



Mining

The regulation of exploration and extraction in 35 jurisdictions worldwide

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Overview

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The optimist proclaims that we live in the best of all possible worlds, and the pessimist fears this is true.

James Branch Cabell (1879-1958)

There is no doubt that 2007 was a great year for the mining industry. The current debate now centres on how long these golden days will last. A number of trends have recently emerged which may give us some insight into the answer. While the major influence on the industry over the last three or four years has been the impact of high metal prices brought on by unprecedented demand, we are now seeing fundamental shifts occur in three key areas that may significantly influence the future fortunes of the mineral industry:

- changes in ownership of mineral resources;
- limitations imposed on future growth by infrastructure issues; and
- dramatic increases in the cost of finding, developing and producing metals.

Changes in ownership of mineral resources

The ownership of the world's mineral resources is changing as a result of the combined effect of three major developments: continuing industry consolidation; nationalisation of mineral resources; and China's move to secure strategic inputs.

Consolidation continues

As if the level of consolidation in the mining industry in 2006 was not high enough, 2007 saw a dramatic increase in both the number and value of mergers that took place. According to a study done by PricewaterhouseCoopers, there were 411 published deals with an aggregate value of US\$145 billion, representing a 67 per cent increase from the previous year.

Much of the aggregate value of these transactions was represented by mega-mergers such as Rio's acquisition of Alcan. Whether this mega-merger trend continues remains to be seen, as various market forces have arisen that will work against future transactions. Antitrust regulators and major customers can be expected to try to limit the continued consolidation in the industry by the larger players (witness China's reaction to the proposed takeover of Rio by BHP-Billiton), but the overall trend towards consolidation in the industry will continue and so, in turn, will the concentration of ownership of mineral resources into fewer hands.

The worldwide nationalisation of mineral resources

A troubling, but perhaps not unexpected trend is the conclusion by many countries' governments that they are not receiving their fair share of the wealth from their country's mineral resources.

What has emerged as a result of this conclusion is an apparent willingness of many governments to renege on the various treaties, stability agreements and contracts that were previously in place with mining companies operating in their country.

Early initiators of this trend were Chile and Peru, each of which imposed new royalties or taxes on mining companies operating in those jurisdictions. Perhaps emboldened by the success of these countries in successfully implementing these measures without any major immediate adverse consequences, a number of other countries have embarked on similar initiatives. The mechanisms vary from jurisdiction to jurisdiction but all are designed to re-allocate the sharing of the wealth generated from the country's mineral resources.

Review of mining licences

The Democratic Republic of the Congo (DRC) has recently instituted a 'review' of the various licences granted to more than 50 mining companies operating in the DRC. In the face of surging prices for the various metals mined there, the government has concluded that it would be advantageous to revisit the granting of licences to check for 'irregularities'. Any technical defects or irregularities have then been used to justify the cancellation or renegotiation of existing licences. This review coincides with the entry of massive amounts of Chinese investment into the DRC in the form of infrastructure projects. The DRC confirmed in May that it had reached a US\$12 billion infrastructure deal with China in exchange for the granting of various mining concessions and access to copper resources of an equivalent amount. The net result is that the DRC government will secure funding for massive infrastructure projects for the country through Chinese loans and grants and, in addition, will obtain improved commercial terms for the various mining licences. The Chinese will, in turn, acquire access to highly desirable sources of commodities urgently required to fund China's massive internal growth as well as benefitting from upgraded roads, ports, power plants and other infrastructure improvements.

Following the DRC's example, the West African state of Guinea has announced that it would commence a review of mining agreements to ensure that the state was receiving a fair share of the profits from minerals produced there. Guinea has the world's largest reserves of bauxite estimated to represent about 30 per cent of the global total.

Denial or withdrawal of operating permits

An alternative approach to an outright taking of ownership by a host government is to simply render ownership valueless by withholding the means to exploit any resources that were found. Vancouver's Ivanhoe Mines Ltd has been trying to final-

ise an investment agreement with the Mongolian government for five years without success. In addition, the government of Hugo Chávez recently denied a requested permit to Crystallex International and other mining companies by declaring the area encompassing Crystallex's Las Cristinas deposit in Venezuela too environmentally sensitive for mining.

The new deal

A more subtle approach recently emerging is for host governments to change the legal and economic structure underpinning the ownership of mineral resources in the country. Ecuador's Mining Mandate, which entailed the passing of legislation halting all mining development for six months, is a precursor to what will, no doubt, be measures undertaken by the government of Ecuador to demand a bigger share of revenues from mining projects such as Aurelian Resources. The new mining legislation that is expected to follow the six-month suspension will likely contain measures to redistribute any economic benefits flowing from the various mining projects currently under development or in production in Ecuador. The legislation also contemplates the creation of a state mining enterprise, which to industry participants who were around in the 1970s and 1980s, is a clear harbinger of a move towards the nationalisation of mineral resources.

