

Mineral Value Management –  
A Multidimensional View of Value Creation from Mining

# Responsible Mineral Development Initiative 2013

In Collaboration with The Boston Consulting Group (BCG)

April 2013



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REF 050413

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# Foreword



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The importance of creating a responsible, sustainable approach to mineral development has never been clearer, as projects face mounting opposition from Conga in Peru to Oyu Tolgoi in Mongolia. While the role of mining in economic development is increasingly recognized, debate continues on how mining should be done, and a festering discontent shows the general lack of trust between stakeholders.

With this backdrop, the World Economic Forum introduces this third milestone report as part of its Responsible Mineral Development Initiative (RMDI). In its first phase in 2010, the RMDI identified the key challenges facing responsible mineral development. Building on this, the Initiative's work in 2011 led to the identification of six building blocks that provide a constructive framework for the sector. The RMDI continues to provide a neutral, truly multistakeholder platform for the discussion and development of ideas capable of unlocking the potential socio-economic benefits of mining.

During 2012, the RMDI focused on "Mineral Value Management" (MVM), a tool it has developed for enhancing understanding of the drivers of value in mining. This Report lays out the foundation of Mineral Value Management. It outlines the insights gleaned from a global survey and workshops on using the tool with over 300 stakeholders across four continents. The Forum hopes that this tool and the findings of this Report can trigger frank and open discussion on the issues that affect, unite and divide different stakeholders in the mining industry.

The creation of this Report also involved extensive outreach and dialogue with members of the private sector, governments, the academic community, NGOs and multilateral organizations from around the world. The Forum is extremely grateful to the many stakeholders whose invaluable input and support for this global initiative made this report possible.

In particular, the Forum would like to thank:

- The RMDI Advisory Group: Britt Banks (University of Colorado), Roland Haslehner (The Boston Consulting Group), Arlin Hackman (WWF - Canada), Gavin Hayman (Global Witness), Huguette Labelle (Transparency International), Kathryn McPhail and Kate Carmichael (International Council on Mining and Metals), Richard O'Brien (Newmont Mining Corporation), Antonio A.M. Pedro (United Nations Economic Commission for Africa) and Tsagaan Puntsag (Office of the President of Mongolia).
- Industry Partners from the Mining & Metals Industry, and in particular the CEOs who served on the World Economic Forum Mining & Metals Steering Board in 2012: Tom Albanese (Chair), Cynthia Carroll, Mark Cutifani, Klaus Kleinfeld, Patrice T. Motsepe and Richard O'Brien.
- Members of the Global Agenda Council on the Future of Mining & Metals: Anthony Andrews, Jorge Bande, Britt Banks, Edwin Basson, Beatriz Boza Dibos, David Clarke, Stephen Deposito III, Marketa Evans, R. Anthony Hodge, Janet Kong, Huguette Labelle, Anna Littleboy, Bruce McKenney, Henry Medina, Ligia Noronha, Antonio A.M. Pedro, Michael H. Solomon, Teng Liliang and Tsagaan Puntsag.

The Forum also extends thanks to The Boston Consulting Group, which served as project knowledge partner for both the 2011 and 2012 phases of the RMDI, and in particular to Martin Hayden, who worked as Project Manager in 2012.

# Executive Summary

Mining is a key driver of global economic growth, capable of creating long-term positive impact on lives, societies and nations. Although it has the potential to transform the economic prospects of mineral-rich developing countries, governments and communities are increasingly questioning the role of this sector. Debates over the proper allocation of costs and benefits, growing resource nationalism and conflict over new projects reflect waning trust between stakeholders and lack of effective engagement mechanisms. This makes the World Economic Forum's Responsible Mineral Development Initiative (RMDI) more relevant than ever.

The RMDI was established in 2010 to develop a better understanding of the challenges and complexities involved in making mineral development responsible and sustainable, and to identify and pilot potential solutions to address these. Phase I involved worldwide consultation and analysis to identify the key challenges. Phase II, started in 2011, aimed to develop practical responses to these challenges. While no "silver bullet" solution was identified, six building blocks for progress were laid out.

Phase III – the subject of this report – focused on two of the building blocks: a shared understanding of the benefits and costs of mineral development, and collaborative processes for stakeholder engagement, focusing on designing a multistakeholder approach to develop a better understanding of different groups' needs, expectations and priorities.

This is important because disputes are more likely when stakeholders are poorly informed about each other's perceptions and aspirations in relation to the costs and benefits of mining.

## Mineral Value Management

Mineral Value Management (MVM) is an RMDI-developed tool designed to enhance mutual understanding of the holistic drivers of value from mining, and to provide a means to measure and communicate the needs and expectations of various stakeholders.

It recognizes that a broad view of value is required, one which:

- Considers the full range of impacts – cultural, psychological and environmental, as well as the more familiar (and readily measurable) economic and financial ones
- Considers both direct and indirect impacts, i.e. the multiplier and diversification impacts that go beyond the mining industry
- Acknowledges that the "value" created from mining can take the form of both benefits and costs

MVM is based on seven dimensions that drive value creation for all stakeholders:

- Fiscal (tax, royalties, etc) and legal/regulatory environment
- Employment and skills
- Environment and biodiversity implications
- Social cohesion, cultural and socio-economic implications
- Procurement and local supply chain
- Beneficiation and downstream industry
- Infrastructure

During Phase III, MVM was used to conduct a global survey and guide discussions in four multistakeholder workshops. The key findings from these interactions included:

- Different stakeholder groups and countries are starting out with different perceptions and aspirations regarding mining.
- There is general consensus on the most important dimensions of value.
- What drives value for stakeholders and countries within each dimension is different.
- Beyond the top few dimensions, stakeholders and regions differ in their assessment of which ones should be accorded greater priority.
- Areas with potential to deliver benefits for all stakeholders exist, but require a coordinated approach.

From the findings, the need for establishing trust and collaboration between various stakeholders becomes clear. Open, constructive and ongoing dialogue is important to allow discussion on the issues outlined above. To be effective, this dialogue must:

- Address stakeholders' initial perceptions and expectations, in addition to using studies focused on data-based findings
- Focus on creating a better understanding of stakeholder groups and their drivers of value
- Identify areas where stakeholder priorities align and differ
- Invest in educating all stakeholders – including companies, governments, communities and civil society – about the nature, sources and timing of benefits, costs and risks of mining
- Explore ways to increase collaboration within and between stakeholder groups

## What Comes Next?

The Forum plans to pilot MVM at a country, regional and local-community levels in 2013, as part of multistakeholder dialogues aimed at identifying, debating and taking action on issues related to advancing responsible mineral development. Dialogues are already being established in Chile, Peru and Guinea. Other countries of focus include Mongolia and Mozambique.

Section 6 outlines five key questions that individual stakeholders could ask themselves in relation to these findings.

# RMDI – The Story So Far

The RMDI was established to identify and provide guidance on the key challenges around responsible mining development. Phase I in 2010 included interviews with more than 250 stakeholders from 13 countries on their perceptions of these challenges. The objective was to understand what works and what does not, where discontent and frustration commonly arise, and where improvements are possible.

The main problems were identified as:

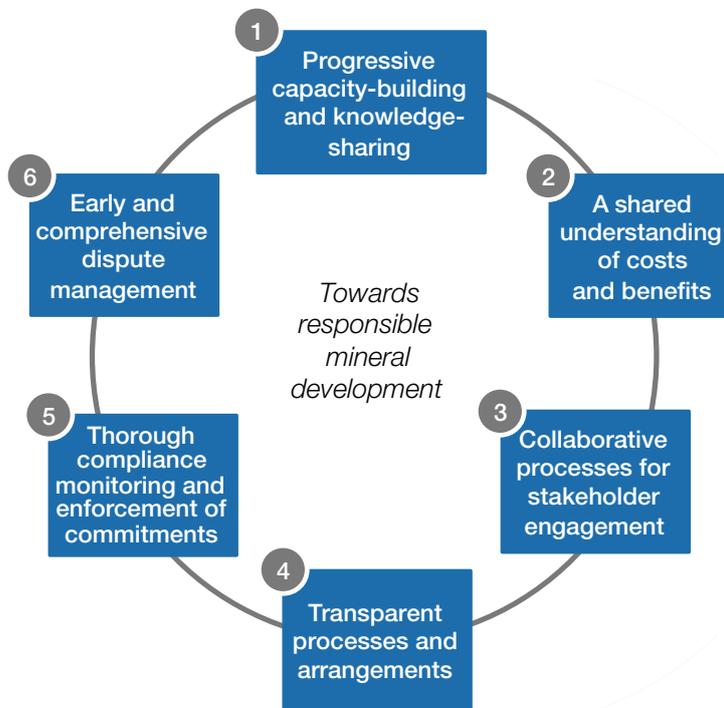
- Limited expertise and institutional capacity of governments, civil society and companies
- Insufficient stakeholder inclusion in decision-making processes
- Opaque negotiation and development processes
- Incomplete compliance, monitoring and dispute-resolution components

Phase II in 2011 developed a deeper understanding of the challenges and identified constructive, practical responses to them. Workshops in six continents underpinned further research and consultation. This phase showed that no single “silver bullet” solution to the challenges exists. Instead, six building blocks were identified that address common challenges and provide guidance on practical actions to take (see Exhibit 1).

Each building block was supported by practical examples of good practice such as Alcoa’s creation of a local development council in Brazil; Rio Tinto’s publication of its tax and royalty payments in 28 countries; and Mongolia’s national dialogue platform. A survey found across-the-board support for the building blocks, with particular enthusiasm for training and development, collaborative socio-economic studies and the establishment of effective dialogue platforms.<sup>1</sup>

While work in Phase III was intended to support stable, sustainable and responsible mining, events in 2012 gave it immediate as well as long-term relevance, as discussed in the following chapter.

**Exhibit 1: Six Building Blocks of Responsible Mineral Development**



# Mineral Value Management: The Context

The events of the last few years have heightened the need for stakeholders involved in mineral development to find common ground to understand each other's needs, perceptions and priorities.

In 2012, significant resource-related disagreements flared up in almost every significant mining region, from Mongolia to Chile and from South Africa to Indonesia. Some, notably in South Africa, escalated sufficiently to migrate from the financial to the news sections of the national and global media (see Exhibit 2).

This convergence of events is no accident. It is the outcome of tensions created by diverging stakeholder expectations and poorly managed consultations intended to resolve them.

- Many governments are under pressure from their citizens to ensure they benefit appropriately from the mining industry. This includes looking beyond royalty and tax revenues. As a South African government adviser says, "I'm not sure that we want companies that are just going to dig holes. We want companies that are going to make those linkages and build our economy for the future, post-mining."<sup>2</sup>
- Local communities are increasingly aware that they typically bear a disproportionate share of mining impacts and costs. They are becoming more vocal in demanding larger shares of benefits as compensation and a more meaningful share in decision-making.
- Companies are operating in a "new normal", with falling commodity prices putting pressure on operating margins and higher capital costs leading to budget overruns in many expansion and greenfield projects. They are consequently looking to generate more value from existing investments and being more selective about new ones.

For uninterrupted progress towards a sustainable model of responsible mining, it is essential that stakeholders understand each other's needs and objectives, as well as the value the sector can realistically hope to deliver.

Disagreements based on honest differences of interest and priority cannot be eliminated from an industry as complex as mining, but those based on distrust arising from mutual ignorance and misunderstanding can at the very least be minimized. Consultation with stakeholders in 2010 and 2011 found that, for this to happen, all stakeholders must be able to engage in open, honest dialogue on their hopes, priorities, fears and expectations.

However, to be an effective platform for practical change, dialogue must be informed by an understanding of how the mining industry creates value. It must also recognize that the spin-offs go beyond the merely monetary and can take the form of costs as well as benefits. Consultation in all three RMDI phases has shown the absence of this understanding as a serious stumbling block. It leads to distrust based on the view that other stakeholders are garnering more than their fair share of benefits.

