



## Tracking the trends 2011

The top 10 issues  
mining companies will  
face in the coming year

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“Over the past 18 months, the axis of the world has shifted. As demand grows from emerging economies, the flow of commodities increasingly is moving to non-OECD nations. At the same time, national concerns over security of supply are shutting down some traditional supply markets. This is doing more than affecting commodity prices; it’s also changing the way mining companies do business.”

Philip Hopwood, Deloitte Touche Tohmatsu Limited Global Mining Leader, Melbourne, Australia

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# It's a small world after all

Surging commodity prices. Labour shortages. Demand that outstrips supply. If you close your eyes, you can almost imagine that we are back in the heyday of the mining boom. Today's demand drivers, however, are significantly different than they were in the past – and mining companies need to change the way they pursue growth if they hope to keep pace.

In some ways, the story starts with China's voracious appetite for commodities – but it does not end there. The rapid expansion of a middle class across India and throughout Asia, Latin America and Eastern Europe is also fuelling considerable demand. According to the International Monetary Fund (IMF), the share of emerging and developing economies in world GDP in terms of purchasing power parity (PPP) is expected to overtake advanced economies by 2014. More than simply shifting the flow of international capital, this is also shifting the ways in which commodities flow over international borders.

In an attempt to meet burgeoning domestic requirements, many emerging market economies continue to curtail commodity exports. At the same time, countries like China have stepped up investment in the global mining sector to secure supply. Eager to benefit from this uptick,

some governments are taking steps to nationalize the mining industries in their countries, or at least impose new taxes and royalties to bolster revenues. These trends, combined with ongoing resource constraints and difficulty obtaining new permits, are creating a supply shortage that challenges mining companies to rethink their operational strategies.

To meet escalating demand, some mining companies are attempting to grow through acquisition (with varying degrees of success). Others are expanding farther afield, to more hostile geographic and geopolitical environments. As mining companies pursue these increasingly global agendas, they are also finding themselves cast in uncommon roles – as community builders, infrastructure operators and sentinels of sustainable development.

The Deloitte global network of member firm mining professionals compiled this 2011 edition of *Tracking the trends* with these issues in mind. Like previous years, we identify the top ten issues we believe will influence the mining sector most in the coming year. We hope this report will provoke discussion, contemplation and a clearer articulation of your strategic direction over both the short- and long terms.

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**“Although the developing economies’ voracious appetite for commodities is sending demand signals to the mining industry, these are being muffled by the difficulties of obtaining permits for new mines and finding skilled labour. As a result, commodity prices will increase steadily over the long term while volatility rises in the short term.”**

Glenn Ives, North American Mining Leader, Vancouver, Deloitte Canada

# 1

## The fickle face of financing International investment fuels the sector

Not many hangovers last several years, but the lingering effects of the global financial crisis may just be the exception that proves the rule. This is particularly true for those mining companies that fell victim to the associated dearth of debt and equity financing. To shore up balance sheets and prevent funding crises, many companies halted operations, cut back on production and instituted other – often onerous – cost-cutting measures.

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“While capital shortages still exist worldwide, they increasingly are being plugged by Chinese investment. As other growing countries, like India and Japan, begin to feel their own population and infrastructure pressures, they are likely to seek more strategic positions in the world’s mining companies as well.”

Reinhard Arndt, Partner, Deloitte CIS Moscow, Russia

Now that the dust has settled, the companies that remain standing tend to be leaner – and meaner. Yet financing remains a dicey proposition, even for the strong players. In particular, project finance is being provided largely by the resource-hungry nations of North Asia – China, Korea and Japan – and is frequently attached to offtake

obligations. Traditional lenders in many developed nations have either abandoned the mining industry or continue to impose commercially-unviable terms. While some private equity firms and pension funds have been eying the sector, few are stepping forward with firm financing commitments. Even major companies have had to enter strategic partnerships in a bid to finance new projects.

Despite these altered fundamentals, mining sector growth continues apace, supported by the entrance of new financiers, including Asian buyers and sovereign wealth funds. Hungry for the commodities necessary for infrastructure construction – including copper, coal, iron ore and aluminum – China in particular is investing heavily in mines across Canada, South America, Australia, central Europe and Africa. More recently, Japan proposed setting up a sovereign wealth fund to invest more actively in overseas natural resources, including rare earth minerals.

