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## Kazakhstan Mining

*Even though significant challenges remain to bring the investment climate into line with recognized international standards, mining in a post-Soviet Kazakhstan has evolved into a leading example of economic reform and growth within the CIS region.*

A REPORT BY GBR FOR E&MJ

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# Kazakhstan—Not Just Another ‘Stan...



Bogatyr Komir—open-pit coal mine in Ekibastuz, Kazakhstan.

At the summit of Central Asia, straddling regional superpowers Russia and China to the north and east respectively, sits the vast and resource rich nation of Kazakhstan. Despite Kazakhstan's mining industry suffering a significant retrenchment in both investment activity and production output throughout the global financial crisis' most acute period in 2009, the mining sector is now forecast to enjoy high rates of sustained growth over the short to medium term.

As the planet's ninth largest country, covering 2,717,300 km<sup>2</sup>, Kazakhstan dominates its Southern Central Asian neighbors both in terms of land mass and mineral wealth. Despite Kazakhstan's full portfolio of mineral resources being far from fully understood, proven resource figures are truly staggering (Table 1). Of greatest interest are Kazakhstan's world leading reserves of uranium, chromite, zinc, copper, gold and manganese. Despite Kazakhstan's position as a de facto landlocked country and suffering from extremes of climate, its mineral wealth has colossal potential for development. "Kazakhstan not only contains huge reserves, but also the quality and content of the deposits are excellent," said Bulat Uzhkenov of the Kazakhstan Geological Committee. "Exploration in this country is also quite developed which provides a sturdy base for new exploration. At the same time, there are still huge reserves of mineral resources that

have not been explored yet. As a result Kazakhstan has great potential in terms of its mineral endowment."

These circumstances have galvanized a rush of both domestic and international investment over the past 15 years.

## Transition to Independence and Economic Growth

Following the disorderly break-up of the USSR circa 1991, the once thriving Kazakh mining industry was thrown into disarray, suffering a sudden and steep decline. Anecdotal evidence of widespread losses in both human and industrial capital throughout the industry abounds on the ground as Kazakhstan's economy painfully adapted to the shocks of Perestroika, transforming from a centrally planned model to that of a market economy. Widespread

structural and economic reforms, such as privatizing state owned industries, and the courting of foreign direct investment (FDI) have been at the heart of Kazakhstan's economic resurgence since this post-independence period of instability. These changes were implemented by incumbent President Nursultan Nazarbayev, with a clear focus upon supporting promising industries such as mineral extraction. A former miner himself at Karmetkombinat (today's Arcelor Mittal steel plant), President Nazarbayev continues to strongly support growth in the mining sector, driving the industry forward with a series of challenging expansion targets, notably the doubling of production by 2015.

The pragmatic approach employed by the Kazakh Central Bank throughout Kazakhstan's transition period has enabled the state to clear external debt and accumulate significant foreign reserves. This has helped to stabilize the Kazakh investment climate as well as insulating the broader economy from the whims of global commodities markets. This, and the resurgence in global commodities prices, are the key catalysts behind Kazakhstan's growing importance as a global supplier of minerals and a hub of mining activity.

By 1998, the vast majority of the mining industry had been privatized. Nevertheless, there still remains a significant relative output gap between resource wealth

**Table 1—Kazakhstan's major mineral resources (1,000 metric tons)**

Reserves	Quantity	World ranking
Chromite	350,000	1
Copper	40,000	4
Manganese	600,000	3
Gold	2	9
Iron ore	17,000,000	7
Lead	4,800	1
Uranium	900	2
Zinc	34,000	1

Source: USGS 2006



and output when leading mining nations are analyzed in comparison. Given increasing demand in emerging Asia, combined with Kazakhstan's strategic geographical position, such an output gap represents significant opportunities for international investors, juniors and mining houses alike.