The RMDI has identified four main stumbling blocks to understanding:

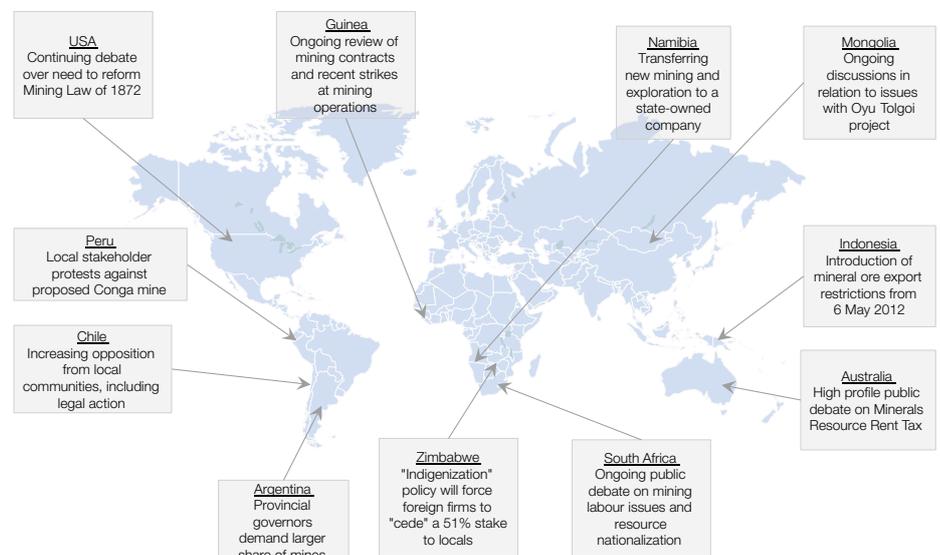
- Debates are focused on specific or easily quantifiable dimensions. Many debates, like that over Australia's Minerals Resource Rent Tax, are focused on the structure of taxation and royalty regimes, and the amount paid. They largely ignore other drivers of value, especially those difficult to quantify.
- A mismatch between expectations and reality exists. Stakeholders often don't understand how long a project will take to develop and the different levels of activity required at each stage. This leads to unrealistic expectations regarding timing and benefits. One mining executive complained of "expectations of turning something into the Pilbara overnight, but companies are not even past the viability stage."<sup>3</sup>

- The right stakeholders have not been consulted, and/or their objectives have been misunderstood. Local communities are often ignored and/or the right people are not consulted, which means their real concerns and objectives are misunderstood. Also, where miners' discussions with government are limited to mining ministries – as is often the case – opportunities to contribute beyond direct taxes and employment may not be explored.
- Value is presumed to be a zero-sum game. While some trade-offs between groups are likely to be necessary, debate often focuses on these at the expense of opportunities to create mutual value.

As a culmination of its work, Phase III of the RMDI developed the Mineral Value Management tool to improve understanding of stakeholder expectations and objectives in relation to value.

## Exhibit 2: Examples of Recent Conflicts and Policy Debates

Source: Press releases, various



# Mineral Value Management: Creating a Shared Understanding of Value

MVM is a survey tool designed to be used in multistakeholder workshops to enhance mutual understanding of how mining creates value and provides a means to measure and communicate the needs and expectations of different stakeholders. It has been tested with over 200 participants in workshops across four continents.

MVM is not an index or measure of value creation, nor is it a best-practice guide for governments, industry or other stakeholders. But it can be used in parallel with other tools to offer stakeholders information on perspectives and beliefs to be used alongside more concrete economic and socio-economic data.

For example, the Forum is working with the International Council on Mining and Metals (ICMM) to enhance multistakeholder dialogue in Peru. Analysis of stakeholder perceptions and expectations derived from the MVM study will be used along with a recent update of ICMM's "Partnerships for Development Toolkit" as a basis for consultation and dialogue with Peruvian stakeholders aimed at building a responsible mining platform for action.

MVM takes a holistic approach to value. Too often discussions are very narrowly focused on the economic and the financial – above all, on what can be quantified in monetary terms. A broader view of value is needed, one that:

- Considers the full range of impacts – cultural, psychological and environmental, as well as the more familiar (and readily measurable) economic and financial ones
- Considers both direct and indirect impacts, i.e. the multiplier and diversification impacts that go beyond the mining industry
- Acknowledges that the “value” created from mining can take the form of both benefits and costs

MVM was developed based on analysis of stakeholder feedback in RMDI Phase III, which identified seven dimensions that drive value for all stakeholders in the mining industry (see Exhibit 3).

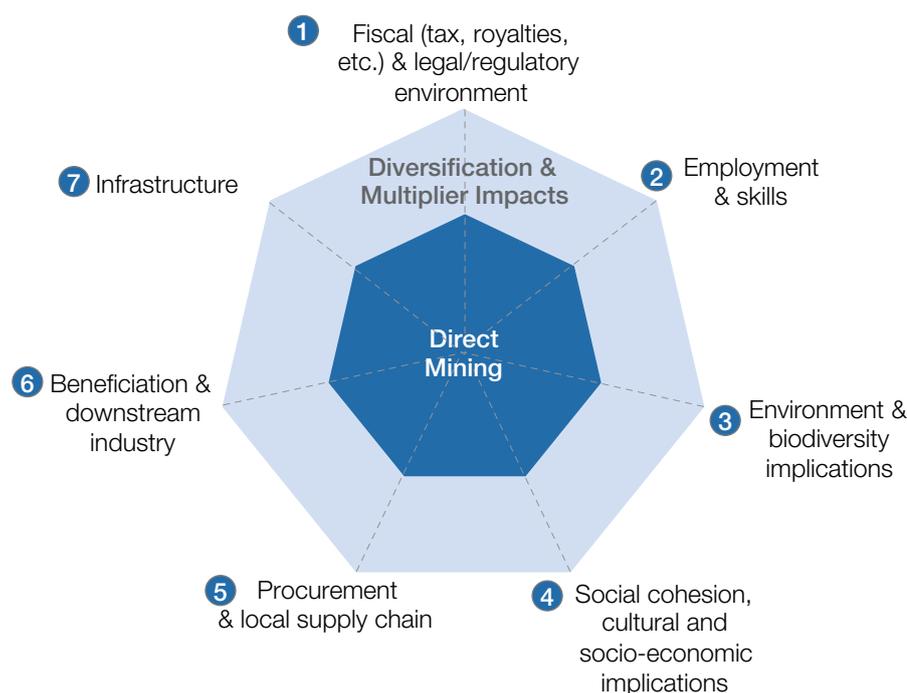
## 1. Fiscal (tax, royalties, etc.) and legal/regulatory environment

Mining-related income can account for over 20% of government revenue in some mineral-rich nations.<sup>4</sup> For miners, a stable legal and regulatory environment is essential for attractiveness as an investment destination, while for government and community stakeholders, securing a fair share of mineral revenue and the effectiveness with which revenue is spent are of central importance. For all stakeholders, a commitment to transparency can help prevent the misappropriation of revenues and the economic distortions caused by corruption.

## 2. Employment and skills

While mining is a relatively small direct employer – it rarely accounts for more than 2% of the jobs in any economy<sup>5</sup> - multiplier effects can create additional employment ranging from three to nine times<sup>6</sup> the direct employment. These come from promoting greater internal linkages between mining and other sectors of the local economy, from mining employees' spending and from the generation of associated employment in other dimensions (e.g. procurement and supply chain, and beneficiation and downstream). The size and type of employment generated varies at each stage of mining development, with numbers generally peaking during the construction phase. The mining sector also requires a range of skilled resources (e.g. engineers, geologists, environmental and social scientists, qualified tradespeople) that can help to raise the general skill-set of the population.

Exhibit 3: Seven Dimensions of Value



### 3. Environment and biodiversity implications

If not managed properly mining can have adverse effects on the environment and biodiversity in host regions, and employment dependent on living resources. Implementation of measures to prevent, mitigate and offset impacts across the entire life cycle of a mine – from exploration to post-mine rehabilitation – can help minimize these effects. In many cases, the positive economic benefits of mining can also help to relieve pressure on biodiversity and the environment by reducing the amount of destructive deforestation and poaching activities. Some companies have committed to a goal of a “net positive impact” on biodiversity,<sup>7</sup> recognizing that this can drive value by helping them obtain a social license to operate while helping build a positive reputation.

### 4. Social cohesion, cultural and socio-economic implications

Host communities can bear a disproportionate share of negative impacts from mining, such as migrant labour and population displacement, destruction of local heritage and lack of economic opportunities after the mine's closure. However, benefits can include improvements to local services and social infrastructure (health, education, housing), as well as the creation of non-mining businesses which can help industrialize the local economy. Investing in the community and providing accessible and fair mechanisms to address concerns and grievances can help mining companies obtain a social license to operate and avoid conflicts and disruptions to operations.

### 5. Procurement and local supply chain

Mining generates large procurement and supply expenditure on goods and services as varied as catering, construction and accountancy. An efficient and reliable supply chain is vital for the profitability of a mining project. Establishing a local supply industry can also result in the creation of “lateral” industries leading to “diversification” benefits for a country.

### 6. Beneficiation and downstream industry

The processing and refining of raw materials and the manufacture of end-products can generate benefits for a country. Downstream industries may also result in lateral industries leading to similar diversification benefits as procurement. However, many companies do not participate in downstream processing activities, and for those that do, some structural factors may make downstream processing in a particular country unattractive or uneconomical.

### 7. Infrastructure

Infrastructure such as road, rail and power can account for up to 80% of mining development costs,<sup>8</sup> and the quality and efficiency of this infrastructure impacts the overall profitability of the sector. If properly planned, this infrastructure may also be used by other industries and/or by the public, creating a positive multiplier impact.

It should be noted that since MVM focuses on drivers of value and is not a “measure” of total value, it does not explicitly include some areas of the economy which benefit significantly from mining, particularly exports and foreign direct investment, which are major beneficiaries in many mineral-rich countries.

## Structural and Enabling Factors

To create an understanding of how value is created in each of the dimensions, it is useful to think about two types of factors:

- Structural, including a country's resource base and geography, and its current levels of skills, technology and infrastructure
- Enabling, including the institutional, regulatory and political environment, and the behaviour and attitude of different stakeholder groups

Structural factors determine comparative advantage or disadvantage at the country level. They are not necessarily fixed but generally take a longer time to change.

Enabling factors include shareholder attitudes and the institutional, political and operating environment. These can generally be altered more quickly than structural factors. They help explain how countries with similar structural factors can produce different value outcomes.

Discussing structural and enabling factors as part of MVM gives stakeholders a deeper understanding of their own potential and limitations. It allows intelligent prioritization by distinguishing areas where improvements can be made relatively easily and faster from those that require longer-term effort and planning.

Exhibit 4: Structural and Enabling Factors

<b>Structural</b>	Inherent nature of a country, its resource base and extractives industry	<ul style="list-style-type: none"> <li>■ Type, location and size of ore bodies</li> <li>■ Population size, geography &amp; climate</li> <li>■ Global commodity cycle</li> <li>■ Timing of mine cycle</li> </ul>
	Country's current stage of development and maturity of minerals industry	<ul style="list-style-type: none"> <li>■ Levels of skills &amp; technology</li> <li>■ Country infrastructure (soft &amp; hard)</li> <li>■ Size and maturity of minerals industry</li> <li>■ Diversification of economy</li> </ul>
<b>Enabling</b>	Structure & capacity of government and institutional environment	<ul style="list-style-type: none"> <li>■ Human and institutional capacity</li> <li>■ Structure &amp; complexity of government</li> <li>■ Integration of mining into economic planning</li> <li>■ Ability to monitor and enforce laws &amp; regulations</li> <li>■ Levels of accountability</li> <li>■ Skill building and education</li> </ul>
	Capacity & willingness of private sector	<ul style="list-style-type: none"> <li>■ Time frame of investors</li> <li>■ Willingness to engage in partnership approaches</li> <li>■ Commitment to responsible development</li> </ul>
	Levels of trust & collaboration and influence of stakeholders	<ul style="list-style-type: none"> <li>■ Levels of social debate</li> <li>■ Level of transparency</li> <li>■ Consultation and collaboration</li> <li>■ Country's attitude towards mining</li> <li>■ Levels of influence of different stakeholder groups</li> </ul>

# Using Mineral Value Management

Phase III of the RMDI used MVM to conduct a global survey and guide discussions in four multistakeholder workshops.

The survey covered around 300 stakeholders from 37 countries. They were polled either through the workshops or electronically. Respondents were asked for their views on the value being created by mining in their own countries relative to other countries today, and on where they thought their countries would be in 10 years' time. They were also asked to nominate which of the seven dimensions of value they saw as priorities for their countries (Refer to Appendix for further details).

Respondents were divided roughly equally between governments, commodity producers and "others" (NGOs, academics, international agencies and local communities). Due to limited-scale polling conducted in this phase, local communities were underrepresented in the "others" category. This is an acknowledged weakness of the survey, as the views of this stakeholder group are vital in creating a shared understanding of value. This weakness should be addressed with additional polling in country-specific or regional surveys using MVM.

