

E&MJ

ENGINEERING AND
MINING JOURNAL

GLOBAL BUSINESS REPORTS

Mongolian Mining

Mining is not new to Mongolia, but its location amid emerging Asian economies puts the spotlight on its vast resources.

A REPORT BY GBR FOR E&MJ

TABLE OF CONTENTS

Mongolia: Open for Business	44
Regulatory Framework	47
Commodities	48
Thermal and Coking Coal	49
Copper	55
Oyu Tolgoi	55
Gold	58
Service Chain	58
Uranium	61
Society	62

This report was researched and compiled by Global Business Reports (www.gbreports.com) for Engineering & Mining Journal. Editorial was researched and written by Mark Story (mark@gbreports.com) and Alexandra Ashikhimina (alexandra@gbreports.com). (Photo of Erdenet courtesy of Alexandra Ashikhimina)

JULY/AUGUST 2010

Mongolia: Open for Business

If international mining companies can truly project a long-term vision, they can play a crucial role in the country's development

By Mark Storry and Alexandra Ashikhimina, Global Business Reports



Gold Mining in Northern Mongolia. Operations by the Mongolor Company, probably in the Yeroogol (river) in about 1925. (Photo courtesy of Kelly Cleur)

Mining in Mongolia is nothing new, but after years of being overlooked the spotlight is now on this vast country's reserves. British exploration teams were active in Mongolia over a century ago and more recently, exploration during the Soviet era discovered various mineral resources, some of which have been exploited. Various joint ventures were started with Soviet capital and expertise, the most important of which is Erdenet Mining Corp. (EMC), located in the city of the same name (which was created for the miners). EMC remains a key element of the Mongolian economy and is one of the top 10 copper mines in the world. Nevertheless, Mongolia's resources remain largely untapped, as to date there are only a handful of large-scale investments. Ivanhoe Mines' investment in the Oyu Tolgoi project, which is studied later in this report, could change all of this.

Mongolia is a land locked country squashed in between the two giants of China and Russia. While Mongolians

have had a proud history, fondly remembering the great empire builder, Chinggis Khan, more recently the country was colonized by its two neighbors. The People's Republic of Mongolia began its transformation to a Western style democracy in 1990 when the Soviets left. In the immediate aftermath, in common with many post-soviet societies, the economy collapsed, inflation rose to astronomical levels, food shortages were rife and Mongolia and its people suffered.

Since then, the economy has seen a considerable upturn, but Mongolia remains a poor country and around one-third of the population live in poverty. Recent years have seen a rise in wealth inequality in Mongolia. On the bumpy streets of Ulaanbaatar the destitute and homeless make way for expensive imported SUV's which shuttle their owners to a rapidly growing array of foreign restaurants.

While the old generation grew up speaking fluent Russian, the next generation of Mongolians look to the West in

terms of ideas and education and south to China for a market. Professor Punsalmaagiin Ochirbat, the first President of Mongolia, now head of the Ochirbat foundation, a pro-mining research body, said, "We all know about China's phenomenal growth rate and its demand for resources. Russian demand for minerals products is less and Russia has considerable natural resources, so we see China as being the market with the greatest potential."

George Tumur, one of the new generation of Mongolian mining leaders currently heading Hunnu Coal, also sees the potential of the Chinese market. "Energy demand is increasing everywhere, especially in China, which is the largest market geographically located next to Mongolia. It just makes sense to take advantage of this, but it has to be done in the right way." He goes on to argue that Mongolia's positioning right next to the northern Chinese manufacturing base means it makes clear sense to develop projects in the country.

100% USA investment, Wagner Asia Equipment LLC is the Caterpillar dealer in Mongolia. Since its inception in 1996, we have introduced Mongolia an entirely new world of productive equipment and technologies in the areas of mining and energy, building and road construction, infrastructure development and agriculture.



WAGNER
ASIA EQUIPMENT LLC



SALES, RENTAL, SERVICE, PARTS.

WAGNER ASIA EQUIPMENT LLC

Address: Wagner Asia Building, Bayangol District, Dund Gol-46, P.O.Box-26, Ulaanbaatar 211121, Mongolia
Tel: +976-11-687588 **Fax:** +976-11-687587

Sales@wagnerasia.com Rental@wagnerasia.com Service@wagnerasia.com Parts@wagnerasia.com

www.wagnerasia.com



Energy Resources' coal handling and preparation plant, currently under construction in Mongolia, will be arranged similarly to what is shown here, but will be enclosed for protection against the elements. Annual plant capacity could reach 15 million mt.

Mongolia's mineral resources include gold, coal, copper, molybdenum, tin, tungsten and uranium. To date coal, copper and gold are the commodities which have attracted the largest investments. Laurenz Melchers and Jim Dwyer, who heads the Business Council of Mongolia, defend Mongolia, despite the risk, as a good mining investment destination. They point to the reformed tax regime, the presence of major multinationals such as Rio Tinto, increased stability and an improving economical framework. Dwyer, an ex-Wall Street banker, who came to the country to help privatize the banking system, said,

"Mongolia went through some difficulties in 2009—most countries did. The banking system suffered from a high non-performing loans ratio and the real economy dipped. Since then though, we have seen Mongolia bounce back strongly and here in the business council we are bullish on Mongolia's economic prospects."

Peter Long, general manager Asia, Sedgman Engineering Technology, agrees. "We are headquartered in Beijing but we will be opening an office in Mongolia," Long said. "We are committed to China but we find Mongolia an easier place to do business than China."

One important factor Mongolians like to remind foreign investors is that Mongolia is not a backward country desperate for foreign expertise and know-how. "There are several mines in Mongolia which have been operating for decades and this means that Mongolia has its own specialists in mining and mineral processing," said Ivan Lopatin, country head, Weir Minerals.

"All of these huge deposits which are attracting so much interest overseas are not new," said Gandush, CEO, Gobi Exploration, a local exploration company offering geological services. "The huge coal deposit in Tavan Tolgoi has been



Mill complex, open-pits and waste dumps of Boroo Gold Mine. (Photo courtesy of Kelly Cleur)

known about for a long time. The problem was that it wasn't economically viable for extraction previously. Now the fundamentals in China have changed everything and made these projects viable." The government is currently considering whether and to what degree foreign investment should be allowed on Tavan Tolgoi.

This change in the economic situation has also given the Mongolian government a stronger hand when it comes to dealing with international investors. In the late 1990s and early 2000s, when the Mongolian government was financially constrained and mineral prices were low, potential investors could negotiate very attractive terms to come to the country. Now, the thinking of the Mongolian government is that the mining companies need them more than they need the mining companies, so the framework for entering is trickier and less stable. While this tightening of conditions has been criticized by many in the sector, the ultimate aim of the government is to establish a sustainable mining sector and avoid the twin problems of "Dutch Disease" and hot money inflows.