"Kazakhstan has been lacking attention from international investors in a range of industry sectors that the country is inherently strong in," said Artur Krivov of the Kazakhstan British Chamber of Commerce (KBCC). "Mining stands out as a sector that would benefit significantly both investors and mining companies operating in the region. This is not only with relation to the extractive industry, but also very much with processing of minerals as well. One of Kazakhstan's key priorities is to expand upon our mineral processing industries; uranium in particular presents an excellent opportunity to develop upon this. One of the biggest points we are trying to make as a chamber is you have to stop looking at Kazakhstan as just a place where you extract the resources you need and then leave. Rather, investors should look at Kazakhstan as more of a long-term investment proposition to create added value. Kazakhstan is positioned ideally to export to its neighbors

such as India and China; these are the world's fastest growing economies."

### Kazakhstan's Mining Industry in 2010

After oil and gas, the mining industry in Kazakhstan is the second largest economic sector when evaluated in terms of dollar revenues. In 2009, mining represented 19.6% of Kazakhstan's national GDP and US\$21.3 billion worth of economic output. Although the mining sector's growth trajectory has shared a similar pattern of turbulence to that of the global economy during the recent financial crisis, growth in the mining sector is expected to recover strongly with rates of around 7% by 2011. Given mining's profile as a typically capital intensive industry, employment numbers in the industry are proportionally low relative to dollar output at just 2.4% of Kazakhstan's workforce. Currently, total employment in Kazakhstan's mining sector accounts for approximately 205,000 jobs out of a national workforce in the region of 8.5 million. Employment is spread throughout the value chain ranging from logistics and equipment suppliers, to front end exploration geologists.

Perhaps Kazakhstan's greatest weakness as a nation and investment destina-



David Woodall—president of Ivanhoe's Gold Operations, CEO for AltynAlmas, the subsidiary in Kazakhstan.

tion is the country presents a number of negative stereotypes associated with Central Asia and the former Soviet Union to international investors and prospective miners. The deficit in reliable information regarding Kazakhstan's business environment has inadvertently disguised what many enlightened observers regard to be the genuine jewel in the crown of the whole CIS region. "Kazakhstan is developing a strong and efficient resources sector," said David Woodall, CEO of Altynalmas. "When



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you visit Kazakhstan you will find a country developing what, in my view, has the potential to become one of the world's major resources countries. If you understand what has been achieved in 20 years since independence, one can only imagine where Kazakhstan can be in another 20 years...a real jewel in Central Asia."

Beyond Kazakhstan's outstanding resource portfolio, the country boasts one of the strongest economies in the CIS and one of the most stable investment climates. Since independence Kazakhstan has consistently risen up the ranks of the World Bank's Ease of Doing Business Rankings

and is currently ranked at 63<sup>rd</sup> position from 183. Post-independence reforms throughout the Kazakh economy combined with very strong government support for growth within the mining sector have given a significant boost to the country's investment offering. In particular, President Nazarbayev has renewed his economic credentials with a raft of proposals related to the mining sector such as renewed legislation and ambitious targets to double mining production and expand the economy's downstream industrial base by 2015. Kazakhstan's increasingly proactive approach toward its key industries has

perked interest from recognized global players such as Rio Tinto, who is now ramping up its operational interest in the country. "Kazakhstan is a fascinating country with huge potential in the minerals sector. Kazakhstan has not had its day yet; we believe this will come in the not too distant future, and Rio Tinto hopes to be a part of that," said Chris Welton of Rio Tinto.

Although post-independence Kazakhstan has evolved into a leading example of economic reform and subsequent growth within the CIS region, significant challenges remain in order to bring the investment climate into line with recognized

## Interview with Deputy Prime Minister of Republic of Kazakhstan, Minister of Industry and New Technologies Mr. A.O. Issekeshov

### What initiatives does the Ministry plan to implement to assist the Kazakhstan mining industry to modernize its technological base?

