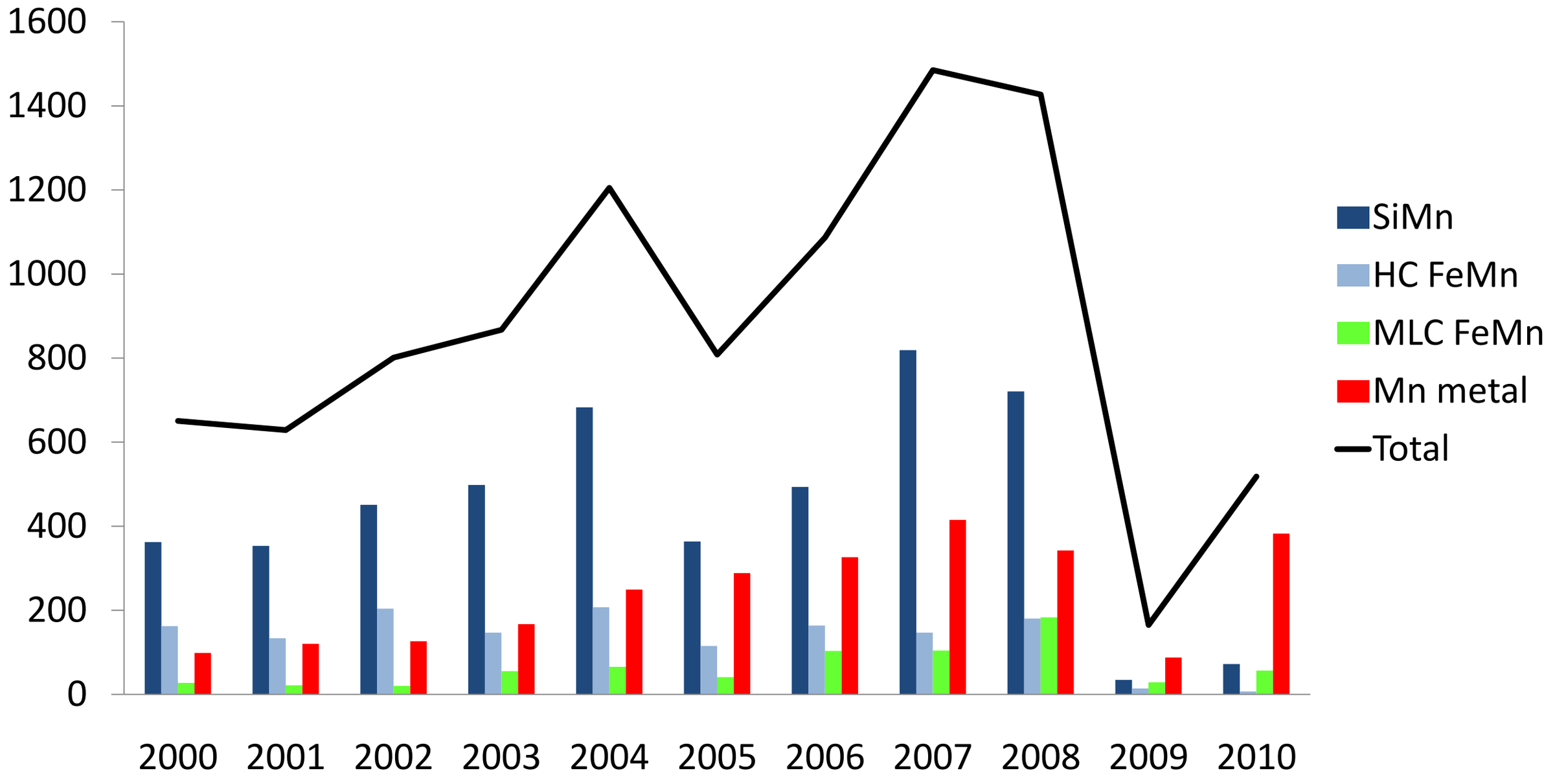
China: no longer a significant exporter of Mn alloys, except for Mn metal

China net export of Mn alloys, thousand tonnes



Source: SBB Analysis

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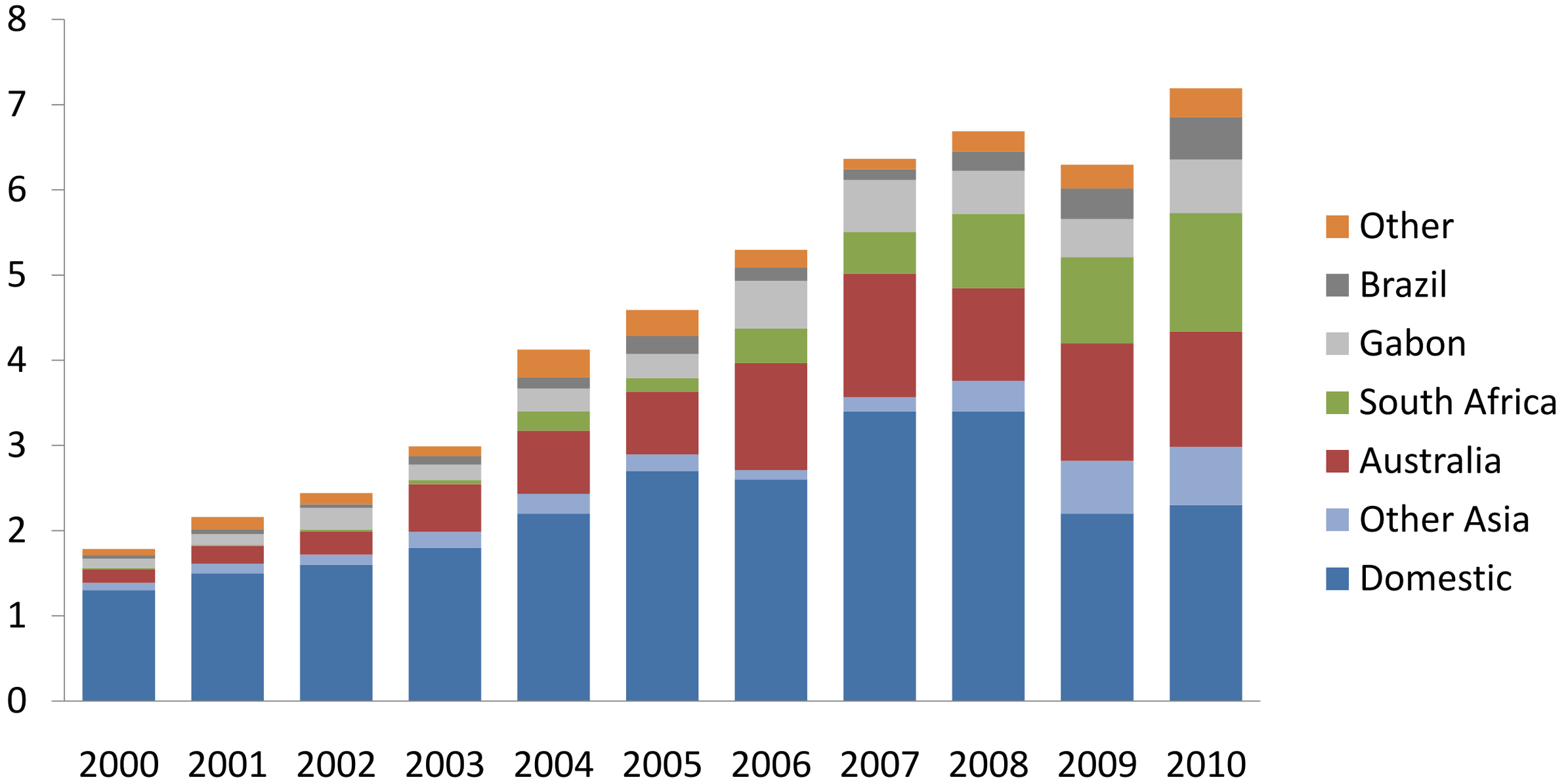
China: over 60% of Mn ore supply is now imported

