



Outlook of South Africa's Manganese Sector

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OVERVIEW OF SA MANGANESE SECTOR



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Overview of SA Manganese Sector: Key Trends



2012 Global Mn exports: USD5.09bn. Global production is estimated to increase by 7% in 2014. In 2013, more than 5 million tons p.a. of new Mn ore production capacity was under development globally, due to mine expansions and start ups. 57% of this was in SA



SA accounts for 75% of global Mn identified reserves and 31% of Mn exports by value. SA Mn output is on an upward trend



Current average margins for SA producers: 40%, decreasing to 37% at the end of 2015. This good outlook for the Mn industry should encourage further investment



Limited capacity at PE and Durban ports. To meet increased supply, companies will need to utilise alternative ports



January 2014 Mn ore production increased by 25.5% from January 2013



Overview of SA Manganese Sector: Production and Reserves of Mn Producing Countries

| Country | 2010 | 2011 | 2012 | 2013 | 2014 reserves |
|--------------|--------|--------|--------|--------|---------------|
| South Africa | 2.9 mt | 3.4 mt | 3.6 mt | 1.8 mt | 150 mt |
| Australia | 3.1 mt | 3.2 mt | 3.1 mt | 3.1 mt | 97 mt |
| Gabon | 1.4 mt | 1.9 mt | 1.7 mt | 2.0 mt | 24 mt |
| Brazil | 1.5 mt | 1.2 mt | 1.3 mt | 1.4 mt | 54 mt |
| China | 2.6 mt | 2.8 mt | 2.9 mt | 3.1 mt | 44 mt |

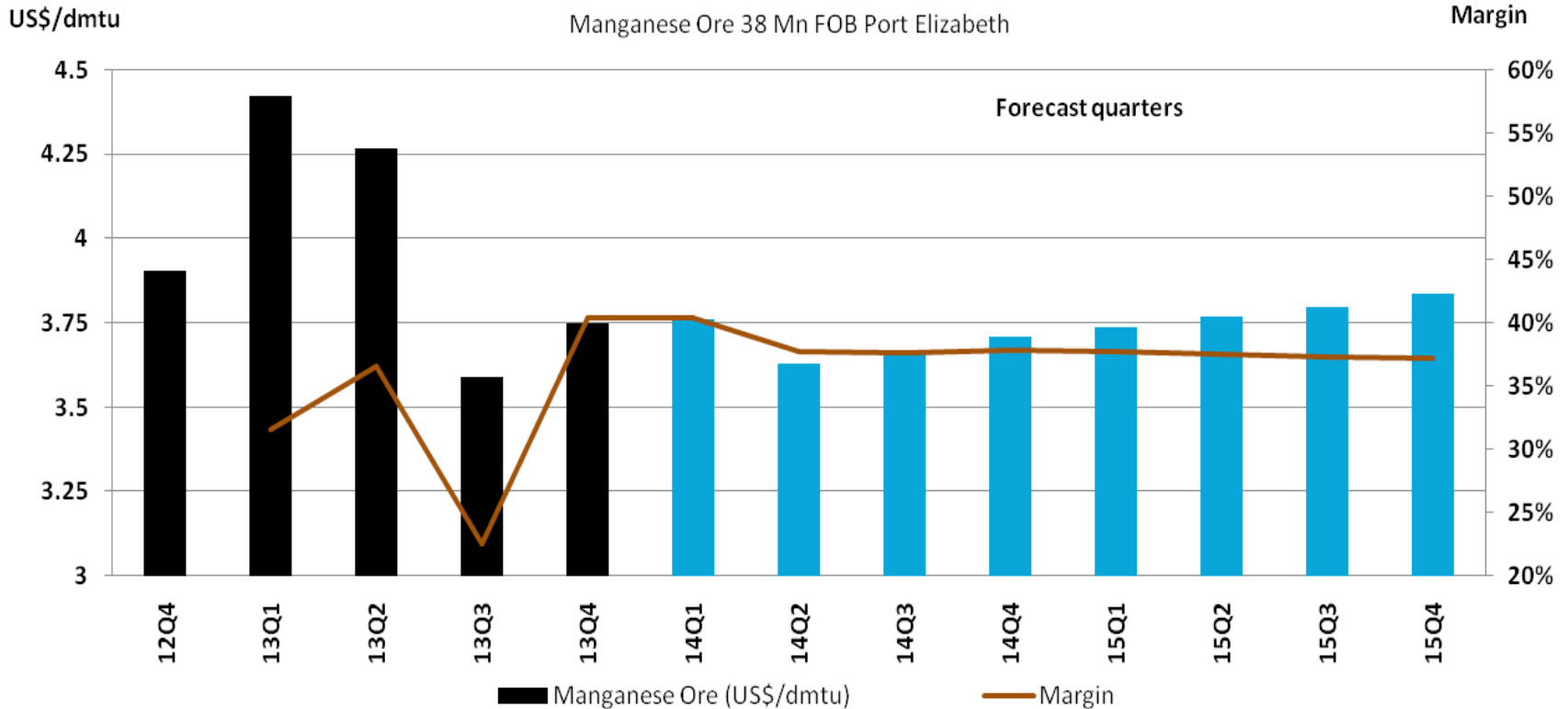
Source: USGS Mineral Commodity Summaries February 2014, March 2014 Commodity Outlook Report