In general, during the recent years the mining and smelting industry has been enjoying a boom, which was not interrupted even by the global economic crisis. Since 2003 production volumes of metal ores have increased by 350%. Sales of ferrous metallurgy (mining and converting industries) have increased from \$2.7 billion in 2003 up to \$3.86 billion in 2009, and non-ferrous metallurgy (mining and converting)—from \$1.9 up to \$5.35 billion.

In 2009, investments into minerals based industries of Kazakhstan amounted to US\$21 billion (12 times higher than in 1996). Of that, \$4.6 billion was invested into mining and conversion of solid minerals. The greatest volume of investments, next to hydrocarbons, goes to the polymetallic and ferrous metals industries; then uranium, coal, gold, copper and aluminum follow.

The investments are directed into the technical modernization of mining companies and construction of new high added-value enterprises. Kazakhstan and transnational mining and smelting companies working here, despite the crisis, managed not only to preserve the production, but also to continue implementing investment projects.

In the near future, the government will approve the Mining-Smelting Industry Development Program in 2014. The target of the program is the provision of raw materials for the production of high-technology and science-intensive finished products (mechanical engineering, construction, aircraft, space and defense industry). Upon the implementation results of this program we expect 107% growth of gross value added for metallurgy products.

There exists legislation to encourage the transfer of new technologies and a number of state instruments help to stimulate and support companies carrying out modernization.

### What steps will the Ministry of Industry and New Technologies take to reduce the time frames for obtaining permits in Kazakhstan mining industry?

The Ministry of Industry and New Technologies undertakes measures against bureaucracy and corruption. The Ministry methodically works on unifying licensing legislation, reducing timeframes for consideration of applications for geological survey, mining and development of reserves, and also on reducing the list of activities subject to licensing.



The Hon. Minister Asset Issekeshov—Minister of Industry and New Technology, now separated from the oil and gas.

### How do you estimate the perspectives of the long-term growth of the Kazakhstan mining industry? Which minerals are most important for the industry from the long-term perspective?

The increasing of oil, coal and metals production is not a goal in itself as the President mentioned many times. Mineral resources are considered as raw materials for further processing. East-Kazakhstan titanium and magnesium are supplied to external markets not in the form of ore, but as alloys as demanded by Airbus and Boeing plants.

### What is your message to the international mining society and foreign investors?

We have civilized rules of play, able man power, an attractive tax legislation and well-developed infrastructure—including water supply, electric power, communications etc. Believe me, in some other countries you can only dream of such conditions. We are absolutely open to bilateral dialogue with business.



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Rio Tinto has been active in Kazakhstan in the fields of exploration and business development for many years. We're committed to growing our business in the region and are seeking large, long life mining projects at various stages of development.

We're looking forward to a long and successful relationship with Kazakhstan, and to continuing to be a partner of choice in the metals and minerals business.

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\*Our copper mines include Bingham Canyon (pictured) in Utah, US.

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international standards. Of greatest concern are Kazakhstan's relatively antiquated transportation infrastructure, management inefficiencies, technological obsolescence, increasing levels of government interference in private sector enterprise, local content requirements, bureaucratic and micro-managing approaches to project approvals and monitoring, as well as what would be

regarded by international standards as an exceptionally harsh approach to dealing with infringements of the law. Suspected speculation on mining properties is a particular area of Kazakh law investors should be very much aware of.

As a result of these factors, mining output in Kazakhstan remains significantly below the country's potential given its vast

mineral resource endowment and ideal proximity to some of the world's major emerging markets for commodities demand.

The nation's key challenge now is to raise the investment climate to international standards for investment and production then to flourish. While Kazakhstan's world-class uranium reserves have elevated the country to an international leader in production,

## Interview with Vice Minister of Industry and New Technologies Hon Albert Rau

*"Please introduce us to the role of the Ministry of Industry and New Technologies within Kazakhstan's mining sector."*

**AR:** "The Ministry of Industry and New Technologies is responsible for all of Kazakhstan's mineral resources except for oil and gas. There are many facets to the Ministry of Industry and New Technologies' mandate from technical requirements and standards involved in new investments to trade and export governance.

