The state of the gold mining sector
Society of Mining Professors’ 2014 Silver Anniversary
NICK HOLLAND
28 June 2014
Long-term trends affecting the mining industry
Economic demand from emerging market remains strong

IMF expects continued strong economic growth from emerging markets

- Emerging markets continue to be the world’s growth engine
- China is leading the way with an envious growth rate of 6.8% by 2018
- Growth rates in developed markets are also expected to increase beyond 2014 as confidence is restored
Leading to strong consumer demand for metals from the East

2013 Gold consumer demand by country

<table>
<thead>
<tr>
<th>Country</th>
<th>Total Demand (tonnes)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EAST</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>1,066</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>975</td>
<td></td>
</tr>
<tr>
<td>Turkey</td>
<td>175</td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>Vietnam</td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>UAE</td>
<td>77</td>
<td></td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>Egypt</td>
<td>57</td>
<td>(83%)</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Other Gulf</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>South Korea</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td><strong>Total East</strong></td>
<td><strong>2,840</strong></td>
<td><strong>(83%)</strong></td>
</tr>
<tr>
<td><strong>WEST</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>190</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>121</td>
<td></td>
</tr>
<tr>
<td>Other Europe</td>
<td>77</td>
<td></td>
</tr>
<tr>
<td>Russia</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Total West</strong></td>
<td><strong>573</strong></td>
<td><strong>(17%)</strong></td>
</tr>
</tbody>
</table>

But, commodity prices have been weak, volatile

Commodity prices continued to fall last year

- 2013 was another challenging year, with double digit decreases not uncommon

- Gold lead the way with a 28% price drop, its biggest decline in 30 years

- Nickel and gold have recovered some ground in 2014, but other metals continue to fall

![Price indices, selected commodities (January 2013 = 1)](image-url)
Gold price has been hard hit with little respite in sight

Historical & forecast gold prices

GOLD PRICING DEVELOPMENT

Annual, Real 2013 Terms(a)

Source: Broker Research, AME, FactSet as at 6 January 2014

(a) Points on the curve represent the average price for the year. Nominal forward curve adjusted by US inflation of 2.0% per annum.
Gold is becoming scarce (1)

World gold supply trends – steadily retreating

Supply of gold from mines, scrap, ETFs and hedging (tons)

Source: Credit Suisse (6 Jan 2014), Morgan Stanley (3 Feb 2014), Société Générale (29 Nov 2013), AME, Bloomberg
Gold is becoming scarce (2)

Number and average grades of gold discoveries have dropped dramatically

Discovery rate versus spend
Western World gold exploration spend and discoveries

Source: GFL/MinEx Consulting
Increasing Resource Nationalism

Governments and communities are increasingly antagonistic towards mining

“Resource nationalism a key threat to mining”
BlackRock, Oct 2011

“Miners encounter the hard rock of resource nationalism”
The Telegraph (UK), Nov 2011

“Resource nationalism plagues the oil market”
Wall Street Journal, Mar 2012

“Resource nationalism is miners’ number one fear and major threat to global security”
Mining.com, December 2012

“Resource nationalism: the usual suspects or a wider problem?”
RigZone, May 2012

“Canada’s veto of Petronas deal raises spectre of resource nationalism”
Daily Telegraph (UK), Oct 2012

“Resource Nationalism #1 on mining risk list”
Ernst & Young, Aug 2011
Communities are finding their voice

Number of conflicts between mines and communities

Number of conflicts between mines and communities

Source: ICMM

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Industry costs are piling up while yields are down

Key KPIs in terms of costs and new discoveries have turned against gold miners

2012/13 costs have come down, but at what consequence:
- Reduced mine development
- High grading
- Project deferrals
- Mine closures

Note: Cost per tonne is the weighted average of 8 major gold producers by total ore mined; average grade is the weighted average of 8 major gold producers by total ore mined;
Major Gold producers: AngloGold Ashanti, Barrick, Harmony, Kinross, Goldcorp, Gold Fields, Newmont and Newcrest.
Source: Gold Fields company data; annual reports, Condemned to Excellence report(IAMGOLD Corporation, Dec 2012)
Industry is halting new investments...

