Inquiry into Greenfield Mineral Exploration and Project Development in Victoria

Submission by: Richard Schodde
Managing Director, MinEx Consulting

Melbourne: 22 August 2011
Overview

• Background info on MinEx Consulting

• This submission focuses on:
  – The current “Hot Spots” for Exploration in the World
  – Recent level of exploration activity in Victoria
  – Victoria’s perceived endowment
  – Business risks for exploring in Victoria
  – Why you need to nurture greenfield exploration
    • it’s the front-end of the mining industry, with huge economic multipliers!
MinEx Consulting

• Richard Schodde founded MinEx Consulting in 2008
  – Focus is on providing strategic advice to the mining and exploration sectors

• Richard has 30 years of experience in the resources industry
  – 15 years with WMC + 4 years with BHPB
  – Member of the AusIMM, SEG, SME and PDAC
  – Internationally recognised as a leader in mineral economics

• MinEx client list includes:
  – 20+ mining companies (local & international)
  – MCA and AMEC
  – 3 State Governments + 1 Asian Government
  – World Bank, UNDP

For more information go to: www.MinExConsulting.com
Global view of the exploration & mining industry

RECENT DISCOVERIES AROUND THE WORLD
Significant mineral deposits: World
All years

Note: Excludes bulk mineral deposits

Australia has a good history for discovery

Source: MinEx Consulting Aug 2011
Significant mineral deposits: World
Discovered since 2000

Of the 17 significant deposits found in Australia since 2000 none were in Victoria

Note: Supergiant >60Moz Au, >10Mt Ni, >25Mt Cu equiv
Giant >6Moz Au, >1Mt Ni, >5Mt Cu equiv
Major >1Moz Au, >100Kt Ni, >1Mt Cu equiv

Source: MinEx Consulting Aug 2011

N = 223
Significant mineral deposits: World Discovered since 2000

Note: Supergiant >60 Moz Au, >10 Mt Ni, >25 Mt Cu equiv
Giant >6 Moz Au, >1 Mt Ni, >5 Mt Cu equiv
Major >1 Moz Au, >100 Kt Ni, >1 Mt Cu equiv

Note: Excludes bulk mineral deposits

Source: MinEx Consulting Aug 2011
Comparison between Victoria and other states over the last 2 decades

**VICTORIA’S EXPLORATION ACTIVITIES**
Total exploration spend in Australia by State
March 1990- March 2011

Total Spend (June 2010 A$m)

Source: ABS 8412

Note: Quarterly spend data is reported on an annualised basis
Share of total exploration spend in Australia by State
March 1990 - March 2011

Victoria has declined
South Australia has grown

Source: ABS 8412
Challenge for Victoria

• Is the poor discovery record due to:
  – Lack of spend?
  – Lack of mineral potential?
  – Business Risk issues?
What do exploration companies think of Victoria’s mineral potential?

VICTORIA’S PERCEIVED ENDOWMENT
Fraser Institute Annual Survey of Mining Companies

• Every year since 1997, the Fraser Institute has surveyed mining companies on their views regarding the mineral potential (i.e. “the attractiveness of the rocks”) and policy potential (i.e. the “ability to do business”) in a range of countries

• The results of the 2010/11 Survey# (carried out in late 2010) was released in March 2011. It covers 79 jurisdictions and is based on the opinions (and biases) of 494 companies

Mineral Potential in 2011
(ie the “attractiveness of the rocks”)

Victoria was ranked 70th out of 79 countries in 2011

Note: Assumes full access to land, and best practice by industry

Source: Fraser Institute March 2011
... and Victoria’s perceived Mineral Potential hasn’t changed in recent years

% of Respondents

No data prior to 2005

Note: Assumes full access to land, and best practice by industry

Source: Fraser Institute annual surveys
... and Victoria’s share of Australia’s exploration spend has declined.