Sub soil usage very much forms the basis of Kazakhstan's economy; there is a big government initiative to increase mineral production by 100% over the course of the next five years. Within this context, the Ministry of Industry and New Technologies governs the development and investment into all of Kazakhstan's sub soils (excluding oil and gas), as well as the construction and industrial development of the country.

*"Can you please provide us with a brief overview of the regulatory framework encompassing Kazakhstan's mining industry?"*

**AR:** "Parliament has just recently accepted some changes in Kazakhstan's sub soil usage laws. President Nazarbayev is expected to sign this off imminently. These changes make the legal framework for investors into Kazakhstan's sub soils clearer. We will provide official documentation to investors with regards to the properties they are prospecting and developing. This change will enable them to achieve financing more efficiently than before.

For the past two years, there has been a moratorium on the issue of new exploration licenses due to speculation in the market place. This is expected to be lifted by President Nazarbayev together with his signing off of parliament's recent changes to Kazakhstan's sub soil usage laws. This change will open up a range of new investment opportunities in Kazakhstan's vast mineral resource base."

*"Why was the moratorium on exploration activity introduced?"*

**AR:** "I must confess, we had a lot of work to do in terms of developing an effective regulatory framework that would protect the interests of Kazakhstan as a country, while simultaneously ensuring mining companies and investors found Kazakhstan an attractive proposition to come and do business with. In essence we wanted to develop a model that would remove speculation from the market. Two years ago, we had many companies purchasing and bidding for exploration permits that had no intention of undertaking development of Kazakhstan's mineral resources. Their objective was to hold property rights they could later sell at a profit; this damages the economic growth potential of Kazakhstan. This area of business activity was a priority for President Nazarbayev to stop, thus the introduction of the moratorium. In a review of existing contracts, around 10% have been stopped for further investigation."

*"How important is innovation to Kazakhstan's mining and industrial sector?"*

**AR:** "Innovation and the introduction of new technologies into Kazakhstan's mining industry is one of the key priorities for our ministry and government. Kazakhstan has vast resources, however, it could achieve more efficient production ratios overall with the implementation of the world's leading processing technology. Part of our strategy is to attract foreign companies and investors with access to the world's leading technologies. This will have a net positive effect on Kazakhstan's mining sector through the positive dispersion of state-of-the-art technology across the industry. From personal experience working on copper projects with British partners, I can confirm this is a very effective means of rapidly developing Kazakhstan's innovative approach to mining, as well as allowing our industrial base to grow and diversify the economy. President Nazarbayev has just inaugurated the opening of a new aluminum electrolysis factory in Pavlodar; this demonstrates the growing industrial capacity and technological development of Kazakhstan's mining related industrial base."

*"How do you assess the key strengths and points of attraction for investors coming into Kazakhstan's mining industry?"*

**AR:** "Kazakhstan's greatest strength is our political stability and continuity. Our labor force is highly trained and relatively low cost and our resource base is vast, offering a huge array of opportunities for new entrants into the market. Kazakhstan's one standout weakness is our status as a landlocked country; this hinders our ability to export bulk minerals such as iron ore at globally competitive prices. President Nazarbayev has suggested a canal link to be developed between the Caspian Sea and Black Sea in order to resolve this challenge; we will see how this develops over time."

*"How do you expect the mining industry in Kazakhstan to develop between now and 2020?"*

**AR:** "We are presently looking at the period from now until 2014. There are a number of initiatives under way such as President Nazarbayev's objective to double production and the Ministry's broad based objectives to increase investment into the sector as well as boosting manufacturing and industrial activity that evolves out of the sector. We are currently working on our strategic plan for the next five years; this will be announced very soon.