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Overview of SA Manganese Sector: Key Trends

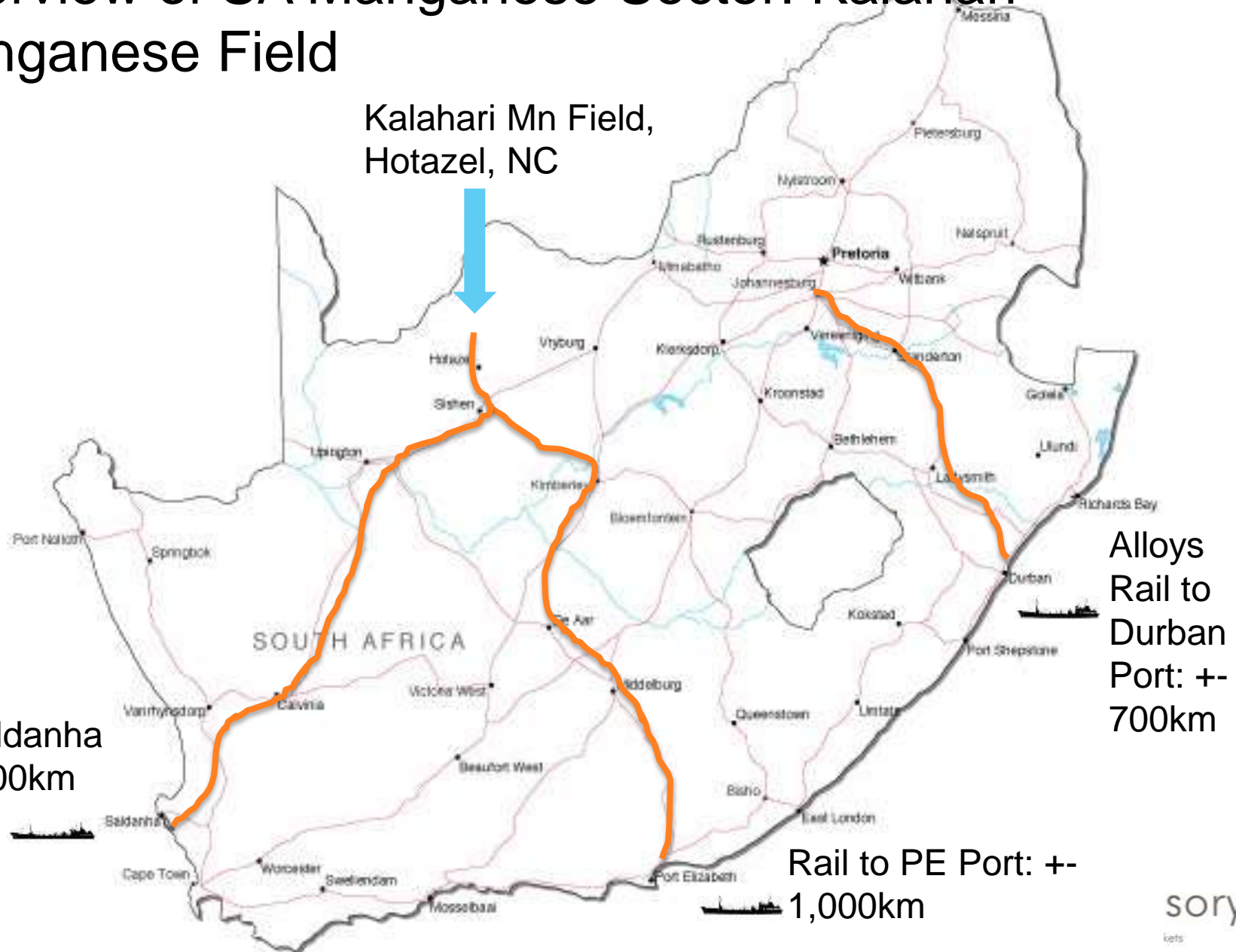
Manganese Ore - Quarterly forecasts 2014 to end 2015



