



CHAMBER OF MINES
of South Africa

RSA MINING SECTOR: NAVIGATING VOLATILITY IN CHALLENGING TIMES

Roger Baxter
Chief Executive
15 July 2016
EY Panel



This is the Mining Industry



“Long Cold winters and Short beautiful summers”

Mining helps give us a cleaner future

Emissions from
one car sold in
1960s

=



Emissions from 100 cars sold in 2015



PGMs, technology development and standards enabled this to happen

PGM vehicle emission catalysts including exhaust system catalysts, catalysed particulate filters and emission absorbers convert 99% of combustion engine pollutants (HC, CO, NO_x, and particulates) enabling vehicle producers to meet EU standards

Mining gives us energy for development

Platinum based fuel cell technology is unlocking the potential of the hydrogen economy



See www.platinumpowerfuelcell.co.za

Chamber 100kW FUJI fuel cell

- First base-load 100kW platinum fuel cell installed in Africa
- In operation since 18/12/2014
- Uses natural gas (Egoli gas)
- Electro-chemical process, no moving parts
- 25 year design life, minimal servicing
- 50% energy efficient
- Further 30% energy to be captured for heating building
- Levelised energy cost cheaper than municipal supply
- Collaborative project, CoM, DTI, Mitochondria, Fuji, Egoli Gas, demonstration of platinum beneficiation

Metals and minerals are the building blocks for smart technologies



- **Copper (16 grams) ¹**
- **Silver (0.35 grams) ¹**
- **Gold (0.034 grams) ¹**
- **Palladium (0.015 grams) ¹**
- **Platinum (0.00034 grams) ¹**
- **Ceramic magnetic switches containing rare earths ²**
- **Indium²**
- **Titanium dioxide ²**
- **Indium tin oxide ²**

- ¹ source – USGS <http://pubs.usgs.gov/fs/2006/3097/>
- ² source – NRC critical minerals report

Even the cosmetics and makeup are made from minerals



- Talc
- Mica
- Kaolin
- Calcite
- Titanium dioxide
- Zinc oxide

Even a bright smile, even comes from mining.....



- Silica
- Limestone
- Aluminum
- Phosphate
- Fluoride
- Titanium
- Mica
- Petroleum

