THE FUTURE OF THE SOUTH AFRICAN MINING INDUSTRY

Roger Baxter
Chief Executive
14 June 2016
Presentation outline

A vision of the potential for the SA mining sector

South African mining

What is needed for mining to realise its potential

Solutions to the challenges
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.
“The reports of my death are greatly exaggerated

Misquoting Mark Twain
Mining matters for the World and for South Africa
Mining helps give us a cleaner future

Emissions from one car sold in 1960s

<table>
<thead>
<tr>
<th>Emissions from 100 cars sold in 2015</th>
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<tbody>
<tr>
<td><img src="image-url" alt="Car Images" /></td>
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</table>

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, NOx, and particulates) enabling vehicle producers to meet EU standards.
Future of the South African Mining Industry

Mining gives us energy for development

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

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

See www.platinumpowerfuelcell.co.za
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
The world’s famous buildings would not have been possible without Mining
Even a Wind Turbine uses a significant amount of metals and minerals

- 335 tons of steel
- 4.7 tons of copper
- 13 tons of fiberglass
- 3 tons of aluminum
- 1,200 tons of reinforced concrete
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
Potential of the RSA mining sector

- If growth constraints can be removed the non-gold mining sector can:

- Grow at 3% to 5% p.a., resulting in a much more balanced country growth rate (double size of non-gold mining by 2028).
  - If mining had grown at same pace as rest of economy between 1994 and 2013, it would have increased the country’s growth rate to 4% from 3.2%, a significant difference.
  - At a 5% growth rate, the mining industry can double in size in 15 years, significantly increase exports and reduce the savings-investment constraint.
  - Stabilise direct jobs and indirect jobs.
  - Significantly contribute to investment, transformation and development.

- Updated studies as part of Mining Lab – per commodity, isolating regional potential for economic development partnerships in the process.
# Potential of the precious minerals…

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Opportunities</th>
<th>Key Enablers</th>
<th>Risks</th>
</tr>
</thead>
</table>
| 1.PGM’s | • Recovery in global market (EU, USA and China)  
• Rising emission and environmental standards  
• Rising investment and jewellery demand  
• Development and adoption of new technologies | • Investment (capital)  
• Smart tape  
• Cost efficiency, improving productivity  
• Stable labour relations  
• Cost effective, efficient, reliable & available energy  
• Collaborative approach to market development | • Market demand (global recovery)  
• Replacement technology  
• Policy and regulatory uncertainty  
• Labour instability (platinum belt)  
• RSA seen as an unreliable supplier to global market |

1.1 PGM potential: Grow production to >322 tonnes by 2020 (2015: 275 tonnes) and stabilise employment at about 180 000 (2015: 180 000)

<table>
<thead>
<tr>
<th>2.Gold</th>
<th>Opportunities</th>
<th>Key Enablers</th>
<th>Risks</th>
</tr>
</thead>
</table>
| • Remains key global reserve asset  
• Likely to be growth in fabrication demand after 10 years of decline  
• RSA still has significant reserves and resources | • Investment (capital)  
• Smart tape  
• Cost efficiency, improving productivity  
• Stable labour relations  
• Cost effective energy  
• Team approach to resolving challenges  
• Progress on technology | • Fall in gold price  
• High costs of domestic production  
• Depth of mining  
• Uncertainty  
• Labour instability |

2.1 Gold potential, slow down rate of decline in production to a 2% decline per annum (from current 8% p.a.). Production declines to 127 tonnes (2015: 140 tonnes) and employment falls more moderately to 90 000 workers (2015: 115 000)
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
Presentation outline

A vision of the potential for the SA mining sector

South African mining

What is needed for mining to realise its potential

Solutions to the challenges
South Africa ranked 49/140 countries in WEF Global competitiveness index

• Some of the positives
  • Strength of auditing and reporting standards – rank 1
  • Regulation of security exchanges – rank 2
  • Efficacy of corporate boards – rank 3
  • Strength of investor protection – rank 14
  • Property rights – rank 24
  • Efficiency of legal framework in challenging regulations – rank 17
  • Quality of management/business schools – rank 24
  • Effectiveness of monopoly policy – rank 13
  • Soundness of banks – rank 8

• Some of the negatives
  • Flexibility of wage determination – rank 137
  • Quality of the primary education system – rank 127
  • Business costs of crime – rank 131
  • Burden of government regulation – rank 117
SA mining contribution on upper end compared to global peers – ranked 5th by ICMM

Source: ICMM (various years) and OPM (various years)
In 2015, the South African mining industry contributed:

- 7.7% to GDP
- Around 15% to FDI
- 20% of private investment
- 1.4 million jobs
- 25% of exports

Source: Chamber of Mines estimates; StatsSA
Even though our market share of global commodity production and reserves has declined, the potential is large.