These aggressive steps to secure supply have sparked a surge of M&A activity across the sector. According to data company Dealogic, natural resource companies (including miners, oil and natural gas producers and fertilizer makers) launched US\$316 billion in M&A deals between January and August 2010, putting the industry on course to beat its annual record of US\$384 billion, set in 2006.<sup>1</sup>

While this industry activity is igniting debate regarding the political implications of shifting commodity flows, it unquestionably comes as welcome relief to mining companies that remain predominantly agnostic about where their product goes. This means governments must articulate clear policies regarding these potential acquisitions sooner rather than later.

<sup>1</sup> Financial Times, August 20, 2010. “Resource demand spurs M&A deal surge”, by Javier Blas and William MacNamara. Accessed at [www.ft.com/cms/s/0/6d2c71b8-ac81-11df-8582-00144feabdc0.html](http://www.ft.com/cms/s/0/6d2c71b8-ac81-11df-8582-00144feabdc0.html) on October 12, 2010.

### China looks outward for mining M&As

While much of the world was hunkered down, waiting for recent economic storms to pass, Chinese acquirers were looking at foreign mining targets. In 2009 alone, the country entered a record-breaking 33 deals, worth US\$9.2 billion. According to a recent report by Deloitte China, *Mining for Growth: A Review of Outbound Mining M&A Activity from China*, 73% of Chinese companies expect the pace of deal-making to continue unabated.<sup>2</sup>

Although this M&A activity may seem frenzied, it actually makes sense in the context of China's pace of growth. According to JP Morgan, China will have US\$16.4 trillion in aggregate domestic savings by the year 2020. If the country deploys only 5% of those cash reserves abroad, it will invest over US\$822 billion in international markets each year.<sup>3</sup>

Within the mining sector, new acquisitions are fuelled predominantly by the need to secure supplies of commodities. Although Chinese commodity demand has dipped slightly in recent months, the country's insistent growth promises to spark new deals. Even in traditional areas of domestic strength, such as coal, China is a net importer – and this has changed the game. Adding to the demand picture, Japan and Korea import nearly all their mineral requirements. In addition to constraining international supplies, this has also affected commodity prices – particularly in light of China's out-sized negotiating power. The only question that remains is where those stores of capital will be deployed. While Chinese acquirers traditionally have targeted mining assets in Australasia, Asia and the Americas, Africa is more likely to witness strong outbound activity going forward.

For many mining companies, this ongoing trend dictates a growing imperative to understand their underlying value drivers so they can be positioned to attract fair value should the Chinese – or other acquirers – come calling.

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“China today is the 800-pound gorilla in the room. Thanks to its ability to influence demand and control the market, the country is beginning to influence global commodity prices. Mining companies must determine – both individually and collectively – how they want to respond.”

Jeremy South, Deloitte Touche Tohmatsu Limited Global Leader,  
Mining M&A, Beijing, China



<sup>2</sup> Deloitte Touche Tohmatsu CPA Ltd., August 2010. "Mining for Growth: A Review of Outbound Mining M&A Activity from China"

<sup>3</sup> Global Intelligence, April 14, 2010. "Tidal wave of M&A activity expected from China in 2010 and beyond". Accessed at [www.globalintelligence.com/insights-analysis/bulletins/tidal-wave-of-m-a-activity-expected-from-china-in-/](http://www.globalintelligence.com/insights-analysis/bulletins/tidal-wave-of-m-a-activity-expected-from-china-in-/) on October 12, 2010.

# 2 When supply can't match demand Volatility is the new normal

As mining executives are well aware, Apple's latest iPhone is not the only product dealing with international demand outstripping its supply. As emerging economies around the globe continue their rapid industrialization, demand for commodities has sky-rocketed. This has served to keep commodity prices at least steady or rising on everything from coal, copper and iron ore to gold, silver and rare earth metals.

To exacerbate the challenge, numerous countries are taking steps to safeguard their own supply by curbing the export of natural resources. In 2010 alone, Russia reduced coal exports, India increased its export duty on iron ore and China cut back exports of rare earths.

Typically, mining companies would respond to this simultaneous rise in demand and fall in supply by ramping up production. The problem is that market forces today are far from typical. Due to governmental intervention in the mining industry, companies are struggling to obtain new permits and licences. Coupled with inadequate infrastructure and a dearth of skilled talent, it has become exceptionally difficult for companies either to build new mines or to expand existing mines to boost available supplies. As a result, prices continue to rise and are being passed on to end-use consumers who have no choice but to pay.