Ghana and Mongolia have also announced that they will be revamping their mineral laws to provide for higher royalties and greater government ownership of mineral resources in their respective countries.

'Windfall' and 'excess' profits taxes

The most direct approach for a government to access a larger share of the wealth generated from its mineral resources is to simply rewrite the tax or royalty laws. Zambia, like Chile and Peru, has long been considered a mining-friendly jurisdiction. Like Chile and Peru, however, Zambia has recently introduced unexpected windfall and variable profit taxes that have dealt significant blows to mining companies there. The government has also imposed additional taxes on semi-processed materials such as copper concentrates in a bid to have the processing of minerals carried out in the country.

Likewise, South Africa introduced its royalty bill in 2003 and is now in its third draft after consultation with the Chamber of Mines and other industry groups. Unlike some other jurisdictions, South Africa is working with the mining industry to fashion a mechanism that will give the country a larger share of the profits from its mineral wealth, but in a way that does not 'kill the golden goose' that produces that wealth.

Partial and total nationalisations

From 'rogue' countries like Zimbabwe and Venezuela to more stable countries such as South Africa, the re-emergence of nationalisation is one of the more troubling means used by governments to obtain a greater share of their countries' mineral wealth.

Zimbabwe's Indigenisation and Economic Empowerment Act, designed to expropriate ownership in foreign-owned companies, became operational earlier this year. The Act provides that indigenous Zimbabweans must own at least 51 per cent of the shares in every public company and other businesses, including mining companies. The mechanism for a company's 'indigenisation' may be prescribed by the government. The chilling effect of this law on Zimbabwe's mining sector in combination with the other massive economic problems created by President Robert Mugabe's policies have resulted in large international mining companies curtailing their activities in the country.

South Africa's Black Economic Empowerment (BEE) has been around much longer and was introduced in a much more thoughtful and careful way than Zimbabwe's plan. Notwithstanding their more balanced approach, however, it still amounts to a redistribution of the economic ownership of mining properties in South Africa.

In times of low metal prices, few governments could afford to flagrantly rewrite the rules regarding the economic sharing formula for fear of becoming known as an unattractive country to do business in. With today's high prices, a subtle but massive shift in bargaining power has taken place. Countries now feel that they cannot afford not to rewrite the rules. The fear of becoming stigmatised for doing so is gone in the face of so many other countries doing exactly the same thing. Finally, with the long line of alternative investors waiting in the wings to come in and take over, there is very little downside to the host government in alienating the current project owner.

China – enter the dragon

China has awakened and its appetite for commodities seems limitless. China is expected to consume about 35 per cent of the world's iron ore supply, 30 per cent of its aluminium, 25 per cent of its zinc and 23 per cent of copper supplies by 2010, according to recent estimates by Deutsche Bank. Rio Tinto's chief economist has predicted that China's booming economy is expected to consume more than half of the world's key resources within a decade.

No longer content to be a purchaser of the much-needed commodities required to fuel the economic engine driving China's remarkable growth, the Chinese government has recently been actively pursuing a policy of securing ownership to the resources it requires.

China is not alone in its quest for commodities to feed its economy. India's demand for iron ore is expected to double to 150 million tons per year by 2010, according to the same report.

The impact the emergence of China and India has had on the metal industry was first manifested in increased demand and higher prices for metals. The Chinese and Indian governments, however, when faced with the twin realities of having massive cash flows coupled with rising input costs have done what any economist would have predicted – they have embarked on intensive programmes designed to secure future supplies of critical inputs by investing in natural resources all over the world.

Not only is China going directly after resources but recently it has been attempting to protect its existing supplies of commodities through indirect means as well.

When the largest mining company in the world (BHP) announced its intention to take over the second-largest miner (Rio Tinto), the reaction from China was swift and decisive. Fearing that a successful combination of these two major suppliers of much of China's requirements for coal, iron ore, copper, aluminium, zinc and many other metals would result in lesser competition and higher prices for these critical inputs, China flexed its economic muscle. The giant Chinese aluminium maker Chinalco teamed up with Alcoa to spend US\$14 billion and acquired 9 per cent of Rio Tinto's stock, making them Rio's largest shareholder. The transaction was also the largest-ever overseas purchase by a Chinese company.

Recent reports out of Australia now report that, with a view to having further influence over any ongoing merger attempts, Chinese interests are now looking for a financial partner to participate in a joint bid for 9 per cent of BHP itself.

Industry observers view the moves by China as a warning to BHP that any attempts to combine with Rio will not go unchallenged.