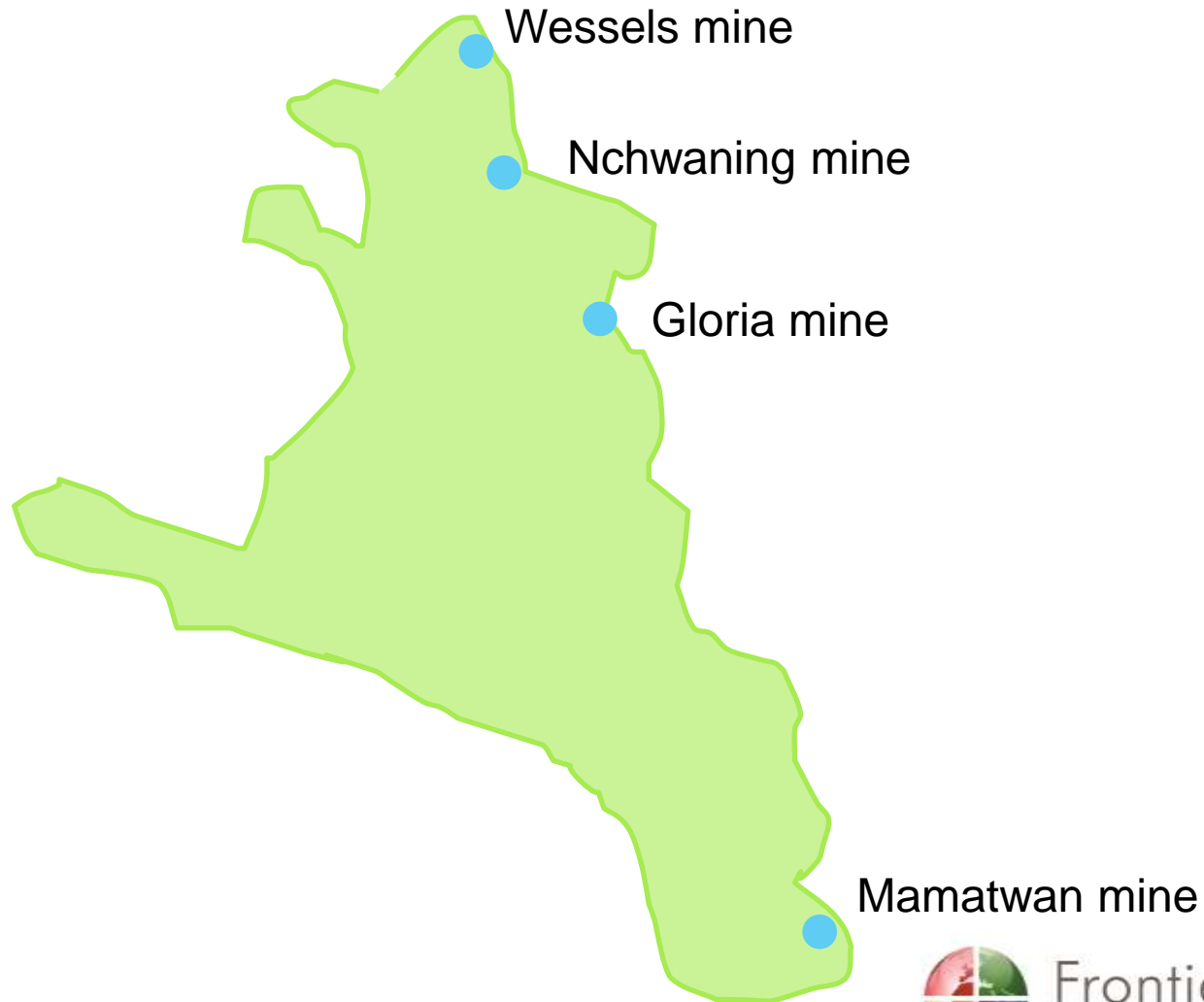
Short Term Forecast for SA Mn Ore Prices to 2015

Overview of SA Manganese Sector: Kalahari Manganese Field

Kalahari Mn Field,
Hotazel, NC



Overview of SA Manganese Sector: Kalahari Manganese Field

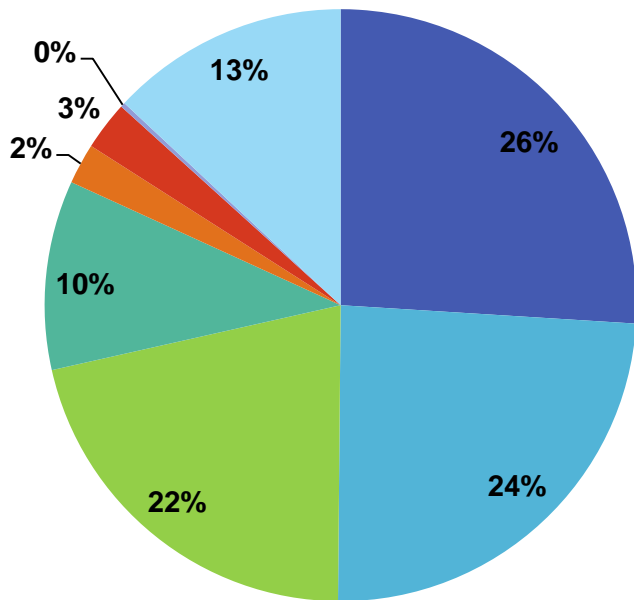
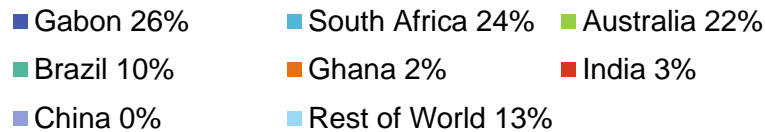