To remove these bottlenecks, some mining companies are looking at ways to access reserves from non-traditional locations – such as Mozambique, Botswana and Mongolia. To succeed in these emerging markets, however, mining companies need larger than average portfolios.

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**“As the economy continues to recover, demand will continue to rise. Normally, mining companies would respond by increasing supply, but ongoing difficulty obtaining permits is dragging out the process. This mismatch between supply and demand is exacerbating price movements and contributing to continued volatility.”**

Nivan Moodley, Mining Lead Consulting, Deloitte Singapore



# 3

## Securing a social license Engaging stakeholders takes centre stage

Mining is a disruptive business. Whether it takes place in developed nations or emerging economies, mining activities affect local communities in myriad ways. Given these realities, it's no surprise that mining companies typically put considerable advance thought into a range of social issues – from land use, water use and environmental performance to worker safety.

Yet this advance planning has had to expand radically in recent years. As mining companies move into regions ever more remote, they find themselves cast in the role of providers of such basic community services as water, electricity, health and education. In addressing these expectations for sustainable development, companies are coming to realize that they must do more than ensure appropriate mine safety and environmental controls. They must also engage with key stakeholders at every stage of the mining lifecycle – from exploration, mine development and operation to closure, post-closure and future land use.

While the concept of integrating sustainability into operational and strategic approaches is not new, it remains difficult to accomplish. To succeed, companies must go beyond simply measuring their environmental impacts in areas such as air quality, climate change, water consumption, greenhouse gas emissions, waste and land reclamation. They must also begin to:

- Measure their social impact – from community engagement and community investment to human rights and employee involvement;
- Extend their health and safety processes beyond incident reporting to issues such as occupational illnesses and community health (including HIV and malaria);
- Enhance their product stewardship by understanding the impacts of their product, material and resource use and conducting lifecycle assessments;
- Promote socio-economic health by fostering local suppliers, making economic contributions and maintaining transparency in their payments to local governments; and
- Adhere to best practices in their disclosures, communications and reporting.

Increasingly, these mandates require mining companies to engage with key stakeholders as early as possible. By bringing representatives of non-governmental organizations (NGOs) and environmental groups into the boardroom, mining executives gain the opportunity to address common concerns before they spiral out of control. By negotiating with local communities at the exploration stage, they can also avert potential challenges when they seek to expand or close their mines. By encouraging collaboration, this type of engagement promises to deliver long-term sustainable advantages – positioning local communities to plan for future land use after mine closure while granting mining companies the social license they need to operate.

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**“Local communities have heightened expectations from today’s mining companies. To avert potential crises and protect their investments, it is essential for companies to build strong bonds with both central and regional governments, and local community constituents.”**

Hector Gutierrez, Partner, Deloitte LATCO Lima, Peru



# 4 New taxes, new regulations and new governments

## Political agendas to the fore

Given their sector's global footprint, it's little surprise that political gyrations have long had a bearing on mining companies. Yet, over the past year, government intervention appears to have reached new heights. Five primary agendas are driving this intensified activity:

### Plugging government deficits

In the wake of the global financial crisis, governments around the world are experiencing significant budget deficits brought on by the massive infusions of capital they have had to inject locally to avert economic meltdown. To recoup these losses, many countries have begun to impose new taxes and royalty fees on the mining sector. While the controversial Australian tax proposals have garnered much press, other countries have quietly imposed new levies of their own, including Chile, South Africa, Zambia, Tanzania and Burkina Faso.

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**“In the past year, Australia has seen substantial changes in its tax regime and legislative environment. This invites the question of how other countries around the world will respond. Governments are already taking note of what is happening and may proceed down similar paths.”**

Tim Richards, National Mining Lead, Perth, Deloitte Australia

### Asserting nationalistic claims

Beyond simply imposing new taxes, government intervention is also being used as a way to assert nationalistic and competitive claims. This predilection was highlighted strongly toward the end of 2010, when the Canadian government quashed BHP Billiton's bid for Potash Corp. and when opposition from regulators in Europe, Australia and Asia impelled BHP Billiton and Rio Tinto to dissolve their planned iron ore joint venture in Western Australia.

### Fighting corruption

While the flow of money to government coffers increases, some countries are attempting to stem the flow of money to potentially corrupt government officials. In the UK, a new Bribery Act supports a “zero-tolerance approach” towards companies that offer inducements to foreign governments in return for preferential treatment.