China obviously has a strong interest in preventing a combination of BHP and Rio. The combined entity would be the largest producer of iron ore, aluminum and a number of other metals that are critical inputs to China's economy. The pricing power of the combined entity would be significant and if the input costs for steel and aluminium were raised, the ripple effect would push up costs for a wide range of Chinese companies such as car makers, fabricators, construction companies and others.

The indirect nature of such moves, involving the partnering with existing industry players, is seen by many as an attempt by China to prevent or soften any protectionist objections to the deal. The experience with Noranda in Canada and Unocal in the US may have taught China that the indirect approach may be the safest.

China's emergence as a major purchaser of mineral resources is supported by the government in Beijing, not only because China lacks in a stable supply of raw materials needed to feed its ever-expanding economic growth, but also because it helps to reduce China's excessive foreign exchange reserves which are in excess of US\$1.5 trillion. Also, with the Chinese renminbi up 6.5 per cent in 2007, the various foreign investments become more and more of a bargain.

This quest has led China to jurisdictions where many Western companies have been reluctant to invest. Even in countries where Western companies have greater confidence, the contest for scarce resources is changing. The economic or market model employed by most Western companies relies on NPV values and traditional valuation techniques to determine the maximum price that can be justified to shareholders and bankers for an acquisition. State-supported Chinese companies, on the other hand, are often heavily influenced by how critical the commodity is as an input for the massive manufacturing complex back home. In cases where the input is of a critical nature but is a small percentage of the overall input cost of the total manufacturing process, the result may be a bid price that exceeds the underlying value of the asset.

A more troubling aspect of the entrance of the Chinese state into some of the less developed countries of the world relates to the effect on the traditional rules of commerce and ethics. The various anti-corruption rules applicable to Western companies do not apply to state-controlled Chinese companies. The potent combination of China's vast economic resources and a near desperate need for mineral resources, together with desperately impoverished countries run by governments with weak or non-existent legal systems, is a recipe for corruption and official disregard for the integrity of pre-existing treaties and contracts.

An example of this is the recent 'contract review' instituted by the DRC followed on shortly thereafter by the massive influx of Chinese investment in DRC infrastructure projects, which resulted in many mineral rights and licences changing hands from their current owners to various Chinese mining companies.

In its aggressive move to secure access to raw materials in the less developed areas of the world, China has been criticised for supporting corrupt regimes in exchange for privileged access to resources; underpaying and mistreating local workers; shipping in cheap Chinese labourers; ignoring environmental and safety regulations; turning a blind eye to local civil and human rights abuses; and providing arms to help to help prop up oppressive regimes.

Infrastructure issues

It wasn't raining when Noah built the Ark.

Howard Ruff

During the days of the Klondike Gold Rush, stories were told of prospectors paying outrageous sums for a fresh egg or a cold glass of beer. The combination of new riches and scarce supplies has historically meant distortions in prices for the inputs required to sustain the money-making activity. Today, the eggs have been replaced by ball mills, truck tires and hoists while the beer has been replaced by access to water and power.

Marius Kloppers, the head of BHP Billiton, recently stated that Australia must speed approvals for major infrastructure projects in order to sustain the level of mining activity taking place in that country. Australia is in its 17th year of economic expansion due primarily to its booming mineral industry. Industry leaders are warning, however, that ongoing capacity constraints are now the biggest restraint on future growth and development in Australia. With unemployment at 32-year lows, companies are struggling to find enough workers. Growth is further constrained by severe export bottlenecks resulting from too few ports, roads, railways and ships to move resources from the minehead to the customers.

Likewise, South Africa is finding that much of its plans to increase mineral production are being blocked by shortages of power and people. Regular power outages are affecting existing mining operations and new projects are being put on hold as a result of the shortage of power capacity to supply them with the energy required to mine and process the minerals in the ground.

Tanzania is facing similar problems as many mining projects start to come on stream. There is simply not enough capacity in the national power grid to supply all the new and proposed operations with the power they need to mine and process the minerals.

Many South American countries are also coping with infrastructure limitations causing a shortage of power and water. Chile, Argentina, Peru and Bolivia are all currently dealing with a shortage of both of these critical inputs and unless solutions are found, it will be difficult to sustain, let alone increase, the mineral production from these countries.

Canada has its own unique challenges with the dual ramp-up of production in oil and gas in the western provinces coupled with increased mineral production across the country. Acute shortages of skilled mining and processing workers are major obstacles to many development plans. Universities and colleges are scrambling to ramp up class sizes and produce more graduates to meet the ever-increasing demand. Mining engineers who had planned to go on to Masters or Doctorate degrees are being enticed away by companies desperate for trained engineers. One of the current ironies is that the very same oil, gas and mining companies that are donating generous endowment to universities to conduct research programmes are at the same time hiring away the technical and research personnel upon whom the universities rely to carry out the research with the donated funds.