Regulatory Framework

Mongolia has been a market economy for a little more than 20 years. As a result, its regulatory framework is rapidly changing due to both economical and political factors. During the 2009 Spring Session and Extraordinary Session of Parliament, the government made 74 modifications to the current legal framework. Such is the pace of change, that new legislation or amendments may already have altered some of the information below.

Overall, the Mongolian state recognizes the importance of foreign investment and encourages it, as is stated in the Mongolian Foreign Investment Law. Foreign investors and business owners enjoy the same legal protection as their Mongolian counterparts. Foreign investors can own 100% of any registered business in Mongolia without a local partner, except for the projects in which the state has a right to participate.

The investment agreement between Ivanhoe Mines and the Mongolian government is believed to be the latest instance of the government's commitment to attract foreign investment for the development of the country's mineral resources. The agreement was signed on

October 6, 2009, following a repeal of the windfall tax on copper and gold. The windfall tax is considered by many as the main reason for certain companies' withdrawal from the Mongolian mining sector since 2006. The Windfall Profits Tax imposed a 68% tax on the portion of metal sales price in excess of \$2,600/metric ton (or a \$1.18/lb) of copper and \$500/oz of gold (increased to \$850/oz in 2008).

"In 2006 the minerals law changed and the windfall tax came into play. We saw the exit of a lot of junior companies who just couldn't get the financing to continue the projects, so they had to pack their bags and head back home," said James Polson, executive director, Australasian International Diamond Drillers (AIDD), currently the second largest drilling company in the Mongolian market.

An enigmatic figure in the Mongolian mining scene, Polson explains he combated this downturn by turning to China and Kazakhstan for business and proudly mentions that AIDD, as a foreign investment Mongolian company, is one of the first Mongolian companies to export mining services abroad. Kelly Cluer, director of exploration, Altan Rio, saw an opportunity in surviving the windfall tax for the purposes of pure experience. "We have stayed in Mongolia for a long time and all of these changes have given us extra knowledge and competitive advantage over other companies," Cluer said.

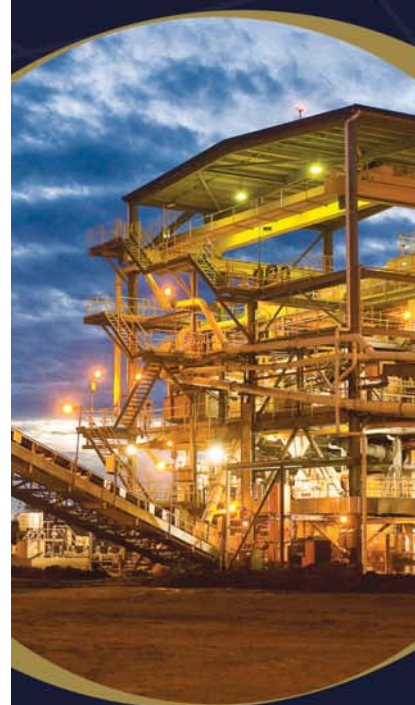
An important issue for many foreign companies is the Labor Law. According to the recent Labor Law of Mongolia, a company must employ 20 Mongolian employees for every foreign employee. Quotas go up from that level depending on the sector, and there are exceptions under certain circumstances. Any company with a mining or exploration license, for example, has a quota of 10% foreign employees, while for an oil and gas extraction company this rises to 80%. "This creates certain problems within the mining sector, especially for service providers which have to employ foreigners to educate locals how to use new sophisticated technology which has never existed in Mongolia before. We should employ more expats on a contract basis to train Mongolians," said Professor Ochirbat.

Licensing laws have changed for the better with the result that some 5,221 exploration and mining licenses had been

Leading Coal and Mineral Processing Specialist since 1979

**Originated in Australia
New Office Opening in Mongolia**

**UHKAA KHUDAG Mine
Coal Handling and Processing Plant –
benchmark plant for Mongolia**



SEDGMAN

TEL: +86 10 8588 6507

Email: lynn.cong@sedgman.com

www.sedgman.com



World-Class Blasting Practices



MAIN ACTIVITIES

- *Blasting operation service*
- *Drilling of blastholes*
- *Manufacture of bulk and packaged explosives*
- *Import, storage, sale and transportation of blasting materials*
- *Blast planning, designing and consultation*
- *Explosives magazine designing and construction*



www.mera.mn

P.O.Box - 398, Ulaanbaatar - 210644, Mongolia
3rd floor, Rokmon Building, Undsen Huuli Street - 24
Bayangol District, Ulaanbaatar, MONGOLIA

Tel: (976)-11-319275 Fax: (976)-11-319276

E-mail: mera@mera.mn

issued, covering a total area of approximately 48 million hectares (32% of the total land of Mongolia) by the end of March 2009. The president has issued a ban on new mining licenses, although this is in the process of being revoked. The royalties might be soon increased to 7.5% from 5%, but VAT was reduced to 10%. Customs duty is 5% for most goods. Corporate income tax remains 10% on income up to MNT 3 billion (about \$2 million) and 25% thereafter. The personal income tax rate is 10%.

According to the law, the state may acquire up to a 50% share of a mineral deposit of strategic importance if the state has contributed to the exploration of the deposit at some point in the past. For all other mineral deposits of strategic importance, the state's maximum share is set at 34%. It is important to identify what "strategic importance" is, but the Parliament of Mongolia is given the ultimate power to determine what qualifies as a mineral deposit of strategic importance. Typically "strategic importance" concerns a deposit with a size that may have a potential impact on national security, the economic and social development of the country at the national and regional levels or that is producing or has a potential of producing more than 5% of total Mongolian GDP in a given year.

"Unfortunately, as in many other countries, sometimes people in Mongolia will do politics not business and newcomers should be prepared for it," said James Liotta, attorney-at-law for a Chinese-based law firm, Lehman Lee and Xu.

Another problem encountered by some mining companies is the environmental law which is believed to be used by the government to revoke some "unwanted" licenses. The companies generally need to prepare an environmental protection plan and environmental impact assessment to address any adverse impacts that their operations may have on the mine site.

"The whole license may be revoked even if a tenth or a smaller part of it is situated in an environmentally protected area such as a river or forest areas," said Altangerel, an attorney and general director, Legal Consulting. "In this case, the government is obliged to refund the exploration costs, but there are no available finances for this."