Our objective is to ensure industrial and technological development evolves from Kazakhstan's base mining industry. If we were just to export raw materials, our resource base will one day run out in the future and we would be left with nothing; this would be a huge mistake. Currently, Kazakhstan imports around US\$5 billion worth of equipment every year that is used in the mining industry; we want to reduce this figure, while at the same time increasing our industrial capacity and economic diversity."



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Head frame at Kazzinc Malevski mine. (Photo courtesy of Kazzinc)

numerous other commodities such as copper, chromite, manganese and gold have excellent potential for development within the right regulatory framework. Almat Daumov of leading law firm Grata offers a snapshot of the Kazakh sub soil approvals process. "The approvals procedure is bureaucratic; this is because there are a wide range of issues that have to be signed between the government and investors. The most important issues are the investment obligations of investors, as well as the social obligations of investors contributing to the regions they have operations in. Third in terms of importance are local content obligations; these are relatively new and are not yet very clearly defined in terms of precise requirements and definitions. Quite often the market cannot provide the levels of skilled labor required for particular projects in certain regions. There can be strict penalties for not meeting local content requirements; this is often considered a violation of sub soil usage agreements."

## Market Structure

In terms of production, Kazakhstan's mining market is effectively divided into four clear sub-sectors. Principally there are the four main domestic producers: ENRC, Kazzinc, Kazatomprom and Kazakhmys. Next are an increasing number of recognized international mining players including Arcelor Mittal, Areva, Cameco, Severstal, Ivanhoe Mines and Rio Tinto that have either established operations, or are just starting to make headway into the market. Lesser known, although far from insignificant Kazakh firms such as Gornoe Bureau,

Yuzhpolimetal and Bogatyr Komir account for Kazakhstan's third tier of mining firms active in iron ore, lead and coal respectively. Kazakhstan also has a relatively small mix of international and domestic junior firms predominantly active in gold and copper exploration such as Frontier Mining, Sunkar Resources, Central Asia Resources, Hambledon Mining and Orsu Metals.

From a services sector and equipment supply perspective, Kazakhstan has only started to come onto the radar for many of the industry's established engineering firms such as Hatch, Amec, Bateman, Boart Longyear Drilling Services and Leighton Holdings. Regardless of this, Kazakhstan has a relatively strong domestic services

sector with a number of incumbent firms such as Kazgiprotsvetmet, Vostokshah-tostroy, Iskander, Topaz and Baitau Partners supplying a range of vital services to the industry since the early 20<sup>th</sup> century.

"I think service and engineering companies have not yet seen the full development of Kazakhstan. In addition, service companies who work in the sphere of construction of large projects; engineering and technology are not widespread. There are significant opportunities available within this niche sector of the country's mining industry," said Nikolai Radostovets, president of the association of mining.

Kazakhstan's equipment supply market is pervaded by a division in management and procurement perspectives between the incumbent short term purchases of cheap Russian or Chinese equipment and the more conventional international approach of investing more on capital expenditures over the course of production life cycles. As the Kazakh mining industry's presence on global stock markets continues to increase, so does the requirement for world class equipment standards. Within this context, the market is beginning to see a shift away from traditional Soviet era procurement strategies toward one more concerned with long term productivity and efficiency; predominantly at the behest of the international investment community. Such a cultural shift within the local market combined with ambitious national production targets present a significant range of opportunities for international suppliers not yet established, or exporting into the Kazakh market place.