Overview of SA Manganese Sector: Key Players

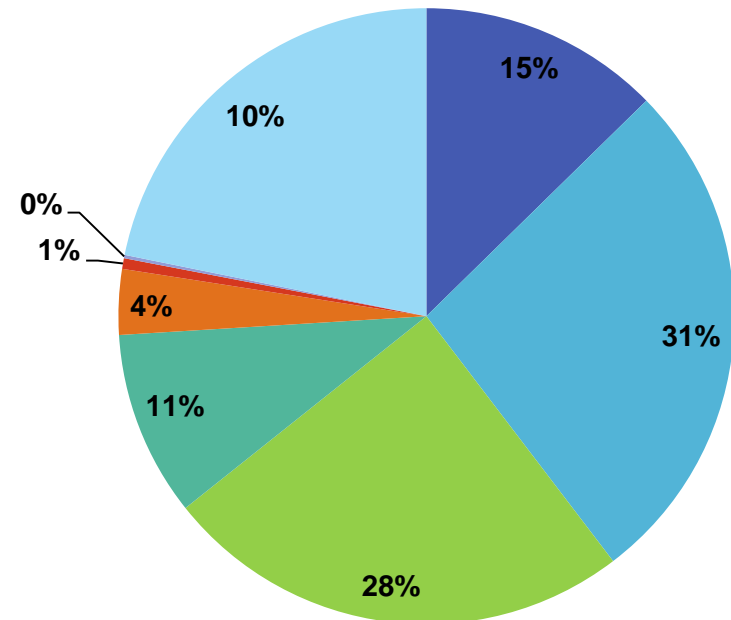
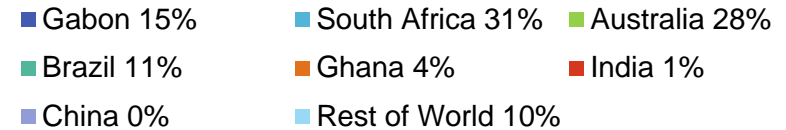
| Company | Mines | Company | Mines |
|--|----------------------|--|------------------------------------|
|  | Wessels, Mamatwan |  | Nchwaning, Gloria |
|  | Thembeke Myedi |  | Tshipi Borwa |
|  | Kudumane Mine |  | United Manganese of Kalahari |

Overview of SA Manganese Sector: Global Share of Mn Exports

1990



2012

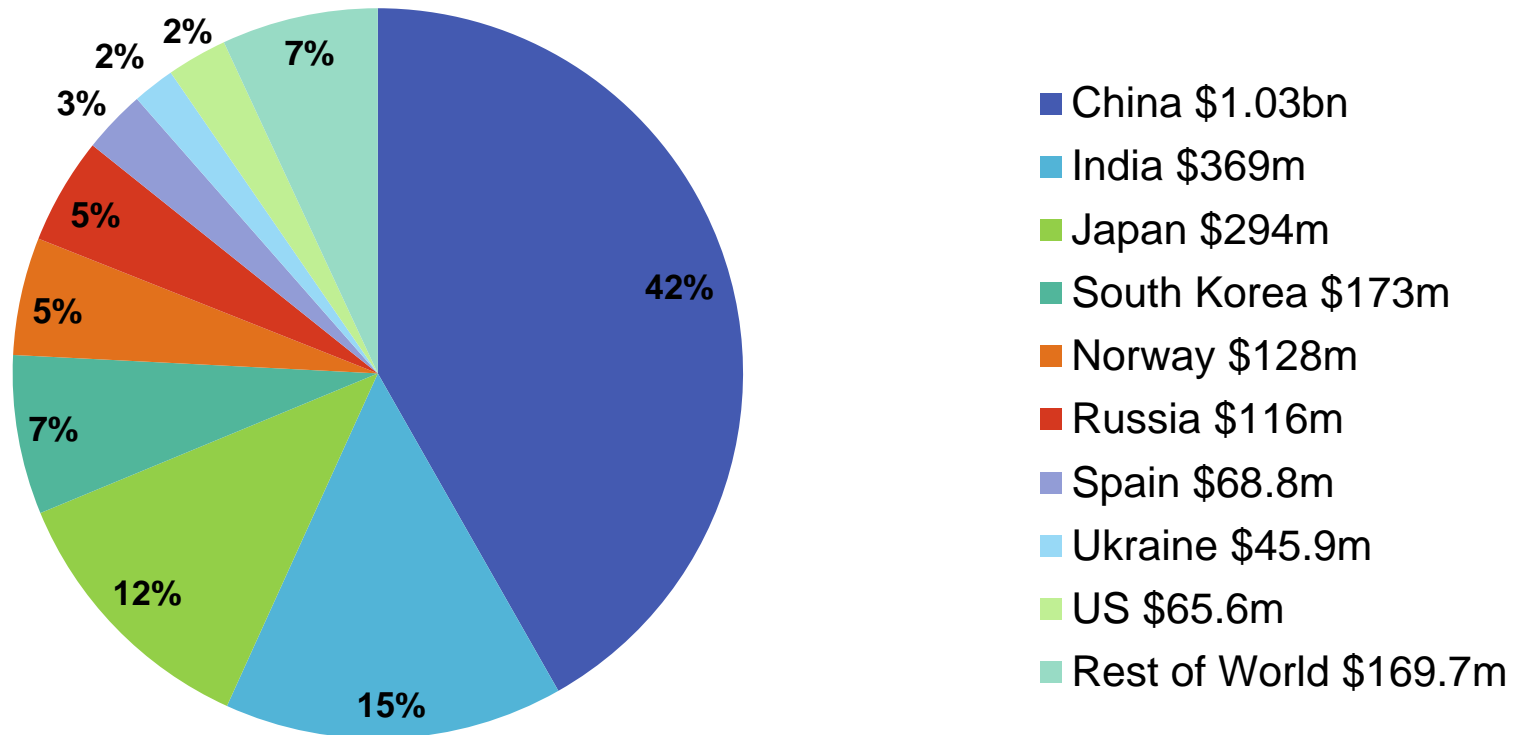


Source: Observatory of Economic Complexity, 2014




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Overview of SA Manganese Sector: SA Mn Exports 2012