Altangerel believes that, for a young democracy, Mongolian government is doing a lot to position itself as a good destination for foreign investment. "It's an exciting time in the Mongolian business world," James Liotta - attorney in law of a Chinese based legal firm called Lehman, Lee and Xu Mongolia. "If you are getting in now, you are still getting in early, which makes it more likely for the business not only to survive but to grow in this rapidly developing environment. Early is crucial in Mongolia as long as you do your due diligence first to avoid any stress or disappointment."

Commodities

Before looking at the commodities sector in Mongolia, we must consider the underlying reasons for the interest in Mongolia and the commodities it can offer. The past 15 years have seen a gradual de-industrialization in the United States and Europe with a corresponding but more rapid industrialization in Asia, the lion's share going to China. To begin with, the coastal areas around Shanghai were the principal benefit of this movement, however internal Chinese politics has meant there is more and more focus on the poorer north of China, specifically in steel production. Galsandorj, president, Mongolian Exporters'

Association, believes this boom in the north of China, specifically Gansu and Inner Mongolia province, has resulted in an increased demand for Mongolian raw materials. He explains that Mongolian exports are primarily minerals which account for 70% of total exports.

In 2009, Mongolian exports were valued at \$1.9 billion, of which \$1.3 billion went to China. These exports consist of gold, copper and a variety of other minerals, but coal is the most important commodity. "In China as a whole, coal is used to generate about 70% of its energy," said Turbayar, general director, Yuanda Group, a Mongolian-Chinese joint venture focusing on both the energy and mining sector via its subsidiary New Asia Mining. "Energy demand in northern China continues to grow robustly. Even though China has coal reserves of its own, for Mongolia there are considerable opportunities 'feeding the dragon.'"

The Yuanda Group is currently constructing the first private power plant in the west region of the country and intends to grow by offering its services in building and operating power plants to mining companies as well as working some exploration licenses of its own. Batzorig, director, Commod, a conglomerate ranging from exploration and geological services to equipment trading also believes that China is primarily responsible for the current boom. "The presence of Rio Tinto and the investment agreement are not the most important factors in the Mongolian mining sector," Batzorig said. "Rather it is the price of commodities. We have a fluorspar mine, a mining license and a willing partner, but the price isn't there yet. This is what counts, not which majors are investing in the market."

Thermal and Coking Coal

One of the largest players is the majority state owned Baganuur (some private investment was allowed in the company in 1995). Baganuur has suffered from under-investment. Dambapeljee, general manager, Baganuur, explained his dilemma. "We were created under the soviet era as a coal company to supply the domestic market," Dambapeljee said. "These coal prices are set by the government and are artificially low. These low prices, designed to reduce fuel prices for the general population, prevent us from investing in new equipment and going up the value chain."

This problem is not unique to either Baganuur, nor to Mongolia, but Dambapeljee has nevertheless been successful in attracting financing which they intent to invest in new machinery. These price restrictions on sales of thermal coal in Mongolia should be noted by potential investors wishing to take advantage of Mongolia's growth in energy demand. What most foreign investors are interested in is coking coal demanded for infrastructure projects in China.

Energy Resources' rapid development of its projects has attracted a great deal of attention. Owned by Mongolian giant, MCS Group, as well as investors from other large Mongolian conglomerates and the European Bank for Reconstruction and Development (EBRD), Energy Resources has grown rapidly from its foundation in 2005. "In all my years here, we have never seen a client with every single employee totally focused and committed to their project," said Mark Bailey, executive director, Leighton, which works as a contract miner for Energy Resources.

Energy Resources is currently working a coking coal deposit know as Ukhaa Khunad, located in the South Gobi region

A NEW MONGOLIAN FOCUSED COAL COMPANY

Emerging Mongolian coal company with multiple coking and thermal coal projects in four highly prospective regions.

Projects located close to existing and planned rail infrastructure, providing favourable logistics.

Development timing of projects well suited to meet rapidly increasing Chinese import coking and thermal coal demand from 2012.

Strong management team who successfully built Mongolia's first operating coking coal mine.

\$17m in cash and no debt to fund aggressive exploration programme and scoping study in 2010.

Exploration targets totalling 750Mt of coal.

Targeting the development of three coal mines in four years.

30,000 metres of drilling planned for 2010.

Aggressive acquisition strategy.

Australian Securities Exchange listed ASX:HUN.

Targeting a Hong Kong listing in 12 to 24 months.



**HUNNU
COAL**

REGISTERED OFFICE

Level 1, 33 Richardson Street,
West Perth, Western Australia 6005

Telephone: +61 8 9200 4267

Facsimile: +61 8 9200 4469

www.hunnucoal.com

MEC

MONGOLIA ENERGY CORPORATION

蒙古能源有限公司



We ACQUIRE



We EXPLORE



We DEVELOP

ENERGY • RESOURCES • DEVELOPER

MEC strives to be an outstanding energy and resources player that achieves long term and continuous success while establishing a global brand recognition.

With a strong team of driven and experienced professionals at the leadership, we allocate capital to acquire projects of great potential. In partnership with industry leaders, we develop and realize value from projects acquired in an efficient manner, to maximize returns to our stakeholders.

www.mongolia-energy.com

around 245 km from the Chinese border. Last year output reached around 1.8 million metric tons per year (mt/y) of coking coal, and plans are under way to raise this to 4 million mt/y for 2010, and 10 million mt/y in the longer term. As part of the project, Sedgman Engineering Technology is building a coal handling and preparation plant (CHPP) with a proposed capacity of 15 million mt/y. "This isn't just an EPC [engineering, procurement and construction] job," Peter Long, general manager Asia, Sedgman Engineering Technology. "Energy Resources is involved deeply in the construction and operations of this CHPP. They want to learn how this is done and we have been very impressed by their attitude."

Long expects this project to be the first of many for Sedgman in Mongolia.

Energy Resources' rapid development and success has taken the market by surprise. Questions remain, however, as to whether Energy Resources will continue to have the financial resources to develop this project or will it be forced to seek foreign investments or offer stock publicly. Even though Energy Resources' mine is strategically located, it suffers from a poor transportation infrastructure. Connections to markets are complicated with possible train lines connecting to northern China (favored by business) or to the Russian market (favored by the government to prevent over-reliance on the Chinese market).