Overall, the survey and workshop discussions showed that:

- Different stakeholder groups and countries are starting out with different perceptions and aspirations regarding mining.
- There is general consensus on the most important dimensions of value.
- What drives value for stakeholders and countries within each dimension is different.
- Beyond the top few dimensions, stakeholders and regions differ in their assessment of which ones should be accorded greater priority.
- Areas with potential to deliver benefits for all stakeholders exist, but require a coordinated approach.

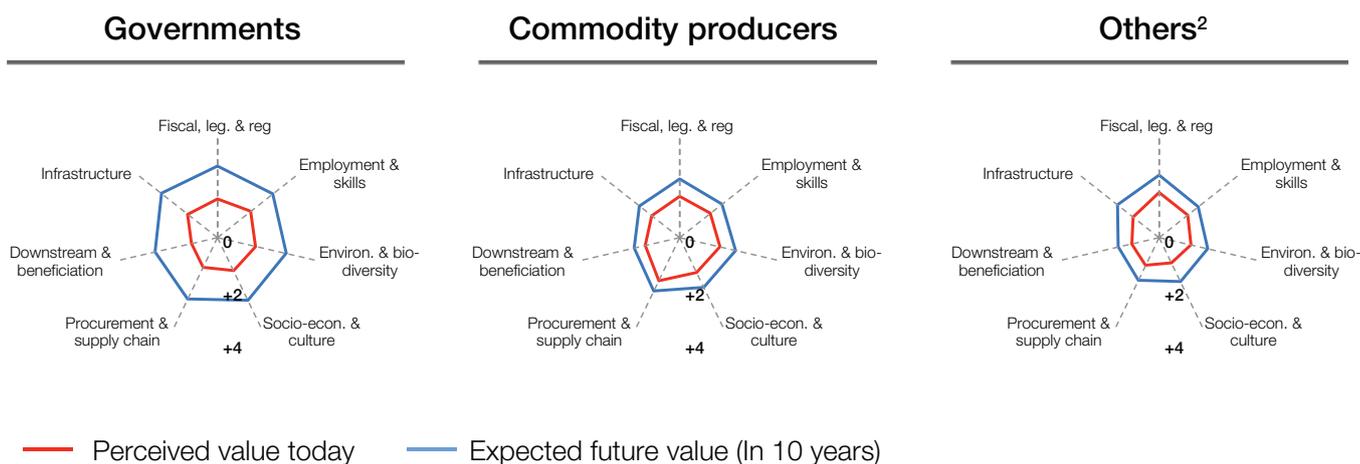
It should be noted that because the survey tested stakeholders' perception of value relative to the performance of other countries, the survey scores were all "positive". This does not mean mining always creates a net benefit across all dimensions. As discussed in the previous section, if not managed carefully, mining can have a detrimental impact in some areas, particularly in the environment, biodiversity, social cohesion, cultural and socio-economic dimensions.

## I. Stakeholders and countries are starting out with different perceptions and aspirations

The survey showed that opinions on current and future value creation differ between stakeholder groups.

### Exhibit 5: Perceptions of Current and Potential Value Creation – African Respondents<sup>1</sup>

Source: RMDI survey conducted between October 2012 and January 2013



#### Key :

- 0 – country ranks lowest in the world for value creation in this dimension
- 2 – average value creation in this dimension
- 4 – country ranks among the highest in the world for value creation in this dimension

<sup>1</sup> Respondents were asked to rate how much value was being created currently in each dimension for their stakeholder group, and the potential value in 10 years' time relative to other mineral-rich countries

<sup>2</sup> Stakeholder group 'Others' includes NGOs, academics, international agencies and local communities

Exhibit 5 shows that African governments are generally less positive than other stakeholders about current value creation, but significantly more positive about the future (i.e. have higher aspirations). African commodity producers generally think more value is being created today, but perceive that future growth will not be as high, especially in the dimensions of “Procurement and Supply Chain” and “Downstream and Beneficiation”. (See Appendix 2 for further results by region and stakeholder.)

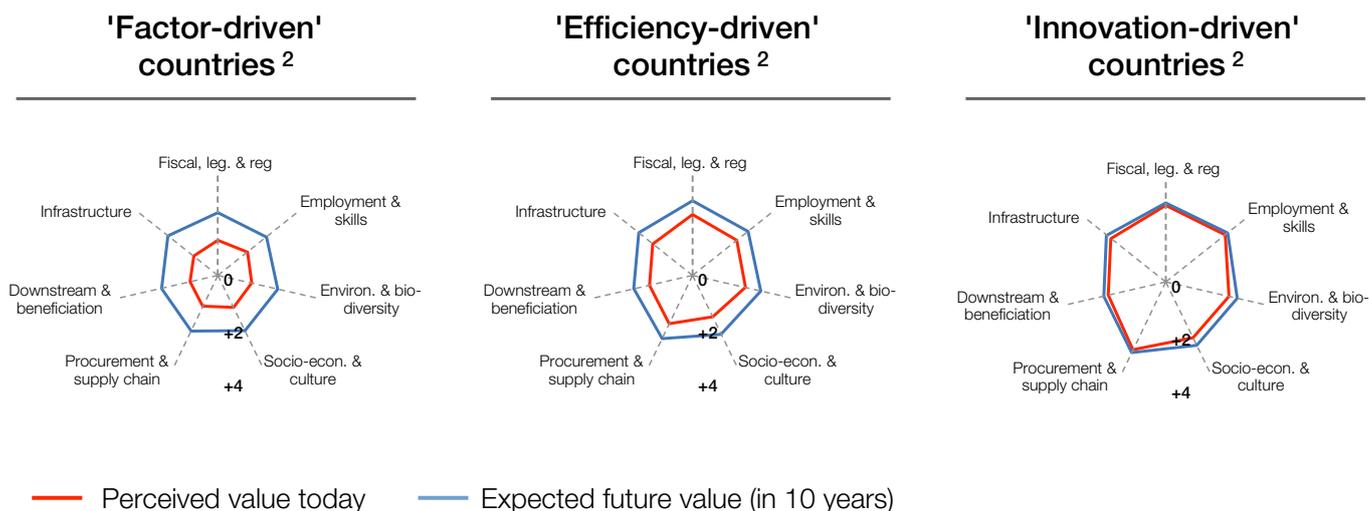
This shows that stakeholders are starting with different points of view and have different hopes and aspirations. A platform for open, transparent dialogue about these differences is a necessary starting point for building trust and lasting partnerships. This platform should be supported by both data-based studies and a clear understanding of stakeholder expectations and perceptions.

Exhibit 6 also shows that expectations vary depending on a country’s stage of economic development. The exhibit is based on categorization used by the World Economic Forum’s Global Competitiveness Index (GCI), which divides countries between “factor-driven”, “efficiency-driven” and “innovation-driven” economies.

**Exhibit 6: Perceptions of Current and Potential Value Creation by Country Type<sup>1</sup>**

In line with economic theory of the stages of development, the GCI assumes that “factor-driven” economies mainly compete on the basis of their factor endowments, primarily low-skilled labour and natural resources. “Efficiency-driven” economies need to develop more efficient production processes and compete on factors such as a more skilled workforce and an efficient and well-functioning labour and goods market so that productivity can keep up with rising wages. “Innovation-driven” economies have higher general wages and associated standards of living, and need to produce new technologies and more sophisticated production processes or business models in order to keep productivity at a high level.<sup>9</sup>

Source: RMDI survey conducted between October 2012 and January 2013



- Key :**
- 0 – country ranks lowest in the world for value creation in this dimension
  - 2 – average value creation in this dimension
  - 4 – country ranks amongst the highest in the world for value creation in this dimension

<sup>1</sup> Respondents were asked to rate how much value was being created currently in each dimension for their stakeholder group, and the potential value in 10 years’ time relative to other mineral-rich countries

<sup>2</sup> Country classification based on World Economic Forum’s Global Competitiveness Index

This makes it unsurprising that stakeholders in “factor-driven” countries have higher expectations of the future benefits from mining, since resources are likely to be a major driver of their economic growth in the short to medium term.

However, consultation during Phase III of RMDI also highlighted how important it is that all stakeholders, particularly from “factor-driven” countries, develop an understanding of the time frame for and the likely sources of future value creation. Governments and other stakeholders must

think beyond fiscal, legal and regulatory issues to consider all dimensions, and then focus on those likely to yield benefits. This should be based, in part, on a clear understanding of which structural and enabling factors are likely to have the most positive effects.

Comparing performance with other countries at a similar stage of economic development can assist in identifying the largest areas of opportunity. Using the GCI is one way this can be done.

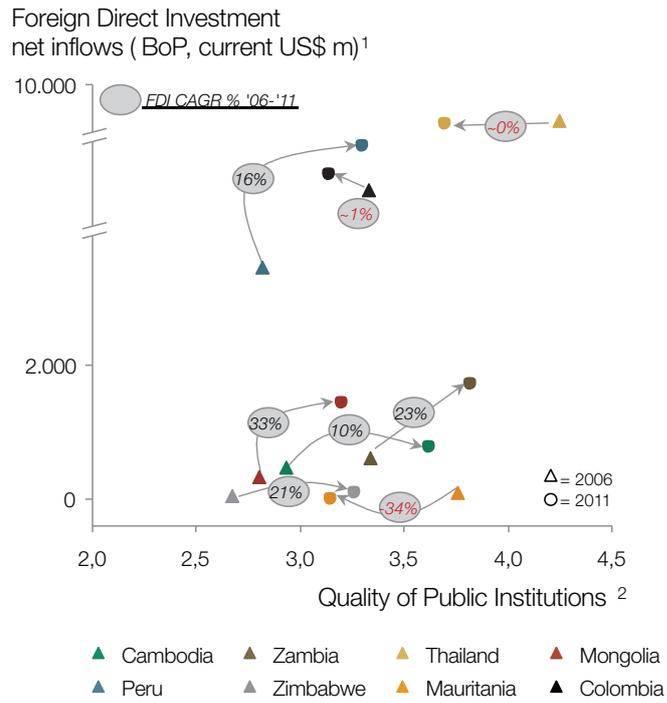
The MVM tool will also be used in multistakeholder roundtables to conduct benchmarking to enable comparison of country performance, as outlined in the Appendix.

## Structural and Enabling Factors for “Factor-driven” Economies

The GCI identifies four main “pillars” as the primary drivers of competitiveness for “factor-driven” economies: well-functioning public and private institutions (pillar 1), well-developed infrastructure (pillar 2), stable macroeconomic environment (pillar 3) and a healthy workforce that has received at least basic education (pillar 4).

Pillar 1 can be one enabling factor for resource-rich nations in attracting Foreign Direct Investment (FDI), along with other factors such as size and growth of the economy, openness to trade and economic stability. Exhibit 7 demonstrates some evidence of a relationship between the two. Between 2006 and 2011, Zambia's compounded annual net FDI inflows increased by 23% and Mongolia's by 33%. This coincided with an improvement in the quality of both countries' public institutions (as measured by the GCI). By contrast, Mauritania, whose public institutions were deemed to have declined in quality, suffered a 34% decline in annual net inflows.<sup>11</sup>

Exhibit 7: Enabling Factors – Quality of Public Institutions



<sup>1</sup> Source: World Bank database

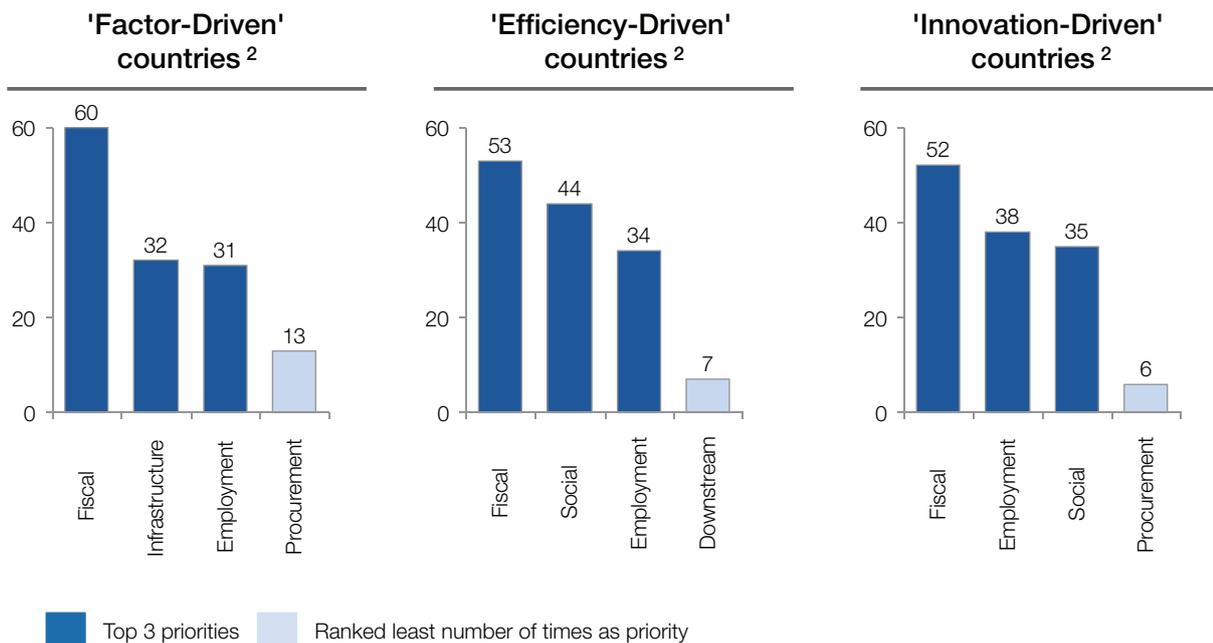
<sup>2</sup> Based on World Economic Forum Global Competitiveness Report 2011-12, Institutional Quality Index

## II. There is general consensus on the most important dimensions of value

The survey asked respondents to rank the seven dimensions of value in order of priority.