Asian supply of Mn ore, million tonnes, contained Mn



Source: SBB Analysis

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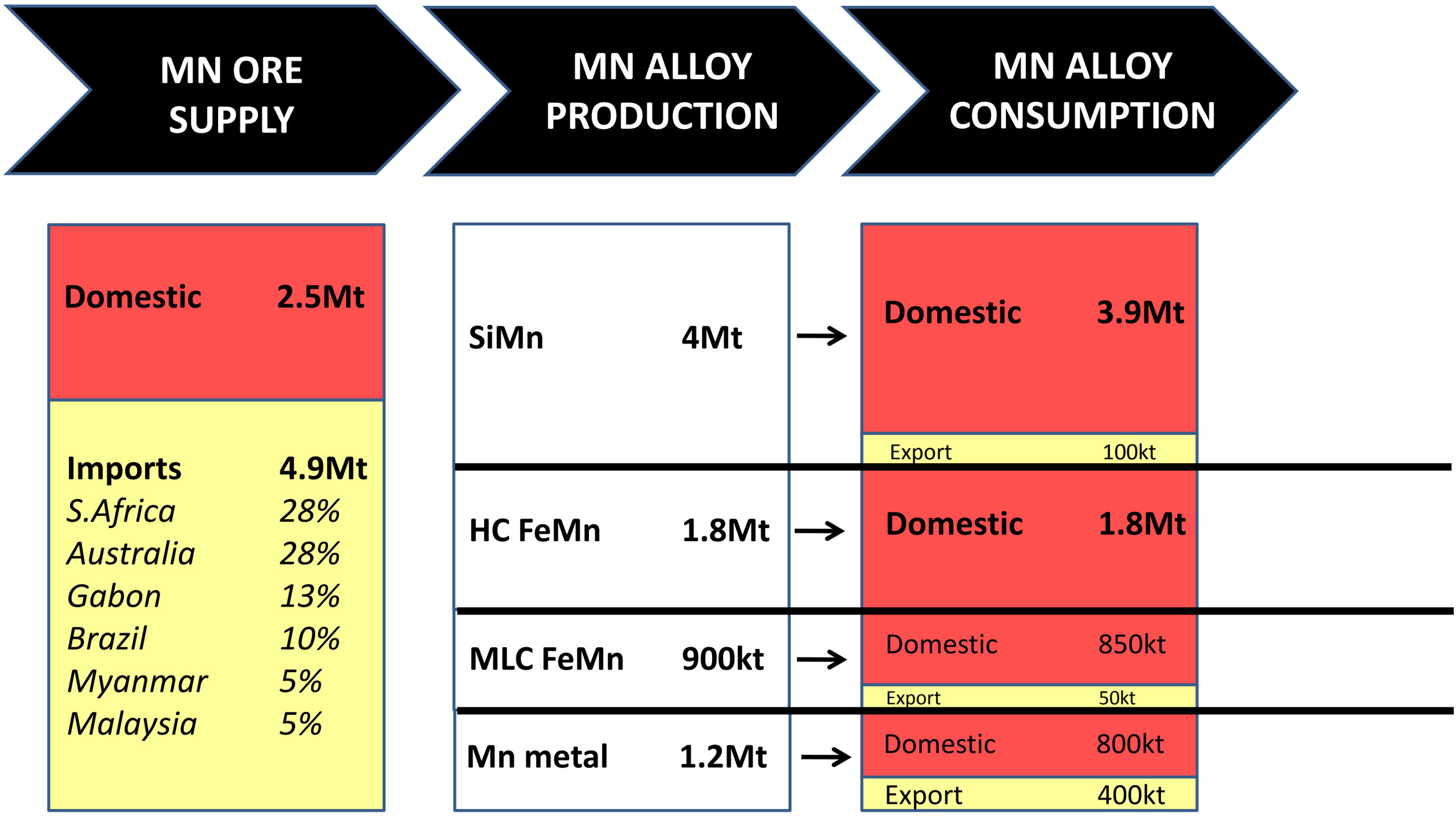
China: summary of Mn product flow