The other main major private coal mining company is Mongolian Alt Corp. (MAK), which initially started out in the gold sector, before moving to coal products, as well as planning copper extraction in the future. MAK operates the Naryn Sukhait coal mine located 900 km south of Ulan Bataar, the capital, but within 50 km of the Chinese border. MAK operates an open-pit mine (similar to the vast majority of mines in Mongolia) with an estimated reserve of 220 million mt and current production capped at 3 million mt/y due to logistical constraints. "We are investing in a raw coal washing plant to improve the value of the commodity which we sell," said Avirmed Ganbileg, vice president, MAK. "This will require considerable investment and resources, but we are convinced it is in the long term interests of our company."

Once again, there is no rail nor paved road connecting MAK's mine, which is geographically extremely close to its JV



The main construction camp and administration center at Oyu Tolgoi (July 7, 2010).

with Qinhua Corp. as well as South Gobi Sands (SGS) mine. Indeed, it is significant that the Mongolian side of the border consists of a dirt road, improved by the mining companies but still rudimentary, but once the shipment has passed to the Chinese side, it is greeted with a tarmac road and modern rail links. David Bartel,

Executive Director, SGS, which neighbors MAK's mine, believes one of the biggest difficulties of working in Mongolia would not be the mining, but the infrastructure and transport. When SGS and MAK started operations, the border crossing was temporary, open only three times per year. This has since been increased, but prob-

lems remain. Currently the mining companies are pushing the government to upgrade the border to a 24/7 gate.

In May, the local transportation companies that serve the SGS mine were on strike and picketing the border. This was costing SGS about \$300,000 per day in lost revenue. A curious fact of the local

Your partner in mining and tunnelling



We deliver sustainable solutions for increased productivity, through innovative products and services. This is a result of our global experience, our interaction with customers and groundbreaking innovations.

Atlas Copco Mongolia LLC

Sustainable Productivity

Atlas Copco



Meeting of the Business Council of Mongolia. Mining Supply Chain press conference October 2009.

legislation is even though SGS runs a vertically integrated mine where even security and catering are done in-house, they have to use a local transportation company to take the coal to the border. The Mongolian authorities argue transportation is just a small part of the total value chain, the vast majority being in the hands of the foreigners. By insisting on the use of local companies for this activity, the government is merely helping local companies to compete and gain business.

In addition to MAK's solo operations, it has also entered a JV with Qinhua Corp. from China in the development of another reserve also located in the same South Gobi region. This JV has given MAK access to resources and capital it otherwise wouldn't have had, but Chinese entry in the Mongolian market remains controversial. Unlike the Russians, who are generally looked on positively in Mongolia, Chinese investment is looked upon with suspicion. Critics in the sector argue that Chinese investment is low key, low budget and adds limited value. They protest that ninjas (a term used to describe small illegal miners) from China illegally enter the south of the country to develop mines without training the locals, without investing in the country and without paying taxes. Some locals believe Mongolian government policy is aimed at keeping Westerners in, the Russians down and the Chinese out.

One of the largest foreign investments is the SGS operation located just 42 km from the Shivee Khuren Mongolian-Chinese border crossing. SGS originally started under the Ivanhoe Mines umbrella, but has since been spun off to become a separate company which acts as the coal wing of Ivanhoe Mines. Recently SGS successfully raised C\$459 million to help finance its operations. Apart from its big brother, Oyu Tolgoi, SGS rivals Mon En Co. and Centerra Gold as the largest international mining investment in Mongolia. To date, Ivanhoe still owns around 60% of SGS, but the two are operationally independent from one another and indeed, Bartel sees Oyu Tolgoi as a major rival for Mongolia's lim-



George Tumor, general manager of Hunnu Coal.

ited skilled labor force. "We are investing a lot of time and money in recruiting and training local staff for our mine," Bartel said. "There are a number of fundamental reasons for this. It helps to smooth things over with the local community if we hire people from the area, secondly it is cheaper than flying people down from Ulaanbaatar every week, but mostly we want to be a part of the community. We want to have roots here and encourage loyalty from our staff so that they will stay with us for the long term," said Bartel.

The lack of trained and skilled staff is a lament often repeated throughout Mongolia. "A concern is the lack of trained labor," said George Tumor, general manager of Hunnu Coal, an Australian based Junior focussed on coal. "Mongolia needs to really invest on this so that the work force is able to handle international technology and equipment."

John Karlsen, general director, Wagner Asia, the local distributor of CAT machinery as well as number of other internal brands, concurs with Tumor. "Mongolia has chosen the technical route as opposed to the high employment route that the Chinese follow whereby hundreds of guys with picks and shovels are doing what 10 guys with machinery can do over here," Karlsen said. "This means Mongolia can potentially compete on a global scale in terms of efficiency, but it does present some of our client's problems when it comes to finding trained competent staff."

Adi Desai, who covers SGS for Frontier Securities, explains that as well as an operating mine exporting both thermal and coking coal to China, SGS also own 18 exploration licenses with plans to spend around \$20 million per year on continued exploration. He goes on to add that production targets are currently 4 million mt/y for 2010, with ambitious targets of reaching 8 million mt/y by 2012. The vast majority of this will be exported to China.

By 2012 Bartel expects the Soumber pit to be up and running with a production target of 5 million mt/y. In addition to this investment, SGS intend to invest \$80 million in a coal washing plant. South Gobi Sands is yet to make a profit and, while it has a considerable cash reserve to draw upon, there have been unsubstantiated market rumors that Ivanhoe Mines may sell its stake.

A second property due to come into production in 2010 is Prophecy Resource Corp.'s Ulaan Ovoo coal mine. Ulaan Ovoo is a 208-million-mt resource of 5,204 kcal/kg low-ash, low-sulphur thermal coal contained in one massive 35- to 80-m-thick seam. Ulaan Ovoo's coal is of post wash grade and is located 10 km from the Russian boarder and 120 km from the railway.