More than half of NDP priorities can be tackled by mining

Economy and employment ✓

Economy infrastructure – The foundation of social and economic development ✓

Environmental sustainability – An equitable transition to a low-carbon economy ✓

An integrated and inclusive rural economy ✓

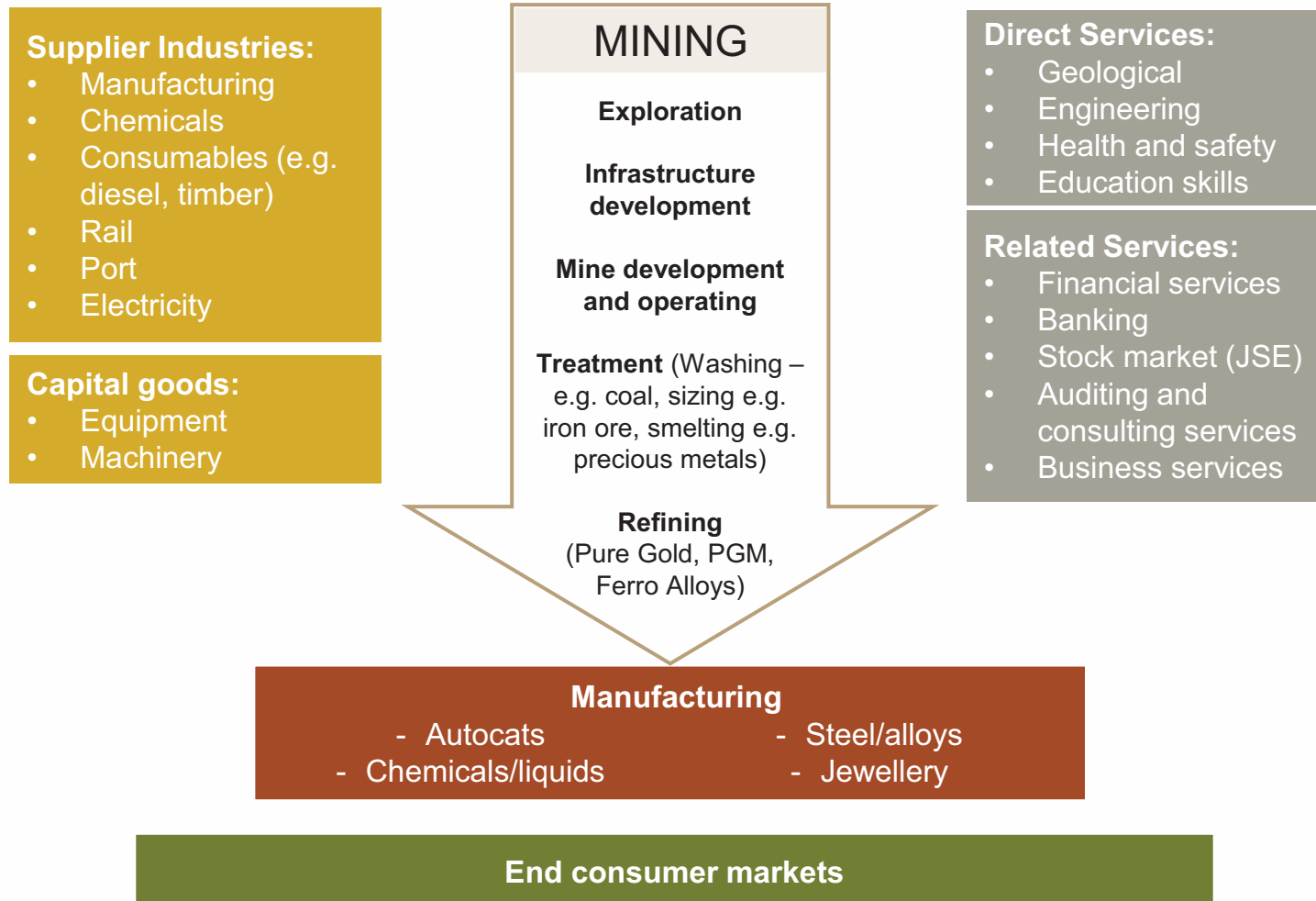
Positioning South Africa in the world ✓

Transforming human settlement ✓

Improving education, training and innovation ✓

Promoting health ✓

Mining matters for the growth, development and transformation of South Africa



But



July 2016

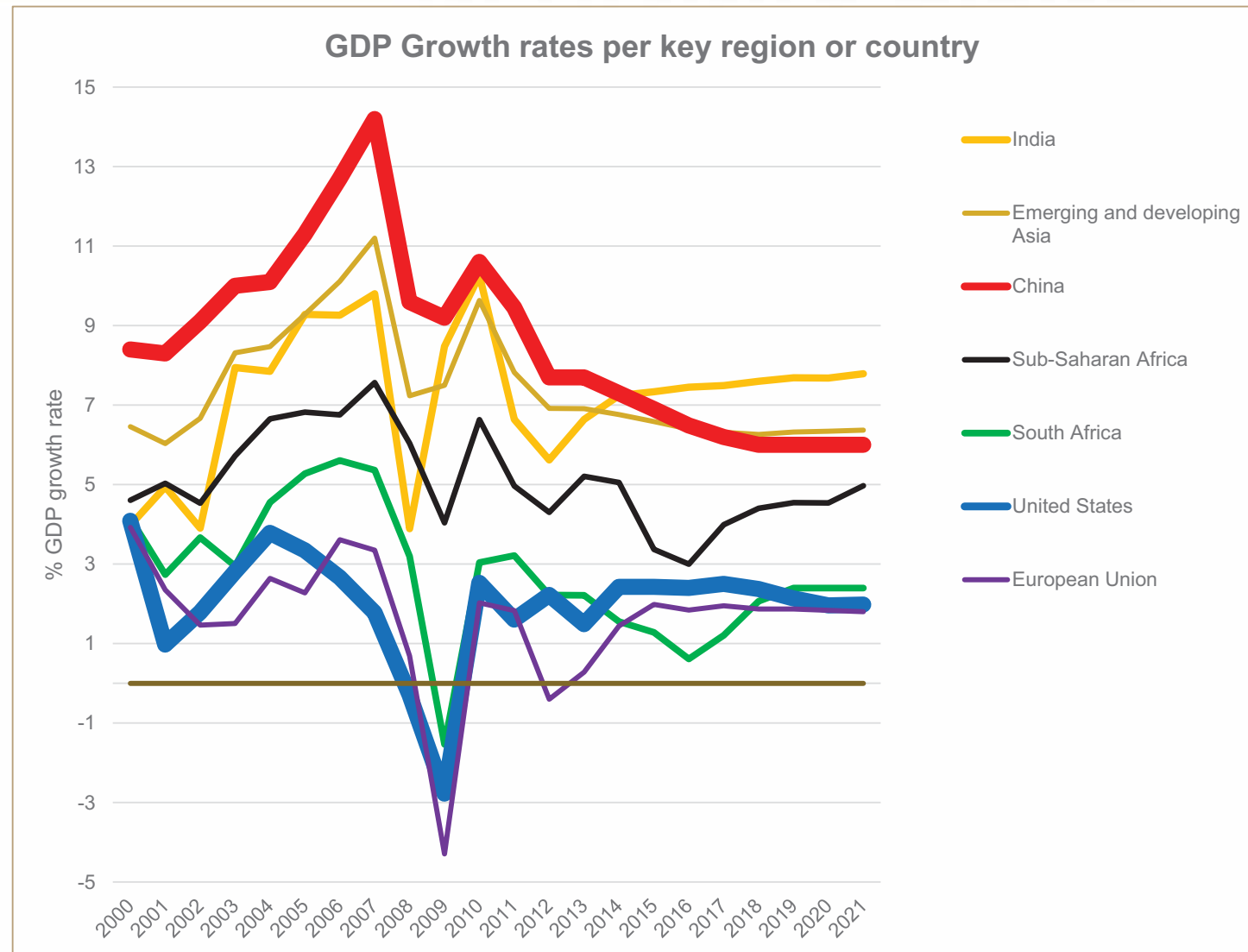
China's Economic slow down has been material for commodity prices