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

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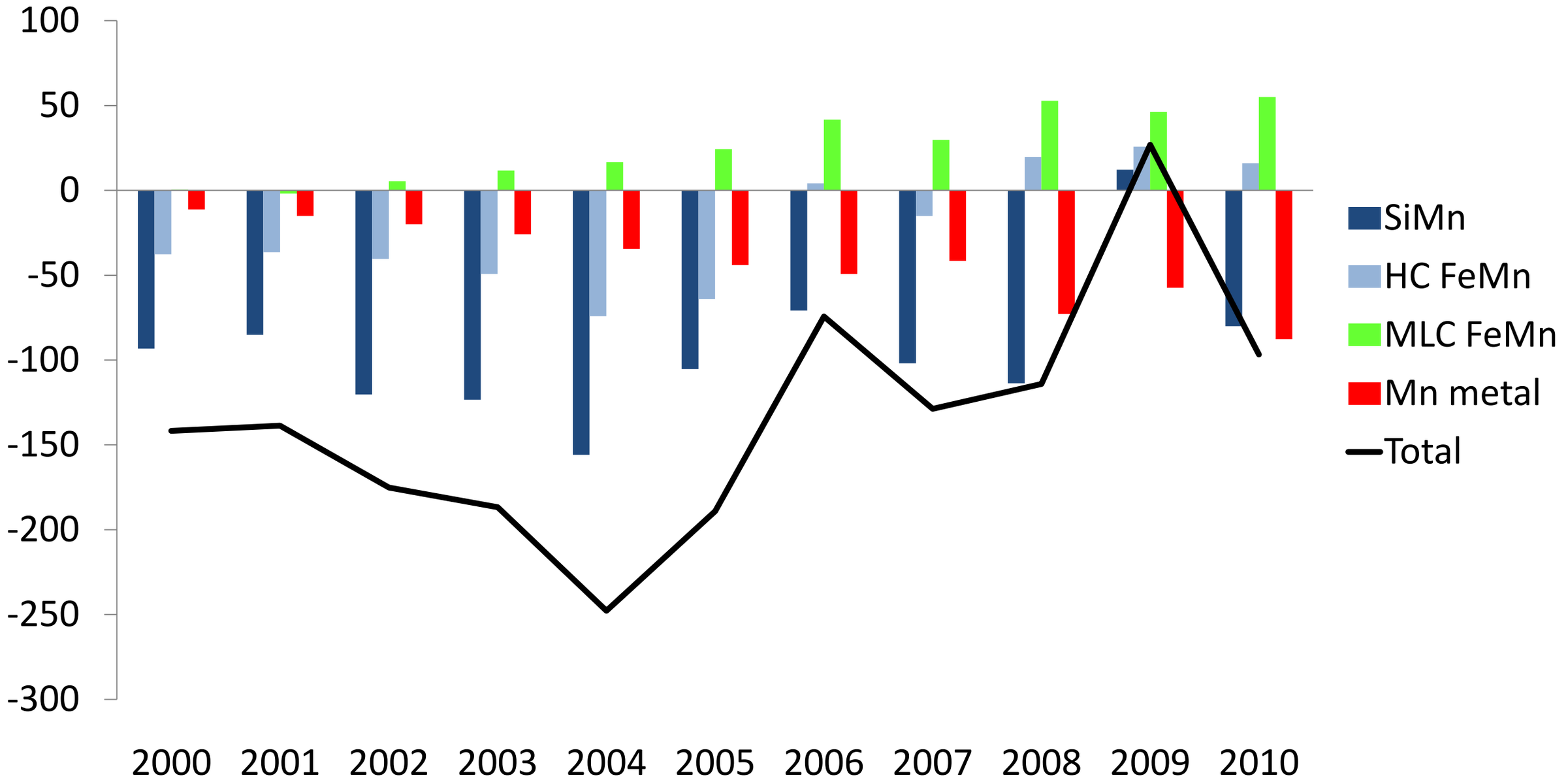
South Korea: now a net exporter of FeMn, and a smaller net importer of Mn alloys overall

South Korea net export of Mn alloys, thousand tonnes



Source: SBB Analysis

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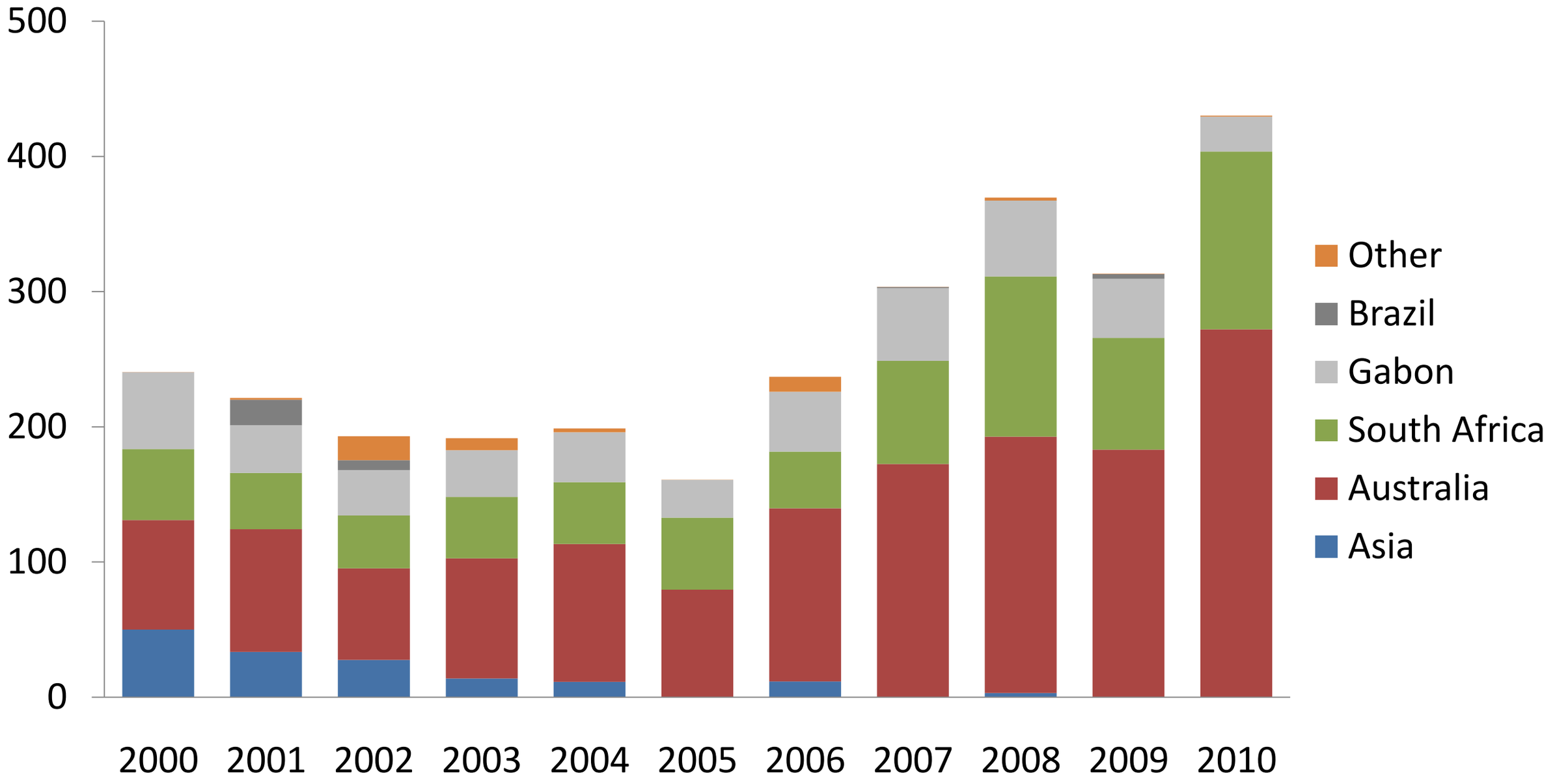
South Korea: rising Mn ore imports, with Australia the major supplier