Jumbo drill at Kazzinc, a major fully integrated zinc producer with considerable copper, precious metals and lead credits. The company's core operations are in Kazakhstan, mainly in East-Kazakhstan Region. It employs more than 22,000 people in mining, ore dressing, metallurgy, power generation and mechanical production. (Photo courtesy of Kazzinc)





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## Kazakhstan's Sub soil Regulatory Framework

The constitution of Kazakhstan and Edict of the President of 1996 denotes all sub soil mineral resources are owned by the Kazakh state. Following a mid-2010 government re-shuffle, responsibility for sub soil mining related commodities has been taken out of the Ministry of Mines and Energy's portfolio, and placed into the newly created Ministry of Industry and New Technologies. It is widely believed this change will herald faster development in Kazakhstan's national industrial base, utilizing the mining industry as a platform, as well as developing a more coordinated strategy in terms of innovation and technological standards within the mining sector. The establishment of a sustainable downstream industry is one of the new ministry's fundamental objectives in line with Kazakhstan's 2030 economic master plan.

The key article of law governing Kazakhstan's mining industry is the Sub soil

and Sub soil Use Act, recently modified and adopted in July 2010. This law regulates relations arising in the sphere of sub soil use and is aimed at protecting the interests of the Republic of Kazakhstan, as well as facilitating the rational and comprehensive study and use of sub soil within the country. According to the Sub soil Use Act, one may obtain sub soil usage rights in three particular ways; either directly from the state, through purchase or transfer from another entitled sub soil user, or through legal succession from the reorganization of entities already possessing sub soil usage rights. The process for acquiring sub soil usage rights is either through direct negotiation or an open tender depending upon market conditions, government participation, as well as vendor and purchaser circumstances. Mineral exploration contracts are valid for six years, and are eligible for renewal for up to two additional periods of two years. Contracts for production are valid for up to 45 years and combined exploration and production

licenses are valid for up to 31 years; all of which are issued on a case by case basis.

Other key provisions of the 2010 act are; the Kazakh government has pre-emptive rights/first refusal to purchase any sub soil license at market prices should the asset come up for sale. Newly established national mining champion Tau-Ken Samruk will be wholly responsible for such purchases if deemed attractive or strategically necessary by state authorities. Local content requirements form a significant area of the Sub soil Act 2010. As such, procurement of goods, work and services for sub soil operations shall be from Kazakh sources if they satisfy the technical requirements outlined by the purchaser. Open tenders for equipment and services contracts are pivotal to the local content requirements in the Kazakh mining market. Another key provision is that upon termination of a particular sub soil contract, all geological information shall be transferred into Kazakh state ownership. A sub soil user shall transfer, free of charge, all documents and other material forms of geological information to the authorized agency for sub soil studies and use. In the vast majority of cases this will be the State Geological Committee.

It is rather early to understand what the precise implications of the July changes to the Sub soil Usage Act will be, however some initial positive and negative outcomes for mining companies and investors can be noted. The changes have brought a great deal more clarity with regards to the processes and procedures for transfer of usage rights between different private entities, as well as the Kazakh state. This increase in detail is envisioned to reduce the arbitrary nature within which decisions are taken and laws interpreted at a state level. The Sub soil Usage Act 2010 also provides clearer information with regards to exactly which documents are required to be held and submitted by mining firms at various times throughout their project life cycles. Some of the more negative interpretations with regards to recent changes concern the stability regime for laws enshrined in sub soil usage contracts, as well as the ability of statutory governing bodies to unilaterally terminate contracts in the cases of two violations of the contractual agreement in question. The Previous Sub soil Usage Act required substantial violations of obligations under said contract prior to any unilateral termination. In effect, recent changes have made it easier for state authorities to cancel sub soil usage con-



Bogatyr Komir—pit dragline loads overburden into railcars.





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tracts for minor infringements. The scope of the stability regime has been narrowed, excluding both tax and customs regulations on top of previously excluded environment, national security and health and safety legislation. As a result, agreements enshrined in signed contracts are subject to changes in Kazakh law, thus creating confusion and unpredictability for business models liable to changes in the broader legal environment.