Chinese demand weakness structural

- Investment driven commodity demand growth from China at the end and shift is on to more consumer driven growth (rebalancing growth)
- Extent of oversupply of property significantly slowing commodity demand growth

Global commodity supply response has not matched demand slow down

- Significant “sunk” capital for growth in projects has slowed supply reduction response
- Commodity markets range from neutral to significantly oversupplied
- Significant overcapacity exists, depressing prices
- Commodity pricing outlook risks remains to the downside



Source: IMF WEO May 2016

Global industry in perspective in 2015



- **Slowing Chinese demand growth (China accounts for >40% of mineral demand)**
- **>25% decline in \$ commodity prices**
- **Top 40 companies make an aggregate loss of \$27 billion loss, first time**
- **Adjusted return on capital of 4% at all time low**
- **Top 40 mining companies significantly reduce capital investment and exploration**
- **Gap between long-term view of companies and short-term horizon of investors results in the market capitalization falling 37%, with many companies valued below net book value**
- **Many companies ratings are downgraded**
- **Focus is shifted to managing costs, restructuring balance sheets, disposal of non-core assets**
- **Limited capital available for project funding**
- **Average debt levels skyrocket (leverage rises to record 46%)**
- **Record \$57 billion of project impairments**

The commodity price outlook remains weak (lower prices for longer - the “new normal”)

China:

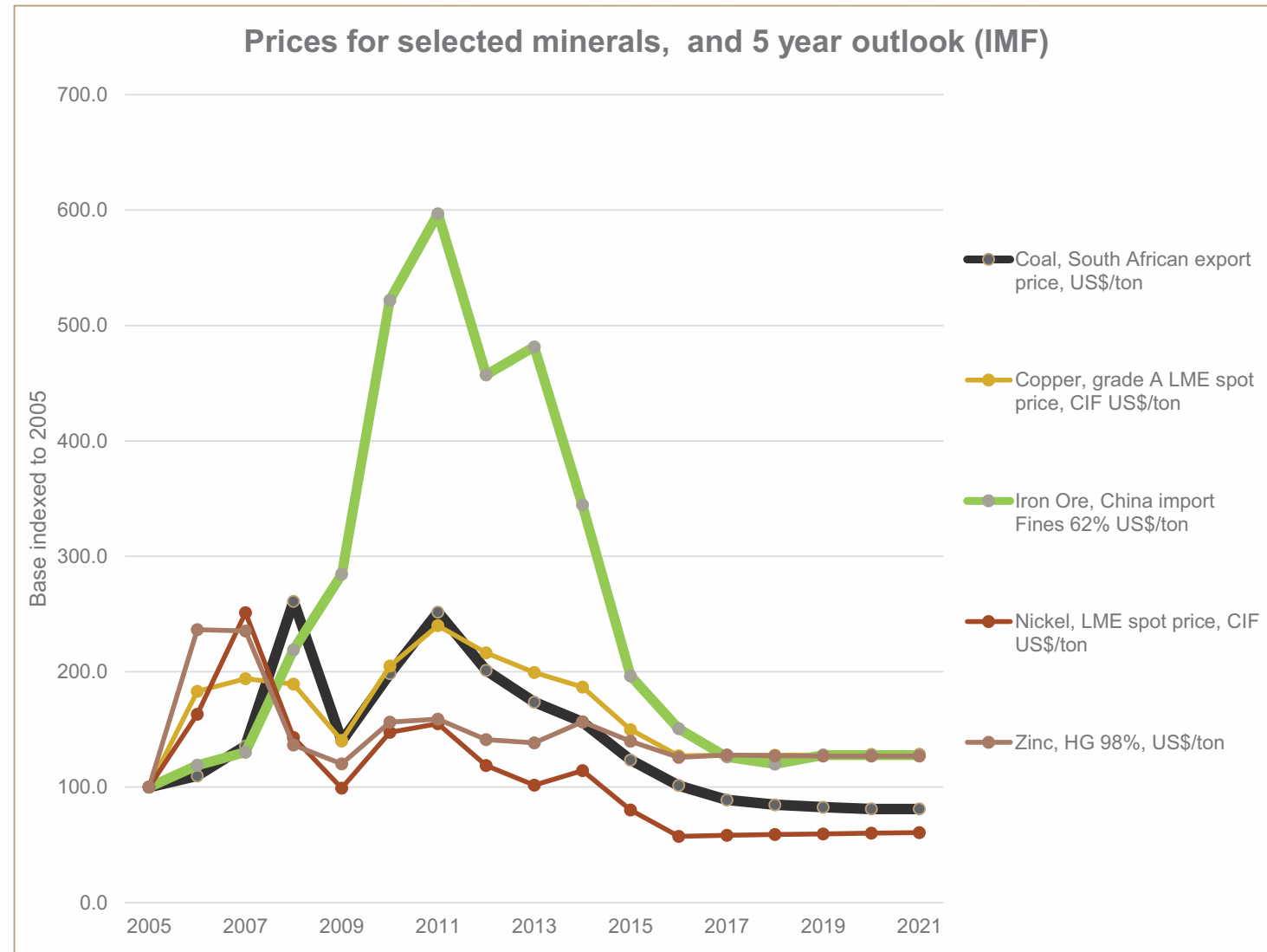
- There is no “China” equivalent waiting in the wings to take over China’s mineral demand growth.

India:

- While India is expected to grow at a rapid pace, the mineral demand growth is nowhere near the scale of China.

Outlook:

- Mineral prices likely to remain lower for longer (the new normal)
- Gold the exception as a safe haven



Is the end nigh for the SA mining sector?



Mining finance and investment
Mining stocks are becoming irrelevant Miners run out of arguments for buying their shares.
David Fickling, Bloomberg | 9 December 2015 06:54

Mining in South Africa is facing a crisis of legitimacy as support from local communities and the broader society is waning, said Chairperson of the Bench Marks Foundation Bishop Jo Seoka.

Speaking at the annual meeting of the watchdog NGO in Johannesburg on Monday, Bishop Seoka said never before in the industry's history had mining faced so many community protests, strikes and negative reports of various issues.

Mining problems: SA in crisis mode

**“The reports of my death
are greatly exaggerated**

Misquoting Mark Twain

The RSA mining industry is in crisis



Global commodity prices have fallen

- Rand prices of key export commodities have plunged (except gold).

Domestic cost pressures risen too quickly (for mining inputs)

- Electricity prices have trebled in 7 years.
- Wages up >10% p.a. past 5 years.
- Stores and materials up >10% p.a. (e.g. steel up 12% p.a. past 5 years)

Productivity has fallen

- Platinum output per worker has declined 49%, real labour costs/kg up 309% (1999-2014)
- Due to declining grade, aging mines, production disruptions (inappropriate s54's, strikes, community disruptions, illegal mining) and inability to increase productive shifts per annum

A large portion of the gold & pgm sectors are loss-making at current prices

- 50% of platinum production is loss-making at \$1080/oz price
- 30% of gold mine production is marginal or loss-making

The overall mining industry was loss-making in 2015

- The aggregate net loss was R37 billion

Outcome of the RSA mining crisis

The overall mining industry was loss-making in 2015

- The aggregate net loss was R37 billion (R10 billion in 2014)
- Several companies are battling to survive the current crisis