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



Source: SBB Analysis

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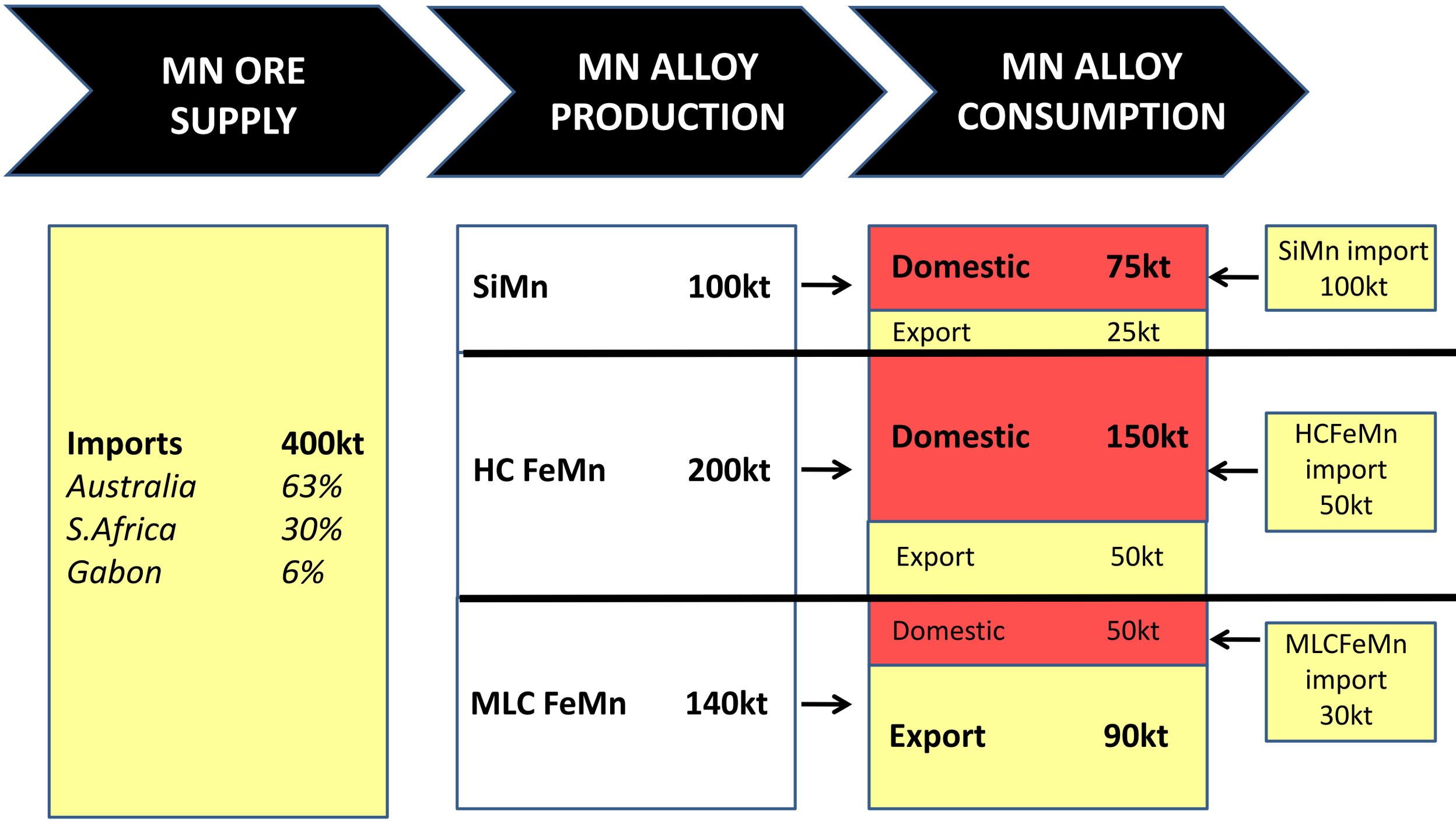
South Korea: summary of Mn product flow



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

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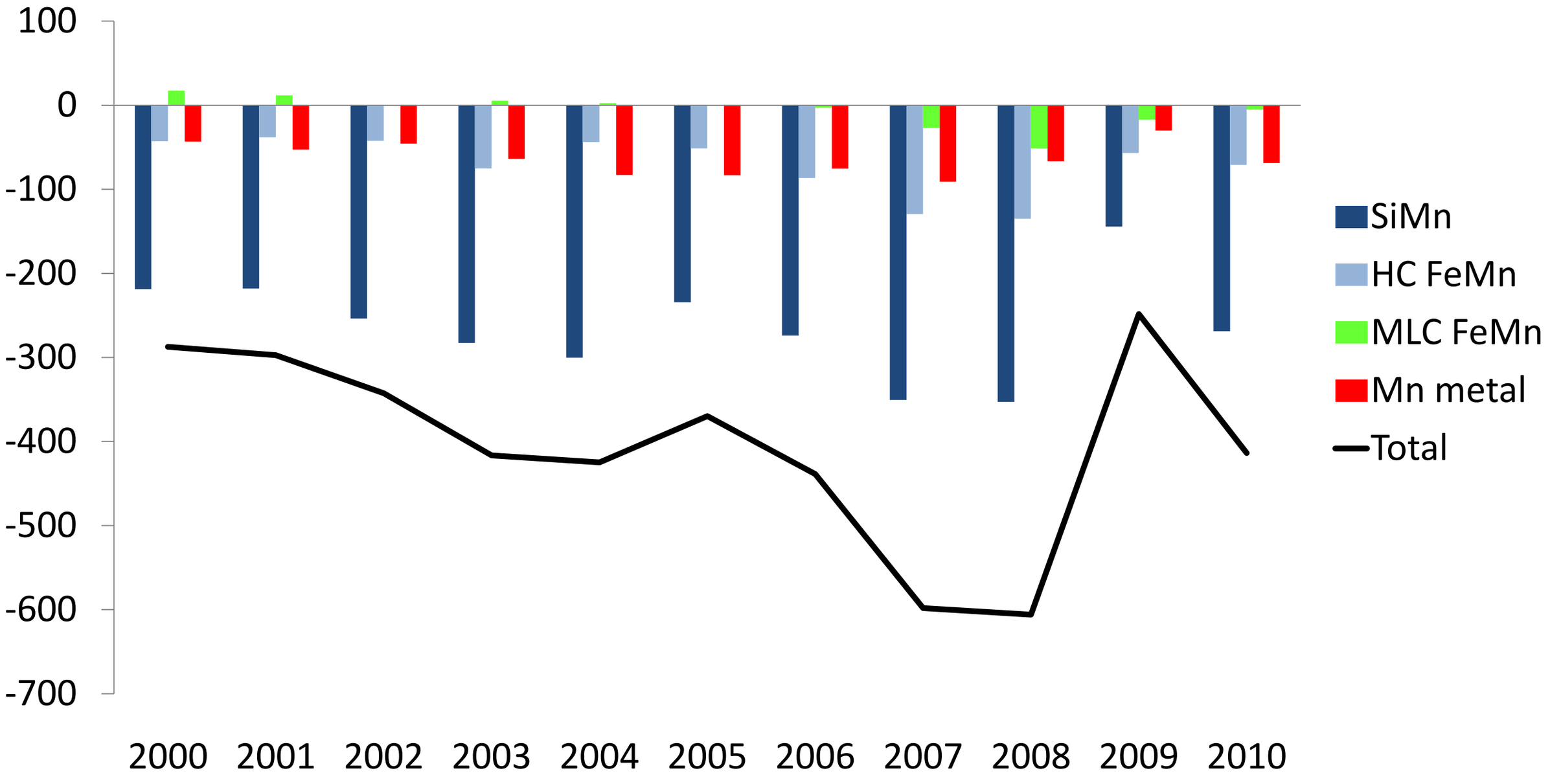
Japan: consistently a major net importer of all Mn alloy products