### Promoting transparency

The new Dodd-Frank Wall Street Reform and Consumer Protection Act in the U.S. requires all U.S. and foreign companies registered with the SEC to publicly report how much they pay governments to access their oil, gas and minerals. It also requires SEC-reporting companies to disclose whether their products use ‘conflict minerals’ originating from the Democratic Republic of Congo and nine surrounding countries. The practical applications of these regulations can be far-reaching. Beyond potentially requiring mining companies to disclose the pricing details contained in confidential contracts they hold with foreign governments, these regulations can affect supply chains for many mining and manufacturing companies. In addition to adding to the corporate regulator burden, this could impel some foreign governments to favour transactions with companies not subject to similar disclosure requirements.

### Championing environmental change

As new governments come into power in large resource countries, including Australia and the UK, they are increasingly advocating more stringent environmental enforcement. While not targeted directly at the mining sector, legislative requirements that continue to mandate the reduction of greenhouse gas emissions, water consumption and energy use ultimately will have an out-sized impact on a range of traditional mining activities.





### New regulations take a toll

Throughout 2010, numerous countries have taken steps to protect their sovereign assets by imposing new resource taxes and royalties, forming national resource entities and tightening their permitting practices. Here's a quick overview of just some of those developments:

#### April

- Tanzania increases the royalty rate on minerals like gold and requires the government to own a stake in future mining projects.

#### May

- South Africa introduces a new Royalty Act based on profit, rather than value extracted.
- Australia proposes a new mining tax that could impose levies of up to 40% by 2020.

#### July

- Australia scraps its proposed Resource Super-Profit Tax in favour of a new Mineral Resource Rent Tax (MRRT) to apply to coal and iron ore extraction, and expands its Petroleum Resource Rent Tax (PRRT) to cover all onshore and offshore extraction of gas, oil and coal seam methane.

#### August

- An uncertain outcome to Australia's election creates confusion around the fate of the mining tax.
- Indonesia enters talks with mining companies to try to adjust existing contracts in an attempt to boost government revenue.

#### September

- South Africa's ruling African National Congress (ANC) decides to further research the nationalization of mines.

#### October

- Chile imposes a new royalty scheme on copper producers that is set to rise to 14% by 2018.
- Zambia announces that tax revenues collected from the mining industry greatly exceed forecasts, with record collections of ZMK 503 billion (US\$106 million) in the first ten months of the year. Projections for 2011 are higher.

#### November

- Canada blocks BHP Billiton's bid for Potash Corp.

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“Governments are taking a more active role in the way they provide access to national assets. Difficulty obtaining permits, negotiating transactions and maintaining mining licences is making it both more difficult and more costly to access resources.”

Neven Gradon Hendricks, Partner, United Arab Emirates, Deloitte Middle East

# 5

## How to invest more strategically

### Hint: You'll need a long-term plan

It's hard to believe that, barely two years ago, a large proportion of mining companies were financing growth on the back of debt. As credit markets melted down and capital became increasingly scarce, mining companies found themselves caught between the proverbial rock and hard place. To extricate themselves from these compromising cash positions, companies took drastic measures – divesting non-core assets, renegotiating lending terms, halting production and adopting rigorous cost cutting programs.

Roughly 18 months later, those efforts have paid off. Thanks to improved operational efficiencies, mining companies today are leaner, meaner and frequently cash-rich. Oddly, this raises a relatively new concern: how to deploy available capital effectively. Some companies are rising to the challenge and forging ahead with projects previously considered marginal. Others are debating returning excess capital to shareholders. And still others have launched a spate of renewed M&A transactions, most evidently highlighted by BHP Billiton's failed US\$40 billion bid for Potash Corp.

Notably, this current environment is acting as a type of wake-up call for mining companies that, until now, have failed to articulate their value propositions clearly. Faced with the potential for hostile takeover activity, companies have discovered that their notional valuations may not properly reflect their true underlying value.

This realization should impel mining executives to take a good, hard look at their portfolios, processes and plans. To make informed investment decisions, it is essential to articulate a long-term strategy that takes into account key performance indicators, emerging market forces and a range of potential future scenarios. Companies must take steps to lock-in their hard-earned cost reductions, while still allocating appropriate funds to expand production pipelines, finance growth and manage existing projects through their entire lifecycle. Absent this type of strategic thinking, the lessons of recent years may be all for naught.



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“A fascinating thing happened in the wake of recent takeover attempts. As mining companies began to review their operations from a continuous improvement standpoint, many realized that they lacked a clear picture of their underlying value drivers. To ensure strategic investment on a go-forward basis, they should adopt more sophisticated decision-making processes.”