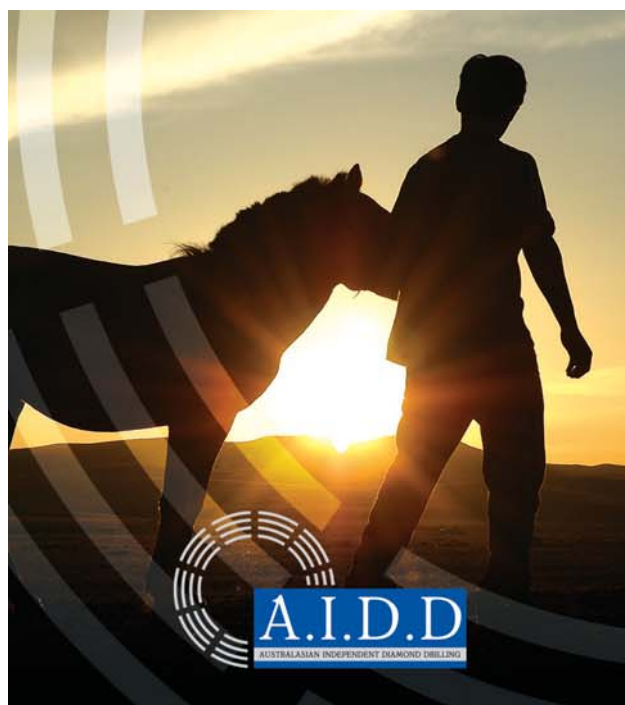
Headed by the dynamic John Lee out of Vancouver, Prophecy only brought its Mongolian assets online in April 2010 but has moved at an incredible rate with a target of producing 250,000 mt in 2010 and 2 million mt/y in 2011. Prophecy's model is to contract out in order "to minimize stoppage risk" and make "Prophecy a royalty stock, which the street loves," according to Lee. Prophecy has a turnkey, pay-as-you-go contract with Leighton to mine 2 million mt/y at a cost of \$12/mt and a 1.5-million-mt/y rail transport agreement. The rail agreement should allow them to sell either to the Chinese market, or as intended at present, to the international market via Russia's East coast ports.

A recent road haulage survey estimated it should cost \$10/mt to \$12/mt to ship the coal giving an "all inclusive mining and transportation cost into Russia... (of) \$25/mt." Coal of Ulaan Ovoo's grade is selling at Vladivostok for about \$80/mt and is estimated to be in the \$50/mt range in the Russian market leading Lee to note that "whatever way you look at it, we should be able to extract a handsome margin from Ulaan Ovoo's coal."

Prophecy's second project, Chandgana, is a massive 1-billion-mt, 4,300-kcal/kg coal property. Chandgana is very much in the planning stage with the property held under an exploration license, but it has the potential to change the game for Mongolian coal.

"The plan is to build a power plant and we have been approached by two bona fide Chinese parties who are interested in building a 4,200-MW power plant at the site which would require 20 million mt/y of coal," Lee said. The site is only 100 km from the Mongolian nation grid (itself linked to Russia); while there is currently a power deficit in Mongolia any mega-power plant would require substantial power infrastructure investment and access to China. "We are 700 km from the Inner Mongolian [Chinese] grid, obviously there would be power loss but it is still very viable....(and) the basic economics of it are fantastic," Lee said.

Slightly further down the timescale is Mongolian Energy Corp.'s (MEC) project in Khushuut in Western Mongolia, which is expected to begin coking and thermal coal production in



TAKING MONGOLIA TO THE WORLD



Established in 2004, Australasian Independent Diamond Drilling (AIDD) has completed extensive drilling projects across Mongolia and has become a major player in a rapidly growing local mining service industry.

AIDD currently owns 17 drill rigs, consisting of 4 Schramm, 3 multi purpose and 10 diamond drilling, distributed across its operations in Mongolia, China and Kazakhstan. AIDD has completed drilling contracts for a large number of multinational mining and exploration companies, including BHP Billiton, Vale, Ivanhoe Mines, Denison Mines, Cameco Corporation, Gobi Coal, East Asia Minerals, Fortress, Cogegobi (Areva), QGX, Western Prospector and Entree Gold.

AIDD LLC

Agro Tech-Impex Building, Bayanzurkh District, Amgalan 1
P.O. Box 26, Ulaanbaatar 210332, Mongolia
Tel: +976 - 11- 460845 Fax: +976-11-463554
E-mail: info@aidd.mn Website: www.aidd.mn

August this year. "We were the first Hong Kong-listed company to come to Mongolia," said Mohan Datwani, general counsel, MEC. "We consider ourselves to be the pioneers of combining Mongolia's mineral wealth with the access to capital available in Hong Kong."

"MEC came to the market in 2007," said James Schaeffer Jr., CEO, MEC. "Since then we have acquired 330,000 hectares of concessions in the west of the country. We have 19 exploration licenses. Our flagship project is located in the Khushuut region of Mongolia, which contains a total of 149.2 million mt of in-place coal resources using JORC standards."

MEC's senior management team is quick to point out that, unlike the south of the country, the coal found at their deposit is of high quality with significant quantities of coking coal. Gordon Poon, director of corporate development and investor relations, MEC, highlighted the differences between their projects and the ones in the south. "We believe growth



James Schaeffer, CEO of Mongolian Energy Corporation.

in Xinjiang is more robust than in other regions of China where there is the possibility of a bubble," Poon said. "We already have an agreement with Baosteel Group for our baseload output and that is a solid start."

MEC has already hired contract miner Leighton to conduct mining operations and Mohan Datwani estimates they will invest around \$2.85 billion in the country over the 19-year mine life; this will include a washing plant and an airstrip. They are also confident the border crossing will be upgraded in time for mining operations. Schaeffer said they want MEC to be a global energy company, with further projects in China (MEC already has one project in the Xinjiang province) as well as continued exploration in hard minerals as well as coal.

Tumur is a well regarded veteran of the mining sector and is the former head of Energy Resources operations. His business strategy involves bringing on board local partners which avoids certain difficulties with licenses. "We did not want to get into the licensing tenders, so our partners are the local small companies which needed funding and development support. So we provided investment and expertise to begin joint ventures with



Micromine Consulting Services

Expertise where you need it for geological, exploration & mining consulting

Micromine Consulting Services (MCS) provides geological, exploration and mining consulting to some of the world's largest mineral resource companies.

With a focus on services offered from offices located in China, Mongolia, Russia, Kazakhstan, Indonesia, Ukraine and the United Kingdom, Micromine has offices located in the world's major mining and exploration countries.

MCS consultants possess reliable international knowledge, local expertise and language, experience and understanding to add value to your operation.

www.micromine.com

them,” Tumur said. Licensing can be a difficult issue, according to Tumur, particularly for foreign companies. Typically, individual speculators with no knowledge of mining and very limited financing acquire them and then try to flip them.

Copper

Copper in Mongolia is big, dominated by the most important company in Mongolia; the state owned EMC. It was formed in 1978 and is a JV between Mongolia and Russia. The Mongolian state has a 51% stake. EMC is built around a world class copper-molybdenum-porphyry deposit located around 400 km from UlaanBataar, toward the Russian border. Fomenko Alexander, first deputy general director, EMC, explained the importance of EMC. “We consider ourselves to be the most important mining operation in Mongolia,” Alexander said. “We produce around 25% of the country’s foreign exchange, we use 25% of the country’s power and we are consis-

tently making profits which go directly back to the Mongolian people, unlike other mining operations.”