Japan net export of Mn alloys, thousand tonnes



Source: SBB Analysis

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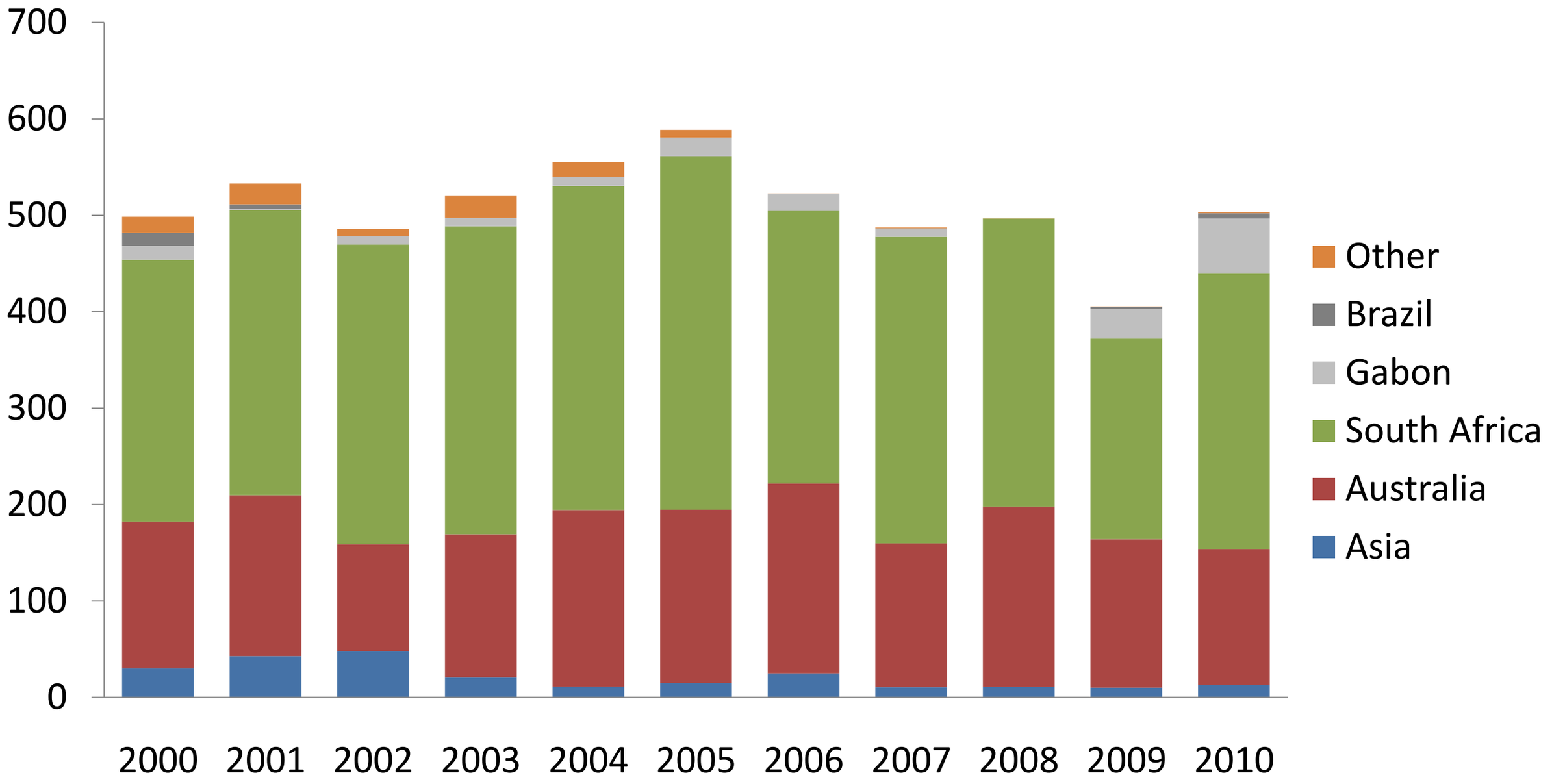
Japan: Static/declining Mn ore imports, with South Africa the major supplier