Exhibit 8: Ranking of Priority Dimensions (Based on Percentage of Times Ranked 1st or 2nd)<sup>1</sup>

Source: RMDI survey conducted between October 2012 and January 2013



<sup>1</sup> Respondents were asked to rank dimensions in order of priority for their country – data represents the %age of times that each dimension was ranked 1 or 2

<sup>2</sup> Country classification based on World Economic Forum's Global Competitiveness Index

The fiscal, legal and regulatory dimension was the highest priority for every stakeholder group in every region. This is not surprising given its importance for all stakeholders and prominent profile in recent years, with many governments proposing changes to taxation and royalty regimes as well as ownership structures, and populations in some countries becoming more aware of the perceived corruption and lack of transparency associated with mining revenues.

Socio-economic, social cohesion and cultural implications were given the third highest priority by all respondents. Some countries rated this dimension as particularly important – for example, 64% of the 28 respondents from Peru rated it among the top two. This result reflects growing recognition that attention to social and cultural issues is vital to the future of a sustainable and responsible resource development industry. With 37% of commodity producers rating it among the two leading priorities, it is clear that they see performance in relation to these issues as a driver of shareholder value. After all, to downplay or ignore these factors increases the risk of project delays, disputes and disruption of operations.

Unsurprisingly, employment also ranked high – it ranked as the second highest priority in “innovation-driven” countries and third highest for “factor-driven” and “efficiency-driven” countries. Infrastructure ranked second for “factor-driven” countries, showing once again that priorities vary depending on a country’s stage of economic development.

Across countries and stakeholder groups, procurement and supply was the dimension least often rated among the top two priorities. Yet there is compelling evidence that an effective procurement and supply industry can generate value for all stakeholders. Countries like Chile and South Africa have used upstream or supply activity to stimulate the development of globally competitive companies and to increase economic linkages (see sidebar).

### III. What drives value for stakeholders in each dimension is different

While stakeholders are aligned in their selection of some priority areas, this is not, as recent disputes demonstrate, the same as agreement on how best to create value. For example, while all stakeholder groups rated fiscal, legal and regulatory issues as the highest priority dimension, opinions diverged when they were asked which enabling factors were most important for this dimension (Exhibit 9).

The differences were not limited to stakeholder groups; different regions also had different priorities. For example, 59% of respondents from Africa rated “transparency of arrangements between government and private sector” as a top-three priority, while only 29% of Latin American respondents did.

This is not a surprising finding, as different stakeholders have varying needs and objectives in relation to each dimension. For example, commodity producers’ main expectation for employment and skills could be a highly-skilled and efficient workforce, whereas local communities are likely to focus more on how many employees are sourced from their area.

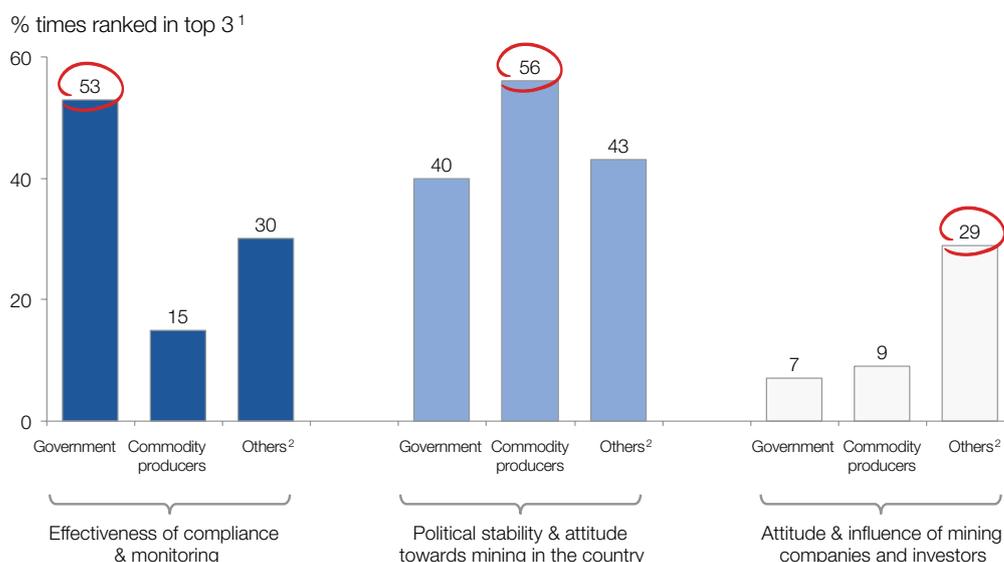
## Upstream or Downstream?

Policy-makers have historically favoured downstream development, seeing it as offering greater potential for diversification and more likely to result in significant employment growth. Mining has typically been seen as an enclave industry, with less likelihood of technology spillovers that could drive growth in other industries. Consequently, support for upstream or supplier activities has often been limited to policies that mandate minimum levels of local supply.

However, new studies such as *Making the Most of the Commodities Programme* by the Open University and the University of Cape Town suggest upstream activities generate attractive diversification and employment growth opportunities. Suppliers have the advantage of being close to customers, whereas downstream user markets are often distant. Intermediate products and services can offer opportunities to countries with varying capabilities, in sectors ranging from the relatively low-skilled such as catering and security to the highly sophisticated equipment manufacturing. In addition, mining companies increasingly outsource non-core activities, thereby expanding the total supplier market.<sup>12</sup>

**Exhibit 9: Fiscal, Legal and Regulatory Factors (Percentage of Times Ranked in Top 3)<sup>1</sup>**

Source: RMDI survey conducted between October 2012 and January 2013



<sup>1</sup> Respondents were asked to rank the top three ‘enabling factors’ which they believe have the biggest impact on the relevant dimension

<sup>2</sup> Stakeholder group ‘Others’ includes NGOs, academics, international agencies and local communities

This does not mean different groups are completely misaligned and discussions must be all about tradeoffs. It does, however, highlight the need to build a better understanding of stakeholders' circumstances, needs and objectives.

This is particularly the case with local communities, where mining companies are increasingly aware that creating value is about more than financial costs and benefits. For 63% of the commodity producers polled, "understanding the social and economic make-up of different groups" was a top-three enabling factor and a further 75% ranked "consultation and collaboration with affected communities" similarly. In contrast, only 16% put "level of social spending by mining companies" in the top three.

More and more mining companies are seeking to develop insight into the beliefs, traditions and cultures of local communities or, as one mining executive put it, finding ways to "understand their stories".<sup>13</sup> To be successful in this, miners need expertise in areas such as anthropology and sociology, which are very different skill-sets from those they have traditionally employed. They also need to understand the complexity and heterogeneity of local communities affected by mining development.

## Understanding Local Communities

Dialogue is only effective if those taking part have legitimacy and are genuinely representative of their particular stakeholder groups. Analysis in Phases I and II of RMDI showed this does not always happen, creating the potential for misunderstandings and discontent.

For example, every local community is likely to exhibit:

- Social, economic and demographic differences, such as different worker origins (native or migrant), and differences in gender, age, education and health, as well as traditional means of livelihood
- Differences in access to services such as housing, water, utilities, schools and hospitals
- Disparity in access to mining-based employment, for example, due to skills, gender, distance from the mine and access to public transport
- Varying levels of exposure to possible mining-related impacts, such as overcrowding and pollution
- Variations in their previous experience and history with mining, which influence their current views

This diversity in communities means no "right" set of responses is available and no single representative can speak for a community. This is particularly true in relation to gender, where male and female community members often differ in their priorities and issues. Miners and governments must be alert to this and tailor their responses accordingly.

For miners, wide-ranging consultation is a precondition for gaining a social license to operate. Such consultation is essential to understand the highest priorities of the community and ensure that the local population has access to the benefits (jobs, training, skills, services and business opportunities) that mining can deliver.



#### IV. Beyond the top few dimensions, stakeholders and regions differ in their assessment of which dimensions of value should be accorded greater priority

Governments and commodity producers differ sharply in their views on the importance of downstream activities for value creation. For example, while more than a quarter of government respondents in Africa selected this as a top-two priority, fewer than one in 20 commodity producers agreed.

While this is not surprising – not all mining companies engage in downstream activities – it highlights yet another area where frank, constructive dialogue based on mutual understanding would be valuable. Governments in particular need to understand if downstream activities are likely to create value for them. Understanding the structural factors that can determine this is very important, as the sidebar on Malaysia's rubber industry shows.

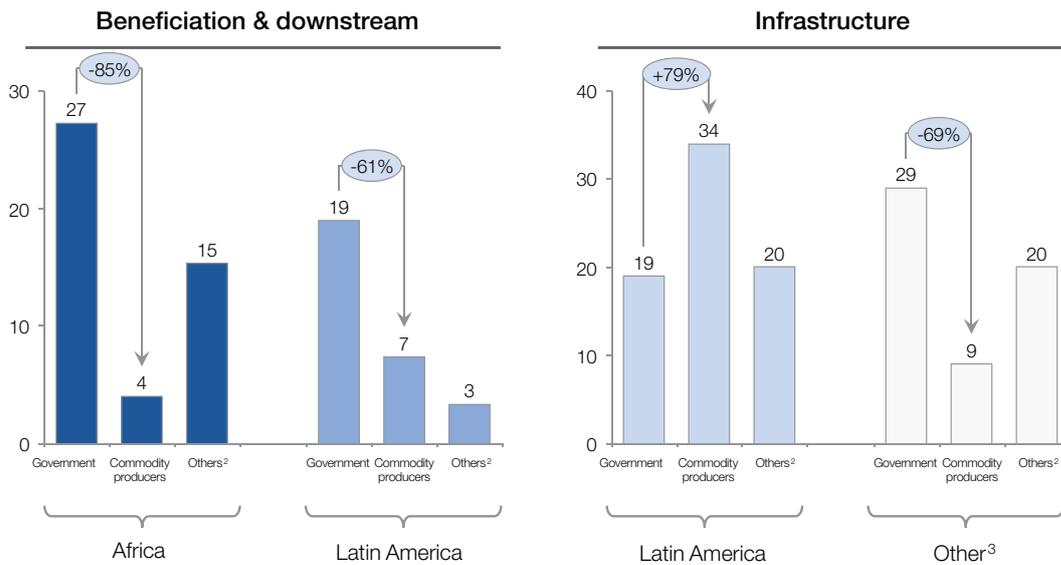
In other areas, differences depend on geographies. In Latin America, 34% of commodity producers rated infrastructure

in the top two, compared with 19% of government stakeholders and 20% of "others". However, in North America, Australia and Europe, 29% of government stakeholders and 20% of "others" considered it a top-two priority, while fewer than one in 10 commodity producers agreed.

The lesson is that multinational mining companies cannot assume that what has worked in one country will work in another, but must take time to understand local stakeholder expectations. They also need to make their own priorities clear, because these might not be the same as those of the host governments or communities.

**Exhibit 10: Stakeholder Ranking of Downstream and Infrastructure (based on percentage of times ranked 1st or 2nd)<sup>1</sup>**

Source: RMDI survey conducted between October 2012 and January 2013



<sup>1</sup> Respondents were asked to rank dimensions in order of priority for their country – data represents the % of times that downstream was ranked 1 or 2

<sup>2</sup> Stakeholder group 'Others' includes NGOs, academics, international agencies and local communities

<sup>3</sup> "Other" refers to Australia, North America and Europe

#### Why Your Rubber Gloves Are Made in Malaysia

Countries need to be selective in supporting downstream industries, based on an understanding of the structural factors required to be globally competitive. Malaysia's success in rubber gloves provides a good example.