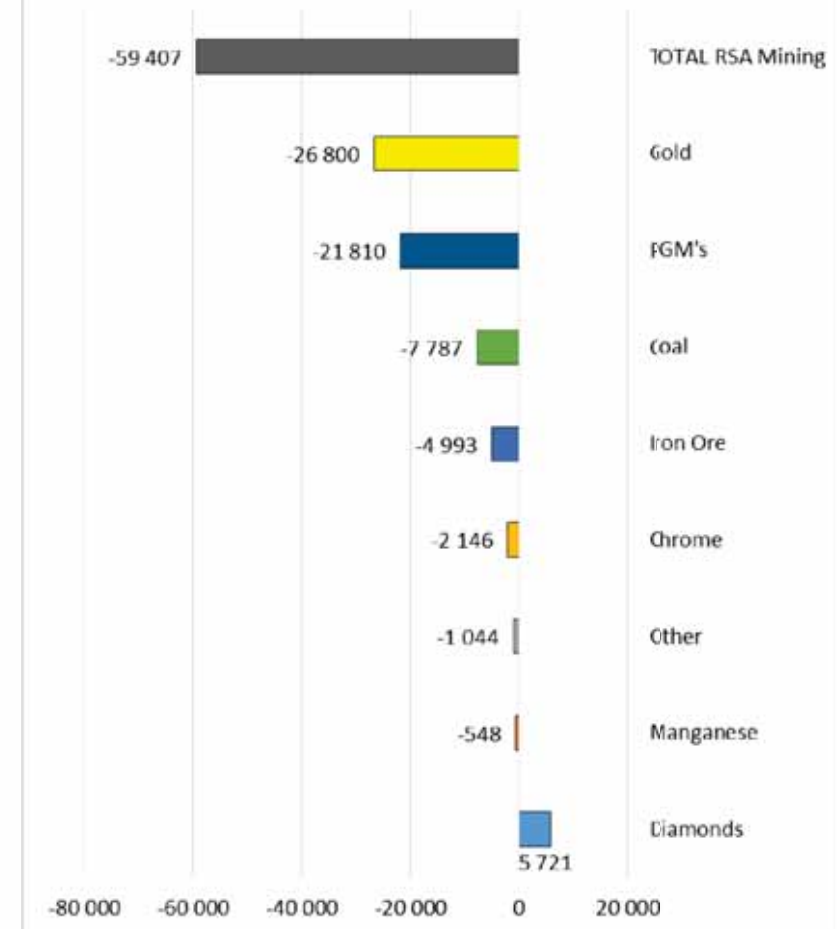
Employment in mining has plunged

- 59,407 jobs lost in mining between Jan 2012 and Dec 2015
- Another 30 000 mining jobs are subject to s189 retrenchment processes
- The multiplier effect of job losses in mining equates to 180 000 jobs being lost in other sectors related to mining

The economic contribution of mining has fallen

- Mining now only 25% of merchandise exports
- Mining down to 7,7% of GDP (2015) vs 14.7%(1993)
- Decline in taxes to the state
- Mining investment is declining (thus attracting less capital from offshore and local)
- Mining now only 10% of the JSE Market value (normally 30%)
- Companies are battling to raise capital to stay in business

RSA Jobs lost in Mining January 2012 to December 2015

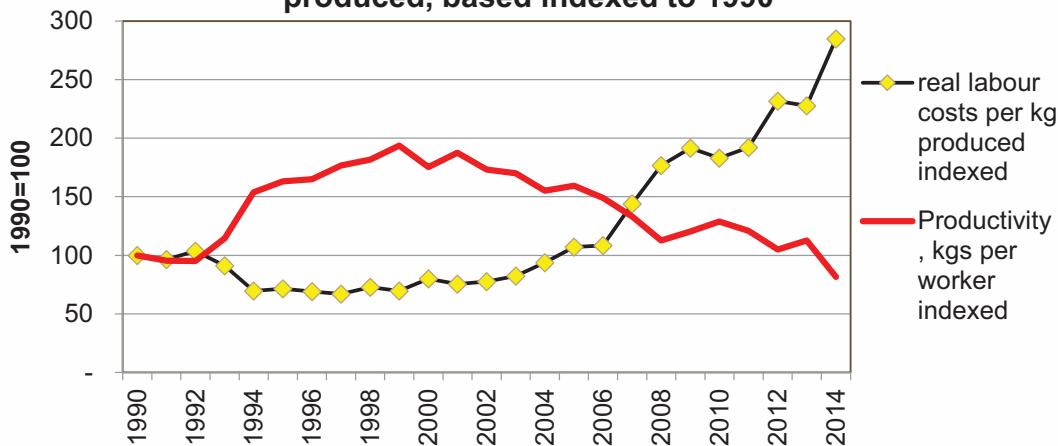


Source: DMR data

Productivity has fallen

(lower grades, production disruptions, inappropriate s54's)