Source: SA Chamber of mines, SAIMM
SA mineral exports at 26% of merchandise exports

Source: SA Chamber of mines, StatsSA
Significant capital investment continues

Capital expenditure by SA mining companies by commodity* (R million)

<table>
<thead>
<tr>
<th>Year</th>
<th>Gold</th>
<th>PGM</th>
<th>Coal</th>
<th>Diamond</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>2006</td>
<td>10,000</td>
<td>20,000</td>
<td>30,000</td>
<td>40,000</td>
<td>70,000</td>
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<tr>
<td>2007</td>
<td>9,507</td>
<td>7,676</td>
<td>28,580</td>
<td>24,300</td>
<td>70,063</td>
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<td>2008</td>
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<td>2016E</td>
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Source: SBG Securities, Company reports, Chamber of mines estimates, based on top 3-5 largest producers per sector; estimated 2014/2015

Capital spend on SA growth projects^

<table>
<thead>
<tr>
<th>Commodity</th>
<th>R million (&gt;5 years)</th>
<th>Split (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>9,507</td>
<td>14</td>
</tr>
<tr>
<td>PGM</td>
<td>7,676</td>
<td>11</td>
</tr>
<tr>
<td>Coal</td>
<td>28,580</td>
<td>41</td>
</tr>
<tr>
<td>Diamonds</td>
<td>24,300</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>70,063</td>
<td>100</td>
</tr>
</tbody>
</table>
... despite reduced cash-flows

Source: SA Chamber of mines, Stats SA
But
Global factors: PWC Annual Mining Report Titles

- 2005 “Enter the Dragon”
- 2007 “Riding the wave”
- 2008 “as good as it gets”
- 2009 “When the going gets tough”
- 2010 “Back to the Boom”
- 2011 “The game has changed”
- 2012 “The Growing Disconnect”
- 2013 “A Confidence Crisis”
- 2014 “Realigning expectations”
- 2015 “The Gloves are Off”
- 2016 “Slower, lower, weaker... but not defeated”
In 2015/16 for the top 40 mining companies:

- Commodity prices continued to fall (adjusting to a “new normal”) as demand slowed and oversupply emerged in some commodities.
- Revenues fell by 21% to $539bn (2014: $678bn).
- Operational costs fell to $419bn (2014: $502bn).
- Gearing increased to 46% (2014: 38%).
- Free cash flow down 15%.
- Miners have impaired 32% of capex 2010-15.
- Market capitalization fell to $494bn (end 2014: $791bn) – back to pre-GFC levels.
- Working capital improvements (reduction in capex and better efficiency).
- Mining companies are focused on cost cutting, productivity improvement, capital discipline and adjustment.
Commodity prices in US$ and Rand have declined
The RSA mining industry has been hard hit

Global commodity prices have fallen
• Rand prices of key export commodities have fallen (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 for a decade
• 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 significant portions of the gold & pgm sectors are loss-making at current prices

The overall mining industry was loss-making in 2015
• The aggregate net loss was R37 billion
Inflation input costs remain higher than revenue drivers (Rand commodity prices)

Cost inflation affecting the mining sector (Annual average increase 2008 to 2014)

- Mining machinery: 5%
- Cement: 6.4%
- Overall PPI: 6.9%
- Structured steel: 8.4%
- Wages per employee (total mining): 10.8%
- Reinforcing steel: 11.3%
- Diesel: 12.9%
- Electricity: 19.4%

Source: Stats SA, CoM
The SA mining sector cost competitiveness

![Illustrative SA commodity mining cost curve (2015)](image)

Global cumulative production, ranked based on costs

*Source: Chamber of Mines member estimates, bank analyst estimates*
SA mining: key financials (sector is the only loss-making sector of the economy)

Source: STATSSA AFS

Future of the South African Mining Industry
June 2016
Outcome of the pressure on the RSA mining sector

The overall mining industry was loss-making in the first half of 2015

- The aggregate net loss was R12 billion
- 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 29 000 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

Source: DMR data
South African mining sector: the challenges

- Viability challenges facing gold, platinum, coal sectors
- Instability in labour market and excessive wage demand pressures linked to social wage issues
- Policy, regulatory uncertainty despite efforts to address this
- Binding infrastructure constraints (electricity shortages since 2007)
- Declining productivity, rapidly escalating costs
- Inappropriate application of regulatory tools
- Mineral prices in rand terms have stagnated or declined

Domestic factors
Presentation outline

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What is needed for mining to realise its potential

Solutions to the challenges
Mining has a set of characteristics that include:

- It is a high risk industry, with long lead times from exploration through to mine development and ultimately through to closure.

- It is very capital intensive and a large portion of the capital is spent in the development of the mine.

- It is exposed to cyclical commodity markets.

- It is generally a “price-taker” and cannot pass on cost increases to the final consumer.

- It is geographically captured.

- It requires access to cost competitive and efficient infrastructure.