Japanese supply of Mn ore, thousand tonnes, contained Mn



Source: SBB Analysis

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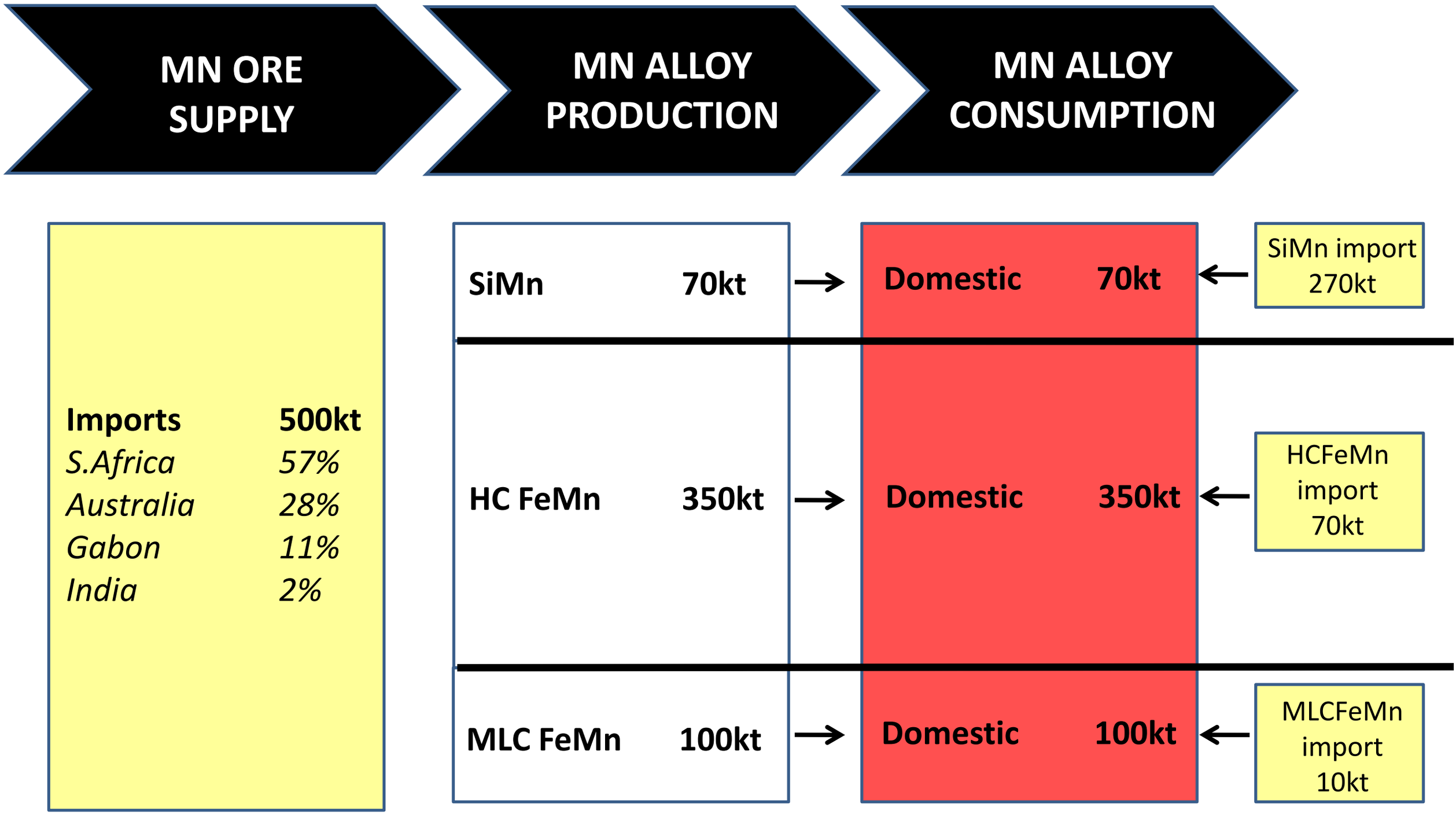
Japan: summary of Mn product flow



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

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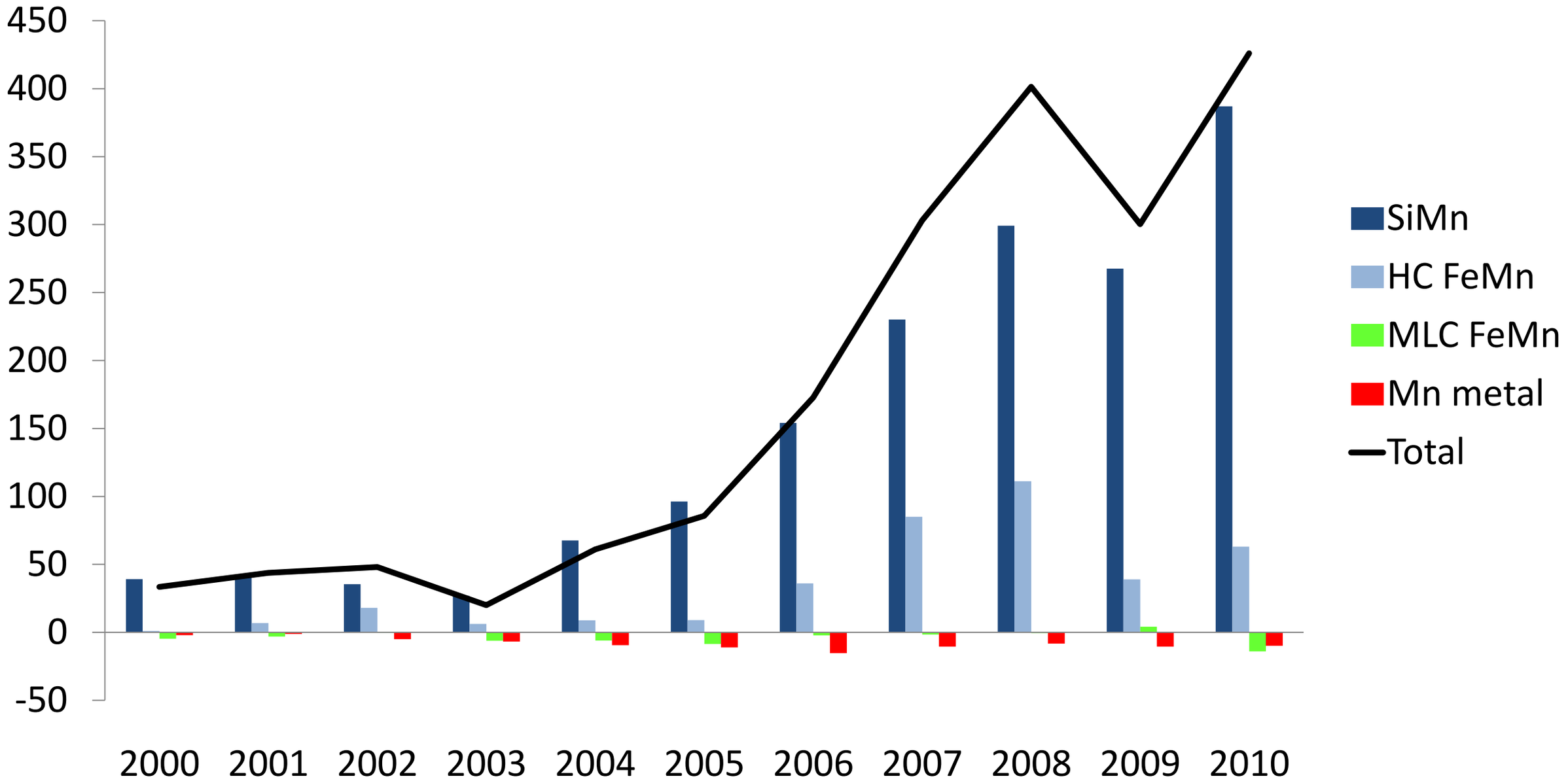
India: now a major net exporter of Mn alloys, SiMn especially