Costs: the moving target speeds up

A billion here, a billion there – pretty soon it adds up to real money.

Senator Everett Dirksen (1896-1969)

In a perverse way, the current cost environment provides a form of blanket immunity to project managers and CEOs. Given the current spiralling of costs for all inputs into new mining projects,

few people expect any of the published cost estimates for new mining projects reported by project engineers or CEOs to be accurate. The effects of bad estimating or poor project management are being overshadowed by escalating input costs. The net result of this phenomenon is that cost estimates are generally badly out of date by the time they are published. A recent report by RBC Dominion revealed that, in the past 18 months, capital cost estimates for major mining projects already under development have surged by an average annualised rate of more than 56 per cent.

Massive projects such as Vale-Inco's Goro project, Xstrata's Koniambo project, the Teck/Inmet/Petaquilla copper project in Panama and the Freeport McMoRan/Lundin Tenke project in the DRC have all doubled in cost because of spiralling construction and infrastructure expenses.

One of the more extreme examples of out-of-control costs is the Teck/Nova Gold Galore Creek project. The capital cost estimate for this copper and gold project in British Columbia has soared from US\$1.1 billion in late 2005 to over US\$5 billion today.

The Tenke Project in the DRC illustrates in one project the problems besetting new mining projects around the world. The problems plaguing the project have driven up the capita cost estimate from US\$1 billion to US\$1.9 billion in just under six months and no doubt there will be additional delays and costs as the project progresses. Contributing to the increase in costs is:

- uncertainty over the ownership rights created by the government's contract review programme;
- spiralling input costs for steel, mining equipment, labour, cement and technical services;
- upgrades to surrounding infrastructure such as roads, bridges, housing, power, water, etc; and
- government demands for transfer payments, taxes and royalties, shared government ownership in the project and mandatory implementation of social plans.

The Tenke project is one of the largest and richest copper and cobalt deposits in the world, however, and the owners will not willingly walk away from such a deposit, especially after having invested so much in capital, resources and reputation. Unfortunately, like all other mining projects, the ore body cannot be relocated to a more hospitable jurisdiction. The owners are, in effect, shackled to the orebody and must take it where and as it is found. In the new investment climate that exists today, owners in this position are becoming painfully aware that the more they spend on their projects the less bargaining power they have with the host government in regards to the sharing of the economic pie. They are also acutely aware that well-funded state-controlled companies backed by their resource hungry countries are waiting in the wings to take their place at the table should the differences with the host government become too great.

Impact of transportation cost increases

One of the fastest escalating costs currently impacting the minerals industry is transportation costs. With the huge demands being placed on global shipping resources, the price to move concentrates and metals have naturally gone up. This increase has been further impacted by the dramatic increase in the cost of oil, which most bulk shippers rely upon to move their goods.

In addition to generally raising the costs associated with getting metal to market, the dramatic increase in shipping costs may also cause a shift in the underlying dynamics of where and how minerals are processed. Initially, the rising value of the metal contained in concentrate or matte meant that the material could be shipped from a mine to a processing facility almost anywhere in the world. With oil at US\$20 per barrel, this gave a natural advantage to those processing facilities located in countries with low labour and input costs such as China, India, Korea, Africa, etc. With oil at US\$130 per barrel and bulk carriers in scarce supply, transportation costs will become a determining factor in whether a remote orebody is developed and, if it is developed, where its ores or concentrates will go. The cost advantages that low-wage countries have enjoyed in the past are quickly being outweighed by the costs associated with transporting the low-value bulk inputs.

NGO activity

NGOs have maintained their high level of activity in delaying or outright stopping major mining projects from proceeding. Inmet Mining Corp was forced to suspend operations at its Cerratepe copper project in Turkey following the success of NGOs in securing an injunction against further development activity. Inmet has also recently had its Las Cruces project in Spain suspended as a result of Spanish authorities withdrawing its permits for the dewatering and re-injection system. The long and painful saga of Gabriel Resources in Romania is well documented, and new stories appear almost daily regarding other mining projects that are being cancelled or delayed due to the intervention of NGOs.

The cumulative effect of all of these factors is a structural increase in the cost of producing metal. The combination of intense demand and high production costs will continue to ensure that metal prices will remain at historically high levels for the foreseeable future.

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Whether one believes that high metal prices are here to stay or not, other factors will also play a role in the future fortunes of the mineral industry. The increasing economic demands of host countries, the failure of infrastructure development to support the current level of growth, and the ever-increasing cost of finding and producing metals are the major challenges now facing the industry. How the industry responds to each of these factors will determine whether the current 'golden age' of mining continues.