Developing precious resources: realising shared value through education and training

IGF Annual General Meeting
Geneva, October 2014
Outline

EDUCATION AND TRAINING IS THE KEY TO REALISING SHARED VALUE

- Value potential of mining
- What is needed to develop discovered resources
- Breadth of mining value potential
- Realising shared value
- The education and training imperative
- Role of vocational and university education, and professional development
- Contribution of IM4DC
Discovered mineral and coal resources 2008 – 2013

POTENTIAL **SHARED VALUE** FOR HOST COUNTRIES, COMMUNITIES AND INVESTORS

Value of discoveries by Australian companies in developing countries $1,500bn

Value of discoveries by other companies in developing countries $2,500bn – $3,500bn

‘Maiden resources’ discovered and delineated by ASX companies 2008 – 2013 valued at August 2014 prices

How to turn potential to actual shared value?
But large number of marginal or uneconomic deposits

KEY TO DEVELOPMENT IS HUMAN CAPACITY

Graph of tonnes versus grade for all primary copper deposits in the world containing >500 Kt Cu (as of 2010). Symbols represent stage of development. Also shown are envelopes for economic mines and undeveloped projects, reproduced from Schodde (2013) in McCuaig (2014). Future external pressures (e.g., social, energy constraints) will likely see expansion of the envelope for undeveloped projects, contraction of the economic envelope, and more projects currently in exploration, development and feasibility stages moving into the stalled category.
Realisation of value from a mineral discovery necessitates more than good grade and quantity

FOUR KEY ELEMENTS TO REALISING VALUE – UNDERPINNED BY EDUCATION

If these four elements are not addressed, then positive value realisation at step 5 is impossible: the project cannot progress – eg, element 1 social licence is not obtained, or there is value destruction in that some combination of elements 2, 3 and 4 render the operational cash flow insufficient to deliver positive Net Present Value.

Employment growth: driven by mining, but more than just mining jobs – Western Australia example

EDUCATION NEEDED TO BE ABLE TO TAKE BROAD ECONOMIC OPPORTUNITIES
Taking a broad view: indirect and induced benefits

Economic output from mining operation

Direct
- Purchasing expenditure for local goods and services
- Payments to employees

Indirect
- Subsequent backward expenditure for local goods and services along the supply chain
- Income of supply chain employees
- Taxes paid by suppliers to the Government

Induced
- Household consumption as direct and indirect employees spend their income within the local economy

Local manufacturer or service provider

Local dealer
- Income of dealer’s employees
- Taxes paid by dealer to the Government

In Australia, for every $1 of mining revenue, 40¢ is spent on goods and services: Reserve (Central) Bank

Adapted from SELCE (Saipem Externalities Local Content Evaluation) Model
Potential shared value in minerals and energy

BUILDING CAPACITY OF PEOPLE THROUGH EDUCATION IS CRUCIAL

- **Supplying local markets**
  - Share inputs to mining activities to meet needs of local region – e.g., transport & logistics, energy, water, education

- **Developing local value chains**
  - Grow and develop local suppliers and synergistic supply chains
  - Build workforce capacity through education and training

- **Building economic and social capacity**
  - Partner in developing local infrastructure and services
  - Catalyse collaborations and clusters of local enterprises

Adapted from *Creating Shared Value: Becoming a Movement*, presentation by Michael E Porter, May 2014
People are a nation’s most precious resource
FOCUS ON ATTRACTING, DEVELOPING AND RETAINING HIGH-QUALITY TALENT

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<th>Education and training institutions: key infrastructure assets</th>
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<tr>
<td>• Crucial to dealing with challenges and opportunities of the 21st Century</td>
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<td>• Advanced education integrated with research</td>
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<th>Complementary to traditional infrastructure</th>
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<td>• Knowledge-intensive and knowledge creating</td>
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<td>• Adaptable and capable to deal with uncertainty and to engage with the emerging new global economy</td>
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<th>Public sector and industry collaboration</th>
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<td>• Network model: Public and private technical colleges; dual sector universities; industry training centres; ongoing professional development</td>
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<td>• Knowledge spillovers: trained workers move between projects and firms, taking skill set and culture with them</td>
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Need integrated policies on industry, infrastructure, education and training
IM4DC activities cover the mining life cycle and all elements of mining for development

Community engagement
Indigenous agreement-making
Occupational health & safety
Regional development

Precompetitive geodata

Acquisition and exploration
Construction and development
Mining and concentration
Transport
Trading, marketing and sales
Closure, rehabilitation and monitoring

Resources governance
Negotiations and agreements

Mineral economics & policy
Local content & enterprise
Education & training
Revenue design & administration
Infrastructure planning & delivery
Mine closure and post mining land use
Mine waste management
Activities
INTEGRATED PROGRAM OF CAPACITY-BUILDING

- Education and training
- Fellowships
- Institutional linkages
- Alumni network and conference
- Advice to governments
- Action research
- Publications
IM4DC Achievements
SUCCESSFUL TRAINING OUTCOMES
October 2011 to February 2014

IM4DC delivery
GLOBAL CAPACITY-BUILDING OUTPUTS TO END AUGUST 2014

2009 participants from 50+ developing countries

11652 participant training days

30% female participation

1400+ in mining & development alumni network

50 research projects