The future of the South African mining industry

Roger Baxter
Chief Executive
November 2015
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

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
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
Mining matters to South Africa

In 2014, the South African mining industry contributed:

- 7.6% 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.

% of World Production
% of World Reserve Base

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

Source: SA Chamber of mines, StatsSA
# SA Mineral sales and exports per commodity

<table>
<thead>
<tr>
<th></th>
<th>Local sales (Rm)</th>
<th>Export sales (Rm)</th>
<th>Total sales (Rm)</th>
<th>Export vs total</th>
<th>Contribution to total sales</th>
<th>Contribution to export sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>2,367</td>
<td>44,438</td>
<td>46,805</td>
<td>95</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>PGM</td>
<td>10,641</td>
<td>66,861</td>
<td>77,502</td>
<td>86</td>
<td>21</td>
<td>26</td>
</tr>
<tr>
<td>Iron Ore</td>
<td>5,748</td>
<td>52,957</td>
<td>58,705</td>
<td>90</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Coal</td>
<td>54,733</td>
<td>46,721</td>
<td>101,455</td>
<td>46</td>
<td>27</td>
<td>18</td>
</tr>
<tr>
<td>Diamonds</td>
<td>8,871</td>
<td>7,731</td>
<td>16,601</td>
<td>47</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Manganese</td>
<td>1,632</td>
<td>14,507</td>
<td>16,139</td>
<td>90</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Chrome</td>
<td>7,775</td>
<td>5,835</td>
<td>13,610</td>
<td>43</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>24,379</td>
<td>20,144</td>
<td>44,522</td>
<td>45</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>116,145</strong></td>
<td><strong>259,194</strong></td>
<td><strong>375,339</strong></td>
<td><strong>69</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Significant capital investment continues

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

Capital spend on SA growth projects ^

<table>
<thead>
<tr>
<th></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>

Source: SBG Securities, Company reports, Chamber of mines estimates, based on top 3-5 largest producers per sector; estimated 2014/2015
... despite reduced cash-flows

Source: SA Chamber of mines, Stats SA
SA mining contribution on upper end compared to global peers – ranked 5th by ICMM

Low and middle income nations globally

South Africa

Source: ICMM (various years) and OPM (various years)
SA mining value add

Mining sector value add (2014) %

- 38% Funds reinvested
- 34% To employees
- 16% To shareholders (dividends)
- 11% To taxes (direct and indirect)
- 1% Community investments

Source: PwC analysts
But

Future of the South African Mining Industry
Fall in mining equities globally – SA PGM and gold sectors show value loss

Source: SA Chamber of mines, SBG Securities, Bloomberg
### Global mining equity sector context – similar SA underperformance

<table>
<thead>
<tr>
<th></th>
<th>All Share Index (Rands)</th>
<th>SA Mining (Rands)</th>
<th>SA Gold Mining (Rands)</th>
<th>Global equities ($)</th>
<th>Global mining ($)</th>
<th>Global gold mining ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dec '12 to date</strong></td>
<td>13.6</td>
<td>-8.8</td>
<td>-20.8</td>
<td>15.8</td>
<td>-14.1</td>
<td>-19.2</td>
</tr>
<tr>
<td><strong>1 year</strong></td>
<td>6.1</td>
<td>-2.6</td>
<td>-16.4</td>
<td>9.7</td>
<td>-12.6</td>
<td>-17.7</td>
</tr>
<tr>
<td><strong>5 years</strong></td>
<td>15.5</td>
<td>-14</td>
<td>-22.3</td>
<td>12.1</td>
<td>-8.5</td>
<td>-12.6</td>
</tr>
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**Source**: SA Chamber of mines, SBG Securities, Bloomberg, Jul 2015
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
Electricity and wages in relation to total costs

Cost components for the PGM sector

Cost components for the Gold sector

Source: Chamber of mines member estimates, *PGM sector proxy represented by 80% of production, ^Chamber members
The SA mining sector cost competitiveness

Illustrative SA commodity mining cost curve (2015)

Cash costs ($) vs. Global cumulative production, ranked based on costs

First quartile | Second quartile | Third quartile | Fourth quartile

40% | 60% | 45% | 70%

Gold 31%
Diamonds 10%
PGM 45%
Iron ore 60%
Thermal Coal 40%
Manganese ore 70%

Estimate % of sector loss-making (May 2015)

Source: Chamber of Mines member estimates, bank analyst estimates
South African mining sector: the challenges

- Inappropriate application of regulatory tools
- Declining productivity, rapidly escalating costs
- Mineral prices in rand terms have stagnated or declined
- 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)
Mining needs a stable, predictable and competitive policy and regulatory environment

South Africa ranked 64/122 in the 2014 Fraser survey… this is 52\textsuperscript{nd} percentile, down from 76\textsuperscript{th} percentile in 2011 survey.

\textit{Source: Fraser Institute Survey of Mining Companies 2014}
That said
Mining matters for the growth, development and transformation of South Africa

Supplier Industries:
- Manufacturing
- Chemicals
- Consumables (e.g. diesel, timber)
- Rail
- Port
- Electricity

Capital goods:
- Equipment
- Machinery

MINING

Exploration

Infrastructure development

Mine development and operating

Treatment (Washing – e.g. coal, sizing e.g. iron ore, smelting e.g. precious metals)

Refining (Pure Gold, PGM, Ferro Alloys)

Manufacturing
- Autocats
- Chemicals/liquids

- Steel/alloys
- Jewellery

Direct Services:
- Geological
- Engineering
- Health and safety
- Education skills

Related Services:
- Financial services
- Banking
- Stock market (JSE)
- Auditing and consulting services
- Business services

End consumer markets
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
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
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 and SAMDA)
  - 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)

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<th>Where we are</th>
<th>Modernised: Continuous, Mechanised Mining with Local Machines</th>
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<td><strong>High local content</strong></td>
<td><strong>Where we want to be</strong></td>
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<td><strong>Stay as is:</strong> Conventional Mining</td>
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<tr>
<td>Low mechanisation</td>
<td>High mechanisation</td>
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<tr>
<td>Early 1900s</td>
<td>Modernised: Continuous, Mechanised Mining with Local Machines</td>
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- 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)

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

Where we are:
- 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 want to be:
- 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
Vision for 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.

**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**

**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.

Future of the South African Mining Industry
THE FUTURE OF THE SOUTH AFRICAN MINING INDUSTRY

Roger Baxter
Chief Executive
November 2015