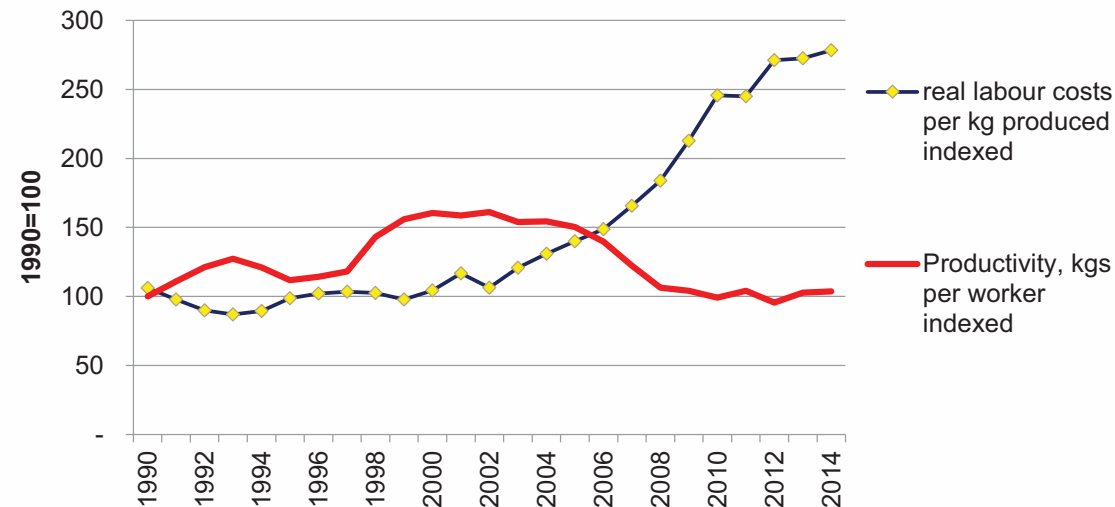
RSA platinum mining labour productivity (kgs produced per employee) and real labour costs per kg of pgm produced, based indexed to 1990



SA Gold mining productivity fell 35% (2000-2014), real labour costs per unit up 163%