Kelly Cluer, founder and head of exploration, Altan Rio, a Canadian hard minerals exploration company, argues that despite 30 years of opportunity, EMC still captures a maximum of 75% of the intrinsic value of the copper. “In essence, Mongolia is selling its crude metal concentrates to China at a fraction of the metals value and buying back manufactured products after the all of the value has been added,” said Cluer. “The country is forfeiting all downstream potential for adding value, spawning spin-off industries and creating additional jobs.”

Within the sector however, EMC is seen as a national champion. While many state companies have been encouraged to look for foreign investment, there is little enthusiasm for privatizing EMC, especially when copper prices are strong. “EMC has such a long history of mining

and level of expertise that now isn’t the right time to privatize it,” said Ganbaatar, director, Geomasters, an integrated professional high-tech geophysical and geodetic surveying company. “EMC is also an example of one of the very few companies where the top management is Mongolian and with today’s high copper prices EMC has the money to invest, so there is little benefit for them to look for private investment.”

Oyu Tolgoi

Oyu Tolgoi (OT) is the largest undeveloped porphyry-copper-gold resource in the world. After more than nine years of negotiations, changes in the law, accusations and demonstrations, the agreement allowing exploitation was finally signed on October 6, 2009. It seems that the whole country, as well as outsiders interested in Mongolia, were waiting for this with the kind of excited anticipation that usually precedes a general election. In a way, this is what it was, such are its



MCS consulting is approved for local standard reports and the MICROMINE software is approved for the announcement of resources and reserves.

Whether you require resource and reserve estimation, quality control, pit optimisation, mine planning, from scoping to feasibility stages, MCS consultants generate competent person reports compliant with international reporting standards including N143-101, JORC, SAMREC, SEHK (Chapter 18), China MLR, GKZ and PERC reports.

At MCS you get expertise where you need it, for all commodities.

For more information contact us on +61 (0)8 9423 9000 or email mcs@micromine.com





Micromine Geologists doing site investigation on Toromkhon gold deposit.

potential consequences for the nation. Oyu Tolgoi has an estimated mine life of 40 years. It is also the largest development project and foreign investment in the history of the country. “The capital estimate for the project between now and “first ore” is \$4.6 billion, to be spent over the next three years. To date we have invested around \$1 billion, largely on drilling,” said Keith Marshall, CEO, Oyu Tolgoi, which is owned 66% by Ivanhoe

Mines and 34% by the Mongolian government. Rio Tinto in turn has a considerable stake in Ivanhoe Mines. Ivanhoe and Rio Tinto are supplying the cash and expertise.

There can be no doubt that Oyu Tolgoi has brought a lot of positive development to Mongolia: new technology, new skills for the workforce, training and jobs for the local community, new infrastructure and even a completely new method of

mining, block caving. Block caving is complex form of underground mining that requires a huge up-front investment to excavate grids of tunnels into the ore body. “Given the block mining method to be employed, there are only a few companies in the world which could conduct an operation of this scale in this location,” Marshall said. “In addition, we have already mined a 1.3-km deep exploration shaft with the help of Redpath of Canada as our chief contractors.”

“Everybody is looking forward to the project’s beginning,” said Odd Reknes, country manager, Atlas Copco. “It is the key to the economic growth of Mongolia. If Ivanhoe, Rio Tinto and the Mongolian government get it right, the Oyu Tolgoi could greatly help the development of both the mining sector and the Mongolian economy in general.”

Atlas Copco and Rio Tinto have formed an alliance to develop autonomous drilling solutions for surface mining as well as tunneling concepts for underground block cave projects, and for Oyu Tolgoi specifically.

Tulguldar Tsogetsaikhan, manager, Micromine in Mongolia, an Australian company providing exploration and mining consulting services for clients around the globe, believes Oyu Tolgoi could benefit the country. “It could be a great



Baganuur supplies 40% of Mongolian coal needs and more than 60% of the needs of the central region.



Odd Reknes, country manager of Atlas Copco.

development for the country providing things are done correctly," Tsogtsaikhan said. "What will make it interesting is Oyu Tolgoi wants the best; the best suppliers, the best technology and the best partners." Tsogtsaikhan said this can be difficult for some Mongolian companies as they were brought up under a communist environment when coal was mined to produce energy, not to make a profit.

Some companies have arrived in Mongolia just for this project, such as Major Drilling, whose current operation is focused on Oyu Tolgoi. "On the Oyu Tolgoi site, we have been operating non-stop since 2002 even through the cold winter months," said John Ross Davies, country manager, Major Drilling. Despite the harsh winters and language barriers, he hopes to work more with the national companies of Mongolia in the future and continue local training as well as learning from Mongolians.

Christian Blunck, country manager, Sandvik, also hopes to become a service provider for Oyu Tolgoi. "It is currently the main project in Mongolia and a great drive for us in the long run, but there is a lot of alternative business activity in the service mining sector also." Blunck hopes to firmly establish his company in Mongolia and work with other projects alongside Oyu Tolgoi.

Naturally, Oyu Tolgoi faces a lot of criticism and pressure from various social groups in Mongolia. Some do not trust Ivanhoe Mines to operate the biggest project in the history of the country; some are unhappy they are not getting an adequate piece of the pie. Unfortunately,



YUANDA GROUP

- Investing in Mongolia
- Partnering with community
- Creating jobs
- Building skills



GENERATING WEALTH THROUGH EXPLORATION



Current key projects: 60MW coal-fired Power Plant in Hovsgol province. It is first ever Mongolian Build-own-operate (BOO) contract to build a Thermal Power Plant with private investment in the country's energy industry. Our strategy includes mine expansion, acquisition and continues exploration, focusing on coal, gold and copper deposits, and to leave a legacy of sustainable development in areas in which the company has been active.

We are committed to enable our nation's economic growth as a major player in the mining sector in Mongolia:

Mineral exploration and mining

Energy /construction of Power Plant, substation and electricity transmission lines

Infrastructure projects and

Other projects for economic growth

YUANDA GROUP

Address: 5th floor, New Millennium Building, Zaisan Street, 11th khoroo, Khan-Uul District, Ulaanbaatar, Mongolia
Tel: 976-11-70112078 **Fax:** 976-11-70112038
Email: yuanda@magicnet.mn **URL:** www.yuandagroup.net





Tanan Impex LLC is the 100 percent domestic invested company established on 7th January, 2002 with the purpose of creating the water well point with engineering construction as well as building hydro technical buildings.

Main objective of our company: The purpose of our company is to contribute into the Mongolian future development by conducting hydrological and mineral explorations drilling work with the latest, advanced and environment friendly technologies which are consistent with international rules and standards as well as obeying the world recognized occupational safety and health rules, regulations and policy.