Malaysia produces 60% of the world's exported rubber gloves, a position it has built since the 1980s when it was the world's second largest producer of natural rubber, behind only Indonesia.<sup>14</sup> Malaysia achieved its leading position partly because it enjoys a structural advantage in the latex market thanks to being a natural rubber producer. Natural rubber accounts for 50-60% of the cost of rubber glove production, compared with 10-15% for tyres (although the latter actually consumes more natural rubber as an industry), giving a major producer a clear input cost advantage.

Malaysia was also able to take advantage of another structural factor – the attractive long-term global dynamics of the rubber glove market at the time it established the industry.

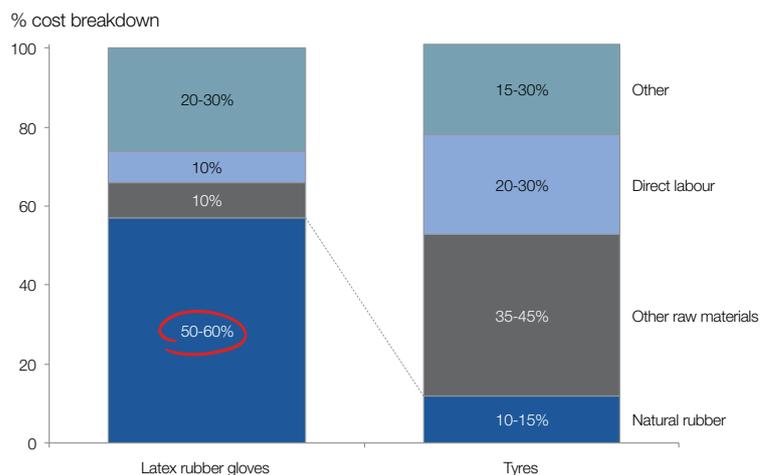
Increasing awareness of HIV and other global health campaigns led to 12% annual growth in demand for latex medical equipment from 1989 to 2011.<sup>15</sup>

In addition to understanding the industry cost structure and the long-term attractiveness of the market, countries need to take

into account several other factors when analysing their ability to compete in particular downstream activities. These include: the size and attractiveness of the domestic market, non-tariff barriers to trade, transportation costs to the main export markets and whether the country has advantages in other input costs such as energy and labour.

**Exhibit 11: Industry Cost Structures (Rubber Gloves versus Tyres)**

Source: Alliance Research, Rubber Glove sector initiation Feb 2012, CIMB Research Report "Rubber Gloves Packing a Punch" July 2009, BCG





**V. Areas with potential to deliver benefits for all stakeholders exist, but require a coordinated approach**

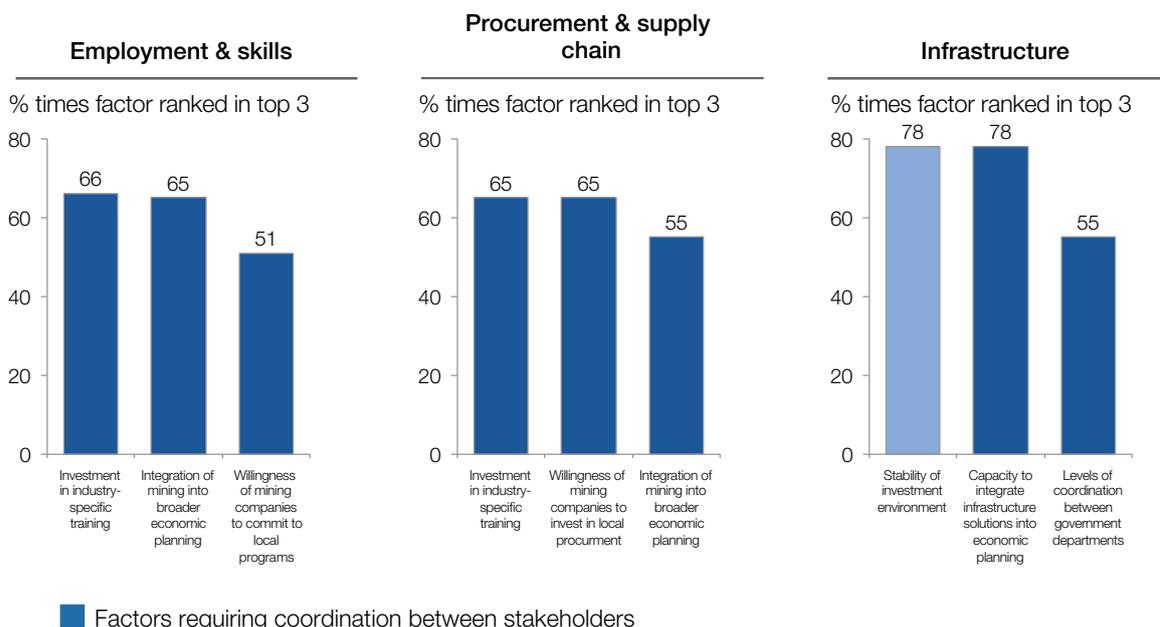
Despite differences in perceptions and priorities, the survey and consultations revealed significant opportunities for stakeholders to work together to create mutual value, especially in the areas of procurement and supply chain, infrastructure and employment. For example, 60% of stakeholders rated “leveraging infrastructure for broader use” as more likely to create value than “improving the direct mining infrastructure in the country”.

Exhibit 12 shows that success requires high levels of coordination between stakeholders. This includes coordination between different government levels and ministries and also between mining companies and other industries such as infrastructure operators, especially in developing cluster approaches to infrastructure and supply chains. It also requires the creation of partnerships that can last beyond an election cycle.

The sidebars on Corridors of Power and Chilean copper are two examples of infrastructure and local supplier development whose success depended on significant levels of coordination between stakeholders.

**Exhibit 12: Top 3 Enabling Factors Nominated by Respondents<sup>1</sup>**

Source: RMDI survey conducted between October 2012-January 2013



<sup>1</sup> Respondents were asked to rank the top three ‘enabling factors’ which they believe have the biggest impact on the relevant dimension



## Corridors of Power: Incorporating Mining Outcomes into Economic Planning

Many mining projects require substantial infrastructure, whose cost can be a barrier to project viability. At the same time, infrastructure is central to economic development, but many mineral-rich developing countries lack the finance, skill and technology to develop integrated national solutions. This raises the possibility of partnerships to deliver win-win infrastructure outcomes that:

- Link key infrastructure elements such as power, railways and ports
- Integrate mining requirements with regional economic development needs
- Share financing between public and private entities
- Span national borders at times

Governments and communities benefit from accelerated infrastructure development, increased economic linkages and longer-term diversification, as well as broader economic impacts such as increased tax revenues and employment. For companies, integrated infrastructure development can lower capital costs, potentially turning a marginally profitable opportunity into a viable project.

To work they need:

- Coordination within and across stakeholder groups
- Long-term stakeholder commitment
- Integrated economic planning
- Extensive local and environmental consultation
- Plans for operation and maintenance after mining has finished or the infrastructure has been handed over by the mining company

South Africa and Mozambique's Maputo Development Corridor (MDC) is a good example of integrated infrastructure development. Initiated in 1995, the MDC is the highest-profile project in the South African Spatial Development Initiative. Running between the north-eastern provinces of South Africa and Maputo, Mozambique's capital and main port, it provides an essential link in South Africa's coal, vanadium, stainless steel and petrochemicals production.

Founded by the two countries' transport ministers but involving private companies in mining and other industries, the corridor was constructed on a build-operate-transfer basis, with a 30-year concession to a consortium of private companies.

Areas close to the corridor have seen rates of growth and employment above the South African mean, with around 5,000 new jobs created. Mozambican producers have gained entry into South Africa, port development at Maputo has aided access to global markets, and tourism has grown.<sup>16</sup>

## Chile Finds Copper-bottomed Value Upstream<sup>17</sup>

Chile accounts for approximately one-third of global copper output and mining is a significant contributor to the Chilean economy.

Chilean governments have supported the development of the mining services and supply industry since the 1990s, offering skills training to local suppliers and promoting linkages through the national copper company, Codelco. The mining cluster it promoted in Region II worked to the extent that by 2004, 80% of Escondida's procurement was from Chile and nearly half from the region.

A public-private collaboration involving Codelco and BHP Billiton was established in 2009 to provide further support to local suppliers, who are encouraged to develop innovative responses to local mining-related issues such as shortages of water, energy and skills. The aim is to create 250 world-class suppliers – defined as “selling more than 30% internationally and having standards equal to the industry leader” – by 2020. Universities and technology centres also participate through collaboration with suppliers.

Early indications are good. By December 2012, 55 suppliers were participating and have shown improvement in terms of growth, export and their safety, environmental and labour standards. Early successes include Prodinsa, which developed a solution that increased the useful life of cables of electromechanical shovels by 40% and has sold the solution to Peru's Antamina mine.

# Implications for Stakeholders

The key findings from the survey and consultations in Phase III of RMDI are that different stakeholder groups have different starting points, perceptions, hopes and aspirations in relation to the costs and benefits of mineral resource development. Nevertheless, opportunities for mutual gain exist. Open, transparent dialogue on these differences will provide a basis for establishing constructive partnerships that minimize conflict and deliver mutually beneficial outcomes.

To be effective the dialogue should:

- Address stakeholders' initial perceptions and expectations, in addition to using studies focused on data-based findings. To understand the sources of discontent and conflict, stakeholders need to understand initial perceptions and expectations in addition to facts and data about value creation.
- Focus on creating a better understanding of stakeholder groups and their drivers of value. This requires a holistic view of value taking into account its cultural, psychological and environmental as well as economic

aspects. At the same time, both benefits and costs of mining must be taken into account.

- Identify areas where stakeholder priorities align and differ. This can be done by engaging in frank and constructive dialogue to find not only areas of mutual benefit but also acceptable tradeoffs between stakeholders.
- Invest in educating all stakeholders – including companies, governments, communities and civil society – about the nature, sources and timing of benefits, costs and risks of mining. Mismatches between stakeholder expectations and reality need to be addressed through a mutual understanding of the drivers of value, including country-specific structural and enabling factors.
- Explore ways to increase collaboration within and between stakeholder groups. Mutual value creation requires long-term partnerships that are sustainable beyond the election cycle. Collaboration is required not just between stakeholder groups but also within the groups.

Exhibit 13 lists five questions stakeholders could ask themselves in relation to these findings.