India net export of Mn alloys, thousand tonnes



Source: SBB Analysis

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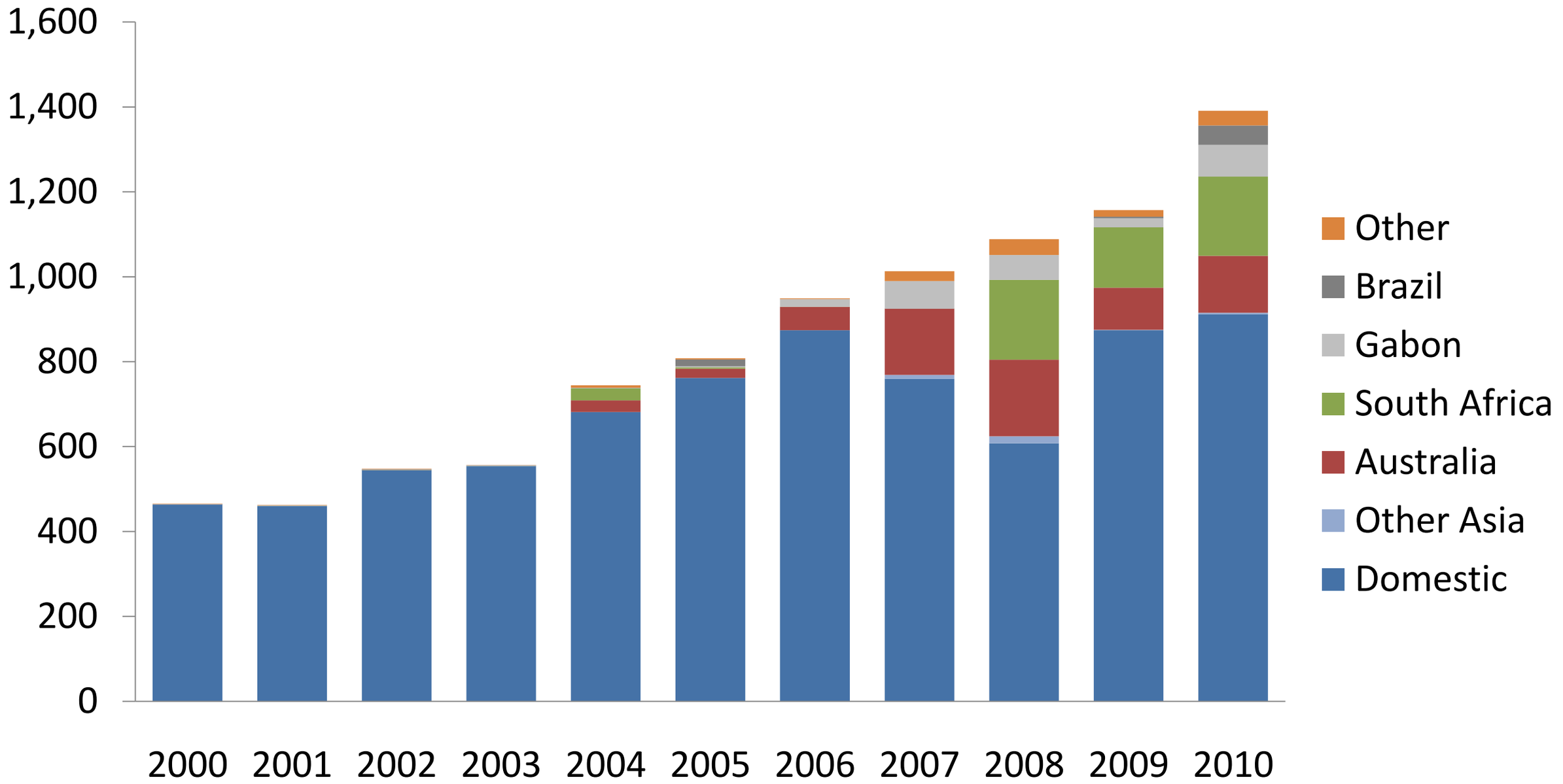
India: one third of Mn ore supply now comes from imports