Main activities of company:

- << Hydrological drilling
- << RC drilling
- << Core drilling /HC-3, NC-3, FC-3/
- << Core exploration drilling
- << Underground drilling

Auxiliary activity:

- > All types of milling and cutting of turnery and various types of subs.
- > High pressurized hydro and air hose compression.
- > Slotting of PVC pipe /above 0.5 mm/
- > PVC 0.5 mm thread preparation.
- > Trade and maintenance service for drilling tools and equipments.



Our company is executing recon drilling tasks with NQ diameter until the depth of the 1500 meter and hydrological drilling tasks with 455 mm diameter until the depth of 450 meter comprising of 22 drilling rigs of high technology and over 200 employees, who are high qualified and experienced.

FROM SOUL TO DILIGENCE, FROM DILIGENCE TO SOUL



Ulaanbaatar 211137, P.O.Box-93,
Peace Avenue 171, MONGOLIA,
Tel: +976 11 631949, Fax: +976 11 635868,
E-mail: info@tananimpex.mn,
Web: www.tananimpex.mn

many people in Mongolia believe the foreigners are simply digging money, Mongolian money, from the ground and taking it out of the country. With the help of its shareholders, most critics hope that Oyu Tolgoi will be an example of a well-organized mining operation meeting international standards in Mongolia which will give the local people an opportunity to learn everything they need for future large-scale projects.

Gold

The Gold sector in Mongolia is dominated by one company—Centerra Gold's fully owned subsidiary, Boroo Gold. Centerra Gold's investment was one of the first significant foreign investments in the country, as well as being one of the few to have made money and one of the most controversial. Between the beginning of production in 2003 and 2009, Boroo Gold has extracted 1.26 million oz. This output far outmatches any other existing gold mine, with Oyu Tolgoi's gold operations the only other large development. Centerra Gold also owns 100% of the Gatsuert exploration property. "We are in Mongolia for the long-term," said John Kazakoff, president, Boroo Gold. "We have firm plans to develop the Gatsuert property. We are one of the top five taxpayers in Mongolia and we are committed to making this work."

Whether Boroo Gold will receive a mining license to go ahead with the Gatsuert development remains uncertain. Boroo Gold was involved in two major controversies; they suffered a bitter strike, which included a small hunger strike in 2009 which shut down the mine. Miners were angry that their severance packages, necessary once production declined as the mine reached the end of its life, didn't reflect the profits of the company. "We pay four times more than the standard mining wage in Mongolia, but gold mines by definition don't have the 50 year life span, say, Oyu Tolgoi will have," said Doug Khan, director of finance, Boroo Gold. "Thus layoffs are necessary."

Regardless of the rights or wrongs of each side, Boroo Gold's operation became unpopular with the Mongolian mining community.

The second controversy regarding Boroo Gold was its insistence of signing a stability agreement when it arrived in the country. Boroo Gold arrived at a time when gold prices were low and when the Mongolian government was very keen to attract foreign investment. Boroo Gold was able to negotiate favorable terms. With the continual rise of the price of gold, the Mongolian government's attitude changed. In 2006, Boroo Gold was forced back to the table to renegotiate the agreement and since then has suffered from severe criticism regarding the level of tax the company pays (the stability agreement exempted them from the windfall tax). Boroo Gold were guilty of nothing more than negotiating a good deal, but at the same time Boroo's difficulties represent the deeper underlying problems in Mongolia between the foreign investor and the Mongolian mining community.

Service Chain

The growing Mongolian service chain consists of multinational companies, Mongolian companies with international capital and Mongolian companies with local ownership. For a small, technologically under-developed market, Mongolia has no niche player which it can claim to be a leader of any particular sector, nor a manufacturer of any but the simplest equipment. Mongolia remains a location for sales and demand rather than

R&D or as a global exporter of mining services. But Mongolian companies are slowly ascending the value chain.

One such company is Tanan-Impex, a drilling company headed by Choibat, who explained the advantages of working with Mongolian companies. "The reason South Gobi Sands decided to work with us in 2004 wasn't only due to the fact we were one of the few drilling companies which could handle the size, but also because we Mongolians know our land," Choibat said. "The drilling season here lasts between March and November and drilling companies need to move fast."


Batmunkh, chairman, Blast Co., a specific explosives company, puts his growth down to his focus on manufacturing his products rather than acting as a distributor. "We are focusing on building factories rather than being a service provider or a distributor," Batmunkh said. "When you are a manufacturer the cards are in your hands and you can decide when you want to play them rather than being at someone else's whim."

Naranbaatar is also a believer of investing heavily in his company, Glogex, a mining consultancy hoping to move into contract mining. "For the mining contract services I have been very clear



A detonated blast using products from Blast Co., a rapidly growing Mongolian explosives supplier that has intentions of moving into the manufacturing end of the business rather than remaining just a service supplier.


that we will not be purchasing Chinese equipment," Naranbaatar said. "We will be purchasing Cat equipment from Wagner Asia. We want an experienced partner with the best equipment and we are not afraid to pay more if that is what it takes. The problem with some Mongolian companies is that they see Chinese equip-



BLAST COMPANY

Defining the Next Trend in Mining Sector

A pioneer in the field of the explosives production, blasting work service and leading-edge technical engineering support in Mongolia, Blast Company ensures confidence and reliability.



BLAST COMPANY
 Address: Amar Street - 2, Interbook Bldg.
 Sukhbaatar District, Ulaanbaatar, Mongolia
 Tel: +976 11 325995 Fax: +976 11 324044
 E-mail: batmm@chinggis.com Website: www.blastcompany.mn



GOBI EXPLORATION LLC
GOBI CATERING LLC



<p>GOBI EXPLORATION LLC</p> <ul style="list-style-type: none"> • Geological mapping • Reconnaissance geological exploration • Geochemical sampling • Trenching and drill core logging • Data processing • GIS data base building • Report compilation • Ground Mag & IP survey • Ground water exploration • Hydrogeological study and more... 	<p>GOBI CATERING LLC</p> <ul style="list-style-type: none"> • Full camping and catering services • Camp construction in remote areas • Food and other logistical supply delivery • Procurement • Transportation • Building of temporary accommodation facilities and more...
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



Address: Suite 306, Gazar Business Center, Zamchid Str.-39, Bayangol District, Ulaanbaatar, 210535 Mongolia
 Tel: +976-11-365763, 365470 Cell: +976-99114791
 Fax: +976-11-366279 E-mail: info@gobiexploration.mn
 Website: www.gobiexploration.mn



Horsepower meets horse power: A Caterpillar 793D truck being delivered—900 km across the Gobi desert.

ment at 1/3 of the price of Western equipment and don't take into account the increase in productivity and the lower maintenance costs of the latter."