Low margins and declining equity prices are putting mining investments under threat

A harsh environment with new projects increasingly being delayed and cancelled

Sources: Factiva, Literature search
... and cutting back on existing operations

Existing mining operations are being curtailed and may shut down prematurely

Existing mines under pressure from price decreases and cost increases; greater taxes will aggravate the problem

150 jobs go as Tanami closes mine
The West Australian – April 24, 2013

South African miner Amplats closes shafts and cuts jobs
BBC – Jan, 2013

Xstrata’s Sinclair mine in WA to close, follows closure of nearby Cosmos
Dow Jones - May 2, 2013

Brunswick Mine closes Bathurst-area operation: Unemployment hit 20.2%
CBC News - May 1, 2013

Sibanye Gold to Cut 1,110 Jobs to Return Beatrix West to Profit
Bloomberg – May 29, 2013

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The mining industry in 2013
Sourced from PwC Top 40 Mining Companies survey
Mining revenues continued to fall

As commodity prices fell revenues for mining firms decreased

- The Top 40 realised a decline of 2% in mining revenues to US$512-bn in 2013
- Copper and iron ore revenue increased in 2013, supported by demand from China
- Emerging market factors, such as China’s urbanisation, will keep demand strong

Note: Chart excludes Glencore’s marketing and trading revenues, and certain other companies’ non-mining revenues
Source: PwC analysis
Operating costs remain stubbornly high

Top 40 are struggling to bring rising operating costs under control

- With costs up, aggregate net profits for the year dropped to US$20bn, the lowest level for the Top 40 in a decade

- Cost saving initiatives are taking time to bear fruit, but early 2014 reporting indicates some successes, particularly with gold companies reporting substantial all-in cost reductions

Mine 2014 • Realigning expectations 35 PwC • June 2014
Industry had record impairments … again

The mining industry had to make record impairment charges

- 2013 was another year of write downs for the Top 40 with US$57-bn of impairment charges recorded, on top of around US$40-bn in 2012

- One quarter of the Top 40 recorded over US$1-bn of impairments each in 2013, primarily gold miners and the Top 5 diversified miners

*Source: PwC analysis*

*Mine 2014 • Realigning expectations 22 PwC • June 2014*
Share prices of mining stocks have dived

Both SA and international mining indices have underperformed the general markets

- The performance of the Top 40 mining stocks was down 23% in 2013 to US$985bn

- The HSBC and JSE mining indices declined by 23% and 21% respectively in 2013, while the Dow Jones and FTSE-100 rose by 27% and 15% respectively

- Gold miners hardest hit with the segment losing 40% off its market cap to US$110-bn
How should the industry respond to long-term and short-term trends?
1 – The industry needs to make money again

Equity and debt investors need to return to provide funding to grow the industry

- Capital providers will not return to the sector unless their investments yields a strong return

- The focus needs to be on cash returns – not production growth

- Cost control is fundamental to improving cash returns

- Full transparency over total costs facing the mining industry. Launch of All-in Costs and All-in Sustaining Costs metrics

- Diversification of geographic and operational risk essential
2 – The industry needs to innovate

Technology and R&D critical to the future of mining

- Innovation can help the industry enhance profitability, address labour shortages, costs and develop technologies required in more difficult conditions (deep level, remote locations, etc).