Source: Observatory of Economic Complexity, 2014


Overview of SA Manganese Sector: Drivers of Demand




Global steel production increased by 3.5% in 2013 and is predicted to increase by 4% p.a. in 2014 and 2015. 95% of Mn ore demand is driven by demand for Mn alloys



China accounts for 50% of global steel production. Steel production is expected to slow down slightly due to economic reforms and environmental awareness. Production increased by 7.5% in 2013 whilst production forecasts for 2014 and 2015 are 5% and 3.5%



Continued global growth and recovery from the recession are indicative of rising world-wide steel production, especially within the automotive, infrastructure and energy sectors. The decrease in China's steel production growth will be compensated for by increased global production



US Mn Imports from SA (2009-2012):
Mn Ore: 14%
Ferromanganese: 55%
Mn in principal Mn imports: 34%

CHALLENGES FACING THE SA MANGANESE SECTOR



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Key Challenges

- Transportation and logistics
- Resource Nationalism & Beneficiation
- Power and electricity
- Labour issues
- Access to capital
- China's economic transformation



Challenges: Africa-wide mining

| Challenge | South Africa | Africa |
|--------------------------|---|--|
| Resource Nationalism | Mandated beneficiation | Domestic ownership requirements (Zimbabwe) |
| Infrastructure | Lack of rail transport. SA has \$2.5trn of reserves. Sishen railway | Lack of rails, ports, power, etc Moving further into remote areas |
| Rising operational costs | Increasing cost of electricity, labour | Electricity, water, labour |
| Industrial action | Platinum strikes, Marikana | Zambia strikes |



Challenges: Transportation & Logistics

Manganese Rail Capacity

2011: 4 mtpa

2013: 5.5 mtpa

Expected capacity demand in 2017:
between 18 mtpa and 22 mtpa

Demand for rail capacity far outstrips
supply

Solution: Manganese Ore Expansion
Project

MECA: Mn Export Capacity Allocation
Mines receive a limited tonnage
entitlement to use the railway and
port. Insufficient for a number of mines



Challenges: Transportation & Logistics



Source: IMnI, Transnet

Port Elizabeth: only dedicated Mn export terminal

- > 1000km from mines
- Limited capacity +/- 4.8 million tons p.a.
 - Capacity unlikely to increase past 6 million tons p.a.

Ngqura: Mn Terminal (2019)

- Continually pushed back due to strikes, logistical problems and other unforeseen circumstances
- Expected capacity: 16 million tons p.a.
 - Expansion possibilities



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Challenges: Resource Nationalism & Beneficiation

Localisation debates given emerging general consensus on the over reliance on raw commodities

Between 2003 and 2008, SA exported 98% of its Mn ore, producing only 5% of global manganese ferroalloys. Very little beneficiation occurred.

This is changing with the construction of more smelters and sinters

- Metalloys smelter
- Kalagadi sinter plant

Beneficiation Strategy (June 2011): Developed by DMR

Mn identified as one of the minerals with highest potential gains from beneficiation

- Increase the production of steel by increasing local competition
- Increase demand for locally produced alloys

Challenges:

- Limited access to raw materials
- Lack of infrastructure for beneficiation
- Lack of skills
- Competitive vs comparative advantage



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Challenges: Beneficiation

Comparative Advantage

- Eg. natural resources: no longer a key driver of manufacturing beneficiation investment.



Iron ore

Diamonds



Competitive Advantage

- Eg. cost competitive production, skills and craftsmanship, etc., are key drivers of manufacturing beneficiation investment.

Steel

Diamond
polishing



**Manufacturing beneficiation is driven by competitive advantage issues
& not necessarily by the availability of raw materials**

Challenges: Power and Electricity

Africa's total installed generation capacity \approx **134-147GW**

South Africa's total installed generation capacity \approx **44GW**

Lack of forward looking investment and poor maintenance characterise the sector

SA has been plagued with mismanagement of Eskom

A number of renewable and traditional based energy projects are being undertaken to address current energy shortages