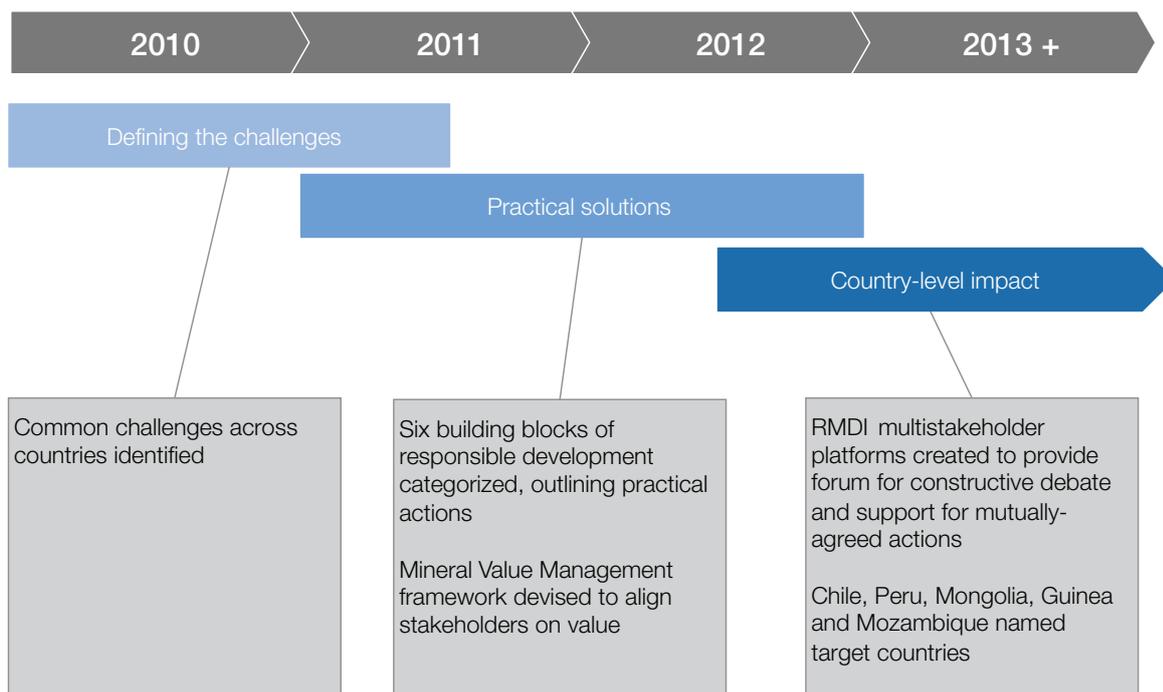
## Exhibit 13: Questions for Stakeholders

Mining Executives	Mining Ministers	Local community representatives (including NGO's)
<ol style="list-style-type: none"> <li>1. Do you understand what drives value for other stakeholders and their current perceptions and expectations?</li> <li>2. Have you entered into multistakeholder consultation in order to communicate your needs and priorities, and understand those of others?</li> <li>3. Have you invested in educating local communities and regional governments in creating a better understanding of sources and timing of value from the industry?</li> <li>4. Have you identified dimensions which are 'win-wins' for all stakeholders, and had explicit discussions about tradeoffs?</li> <li>5. Have you considered how you can better coordinate with partners like other mining companies in areas like infrastructure and supply?</li> </ol>	<ol style="list-style-type: none"> <li>1. Do you understand the key structural and enabling factors affecting the ability to generate value in your country?</li> <li>2. Do you understand the needs and priorities of mining companies, investors and mining-affected communities?</li> <li>3. Have you entered into multistakeholder consultation in order to communicate your needs and priorities, and understand those of others?</li> <li>4. How well are you coordinating with other areas and levels of government to ensure that full benefits are realized from mining?</li> <li>5. Have you considered how you can engage with the broader population to create a shared understanding of mining-related value?</li> </ol>	<ol style="list-style-type: none"> <li>1. Do you understand the different sub-groups within mining communities, and their differing needs and priorities?</li> <li>2. Do you understand the drivers of value in the industry, enabling you to better guide community expectations?</li> <li>3. Have you entered into multistakeholder consultation in order to communicate your needs and priorities, and understand those of others?</li> <li>4. Can you identify priorities for your constituents which can also be 'win-wins' for government and companies?</li> <li>5. Have you identified institutions within the community that can effectively engage with mining companies to create long-term partnerships?</li> </ol>

# The Way Forward

The next step on the RMDI journey is to apply these findings and the techniques developed to address the main challenges. MVM will be used in multistakeholder platforms at a national and project level to identify, debate and take action on mining-related issues.

**Exhibit 14: The RMDI Journey**



The platforms provide the opportunity to develop an in-country secretariat and steering committee made up of government, resource companies and civil society representatives, with the objective of:

- Providing a neutral setting for dialogue and collaboration between stakeholders supported by both perception-based studies (e.g. MVM) and data-based studies (e.g. ICMM MPD toolkit)
- Leading to multistakeholder ownership of the way forward, including agreement on criteria for success and roles and responsibilities of government, companies, civil society and development agencies
- Leading to the establishment of a formal, ongoing process to ensure local ownership of implementation and tracking of actions
- Supporting other existing initiatives in countries (e.g. the formulation of Country Mining Visions under the African Mining Vision initiative)

Success will depend on support and ongoing commitment to action from all stakeholder groups, particularly governments.

Dialogues are already being established in Chile and Peru. Chile's was set up after an RMDI round table in 2011 and is using the six building blocks developed in Phase II to guide the development of practical actions. A dialogue in Peru will take place at the World Economic Forum on Latin America in April 2013. Other countries of focus include Guinea, Mongolia and Mozambique.

# Appendix

## Benchmarking Country Performance

The MVM framework was used to conduct a benchmarking study drawing on publicly available data to create 14 separate metrics to measure direct value creation from the point of view of countries and commodity producers in mineral-rich countries (one metric for each of the seven dimensions for countries and commodity producers).

The benchmarking in the RMDI workshops will be used for two purposes:

- Compare the data-based benchmarks of stakeholders' perceptions to identify areas of alignment and differences
- Enable comparisons between other resource-rich nations on how value is being created in some countries compared to others, and promote discussions around potential opportunities

The selected metrics reflect what drives value for each stakeholder group. For example, for countries, the metric for employment and skills is the number of jobs created by the mining industry. For commodity producers it is a measure of the available skills and flexibility of the labour market. Between 17 and 33 countries were included in benchmarking for each dimension (with the number depending on data availability). To allow comparisons between the survey data, those that ranked the highest scored "4" while the lowest rank scored "0" (Appendix 2 has further details).

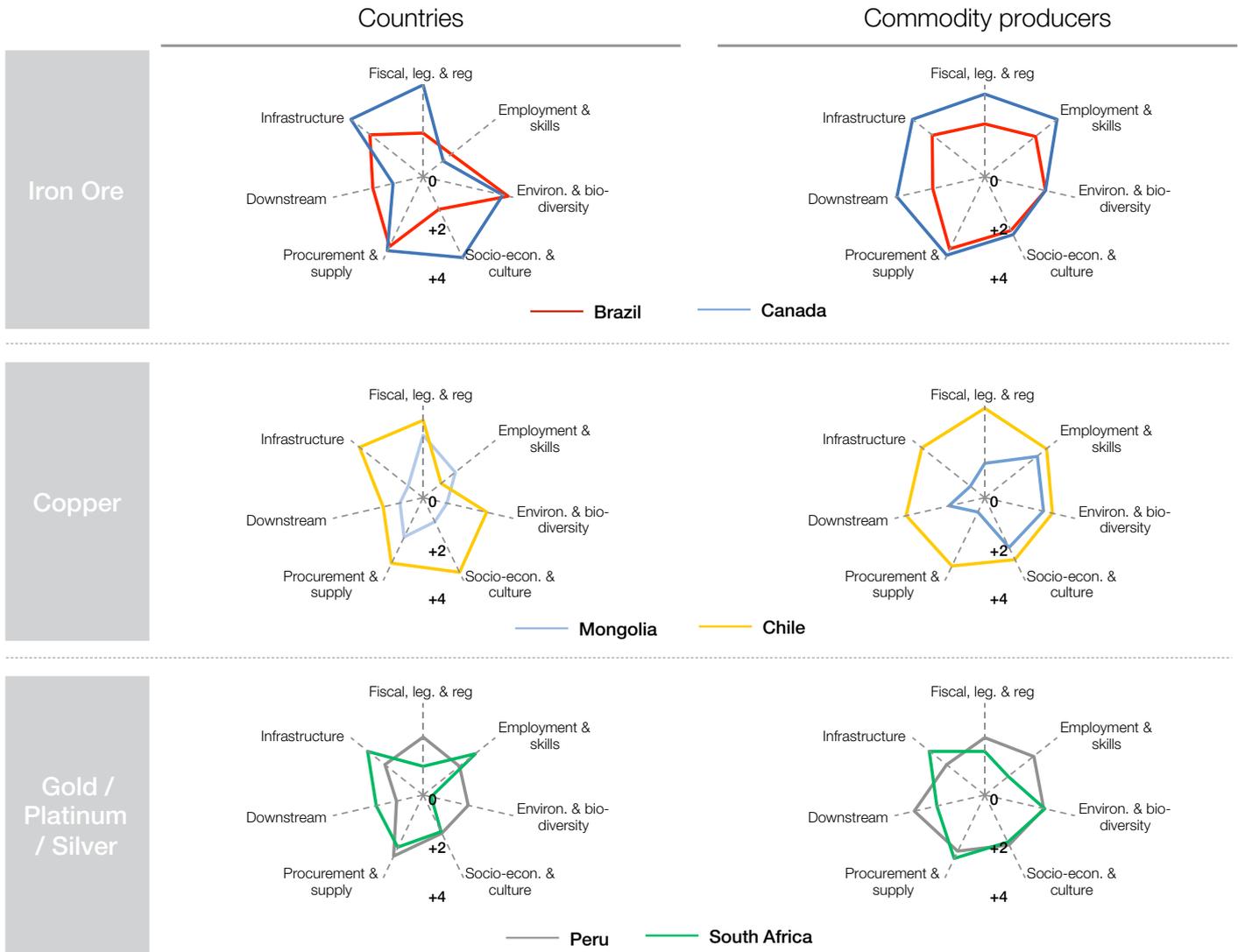
The benchmarking is not intended as an index of value creation between countries. It measures only "direct" value, excluding the multiplier and diversification impacts that can be major contributors to some value dimensions. In addition, the metrics do not fully reflect all the factors important to stakeholders. For example, the employment metric for countries does not include skill levels or incomes from mining activities – both of which are important for governments.

Exhibit 15 demonstrates how this benchmarking can be used for the second purpose, showing results for six mineral-rich countries grouped by the main type of commodity produced. The exhibit shows that mining creates value in different countries in different ways, influenced by both structural and enabling factors.



**Exhibit 15: Benchmarking Analysis**

Note: Directional only – dimensions benchmarked relative to other mineral-rich countries. Metrics chosen for each dimension may not accurately reflect all country conditions.



**Key:**

- 0 – Country ranks lowest in the world for value creation in this dimension
- 2 – Average value creation in this dimension
- 4 – Country ranks among the highest in the world for value creation in this dimension

Some of the structural impacts can be seen in the ways countries rank in the employment & skills and downstream & beneficiation dimensions. For example, Canada and Chile both create a relatively large amount of value from mining, but their ratings for these dimensions are relatively low. This possibly reflects the fact that their economies are diversified, with job creation outside mining, and also have fewer natural structural advantages in becoming a manufacturing base. In contrast, South Africa creates more employment from mining relative to other countries, largely because of its labour-intensive platinum industry.

Other scores may be more influenced by enabling factors. For example, commodity producers' ratings for the fiscal, legal and regulatory dimension in a particular country reflect their views on the tax regime as

well as the efficiency and transparency of regulatory and legal processes. Brazil ranks lower than Chile on this dimension, possibly indicating that commodity producers would like Brazil to improve in areas such as the governance, structure and complexity of public institutions.

**Benchmarking Methodology and Limitations**

**Purpose**

The objective of the benchmarking is to provide a starting point for discussion and a way of comparing stakeholder expectations.

**Methodology**

*Metrics*

- The benchmarking is based on secondary data sources using 14 metrics which represent direct value

creation for both countries and commodity producers across the seven dimensions of value in the MVM.

- The metrics are all based on publicly available information and are a mix of economic data, country indices and other survey data (refer to Exhibit 17).
- In some cases, a weighted average of a number of metrics has been used because there are a number of drivers of value in each dimension

Exhibit 16: Benchmark Metrics

Countries:

	Metrics	Primary sources	No. of benchmarks
1	<b>Fiscal &amp; legal / regulatory environment</b>	<ul style="list-style-type: none"> <li>(US\$ mining tax, royalty and dividend receipts / US\$ mining production value) %</li> </ul> <p><b>Mining tax receipts</b></p> <ul style="list-style-type: none"> <li>Extractive Industry Transparency Initiative (EITI) country reports (2006-10)</li> <li>International Monetary Fund (IMF) – "Fiscal regimes for extractives development", 2012</li> <li>Press research</li> </ul> <p><b>Mining production value</b></p> <ul style="list-style-type: none"> <li>ICMM, Mining Contribution Index</li> </ul>	18
2	<b>Employment &amp; skills</b>	<ul style="list-style-type: none"> <li>(Number of direct employees in mining industry / US\$ mining production value) %</li> </ul> <p><b>Number of employees</b></p> <ul style="list-style-type: none"> <li>Various government and industry reports</li> </ul> <p><b>Mining production value</b></p> <ul style="list-style-type: none"> <li>ICMM, Mining Contribution Index</li> </ul>	17
3	<b>Environment &amp; bio-diversity</b>	<ul style="list-style-type: none"> <li>Yale environmental performance index rank</li> </ul> <p>Yale environmental performance index rank (2012)</p>	33
4	<b>Socio-economic environment, culture and social cohesion</b>	<ul style="list-style-type: none"> <li>Weighted averaged of indicators from indices of social development. Indicators included:                             <ul style="list-style-type: none"> <li>Inter-group cohesion</li> <li>Inter-personal safety &amp; trust</li> <li>Inclusion of minorities</li> </ul> </li> </ul> <p>Institute of Social Studies (ISS) indices of social development</p>	40
5	<b>Procurement and local supply chain</b>	<ul style="list-style-type: none"> <li>Number of companies listed in supplier database per US\$ of mining production value</li> </ul> <p><b>Number of companies</b></p> <ul style="list-style-type: none"> <li>Informine supplier database</li> </ul> <p><b>Mining production value</b></p> <ul style="list-style-type: none"> <li>ICMM, Mining Contribution Index</li> </ul>	17
6	<b>Beneficiation &amp; downstream industry</b>	<ul style="list-style-type: none"> <li>(US\$ Raw materials exports / US\$ mining production value) %</li> </ul> <p><b>Export/production data by type</b></p> <ul style="list-style-type: none"> <li>RMG database</li> <li>UN Comtrade database</li> <li>Chilean Copper Commission annual yearbook</li> <li>ICSG Statistical Yearbook</li> </ul> <p><b>Mining production value</b></p> <ul style="list-style-type: none"> <li>ICMM, Mining Contribution Index</li> </ul>	25
7	<b>Infrastructure</b>	<ul style="list-style-type: none"> <li>Infrastructure ranking (Total) – Global competitors report</li> </ul> <p>World Economic Forum Global Competitiveness Report 2012-13</p>	33