John Woods, Partner, London, Deloitte UK

# 6

## The lost generation The war for talent rages on

You can't fight demographics. In developed nations around the world, workforces are aging, and sectors experiencing steady growth simply cannot replace retiring workers fast enough. In Canada, the Mining Industry Human Resources Council (MIHRC) estimates that over 60,000 people employed in the mining sector are expected to retire by 2020.<sup>4</sup> In Australia, the Institute of Public Affairs notes that the country's aging population will create a labour shortage of 195,000 workers by 2012.<sup>5</sup> In South Africa, executive search firm Landelahni found that the average age of mining professionals is 50 to 55 years.<sup>6</sup> And in the U.S., the Society of Mining Engineers found that over 58% of industry members were already over the age of 50 back in 2005.<sup>7</sup>

As the mining industry ramps back up in response to growing demand, talent shortages will become more pronounced. By 2020, the Minerals Council of Australia says the industry there will need an additional labour force of 58,000 people to maintain current levels of production.<sup>8</sup> In Canada, the MIHRC says that number could be as high as 100,000.<sup>9</sup>

Although other industries face similar levels of retirement, they often have large pools of skilled labour from which to draw. In mining, however, low participation in the sector over the past several decades has left a serious talent gap. While there are older workers wrapping up their careers, and younger workers attracted to the industry thanks to its growth prospects, there is a noticeable lack of experienced middle managers. This is true even in developing nations. While countries like India and Russia have higher levels of graduation in professions such as engineering, graduates are more likely to migrate to higher-profile vocations (like information technology) rather than to the mining sector.

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**“In its most extreme iteration, geographies like western Australia are flying people thousands of miles to their workplace. This means skilled workers can change employers by simply getting on a different flight. This exceptional mobility gives skilled labour great bargaining power and mandates companies to think more creatively about talent retention.”**

Coenrad Alberts, Director, Johannesburg, Deloitte Southern Africa

To be sure, mining executives have taken strides to draw new workers to the industry, to enter partnerships with educational institutions and to encourage higher levels of migrant or temporary employment. Yet none of these activities serves to attract the coveted 30- to 50-year-old generation. As the talent gap widens, mining companies will need to get more aggressive about talent retention by better engaging these key employees. Given the exceptional mobility of today's skilled labour, mining companies will need to innovate. Customized work arrangements, encouraging internal transfers instead of exits and offering more formal coaching are just some of the ways companies can begin to re-engage this lost generation.

<sup>4</sup> Mining Industry Human Resources Council, 2010. Accessed at [www.mininghrforecasts.ca/en/labourmarketinformation/Key\\_Findings.asp](http://www.mininghrforecasts.ca/en/labourmarketinformation/Key_Findings.asp) on October 13, 2010.

<sup>5</sup> Mining Technology Australia, 2010. "Beating the talent gap", by Sabine Leroy. Accessed at [www.miningtechnologyaustralia.com.au/skills-shortage](http://www.miningtechnologyaustralia.com.au/skills-shortage) on October 13, 2010.

<sup>6</sup> Mining Weekly, March 12, 2010. "Mining skills shortage to be more acute by 2020", by Jonathan Faurie. Accessed at [www.theaureport.com/pub/na/5824](http://www.theaureport.com/pub/na/5824) on October 13, 2010.

<sup>7</sup> Sic

<sup>8</sup> Mining Technology Australia, 2010. "Beating the talent gap", by Sabine Leroy. Accessed at [www.miningtechnologyaustralia.com.au/skills-shortage](http://www.miningtechnologyaustralia.com.au/skills-shortage) on October 13, 2010.

<sup>9</sup> Mining Industry Human Resources Council, 2010. Accessed at [www.mininghrforecasts.ca/en/labourmarketinformation/Key\\_Findings.asp](http://www.mininghrforecasts.ca/en/labourmarketinformation/Key_Findings.asp) on October 13, 2010.

# 7

## At the end of the rainbow Maintaining the search for that elusive pot of gold

Mining companies are no strangers to the global competition for resources. Yet even by industry standards, comfort zones are being breached. In search of quality assets, mining companies have extended their reach to some of the world's most precarious regions, including Mongolia, Guinea, the Democratic Republic of Congo, Mauritania and Afghanistan.

To be sure, geographic expansion is not the only risky proposition mining companies are undertaking in their quest for growth. For example, some companies have picked up activity around their dumps in an effort to extract a greater percentage of metals and minerals. Others continue to explore the feasibility of cutting-edge mining – under ice, under water or within volcanic sulphur mines.