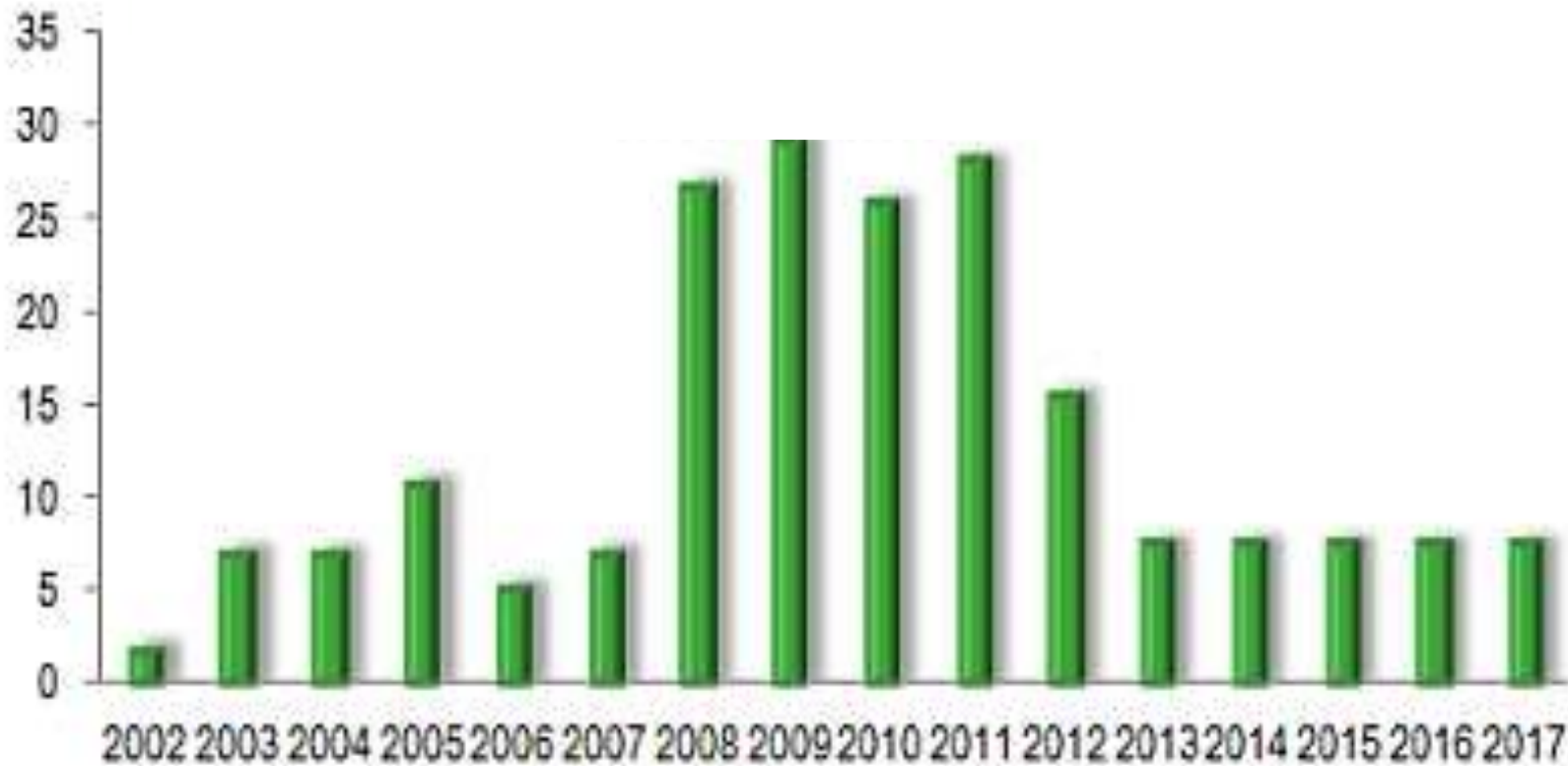
Power and electricity access issues include:

- Lack of infrastructure. SA's power needs are expected to double by 2030. Construction of Medupi and Kusile still underway, delays; projects planned over next 10-15 years
- Cost of power: Price will increase by 8% for next five years, rising to 89.13c/kWh in 2017. Consumer inflation: 5.5%
- Unreliable supply: Repeated instances of load shedding, notably 2008 and beginning of 2014, demand management