Commodity producers:

	Metrics	Data sources	No. of benchmarks
1	<b>Fiscal &amp; legal / regulatory environment</b>	<ul style="list-style-type: none"> <li>Weighted average of indicators from Fraser Survey:                             <ul style="list-style-type: none"> <li>Taxation regimes</li> <li>Regulatory &amp; administration uncertainty</li> <li>Regulatory duplications &amp; inconsistencies</li> <li>Legal system</li> </ul> </li> </ul> <p>Fraser Institute Annual Survey of Mining Companies 2011-12</p>	31
2	<b>Employment &amp; skills</b>	<ul style="list-style-type: none"> <li>Weighted average of indicators from Global Competitiveness Report. Indicators included:                             <ul style="list-style-type: none"> <li>Health, primary &amp; higher education, training, labour market efficiency</li> </ul> </li> </ul> <p>World Economic Forum Global Competitiveness Report 2012-13</p>	33
3	<b>Environment &amp; bio-diversity</b>	<ul style="list-style-type: none"> <li>Weighted average of Fraser Survey results:                             <ul style="list-style-type: none"> <li>Environmental regulations</li> <li>Environmental protection</li> </ul> </li> </ul> <p>Fraser Institute Annual Survey of Mining Companies 2011-12</p>	31
4	<b>Socio-economic environment, culture and social cohesion</b>	<ul style="list-style-type: none"> <li>Weighted average of Fraser Survey results. Indicators included:                             <ul style="list-style-type: none"> <li>Socio-economic agreements</li> <li>Disputed land claims</li> </ul> </li> </ul> <p>Fraser Institute Annual Survey of Mining Companies 2011-12</p>	31
5	<b>Procurement &amp; supply chain</b>	<ul style="list-style-type: none"> <li>Weighted average of indicators from Global Competitiveness Report. Indicators included:                             <ul style="list-style-type: none"> <li>Local supplier quality and quantity, state of cluster development, intensity of local competition</li> </ul> </li> </ul> <p>World Economic Forum Global Competitiveness Report 2012-13</p>	33
6	<b>Beneficiation &amp; downstream industry</b>	<ul style="list-style-type: none"> <li>Weighted average of Fraser survey results. Indicators included:                             <ul style="list-style-type: none"> <li>tariff and non-tariff trade barriers, currency restrictions, limits on profit repatriation</li> </ul> </li> </ul> <p>Fraser Institute Annual Survey of Mining Companies 2011-12</p>	31
7	<b>Infrastructure</b>	<ul style="list-style-type: none"> <li>Infrastructure ranking (overall) – Global Competitiveness Report</li> </ul> <p>World Economic Forum Global Competitiveness Report 2012-13</p>	33

#### Countries included

- Only countries with a significant existing or potential mining industry were included in the benchmarking.

#### Scoring

- The benchmark uses a relative score from 0 to 4. This matches the same scoring used in the perception survey.
- The scores were calculated by ranking the countries included in each metric. The countries with the highest rank scored “4” and the lowest “0”. The remaining countries were allocated proportionately along the 0-4 scale.

#### Limitations

A number of limitations should be considered when interpreting the benchmarking results:

- **Data availability is limited.** For some dimensions, very limited public data is available, particularly in the areas of taxes received from the mining industry, direct employment created by the industry and the size of downstream and supply industries.
- **Some data may not be directly comparable.** For the Fiscal and Employment dimensions, limited data meant it was necessary to rely on different sources for some countries, meaning they may not be directly comparable owing to different definitions and assumptions made by publishers of the data.
- **Metrics may not reflect all aspects of a dimension.** In many of the dimensions, value has many aspects and the metrics do not always take this into account. For example, the Employment & Skills dimension for countries only measures the number of employees per dollar of mining production, and excludes their salaries, working conditions, etc.
- **Metrics only try to measure ‘direct’ value.** They do not include multiplier or diversification impacts.

Owing to these limitations, the benchmarking should be considered a work in progress and the Forum will continue to update it as more data becomes available.

It also highlights the need for better data in the industry overall, particularly in relation to the amount of taxes, royalties and dividends paid and received. This has been recognized by many organizations including the International Monetary Fund, Revenue Watch and EITI, and work is progressing in this area.



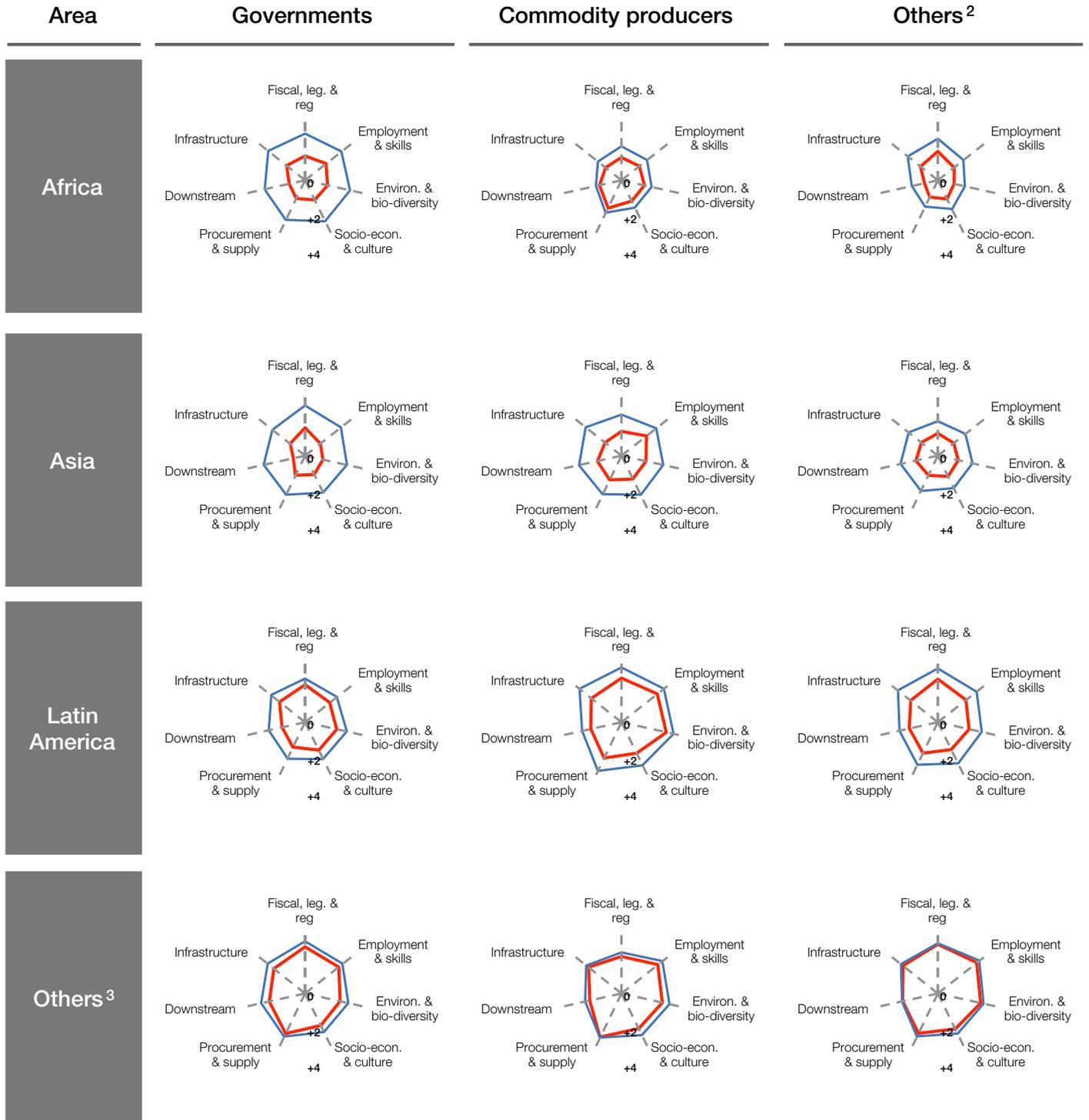
## Further Survey Results, Methodology and Respondent Details

## Further Survey Results

Exhibit 17 contains further results of the survey, showing respondents' perceptions of value today and in the future by stakeholder and region.

**Exhibit 17: Perceptions of Current and Potential Value Creation by Region and Stakeholder<sup>1</sup>**

Source: RMDI survey conducted between October 2012 and January 2013



**Key:**

- 0 – country ranks lowest in the world for value creation in this dimension
- 2 – average value creation in this dimension
- 4 – country ranks amongst the highest in the world for value creation in this dimension

- Perceived value today
- Expected future value (in 10 years)

<sup>1</sup> Respondents were asked to rate how much value was being created currently in each dimension for their stakeholder group, and the potential value in 10 years' time relative to other mineral-rich countries

<sup>2</sup> Stakeholder group 'Others' includes NGOs, academics, international agencies and local communities

<sup>3</sup> Includes respondents from Australia, North America and Europe

## Methodology and Respondent Details

### Timing

The survey was conducted between October 2012 and January 2013. An online questionnaire was sent out between December and January. Paper questionnaires were completed at RMDI workshops in October and November 2012.<sup>19</sup>

### Respondents

- Stakeholders: commodity producers (mining companies), governments and others (local communities, NGOs, academics, international agencies). The majority of respondents work in or are affected by the mining sector.
- Geographies: Asia, Latin America, Africa, other (North America, Australia, Europe).

## Survey Content

All respondents were asked:

- About their perceptions of value creation across the seven dimensions, in their country relative to other countries, today and in 10 years' time<sup>20</sup>
- To rank the dimensions in order of priority for them. Those who completed the paper survey were asked to identify the top two only

Online respondents were also asked:

- To identify if the largest areas for improvement in their top two priority dimensions were in the direct or multiplier/diversification areas
- To identify the top three "structural" and "enabling factors" for each of their top two priority dimensions

Exhibit 18: Respondents by Region and Stakeholder Group

	Governments	Commodity producers	Others <sup>1</sup>	Total
<b>Africa</b>	35	24	28	<b>87</b>
South Africa	1	11	7	19
Ghana	3	4	4	11
Guinea	1	2	4	7
Others	30	7	13	50
<b>Asia</b>	12	35	26	<b>73</b>
India	6	16	4	26
Mongolia	2	8	8	18
Others	4	11	14	29
<b>Latin America</b>	16	29	30	<b>75</b>
Peru	3	13	12	28
Chile	1	8	13	22
Others	12	8	5	25
<b>Other</b>	17	23	25	<b>65</b>
Canada	13	7	9	29
Australia	2	8	10	20
Others	2	8	6	16
<b>Total</b>	<b>80</b>	<b>111</b>	<b>109</b>	<b>300</b>

■ >20   ■ 11-20   ■ 0-10

1. Stakeholder group 'Others' includes NGOs, academics, international agencies and local communities

## Overview of Stakeholder Consultation

This research is the culmination of Phase III of the World Economic Forum's Responsible Mineral Development Initiative, launched in 2009. The three phases of the initiative have relied on extensive stakeholder consultation to source ideas and test concepts.