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**“Ongoing currency weakness suggests that commodity prices will continue to trend higher. This will likely impel mining companies to revisit marginal projects and expand to increasingly remote geographies.”**

Jürgen Beier, Partner, Toronto, Deloitte Canada

This activity has two primary drivers: market demand and boundless optimism. Market demand is at least partially responsible for recent initiatives to replace the supply of rare earth metals following China's decision to cut its rare earth export quota by 72%. Although China currently produces 97% of the world's supply of rare earths – used by the automotive, healthcare, aerospace, defence and consumer electronics industries – the U.S. Geological Survey estimates that Chinese resources account for only 58% of the world's total supply.<sup>10</sup> In response, mining companies have already started development of new rare earth projects in the U.S., Canada, South Africa, Vietnam and Greenland.

Industry optimism, meanwhile, is fuelled in part by ongoing technological innovation. Rio Tinto's new operations centre in Perth provides a case in point. Opened in June 2010, the centre allows 200 controllers and schedulers, and more than 230 technical planning and support staff, to control mining operations in Pilbara from more than 1,500 kilometers away.<sup>11</sup> Innovations like these do more than enhance industry safety and employee satisfaction. They also suggest a new way to manage risk as mining companies continue to wander farther afield.

<sup>10</sup> Proactive Investors, October 12, 2010. “Rare earth elements: the seventeen metals crunch”, by Jackie Steinitz. Accessed at [www.proactiveinvestors.com.au/companies/news/10742/rare-earth-elements-the-seventeen-metals-crunch-10742.html](http://www.proactiveinvestors.com.au/companies/news/10742/rare-earth-elements-the-seventeen-metals-crunch-10742.html) on October 13, 2010.

<sup>11</sup> Business Review Australia, June 26, 2010. “Rio Tinto unveils new Operations Centre in Perth”, by M. McNamara. Accessed at <http://www.businessreviewaustralia.com/sectors/mining-and-aggregates/rio-tinto-unveils-new-operations-centre-perth> on October 13, 2010.

# 8 A tough environment

## Climate change disclosure and adaptation are getting harder

Volcanic activity, earthquakes, droughts and floods are just some of the natural events that have a dramatic impact on the mining industry. And those impacts are set only to rise, compounded by a changing climate, water scarcity, land degradation and declining biodiversity.

Due to these trends, regulators, investors and other key stakeholders increasingly expect heightened disclosure. In the absence of global reporting standards, this creates a significant challenge for mining companies. The failure of the Copenhagen Accord to set clear targets for the international reduction of carbon emissions has left individual countries or groups of countries to create regional and domestic schemes of their own. As a result, literally hundreds of climate change regulations and policies now exist internationally.

This means it is not outside the realm of possibility for one global mining company to have to report under the different schemes already released by Australia, the European Union, the U.S. and the Western Climate Initiative – among others. Additional guidelines also exist for voluntary reporting. Beyond the International Council of Metals & Minerals' (ICMM) ten principles, the Global Reporting Initiative (GRI) released a new mining sector supplement that includes expanded reporting requirements in the areas of biodiversity; emissions, effluents and waste; labour; indigenous rights; community; and resettlement. Companies that report under the Carbon Disclosure Project (CDP) will see their results displayed publicly on Bloomberg's terminals, on Google Finance and beyond. And that's just for carbon. The CDP also has launched a pilot water disclosure project in which at least one mining company is participating.

Despite the complexity of this regulatory environment, it is only half the story. Beyond measuring and reporting on environmental impacts, mining companies must also address climate change in the context of their overall enterprise risk management programs. From torrential rains and winter storms to population growth and water shortages, shifting climatic conditions introduce new business risks. To adapt effectively, companies must integrate environmental risk assessments into their overall risk management framework.



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**“As mining companies struggle to respond to mounting environmental challenges, one thing is certain: lowering your standards is not an option.”**

Valerie Chort, Partner, Toronto, Deloitte Canada



## Working with no backbone Inadequate infrastructure hampers growth

It can seem sometimes like the worldwide infrastructure shortage is targeted directly at the mining sector. After all, mines simply cannot operate without access to adequate transportation, and secure supplies of both water and energy. Seen in its larger context, however, it becomes clear that inadequate infrastructure stands to affect businesses in virtually every sector and individuals in all walks of life.

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### Some mining companies are exploring ways to help build out core infrastructure in the locations where they operate.