When compared with international centers of mining excellence such as Australia or Canada, Kazakhstan's regulatory environment in general is considered bureaucratic, over burdensome and complex with regards to the import of capital goods and local content requirements. When regional comparisons are made, it is fair to say although not as expedient as Kyrgyzstan's regulatory framework, Kazakhstan's legal regime is the most sophisticated in terms of providing long term guarantees for investors. It is important to note the trajectory of change in Kazakhstan is increasingly one toward the free market model familiar to developed market economies. Following a European Bank of Reconstruction and Development loan of €500,000 in December 2009, Kazakhstan has undertaken a significant review of the legislation in place for the mining industry. Jason Stirbinskis, managing director of Central Asia Resources, elucidates upon the benefits of working alongside local partners in managing Kazakhstan's regulatory framework. "The level of reporting and bureaucracy in Kazakhstan is significant, it is all logical but significant. You really need someone to help you work out what you do and don't have to respond to urgently, and how to nav-

igate the system. The best way to do this is by working alongside a local partner. Our people and the knowledge we have of Kazakhstan are a huge advantage for Central Asia Resources."

Of greatest interest to exploration firms and mining interests considering Kazakhstan's mining market is an expected removal of the moratorium on new exploration activity introduced in 2008. Following rampant speculation on Kazakh mining properties from the beginning of the century, President Nazarbayev introduced a moratorium on exploration activities in lieu of the development of sufficient legislation to prevent this practice. Given Kazakhstan's vast mineral wealth and the exploration technologies available to leading junior firms, such a legislative change

presents a boon to the international market, potentially opening a new frontier for companies interested in diversifying their supply bases away from increasingly tax intensive established markets. At the time of going to press, it was widely anticipated this change would be imminent.

## Tax and Royalties Regime

In reaction to the significant downturn in production and investment following the global financial crisis, President Nazarbayev signed into law the Amendments and Additions to the Acts on Taxation. This policy's fundamental aim was to ease the cost burden on mining firms by maintaining corporate tax rates at 2009 levels through to 2012. Significant job losses throughout 2009 resulting from scaling back production galvanized the government into offering tax incentives for firms making a loss that didn't lay off workers.

Looking forward, the trend of reform is increasingly looking at a more progressive taxation and royalties regime, whereby fixed taxes drop over time, however royalties related to output increase in line with global commodities prices. Corporate income tax rates will drop from 20% in 2009 to 15% in 2011. Concurrently a new royalties' regime will be introduced called the Mineral Extraction Tax, whereby payments will be calculated according to what particular mineral is being extracted and its market price at the time. It is expected the MET will increase the overall royalties' burden for mining companies operating in Kazakhstan. It is important to note however, Kazakhstan's tax regime for the mining industry is increasing from what would be



Liebherr equipment, part of the renewing project the company is currently undertaking, a commitment to use top-notch technology for increased productivity. (Photo courtesy of Bogatyr Komir)





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considered a very low base relative to international standards. "There is still work for us to do with regards to improving the investment climate in Kazakhstan; the government and the president are working hard on this. We are now showing our ability to attract major industry players such as Rio Tinto, JOGMEC and Vale," said Samruk Bolat Svyatov, CEO of national mining champion Tau-Ken.

Kazakhstan's tax regime falls very much into coordination with the broader government objective of stimulating downstream industry and the production of manufactured goods. For instance, the Excess Profits Tax has been revised to encourage processing as well as export, as opposed to simply just export of raw materials. The government has also introduced a range of tax incentives for international investors to establish processing divisions to complement their existing mining operations.

### Environmental Standards in Kazakhstan

Kazakhstan's environmental regulations lag significantly behind recognized international standards. Implementing good international industry practices (GIIP) remains a significant challenge for the mining industry of Kazakhstan. Kazakhstan's mining industry would benefit in particular from improving procedures to prevent contamination from tailings, waste rock dumps and smelters. The Kazakh environmental code is very detailed and prescriptive. Although this provides for a comprehensive regulatory base, laws are often interpreted literally as opposed to being adopted in spirit. It is

important to note Kazakh companies in the past have looked at the lowest common denominator in terms of environmental practices and protections, as the scope of international finance and shareholder requirements have an ever increasing influence on the way that operations in Kazakhstan are undertaken, these issues are becoming an ever increasing focus from the leading players throughout the value chain. This shift in priorities carries with it a huge opportunity for the world's leading consultancies such as SRK Consulting, currently in the process of establishing its Kazakh headquarters in Almaty.