% of Respondents

<table>
<thead>
<tr>
<th>Year</th>
<th>0%</th>
<th>20%</th>
<th>40%</th>
<th>60%</th>
<th>80%</th>
<th>100%</th>
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</thead>
<tbody>
<tr>
<td>1999</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.4%</td>
</tr>
<tr>
<td>2001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.0%</td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.8%</td>
</tr>
<tr>
<td>2005</td>
<td>5.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.3%</td>
</tr>
<tr>
<td>2007</td>
<td>6.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.8%</td>
</tr>
<tr>
<td>2009</td>
<td>3.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.8%</td>
</tr>
<tr>
<td>2011</td>
<td>1.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.8%</td>
</tr>
</tbody>
</table>

No data prior to 2005

Note: Assumes full access to land, and best practice by industry

Sources: Fraser Institute annual surveys
ABS (as reported on FY basis)
South Australia’s perceived Mineral Potential took a step increase in 2006

% of Respondents

Carrapateena Cu-Au deposit was discovered in 2005 using Government funding

No data prior to 2005

Note: Assumes full access to land, and best practice by industry

Sources: Fraser Institute annual surveys
ABS (as reported on FY basis)
South Australia’s perceived Mineral Potential took a step increase in 2006 ... and its Explorn share went up!

% of Respondents

- Would not pursue investment due to this factor
- Strong deterrent
- Mild Deterrent
- Not a deterrent to Investment
- Encourages Investment

Carrapateena Cu-Au deposit was discovered in 2005 using Government funding

No data prior to 2005

South Australia’s % share of Australia’s exploration spend

Sources: Fraser Institute annual surveys
ABS (as reported on FY basis)

Note: Assumes full access to land, and best practice by industry
Challenges for Victoria

The current poor perception of Victoria’s mineral endowment can be changed

- This requires investing in fresh data, fresh ideas and a willingness to drill targets that could lead to giant discoveries
  
  • Not going to get this through incremental brownfields exploration
  
- Victoria needs to develop incentives for greenfield exploration
  
  • Pre-competitive data
  
  • New exploration models/search techniques
  
  • Support drilling programs to test new concepts
What do exploration companies think of Victoria’s policies for supporting the mining industry?

**VICTORIA’S PERCEIVED BUSINESS RISK**
Policy Potential Index in 2010
(Measures the “ability to do business” there)

Note: Higher the Score, the better

Source: Fraser Institute April 2010
Policy Potential Index in 2011
(Measures the “ability to do business” there)

PPI Score

Note: Higher the Score, the better

Victoria
In 2011 was ranked 31st best out of 79 Countries

Source: Fraser Institute March 2011
Policy Potential Index in 2011
(Measures the “ability to do business” there)

PPI Score

Note: Higher the Score, the better

Victoria is ranked in the 2nd Quartile

Source: Fraser Institute March 2011
Victoria’s business risk ranking hasn’t changed in recent years

PPI Score (i.e. “ability to do business” there)

Source: MinEx Consulting analysis of Fraser Institute annual surveys
... but it is worse than most other Australian States

PPI Score (ie “ability to do business” there)

Source: MinEx Consulting analysis of Fraser Institute annual surveys
... and Victoria’s business risks are comparable to Mexico and worse than Burkina Faso

Source: MinEx Consulting analysis of Fraser Institute annual surveys
The Policy Potential Index is Based on 16 factors

Victoria performs well in some categories ... but not others!

Data: MinEx Consulting analysis of 2011 Fraser Institute survey
Challenges for Victoria

• Need to change industry perceptions on the level of taxation, bureaucracy and environmental regulations
  – Corporate tax is a Federal issue
  – State Royalty rate is actually quite reasonable (just need to get the message out!)
  – Need to streamline the Government Agencies
    • Clear and quick process for granting Environmental Permits
    • Quick dispute resolution practices with local parties (good land access is vital to exploration)
    • One-Stop shop?
What is the impact on mining & exploration in Victoria from changes in Government Policies?

WHAT ARE THE BENEFITS FROM FIXING THE PROBLEM?
### Average Income for Major Mining Companies

Based on survey of 170 Gold, Base Metal and Diversified companies operating in the Western World between 2000-08

<table>
<thead>
<tr>
<th>Item</th>
<th>2010 US$m</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Revenue</td>
<td>4266</td>
<td></td>
</tr>
<tr>
<td>B Cash Costs</td>
<td>3115</td>
<td>Includes royalties</td>
</tr>
<tr>
<td>Exploration</td>
<td>48</td>
<td>Included as part of Opex</td>
</tr>
<tr>
<td>C Depreciation &amp; Amortisation</td>
<td>297</td>
<td></td>
</tr>
<tr>
<td>D Pre-Tax Profit</td>
<td>856</td>
<td>Net of Financing Costs</td>
</tr>
<tr>
<td>E Tax Paid</td>
<td>291</td>
<td></td>
</tr>
<tr>
<td>F Profit After Tax</td>
<td>565</td>
<td></td>
</tr>
<tr>
<td>G Capital Expenditures</td>
<td>490</td>
<td></td>
</tr>
<tr>
<td>H Net Cash Flow After-Tax</td>
<td>372</td>
<td>(H = F + C - G)</td>
</tr>
<tr>
<td>Total Assets Employed</td>
<td>6691</td>
<td>Written down basis</td>
</tr>
</tbody>
</table>