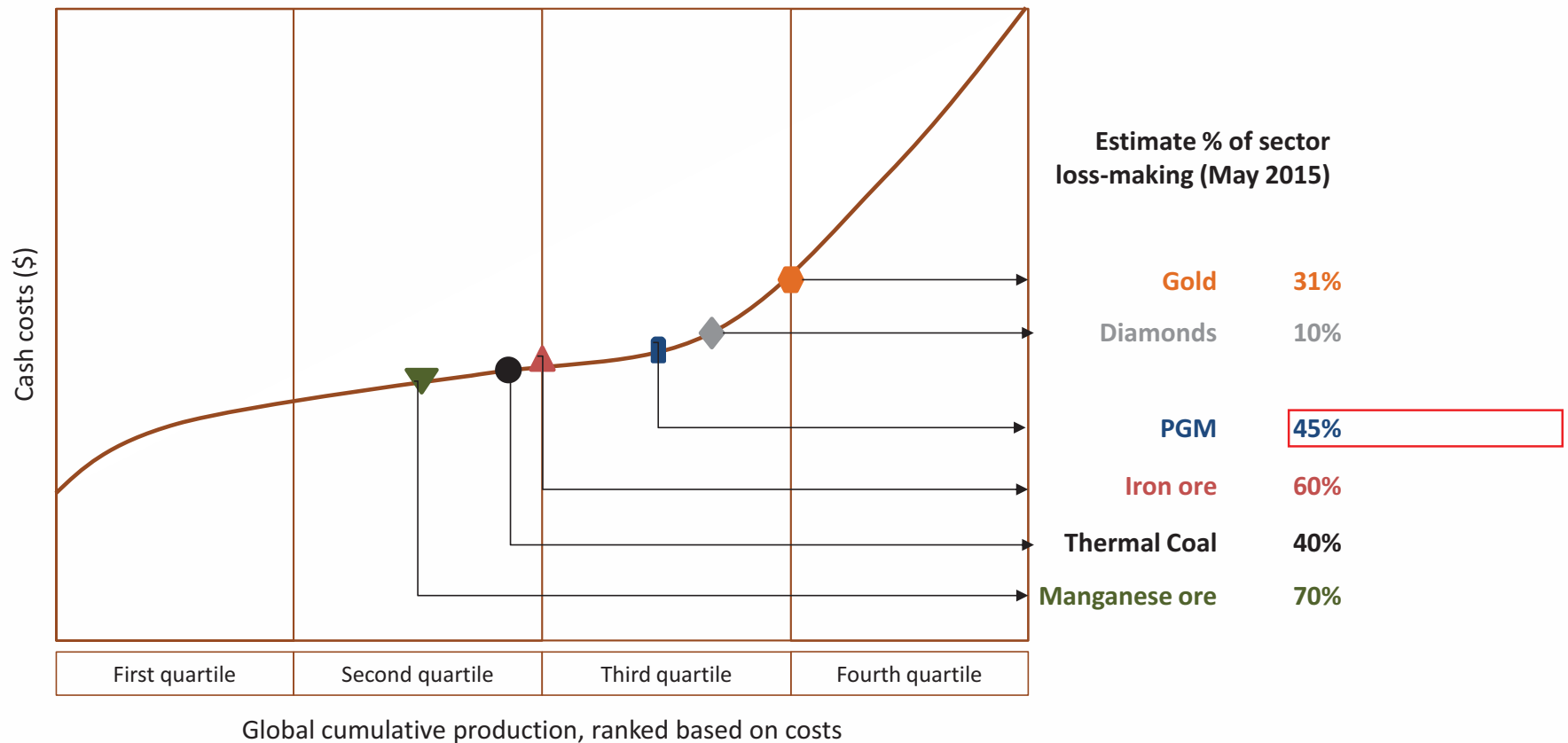
SA PGM mining productivity fell 49% (1999-2014), real labour costs per unit up 309%

RSA gold mining, labour productivity (kgs produced per employee) and real labour costs per kg of gold produced, based indexed to 1990



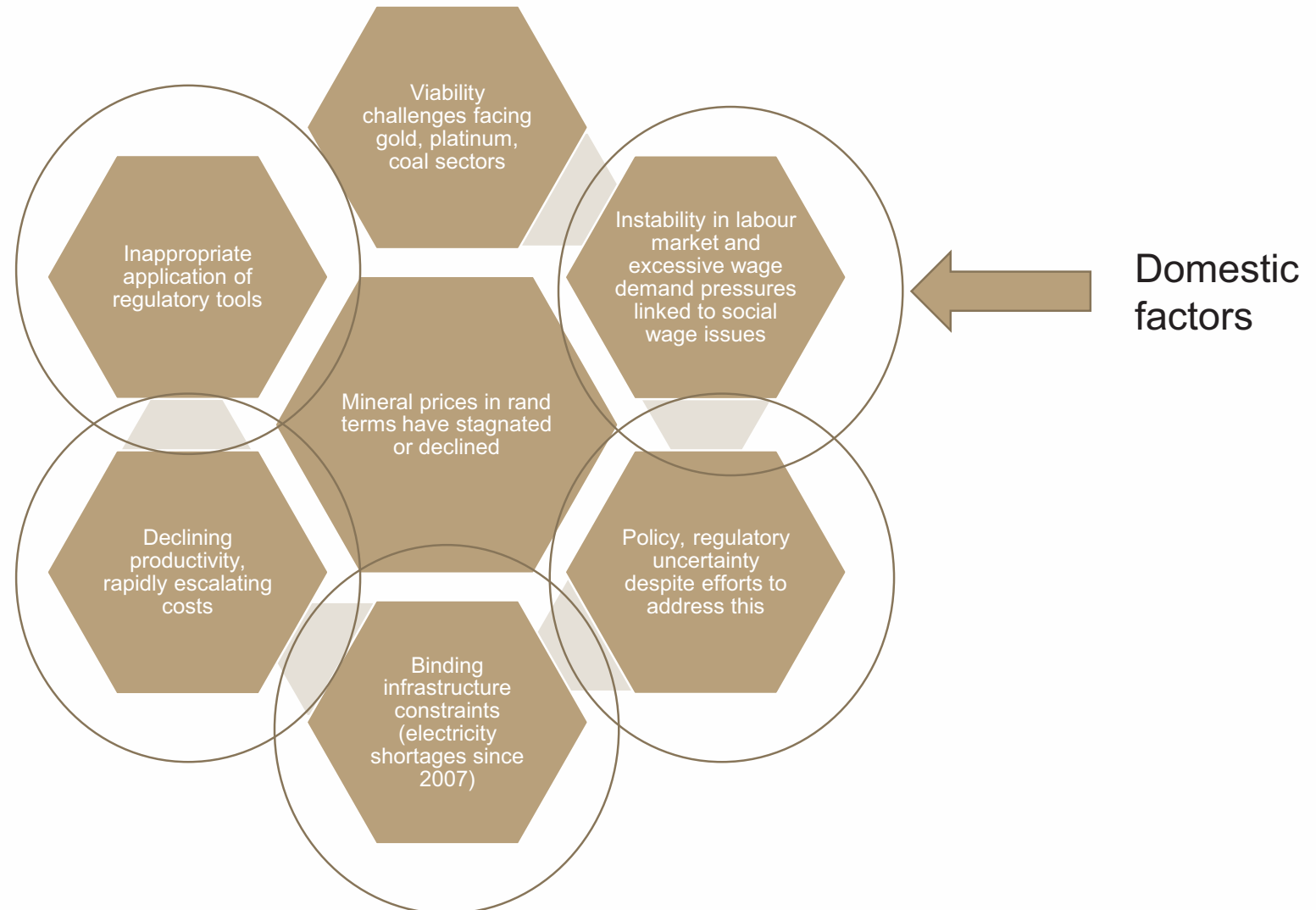
The SA mining sector cost competitiveness