Indian supply of Mn ore, thousand tonnes, contained Mn



Source: SBB Analysis

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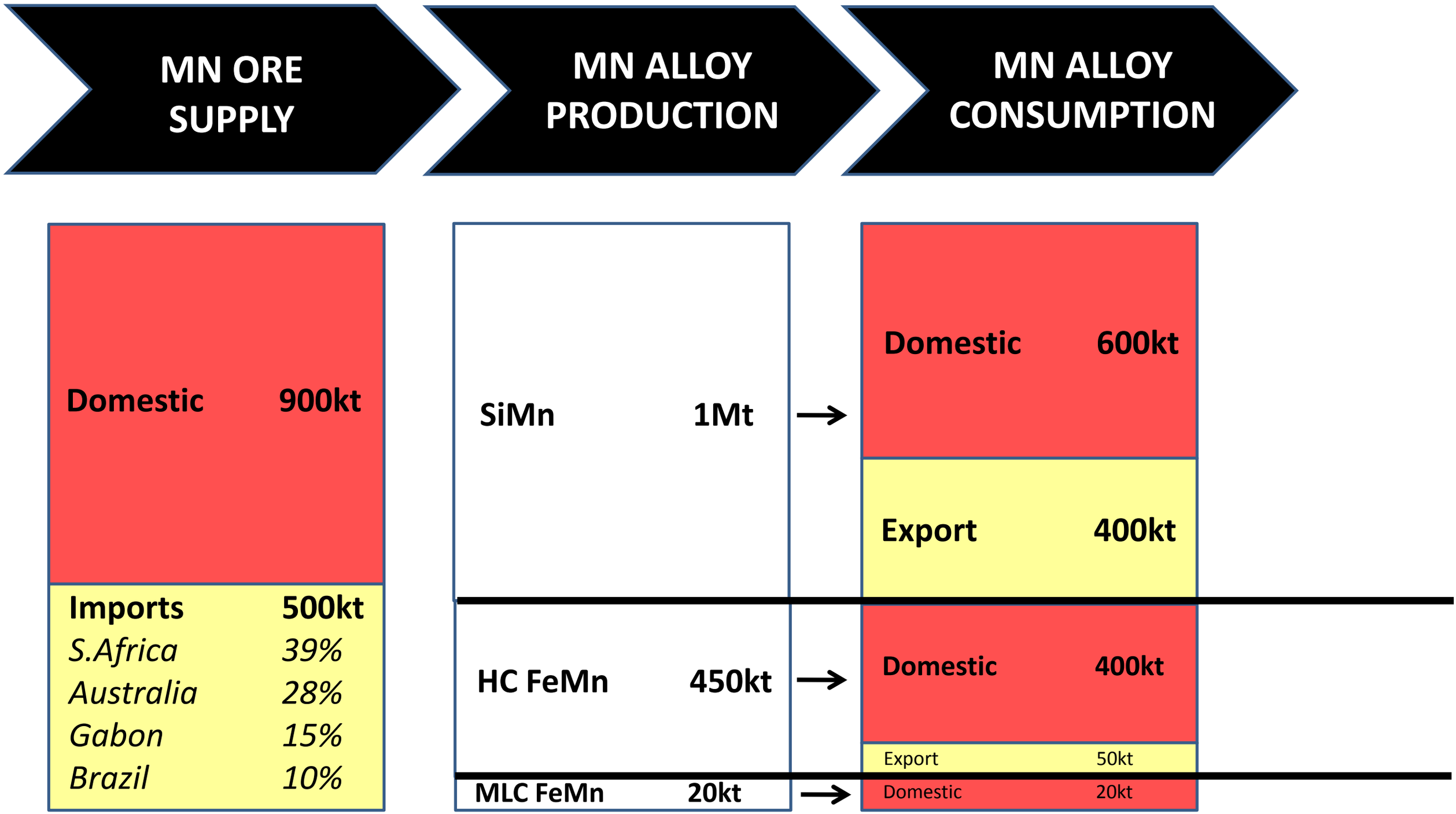
India: summary of Mn product flow



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

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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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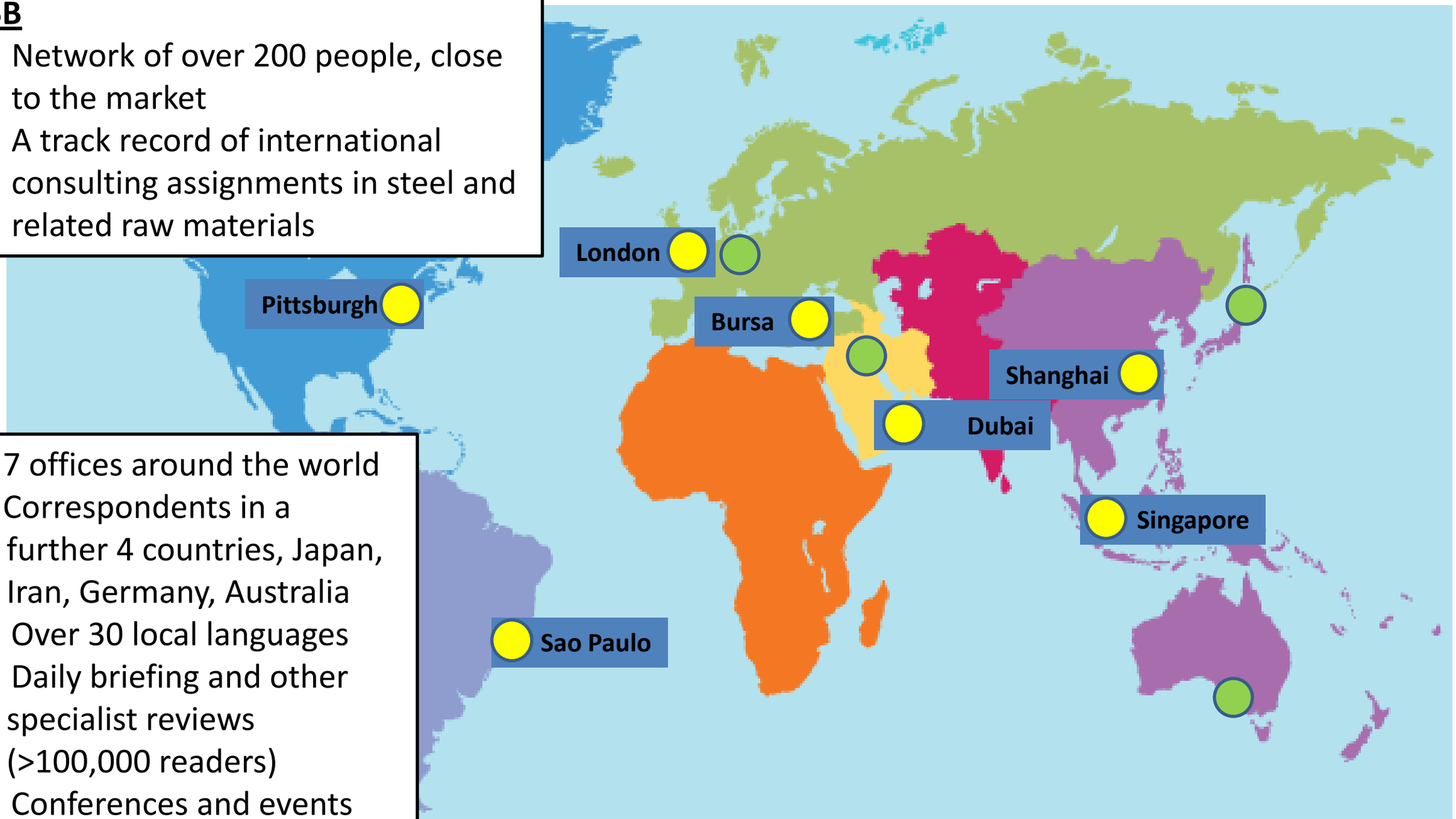
- A track record of international consulting assignments in steel and related raw materials



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