In order to encourage investment into mining, policies need to recognize the characteristics of mining and help reduce the risks of investment in long term projects.
Given long life cycle, mining needs predictable, stable and competitive policy and regulatory environment.
Examples of significant capital spend to bring new deep platinum resources to account

**Impala Platinum (16 shaft):**

- 1993 – The initial study started
- 2000 – The project (conceptual phase)
- 2004 – Complete the detailed feasibility with Control Budget
- 2004 – First construction started
- 2013 – Beneficial Hand Over – Cold Commissioning
- 2013-2018 – ramp-up to full production (steady state production 2.7 million tonnes per annum ~ 185,000 oz of pt production)
- Capital spent to date R7 billion.
- Further capital spend in 2014 R0,9 billion.
- Jobs created 6,500 to 7,000.
- Rule of thumb: 10 years from start of construction to cold commissioning, 4-5 years to build up production, ~7,000 jobs, 20-25 year mine life created.
Creating a successful mining sector

- More effective problem solving partnership between government, business and organised labour
- Regulatory and legislative environment that is stable, predictable and competitive
- Stable and constructive labour relations environment and better social license to operate
- Access to available, efficient and cost effective infrastructure (electricity, rail)
- Solutions to improve productivity (next generation mining) and reduce cost pressures
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Solutions to the challenges
More effective problem solving partnership between government, business and labour

Mining Phakisa LAB
- All players to work together and present an action plan for growth and transformation which encourages investment
- Driven by concrete plans to resolve challenges

MIGDETT tripartite revived (Mining Industry Growth, Development and Transformation Task team)
- Tripartite between Government, labour and business (Chamber)
  - Mining Charter: Promoting certainty on Charter
  - Job saving task team: 10 interventions aimed at promoting sustainable mines and employment
  - PGM task team: stimulating long term demand
Regulatory and legislative environment that is stable, predictable and competitive

**Presidential framework agreement:**

- In Aug 2013, stakeholders developed a “Framework Agreement for a Sustainable Mining Industry” under the leadership of the country’s Deputy-President. Now being driven by President Zuma.

- The focus of Mining dialogue process is to:
  - Stabilise industrial relations environment. Promote law and order. Investigate key negative issues in migrant labour system (and propose solutions)
  - Get mining industry back on track - investment and growth per

**NEDLAC task team – minimum wage and strike action committee**

- Agreed terms of reference, research underway
- Good progress being made
Progress on the policy challenges

MPRDA amendment bill
• Amendments in Parliament

Davis Tax Commission – response to interim report
• Retention of mining royalty model; rejection of the notion of a resource rents tax

Section 54 safety stoppages
• Speeding up development of implementation policy pertaining to Section 54 implementation

Environmental licensing
• New “One Environmental system” in place. Real progress made

Carbon tax
• Call for delay
Stable and constructive labour relations environment and social licence to operate

**Presidential framework agreement:**
- Stabilise industrial relations environment.
- Get the mining industry back on track from an investment and growth perspective.

**NEDLAC task team – minimum wage and strike action committee**
- S18 representation and secret strike ballots on the agenda

**Farlam report on Marikana**
Industry in process of implementing key learnings

**Gold and Coal wage negotiations**
- 3 year agreements for gold
- 2 year wage agreement in coal (after short strike)
- Platinum negotiations in 2016
Access to available, efficient and cost effective infrastructure (electricity, rail)

**Electricity supply disruptions and costs – multiple initiatives**

- Eskom expecting stability for 12 months
- 5 gigs renewables and 6 gigs gas/base-load contracted in by DOE
- Lid on big price increases necessary

**Economic transport regulator**

- Centralised ‘NERSA’ equivalent for transport, road, air and rail infrastructure
- Holistic cost impact assessment welcomed
- Pricing transparency and consistency key

**Water & environment**

- Water and Sanitation Economic Regulator-transparent and uniform pricing of water
- Concern re inclusion of legacies (AMD) in pricing strategy
- Incentives for Water Conservation and Water Demand Management efforts by various users
Solutions to improve productivity (next generation mining) and reduce cost pressures
Modernisation Possible Future Scenarios (20 yrs)

**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)

**Where we are**

**Modernised:** Continuous, Mechanised Mining with Local Machines
- **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

**Low mechanisation**

**High mechanisation**

**Early 1900s**

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

**High local content**

**Where we want to be**
Vision for a competitive, vibrant and transforming South African mining industry

**Government and trade unions:**
proud of and fully supportive of the mining industry and acknowledge industry as important for the country

**Workforce,**
transformed, productive, fair wages and non-discriminatory, safe and healthy workplaces

**Management**
not only focus on profits, but provide decent jobs, play positive role in mining communities and sensitive to environment

**Investors** regard industry as a good investment destination

**CONSTRUCTIVE PARTNERSHIPS**
**BUILT ON TRUST**

- Key exporter
- Key earner of foreign exchange
- Key taxpayer
- Creator of decent jobs
- Developer of skills
- Key contributor to economy
- Key driver of transformation