According to the American Society of Civil Engineers, there is a US\$2.2 trillion gap between supply and demand for roads and bridges, water and sewage systems, public transit systems and other public infrastructure.<sup>12</sup> In Australia, construction consultancy Davis Langdon puts the total required infrastructure investment at US\$3.87 trillion by 2050.<sup>13</sup> To relieve India's congested airports, poor roads, insufficient power and delays at ports, the Finance Minister estimates that the country will need over \$500 billion in investment by 2012.<sup>14</sup> All in all, Merrill Lynch forecasts that US\$6 trillion is required in global infrastructure investment over the next three years – with 80% of it invested in the BRIC countries (Brazil, Russia, India and China).<sup>15</sup>

Many government stimulus packages introduced following the global financial crisis tried to allay some of these concerns. Last year, the European Union committed more than US\$200 billion to infrastructure, India invested roughly US\$30 billion and China allocated half of its US\$585 billion stimulus package to infrastructure renewal.<sup>16</sup> Yet, it will be decades before key industries like mining will begin to reap the benefits of these investments.

In the interim, financial losses are mounting. According to the African Business Frontier report of May 2009, it can take up to three weeks to transport copper from its source in the Copperbelt region to the Port of Durban. Trucks transporting goods can take up to ten days to pass through border posts. And a week's delay for a trainload of copper can cost up to \$16,000 in interest charges alone.<sup>17</sup>

To address these critical infrastructure gaps, some mining companies are exploring ways to help build out core infrastructure in the locations where they operate. They are entering partnerships to construct railways and ports, investing in power plants to secure the supply of electricity and evaluating investments in sources for alternative energy generation. While these solutions introduce risks of their own, many mining companies find themselves choosing between the lesser of several evils.

<sup>12</sup> *Financier Worldwide*, April 2010. "The rise and rise of global infrastructure investment", by Claire Spencer. Accessed at [www.financierworldwide.com/article.php?id=6419](http://www.financierworldwide.com/article.php?id=6419) on October 14, 2010.

<sup>13</sup> *Property Australia*, September 10, 2010. "The cost of a big Australia", by Chris Larsen. Accessed at <http://www.propertyoz.com.au/Article/NewsDetail.aspx?p=56&mid=1685> on October 14, 2010.

<sup>14</sup> *Financier Worldwide*, April 2010. "The rise and rise of global infrastructure investment", by Claire Spencer. Accessed at [www.financierworldwide.com/article.php?id=6419](http://www.financierworldwide.com/article.php?id=6419) on October 14, 2010.

<sup>15</sup> Merrill Lynch Global Research, 2010. "Emerging market infrastructure set to drive demand for commodities". Accessed at [www.dailymarkets.com/economy/2010/10/05/emerging-market-infrastructure-set-to-drive-demand-for-commodities/](http://www.dailymarkets.com/economy/2010/10/05/emerging-market-infrastructure-set-to-drive-demand-for-commodities/) on October 14, 2010.

<sup>16</sup> Deloitte Research, August 19, 2010. "The changing landscape for infrastructure funding and finance". Accessed at [www.deloitte.com/assets/Dcom-Global/Local%20Assets/Documents/Public%20Sector/dtt\\_ps\\_infrastructurefunding\\_190810.pdf](http://www.deloitte.com/assets/Dcom-Global/Local%20Assets/Documents/Public%20Sector/dtt_ps_infrastructurefunding_190810.pdf) on October 14, 2010.

<sup>17</sup> *Mining Weekly*, November 6, 2009. "Inadequate infrastructure restrains development". Accessed at <http://www.miningweekly.com/article/inadequate-infrastructure-restrains-development-in-africa-2009-11-06-1> on October 14, 2010.



# 10 Rethinking industry fundamentals

## Exploring new revenue opportunities

In the corporate world, there is a fine line between remaining focused on core competencies and remaining open to new ideas. This is especially relevant to mining companies as industry dynamics shift. Although the business of mining itself has stayed fundamentally unchanged over time, the context in which mining companies operate has shifted radically. Today, companies must contend with a slate of new issues that never existed in the past – particularly in the context of pending water shortages, energy shortages and the need for enhanced environmental stewardship.



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“As part of their long-term strategy, it is important for mining companies to think laterally in an effort to identify untapped revenue opportunities.”