Wagner Asia was one of the first companies to benefit from foreign investment in the market and has gone on to become more than just the Cat distributor. Wagner has been in the market for more

than 10 years, longer than most foreign companies, meaning they have both a loyal client base as well as a loyal employee base that has been trained up over those years. Newcomers into the market, such as Zimine, a joint venture between Murubeni (a large Japanese trading house) and Tavan Bodt Group have to pay well to poach staff.

One of a new brand of Mongolian leaders is Gantumur, general director, Ochir Undraa, a Mongolian conglomerate involved in the supply of mining equipment and blasting via its subsidiary, Mera. Gantumur's experience previously told him there was a gap between the workers and the managers. "We have decided to work within a very progressive structure whereby we encourage communication and interaction between all people in the company so that we can harness the best ideas to move our company forward," Gantumur said. He also indicates corporate social responsibility is an important factor in moving Mongolian companies forward, but few others have so far followed Ochir Undraa's lead.



Local Support in Action

Having a local sales and support team is important for us to be close to our customers. Our team of professionals is here to help our customers in Mongolia with all their needs and provide the best possible local support.

Sandvik Mongolia LLC
Temple View Residence, Apt. 2
Ulaanbaatar, Mongolia
Phone: +976 11 331931



Martin Quick, CEO and president of Khan Resources.



Southgobi's Sunset coal open-pit (southern Mongolia). (Photo courtesy of Alexandra Ashikhmina)

Mongolian companies also suffer from a weak banking sector and a lack of access to credit which makes it difficult for them to compete. The Mongolian government recently had to step in to offer a state guarantee on savings following the collapse of two medium sized banks during the financial crisis. Randolph Koppa, president, TDB, one of the better performing banks in a weak sector, argued the GDP in Mongolia is expected to grow with the mining sector investment. This will mean the banking and financial services sector will need to get its act together.

"Raising money for mining projects on the local market is difficult," said Gan-Ochir, director, Blue Sky Minerals, a Mongolian junior company. "If you have an operating mine it is best to go to Hong Kong; for exploration, Canada or Australia are easier."

Uranium

The Uranium sector in Mongolia is courted by controversy. In May, Khan Resources, a Canadian junior company, had both of its licenses withdrawn. Khan Resources' main focus was the Dornod uranium property, which was formerly an operating mine under the Soviets. Under Mongolian legislation, Khan Resources would have been obliged to hand more than 51% of its resource to the government, however things are looking considerably worse. Sources within the sector say the Russians were unhappy their former mine had been sold by the Mongolians at such a low price as they were willing to come in to redevelop the mine. The Russians then launched a hostile take over for Khan Resources which was refused. Since then Khan Resources licenses were taken away on a technicality and unless its legal battle proves to be successful, there is a chance that Khan Resources will be left with nothing. Martin Quick, CEO, Khan Resources, explained the circumstances surrounding the controversy, specifically when Khan was trying to sell its assets. "We had two offers for the

company, a Russian bid and a Chinese bid. We accepted the Chinese bid, which was the highest bid and look what happened to us," Quick said. Khan Resources has invested more than \$20

A NEW VISION IN MINING



1,000,000,000 tonnes Thermal Coal!

Mongolia: Coal production 2010

Canada: Nickel, Copper, Vanadium, Titanium

Rob McEwen and Harald Batista on Advisory Board.

Featured on BNN: view video at watch.bnn.ca/#clip289989

Investor Relations

Scott Parsons 604.642.2625 info@prophecyresource.com
<http://www.ProphecyResource.com>

TSX.V: PCY Frankfurt: 1P2



The Mongolian government is currently considering whether and to what degree foreign investment should be allowed for development of Tavan Tolgoi. Located in the South Gobi desert, this deposit has estimated coking coal reserves of 6.5 billion mt and was originally developed with government funding.

million in the property, but they face an uphill battle getting either its licenses or shareholders investment back.

Society

Mongolia has 20 years experience of democracy, but remains a politically uncertain place. Concerning the investment environment, potential foreign investors are worried in particular about the 34% stake that the government has in the Oyu Tolgoi project, Khan Resources' legal issues and whether the tax environment will remain stable. They also closely watch Centerra Gold's investment. "What international investors look for is stability," said Mike Lelliott, operations manager, Aquaterra East Asia LLC, a water solutions company working closely with Oyu Tolgoi. "They need to know when they invest the goal posts aren't going to move."

"Whether or not Mongolia fulfills its growth potential depends on whether the government establishes clear and consistent frameworks and regulatory regimes that gives business the confidence to invest," said Nick Audin, strategic marketing manager, Orica.

Mongolia is a relatively high risk, high reward environment. The unfortunate

problem with Mongolia is that while the international investors are looking for stability and a profitable business environment, national interests are concerned only with what the mining sector is doing for them. "At the moment there is a feeling in the sector that a lot of direct foreign investment goes straight into a foreign company hiring expensive ex-pats and then straight out of the country," said Nyambayar, director, Best Drilling.

Currently there is concern in the government that Oyu Tolgoi is not using enough local contractors. Its two largest contractors, Redpath and Major Drilling, are Australian and Canadian respectively. There were unconfirmed plans for Fluor Corp., OT's infrastructure contractor, to hire 2,600 Chinese workers to work on infrastructure projects. In a smaller way, MEC hired a Chinese company to work on its infrastructure in the West of the country. While Mongolia has an unemployment rate of more than 20%, it's no surprise Mongolians feel aggravated when they see these companies acting, as companies do, in their own interests rather than those of Mongolian society. Ranjeet Sundher, senior advisor, Prophecy Resources, summarized the international

point of view: "We come here, we pay our taxes, we do the right thing when it comes to the environment and we can't do any more," Sundher said. "We are not the government."

Also in fairness to Oyu Tolgoi and MEC, few Mongolian companies have the capacity to take on certain operations so managers must balance between making a good business decision and a good political decision.

Mongolia is open for business, though conditions can be tough. Mongolia has significant natural mineral deposits and even now companies who enter will be amongst the first. While China's appetite for raw materials and energy remains insatiable, opportunities will abound. However so long as there is a disconnection between the interests of the international companies and the national will, the environment can be considered as troublesome. If ordinary Mongolians directly see the benefits that the mining sector can bring to them, and international companies truly engage in long-term investments which include and cater to Mongolian concerns, then international mining can play a crucial and beneficial role in the country's development.