- Areas of innovation for mining companies:
  - Truck and process plant activities
  - Remote operator controls
  - Drill and blast technologies
  - Reef-boring technology (AngloGold Ashanti SA mines)
  - Deep-level mechanised mining (South Deep)
3 – The industry needs to mechanise

Mechanisation will ensure a safer, more modern and more profitable mine

- Mechanisation is critical for the future of the mining industry as it enables the mine to be run more efficiently, safer and attract the right skills

- Critical areas of mechanisation at our South Deep mine:
  - Move the man from the ore face
  - Remote operator controls for most machines
  - Underground workshops to maintain and repair equipment
  - De-stress mining
  - Supported by world-class surface infrastructure
4 – The industry needs to upskill to survive

From Jurassic to Joystick mining

- Cater for the Y-Generation with a focus on control rooms not the ore-front

- Different profile of skills needed – technology focused and highly-skilled

- Upskill the people at your mines through skills development programmes

- Instil a mechanised mining culture

- Partner with leading mining universities, such as the Wits Mining School

- Chamber of Mines Innovation Hub
5 – Sound ESG policies to be maintained and implemented

Creating Shared Value with our communities and other stakeholders

Moving from philanthropy to systematic creation of shared value, recognising the impact of the GDP multiplier effects
Illustrate the gold industry’s direct economic impact

World Gold Council – The direct economic impact of gold in 2012

- >$210bn Gold’s total direct economic value-add contribution (GVA) to annual global GDP across 15 largest gold producing and 13 largest gold consuming countries

This includes:

- $25bn Gross value added from recycling gold
- $70bn Gross value added from gold jewellery
- $38bn Gross value added from gold bars and coins
- $4bn Gross value added from use in technology fabrication
- >$78bn Gold mining’s economic value-add contribution (GVA) across 15 largest gold producing countries
6 – Better communication of the mining sector’s benefits (3)

The mining economy has large multiplier effects

- GDP growth is essential for governments targeting effective transformation

- Growing the mining economy, especially for resource-rich developing countries, has significant direct and indirect impacts

- Mining punches above its weight with its GDP multiplier effect through procurement, socio-economic spending in mining communities and technology transfers

GDP contribution of mining (indexed)

Job and livelihood multiplier effect is significant

- Mining punches above its weight with its GDP multiplier effect
- One direct mining job supports one indirect job and one impacted job
- ...in SA, one job supports on average around nine dependents

Note: Peru study based on five mines and Ghana study based on analysis of one mine
7 - Establish partnerships with stakeholders

Job and livelihood multiplier effect is significant

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Mitigation</th>
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<tbody>
<tr>
<td>Partnership</td>
<td>Working and collaborative partnerships between miners, governments, labour and communities</td>
</tr>
<tr>
<td>Balance</td>
<td>Balance long-term growth strategies with short-term fiscal imperatives</td>
</tr>
<tr>
<td>Transparency</td>
<td>Total transparency in reporting individual asset performance</td>
</tr>
<tr>
<td>Certainty</td>
<td>Long-term commitments from governments not to change the rules of the game</td>
</tr>
<tr>
<td>Simplicity</td>
<td>Simple rules of the game that align interests and can be applied to all assets</td>
</tr>
</tbody>
</table>
How Gold Fields has responded
The transformation of Gold Fields

The journey started with the speech to the Melbourne Mining Club

What Investors Want
Aug 2012

Portfolio Review
Aug - Dec 2012

Sibanye Gold
Dec - Jan 2012

New Cash Strategy
2013 Business Plan

A Fundamental Shift In Strategy
“It’s all about cash – not ounces”

Building A Sustainable Business At US$1,300/oz
The transformation of Gold Fields

International diversification

- In 2013 Gold Fields transformed its production base
  - Unbundling of Sibanye Gold in South Africa
  - Acquisition of Yilgarn South assets in Australia
  - Marginal production stopped in Australia & Ghana
- 100% mechanised mid-tier producer

An International Gold Producer Operating In Good Countries
Conclusion: The gold mining industry at a crossroads

The industry needs to work with stakeholders to grow the mining economy

- Long term collaborative partnerships (Miners, Governments, Labour, Communities, Dev. Agencies)...
- … leading to more investment
- The result: increased employment, development and GDP growth

- Rising costs of mining....
- … combined with a greater fiscal take...
- … jeopardise further investment
- The result: loss of jobs, a shrinking pie