Debbie Thomas, Partner, London, Deloitte UK

Although these issues raise new risks, they also present new opportunities for companies willing to think creatively. Here are just some of the ways mining companies can turn current risks into rewards:

- **Turn coal into carbon offsets.** Today’s cap and trade markets allow enterprising companies to earn a new stream of revenue through the sale of carbon offsets. Beyond reducing carbon emissions below business-as-usual levels, mining companies may be able to sell certain by-products, such as coal mine methane, on cap and trade markets.
- **Provide the energy of the future.** New technologies now allow generating stations to control carbon emissions and costs by switching between coal and gas – suggesting potential new synergies between the mining and energy sectors. Similarly, anticipated future reliance on nuclear power generation may benefit mining companies capable of supplying uranium over the long term.
- **Invest in renewables.** Mining companies struggling to secure reliable energy supplies internationally can benefit by investing in renewables. By generating thermal, wind or solar power, for instance, mining companies can secure energy supply, benefit local communities by transferring facility ownership post-closure and qualify for financial incentives under available clean development mechanisms.
- **Recycle waste.** Waste recycling plants play a critical role for mining companies committed to reducing their environmental footprint by effectively treating their tailings, effluents and waste water. At the same time, emerging technologies also may help companies recover resources from these types of residues and sludge.



# From there to here

## Questions to ask as you develop your strategy

Mining executives already know there is no straight-line solution to the challenges they face. However, as the world gets smaller and corporate footprints get larger, mining companies must have a clearly articulated plan for the future that takes critical emerging trends into account. To accomplish this effectively, you need to know what questions to ask. This checklist can help you get started:

### The fickle face of financing

- Do you have a firm handle on the quality of your earnings and the nature of your costs?
- Are you positioned to attract the financing you need to support your operational goals? On what terms?
- On what basis do you plan to compete for capital?

### When supply can't match demand

- Does your operating model give you the flexibility you need to ramp up or down in response to shifting demand drivers?
- Do you understand future global demand trends?

### Securing a social license

- Have you articulated a strategy for enhancing collaboration among local communities, national governments, environmental groups, investment partners, employees and shareholders?
- Do you have programs in place to support the communities where you operate?

### New taxes, new regulations and new governments

- Do you have systems in place to comply with evolving tax and regulatory regimes?
- Have you assessed how new taxes or royalties may affect your performance outlook?
- Do you have the internal capability to remain abreast of evolving global regulatory requirements?

### How to invest more strategically

- What processes do you use to assess the viability of your reserves?
- Do you have appropriate governance processes and internal controls to support your growth objectives?
- Can you make a business case that justifies your current market value and earnings per share?
- Have you questioned the assumptions underpinning your long-term scenario plans?
- Do you understand all your investment risks and opportunities before you begin project implementation?

### The lost generation

- Do you know what resources you need to achieve program success – both today and into the future?
- Are the people in your organization aligned around your strategy? How do you know?
- Are you using your portfolio of projects to forecast your future resource needs – and close talent gaps in advance?

### At the end of the rainbow

- Do you understand the value drivers in each region where you operate?
- Are you using technology effectively to cut costs and manage risks?
- Are your risk management practices sufficiently robust to protect your interests in the international jurisdictions where you operate?



### A tough environment

- Are you investing in appropriate IT and data management systems to ensure your environmental disclosures are accurate and consistent?
- Have you integrated your carbon management program into your overall enterprise risk program?
- Do you review climate risks in the context of potential financial, operational and reputation risks?
- Have you developed any adaptation strategies to address shifting climate conditions?

### Working with no backbone

- Have you conducted sufficient scenario planning to mitigate the potential risks of infrastructure shortages?
- Have you considered potential partnerships that can enhance your access to critical infrastructure?

### Rethinking industry fundamentals

- Are you engaging in creative brainstorming to uncover and leverage emerging business opportunities?

Answering these questions can do more than help you structure an effective strategic plan. It also can help you identify potential challenges, risks or gaps before they develop into full-blown crises. This type of careful advance planning cannot eliminate all uncertainties or mitigate all risks, but it can put you more firmly on track to achieve your long-term strategic goals.



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“Mining companies can no longer wait for the uptick. The current operating environment just might be the new future. In this new world order, mining companies must take a fundamental relook at their operating models on a region-by-region basis. They must assess how they plan to respond if their reserve profiles change. They must remain focused on cost efficiency even in the face of economic recovery. And they must gain a clear line of sight into the talent and people they require to achieve these goals in the coming years.”

Keith Jones, Energy & Resources Lead, Perth, Deloitte Australia

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