A list of these consultations is provided below:

### 2010

- Australia, country-specific interviews
- Brazil, country-specific interviews
- Chile, country-specific interviews
- Colombia, country-specific interviews
- Ghana, country-specific interviews
- India, India Economic Summit, November
- Lao PDR, country-specific interviews
- Liberia, country-specific interviews
- Mongolia, country-specific interviews
- Mongolia, RMDI roundtable, June
- Papua New Guinea, country-specific interviews
- Peru, country-specific interviews
- South Africa, country-specific interviews
- Tanzania, country-specific interviews
- United Arab Emirates, World Economic Forum Annual Global Agenda Council meeting, November

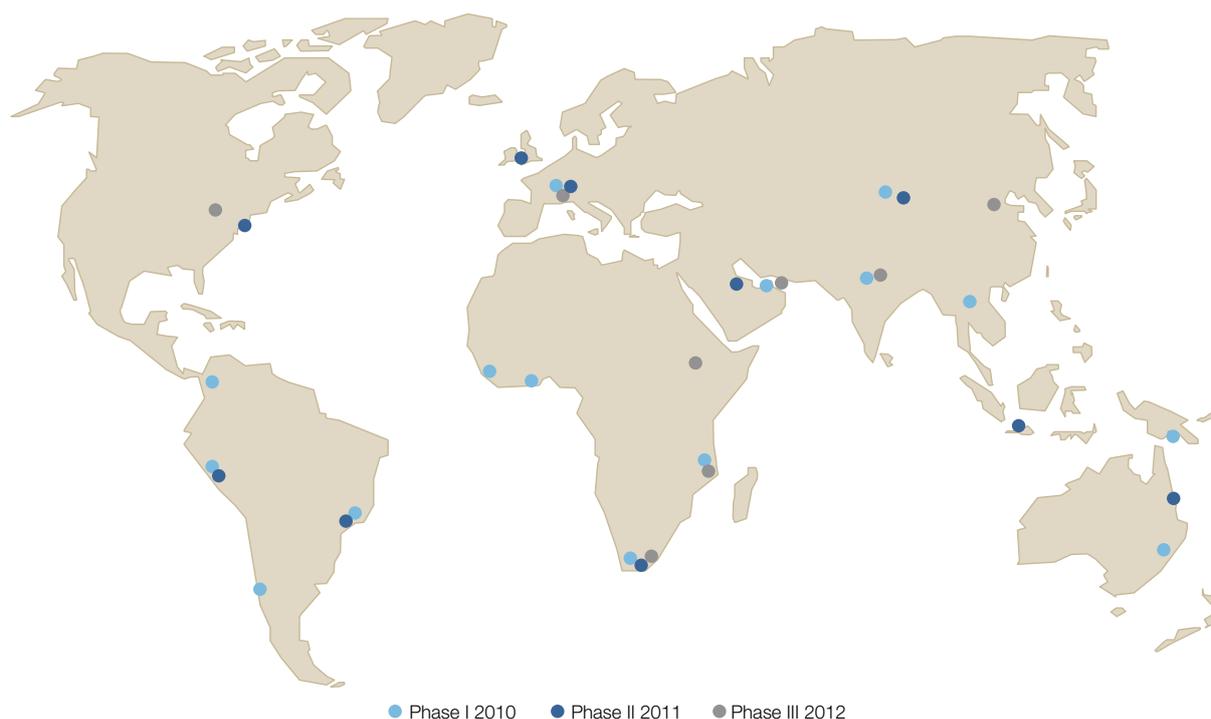
### 2011

- Australia, Sustainable Development Conference, October
- Brazil, World Economic Forum on Latin America, April
- Indonesia, Extractive Industries Transparency Initiative board meeting, November
- Indonesia, World Bank on Transparency Norms, November
- Indonesia, World Economic Forum on East Asia, June
- Mongolia, RMDI workshop, March
- Peru, RMDI workshop on Peru, December
- South Africa, RMDI workshop, February
- South Africa, World Economic Forum on Africa, May
- Switzerland, RMDI workshop at Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development, November
- United Arab Emirates, World Economic Forum Annual Global Agenda Council Meeting, October
- United Kingdom, International Council on Mining and Metals meetings, March and October
- United Kingdom, World Economic Forum Mining & Metals Strategy Meeting, November
- United States, RMDI workshop in collaboration with the World Bank, December

### 2012/13

- Ethiopia, RMDI, private event, World Economic Forum on Africa, May
- Switzerland, Mineral Value Management, workshop, Mining & Metals Strategy Meeting, October
- Ethiopia, Mineral Value Management in the African context, workshop, African Development Forum, October
- India, Mineral Value Management in India, private event, World Economic Forum on India, November
- Global survey on Mineral Value Management, online, November and December
- Switzerland, Mineral Value Management, private event, World Economic Forum Annual Meeting, January
- Canada, maximizing the Value of Extractives for Development, CIDA and World Economic Forum, March
- Peru, Mineral Value Management, private event and report launch, World Economic Forum on Latin America, April

Exhibit 19: RMDI Consultations



## Acknowledgements

The World Economic Forum thanks the members of the Mining and Metals Steering Board, the RMDI Advisory Group and the Global Agenda Council on Responsible Mineral Resource Management for their contribution.

### World Economic Forum Mining and Metals Steering Board 2012

- Tom Albanese, Chief Executive, Rio Tinto, United Kingdom (Chair)
- Cynthia Carroll, Chief Executive, Anglo American, United Kingdom
- Mark Cutifani, Chief Executive Officer, AngloGold Ashanti, South Africa
- Klaus Kleinfeld, Chairman and Chief Executive Officer, Alcoa, USA
- Patrice T. Motsepe, Founder and Executive Chairman, African Rainbow Minerals, South Africa
- Richard O'Brien\*, President and Chief Executive Officer, Newmont Mining Corporation, USA

*\*Also a member of the RMDI Advisory Committee*

### RMDI Advisory Committee

- Britt Banks\*, Adjunct Professor, University of Colorado, USA (Chair)
- Arlin Hackman, Senior Conservation Advisor, WWF-Canada
- Gavin Hayman, Campaigns Director, Global Witness, United Kingdom
- Huguette Labelle\*, Chair, Transparency International, Germany
- Kathryn McPhail, Director, Social & Economic Development, International Council on Mining and Metals, United Kingdom
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### Global Agenda Council on Responsible Mineral Resource Management

- Anthony Andrews, Principal, RMD - Responsible Mineral Development Consultants Inc., Canada (Vice-Chair)
- Jorge Bande, Member of the Board, Corporación Nacional del Cobre de Chile (CODELCO), Chile

- Britt D. Banks, Adjunct Professor, School of Law, University of Colorado, USA (Chair)
- Edwin Basson, Director-General, World Steel Association, Belgium
- Beatriz Boza Dibos, Chairperson, Ciudadanos al Día, Peru
- David Clarke, Vice-President, ArcelorMittal, Netherlands
- Stephen Desposito III, President, RESOLVE, USA
- Marketa D. Evans, Counsellor, Corporate Social Responsibility, Extractive Sector, Foreign Affairs and International Trade Canada, Canada
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- Bruce McKenney, Director, Strategy, Development by Design, The Nature Conservancy, USA
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- Jonathan Hobbs, Senior Adviser, Responsible Trade and Investment, WWF, Tanzania
- Paul Kapelus, Director, Synergy Global Consulting, South Africa
- Raphael Kaplinsky, Professor of International Development, The Open University, United Kingdom
- David Ovadia, Managing Director, BGS International, United Kingdom
- Yedwa Simelane, Senior Vice-President, Corporate Affairs, AngloGold Ashanti, South Africa
- Joseph Stiglitz, Professor, Columbia University, USA

In addition, acknowledgement and thanks go to all those who participated in meetings and workshops on RMDI in 2012-2013 and those who completed the Mineral Value Management Survey.

### From our Advisory Partner, The Boston Consulting Group (BCG):

- Amit Ganeriwala, Partner and Director, India
- Knutt Haanes, Global Head of Strategy, Partner and Managing Director, Switzerland
- Alex Koch, Partner and Managing Director, Australia
- Philip Krinks, Senior Adviser, United Kingdom
- John Linqvist, Senior Adviser, United Kingdom
- Grant McCabe, Partner and Managing Director, Australia
- Marco Di Marino, Senior Associate, Australia
- Lauren Davis, Consultant, USA

### In addition, the project team expresses its gratitude to the following World Economic Forum colleagues for their support throughout the project:

- Robert Greenhill, Managing Director, Chief of Business Officer, Centre for Business Engagement
- Margareta Drzeniek, Director and Senior Economist, Global Benchmarking Network
- Nadia Buhna, Team Coordinator, Mining & Metals
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## Acronyms and Overview of Exhibits

### List of Acronyms

- BCG The Boston Consulting Group
- FDI Foreign Direct Investment
- EITI Extractives Industry Transparency Initiative
- GCI Global Competitiveness Index (World Economic Forum)
- GDP Gross Domestic Product
- HIV Human Immunodeficiency Virus
- IADB Inter-American Development Bank
- ICMM International Council on Mining & Metals
- MDC Maputo Development Corridor
- MVM Mineral Value Management
- NGO Non-Governmental Organization
- RMDI Responsible Mineral Development Initiative

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<sup>2</sup> Dr Paul Jourdan, Co-author, African National Congress' State Intervention in the Minerals Sector report. Source: mineweb.com, June 2012

<sup>3</sup> World Economic Forum Mining & Metals Strategy Meeting, October 2012

<sup>4</sup> Based on data collected for Fiscal, Legal & Regulatory Benchmarking Analysis in Phase III

<sup>5</sup> Based on data collected for Employment & Skills Benchmarking Analysis in Phase III

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<sup>7</sup> Example: Rio Tinto has made a public commitment to biodiversity conservation and a goal of having a “net positive impact” on biodiversity. See <http://www.riotinto.com/documents/ReportsPublications/RTBiodiversitystrategyfinal.pdf>

<sup>8</sup> Aurecon, Mining Infrastructure from Pit to Port

<sup>9</sup> Refer to ‘The Global Competitiveness Report 2012-13’ page 10 for full listing of countries by stage of development ([http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2012-13.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2012-13.pdf))

<sup>10</sup> Refer to ‘The Global Competitiveness Report 2012-13’ page 8 for further details ([http://www3.weforum.org/docs/WEF\\_GlobalCompetitivenessReport\\_2012-13.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2012-13.pdf))

<sup>11</sup> We acknowledge that in some cases causality between public institutions and FDI may be reversed (i.e. increased FDI leads to improved public institutions)

<sup>12</sup> Morris M, Kaplinsky R, Kaplan D, “One Thing Leads to Another – Making the most of the Commodities Boom in Sub-Saharan Africa”. Downloadable at: <http://tinyurl.com/CommoditiesBook>

<sup>13</sup> World Economic Forum Annual Meeting, Mining & Metals Private Meeting, January 2013

<sup>14</sup> Faostat.org

<sup>15</sup> Alliance Research, Rubber Glove sector initiation Feb 2012

<sup>16</sup> MCLI official website (<http://www.mcli.co.za/index.htm>); Campbell M, Maritz J, Hauptfleisch D “The Impact of the Maputo Development Corridor on Wealth Creation Within the Region it Serves”, University of the Free State and the CSIR Built Environment; University of Cape Town “Institutional Aspects of the Maputo Development Corridor” 2001; African Sociological Review – “The impact of regional integration initiatives and investment in a southern African cross border region: The Maputo Development Corridor”, 2008

<sup>17</sup> BHP Billiton Ltd “Sustainability Report 2011 Case Studies”, 2011; Chilean Economic Development Agency “Mining Cluster in Chile”; ICMM (2007) Chile – the Challenge of Mineral Wealth; Company sources; BCG

<sup>18</sup> A specific limitation of the country “Fiscal, legal and regulatory” dimension was data on the amount of tax, royalties and dividends paid to the government by the mining industry. In many cases the data were available for 1-2 years, meaning that the amounts received may not be representative for the entire mining cycle

<sup>19</sup> Workshops where the survey was conducted: Mining & Metals Strategy Meeting, Geneva, 18 October 2012 (59 respondents); RMDI Private Meeting, African Development Forum, Addis Ababa 22 October 2012 (8 respondents), RMDI Private Meeting, World Economic Forum on India, 8 November 2012 (22 respondents)

<sup>20</sup> The paper questionnaire asked stakeholders about the six dimensions of value, with the environment and social dimensions combined. Based on consultation, these dimensions were subsequently split, resulting in seven dimensions. To include the paper survey results as part of the overall survey, the following steps were taken (i) the current and future scores were assumed to be the same between the environment and social dimensions (ii) the number of responses where the environment/social dimension was among the top-two priorities were split based on the proportion of times the two dimensions were nominated among top-two priorities in the online survey (broken down by stakeholder and region)







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