Source: MinEx Consulting 2010
Performance Ratios for Major Mining Companies
Based on survey of 170 Gold, Base Metal and Diversified companies operating in the Western World between 2000-08

<table>
<thead>
<tr>
<th>$10</th>
<th>Invested in new Capital Projects</th>
<th>~10% of this would be on Feasibility Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>$88</td>
<td>Sales Revenues</td>
<td>Will vary depending on the commodity and the business cycle</td>
</tr>
<tr>
<td>$65</td>
<td>Operating Costs</td>
<td>~10% to 20% of this is labour-related</td>
</tr>
<tr>
<td>$18</td>
<td>Pre-Tax Profits</td>
<td></td>
</tr>
<tr>
<td>$6</td>
<td>Taxes Paid</td>
<td></td>
</tr>
<tr>
<td>$1.80-2.70</td>
<td>Royalties Paid</td>
<td>Based on 2-3% Ad Valorem Royalty</td>
</tr>
</tbody>
</table>

CAUTION: Figures will vary by commodity, company and jurisdiction
Analysis assumes the industry is at equilibrium, and excludes exploration spend by Junior Companies

Source: MinEx Consulting 2010
Examples of adverse changes in fiscal and investment policy changes on Country Risk

**PPI Score** (ie “ability to do business” there)

- **Chile:** In 2007 increased royalty rate from zero to 5%. First discussed in 2004.
- **Peru:** In June 2004, increased royalty rate from zero to 3%. Continued talk of higher rates.
- **Mongolia:** In 2006, changed investment rules and increased royalty rate from 2.5% to 5%.
- **South Africa:** In 2004 introduced BEE rules and increased royalty rate from zero to 3%.
- **Bolivia:** In 2005 the President repeated his vow to nationalise the mining industry.
- **Venezuela:** In 2004, the Chavez government spoke about nationalising the mining industry.

Source: Derived from Fraser Institute annual surveys
... And conversely, **improvements** in fiscal policy can significantly stimulate exploration

**Share of World exploration spend (%)**

- **Canada:** In Oct 2000, introduced a 15% exploration tax credit for flow-through shareholders

Data: Metals Economic Group © 2011
Challenge for Victoria

• There is a 10-15 year lead time between discovery and development. To ensure we have a good pipeline of projects, and keep the critical mass of skills here in Victoria, we need to start exploring now!

  – Government needs to be very mindful that any adverse statements will scare away investors
    • Trust is hard to earn and easy to lose
The future for Greenfields Exploration in Victoria

SUMMARY
Summary

• Victoria’s share of Australia’s exploration spend has shrunk from 6.8% in 2004 to 1.9% in 2011
  – Decline is due to poor exploration success to date and adverse Government policies and regulations
  – Better opportunities exist interstate and overseas

• Exploration is the front-end of the mining industry. As such it needs to be nurtured
  – On average, $1 spent on exploration leads to $10 worth of capex, $88 worth of revenues, $6-13 worth of wages and $2-3 worth of royalties in the future

• It’s urgent that we re-invigorate the industry
  – Especially given the 10-15 year lead between discovery and development

• The best way to change perceptions on endowment is to find something big!
  – Need to simulate the process with fresh data, fresh ideas and risk capital

• It takes time to attract new explorers to Victoria. In the interim it is critical that Government send out the right signals to industry
Contact details

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BACKUP SLIDES
Major mineral deposits in Australia

Depth of cover

Outcrop & Shallow Basement
Basement depth <500m
Basement depth 500 to 1000m
Basement depth >1000m

Note: Major defined as >1 moz Au, >1mt Cu, >100kt Ni or equivalent
Excludes Bulk Minerals such as Coal, Bauxite and Iron Ore

Sources: MinEx Consulting August 2010
Geoscience Australia
Figure 6: Uncertainty concerning environmental regulations

Figure 7: Regulatory duplication and inconsistencies

Source: Fraser Institute March 2011

Strategic advice on mineral economics & exploration