Challenges: Power and Electricity

Electricity Price Increases in SA (%) 2002-2017



Source: UrbanEarth, sourced from Nersa, 2014

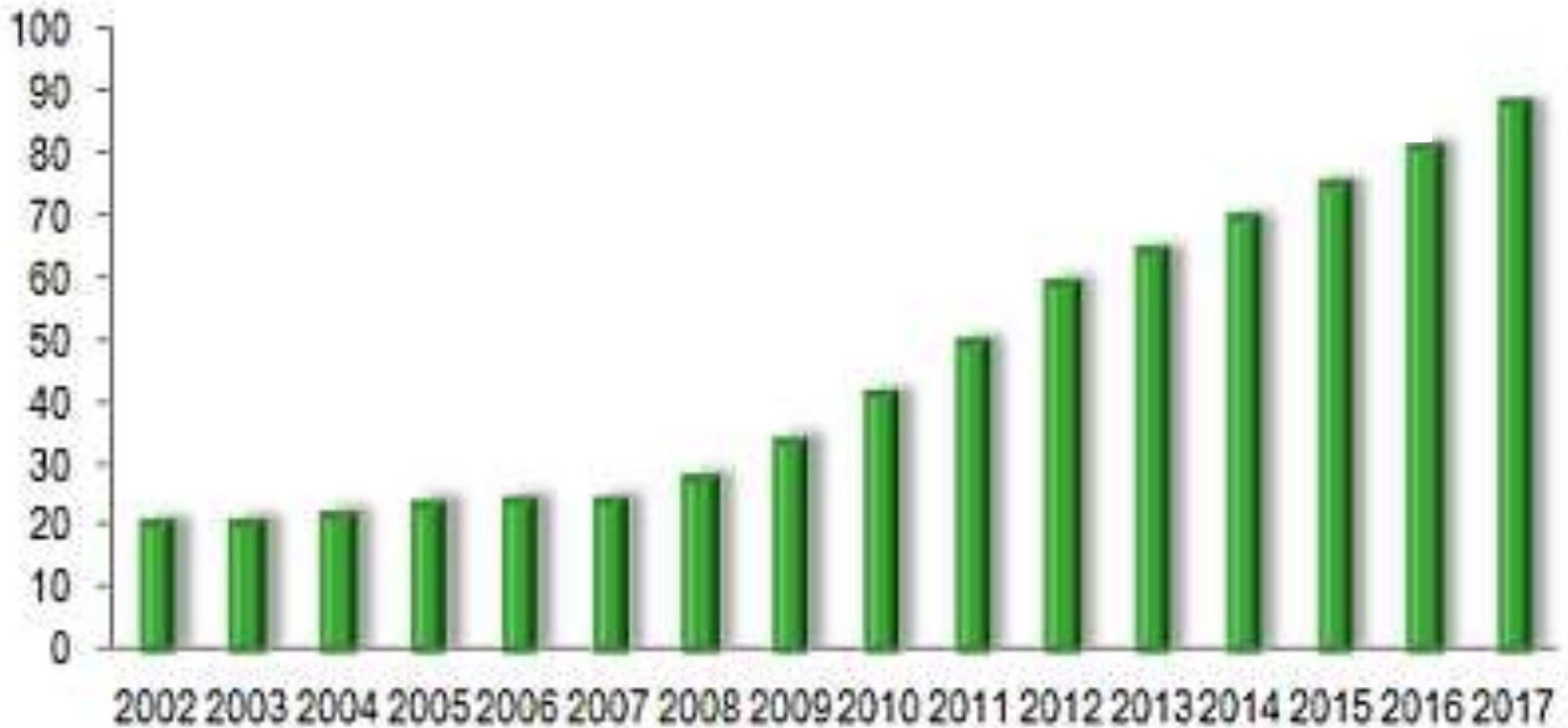


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Challenges: Power and Electricity

Average Electricity Price in SA 2002-2017 (cents per kWh)



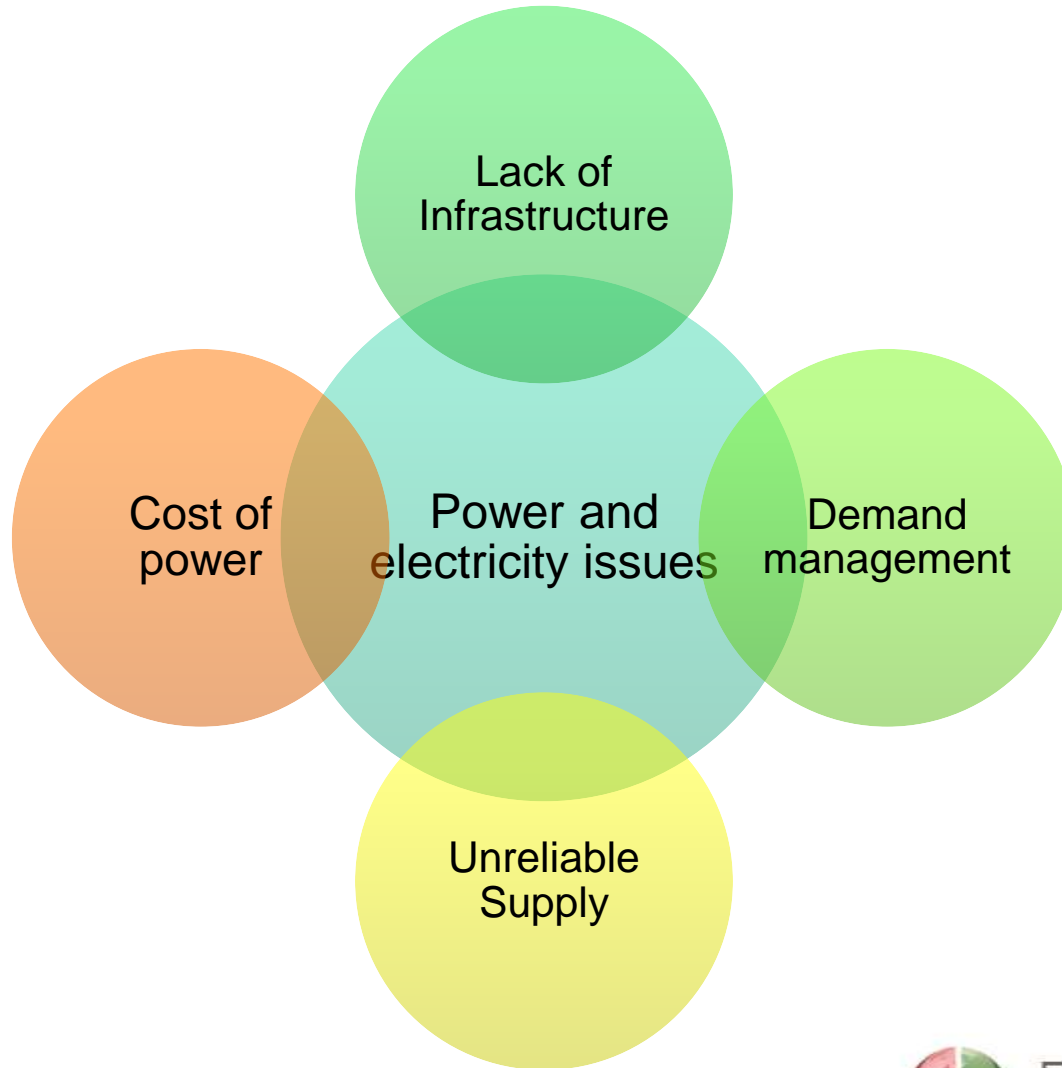
Source: UrbanEarth, sourced from Nersa, 2014