Illustrative SA commodity mining cost curve (2015)

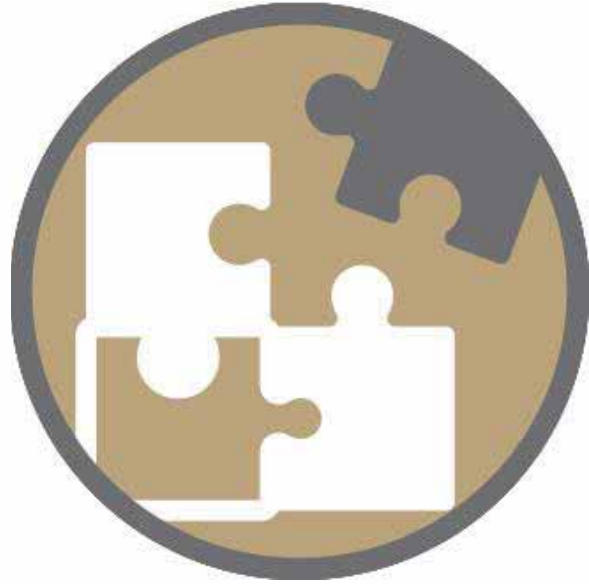


Source: Chamber of Mines member estimates, bank analyst estimates

South African mining sector: the challenges



Solutions to improve productivity (next generation mining) and reduce cost pressures Innovation is key



Modernisation Possible Future Scenarios (20 yrs)



High local content

Where we are

Stay as is: Conventional Mining

- Health and safety plateaus
- Rapidly depleting mineral wealth
- Lower production and higher costs
- Rapidly declining jobs
- 55% portable skilled labour in mining
- GDP growth opportunity lost
- Lack of Foreign Direct Investment (FDI)

Low mechanisation

Early 1900s

Modernised: Continuous, Mechanised Mining with Local Machines

Where we want to be

- Zero Harm:** Remove people from high-risk areas
- SA's Wealth:** >50% increase in PGM tonne-years; >20% for gold tonne-years
- Growth:** >10% in GDP growth gained (losses prevented)
- Employment:** >10% increase in PGM job-years; >5% for gold job-years
- Exports:** >10% in exports gained (losses prevented)
- Govt revenue:** >5% in revenue gained (losses prevented)
- Skills:** 90% portable skilled labour in mining
- Investment:** Higher investment potential in optimal production at lower costs

High mechanisation

Continuous, Mechanised Mining with Imported Machines

- As above, but with:
- Higher cost of mining
 - Lower economic growth
 - Reduced employment
 - Enhanced imports
 - Less portable skills