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Challenges: Power and Electricity



Challenges: Labour Issues

Strikes in South Africa have been a key challenge

Protracted and often violent, spillover effects on rest of economy

- AMCU Pt strike is longest since 1994; Pt sector has lost R17bn; 2012 strikes cost SA total of R15.3bn
- Possibility of spreading to other mines

Not unique to the mining sector, often result of socioeconomic factors

Have severely dampened investor confidence

One day of industrial action in SA gold industry costs per day:

- R350m loss of revenue
- R10m loss of taxes
- R100m loss of wages and salaries
- R45m loss of sales by suppliers

Mn industry has been minimally affected



Challenges: Labour Issues



Source: WEF Global Competitiveness Report, 2013

General Labour Market Issues in SA

Inadequately trained workforce:

Most problematic factor for doing business in SA

SA Labour Law is challenging and complex: Restrictive labour relations are the 2nd most problematic factor for doing business in SA

Health of workforce: Miners between the ages of 30-44 are 15% more likely to be infected by HIV/AIDS than the general population

Broad unemployment of >40%



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Challenges: Access to Capital

Global markets are tight and investor sentiment in mining is weak

M&A activity is hampered by global macroeconomic uncertainties

Juniors struggling to access capital; SA, juniors struggle to obtain mining rights

Lacklustre performance of commodities has resulted in the abandonment of projects which do not offer high enough returns

Investors are beginning to attach a risk premium to SA mining investments, given volatile labour environment which has increased country's operating risk → increasing the cost of capital

Number of companies are separating global assets from SA assets to raise capital for international operations; results in SA assets struggling to fund expansion



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Challenges: China's Economic Transformation

China's growth expected to slow to 7-7.5%

- Still growing from high base
- Still spending multi-trillions dollars on various industries and infrastructure that requires commodity inputs

Long-term trend in commodity demand growth in China will be a downward one, absolute numbers will still be increasing over the next decade plus

- China currently consumes about 1/3 of global commodities
- Expected to reach 50% by 2020

But China's changing industrial composition could see type of commodities demanded by China change

Chinese commodity demand ultimately a function of global consumption trends

Where will new centres of manufacturing be?



PLANS TO ADDRESS CHALLENGES



Plans to Address Challenges



Transportation & Logistics: Manganese Terminal at Ngqura Port, upgrade of railway network (SIP 3)
Ore line expansion including new loops, compilation yard



Beneficiation: Manganese smelter at Coega IDZ, Stanley Nqobizizwe Nkosi manganese sinter plant, Metalloys manganese smelter (SIP 3)



Power / electricity issues: Eskom tariffs set to increase after asking the government for a R50bn equity injection in April. Unless drastic changes occur, this will continue to be a key constraint



Labour: No foreseeable change. Urgent dialogue is needed



Capital: Increasing role of state-backed investors funding mining through M&A



NEW PROJECTS AND DEVELOPMENTS



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New Projects and Developments



Kareepan Manganese Project: JV between Kaboko Mining and Genet South Africa Ltd



Tshipi Borwa, Kalagadi and Kudumane are all expected to increase production
Aquila Avontuur hopes to receive mining permit by end of May



Increasing Mn demand will lead to increasing volume of exports through alternative ports (Richard's Bay, Maputo)



Cote d'Ivoire aims to increase production by 10% in 2015
New investments in Zambia, Togo, Burkina Faso and Gabon will raise production



SA'S FUTURE ROLE IN GLOBAL MANGANESE



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SA's Future in Global Manganese

Sustained production of good quality Mn ore

Kalahari Manganese Field has been estimated to contain approximately 13bn tonnes of Mn ore (20% to 48% Mn); enough reserves for long-term structural supply

Increases in SA Mn ore production is estimated to add 14% to global supply

Problems with transport infrastructure severely constrains production and pushes costs up

Increasing competition from Indian silicon-manganese producers

US steel output decreased by 4% in 2013

EU output decreased by 3% in 2013

China production increased by 7.5% in 2013, expected to increase by 5% in 2014 and 3.5% in 2015



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