### Key Minerals, Companies and Projects

#### Uranium

In an ever increasingly energy hungry global economy whose emerging environmental conscience continues to steer generation technologies away from traditional carbon intensive means, forecast increases in demand for clean energy fuels such as uranium are extremely exciting for uranium rich countries such as Kazakhstan. As of 2009, according to the World Nuclear Association in London, there are 436 nuclear reactors in operation worldwide, 43 reactors under construction, 108 reactors in design phase and 266 reactor designs under review. China currently has 24 nuclear plants under construction, with 100 scheduled to be completed by 2030. India has plans to construct two plants a year between now and 2020 in order to bring a further 24 nuclear power plants online. All in all, it is expected there will an

extra 400 nuclear power plants in operation around the globe by 2030. Uranium from decommissioned Russian nuclear weapons presently accounts for 30% of civil nuclear power fuels. With this valuable resource set to expire in 2012, demand for Kazakhstan's rapidly expanding uranium sector is bound to increase.

Kazakhstan's total assured uranium resource equates to approximately 1.6 million metric tons (mt), giving Kazakhstan the second richest uranium reserve in the world after Australia. It is generally agreed these 1.6 million mt are concentrated in six uranium rich provinces. Just three of these regions are currently engaged in production, predominantly using the in-situ leaching method, however with a small proportion of shaft mining also in place. The Shu-Sarysu province in South Central Kazakhstan accounts for 60.5% of Kazakhstan's uranium reserves, with key mining activities taking place at the Uvanas, Mynkuduk, Kanzhugan, Moinkum, Akdala, Buddenovskoye and Inkai mines. All mining operations in Shu Sarysu province employ the in-situ leaching methodology of uranium extraction. The Northern Kazakhstan province that encircles Astana represents 16.5% of Kazakhstan's total uranium reserves, with key mining operations taking place at the Vostok deposit. Shaft mining methods alone account for production at Vostok. Syrdarya province in Kazakhstan's deep-south represents 12.4% of Kazakhstan's total uranium resources, major mining operations currently underway are at Northern and Southern Karamurun, Irkol and Khorassan. In-situ leaching is the pre-



The Ulba Metallurgical Plant Joint-Stock Company is engaged in production of hi-tech uranium, beryllium and tantalum products, for the needs of the nuclear power industry. One of the leaders of the world, a unique facility with decades of tradition in Kazakhstan. Located in Ust-Kamenogorsk, one of the Kazatomprom facilities. (Photo courtesy of Ulba Metallurgical Plant)





Kazzinc is a major fully integrated zinc producer with considerable copper, precious metals and lead credits. All the Company's operations are in Kazakhstan, most of them in East Kazakhstan Oblast. The Company employs more than 20,000 people in mining, ore processing, metallurgy, power generation and mechanical production.

The Company was established in 1997. For the years to date Kazzinc has significantly increased its production capacity and output in all production areas. The Company continues to develop striving to become one of the world's lowest cost zinc producers.

Kazzinc is certified under ISO 9001, ISO 14001 and OHSAS18001 standards.



Managing Director Jason Stirbinskis and an exploration manager inspect core at Central Asia Resources. (Photo courtesy of Central Asia Resources)

dominant method employed throughout operations in Syrdarya. The Caspian, Balkkash and Lli provinces account for 1.8%, 0.4% and 6% of Kazakh uranium reserves respectively; as of yet no uranium production is under way in these regions.

Kazakhstan's uranium extractive sector is widely regarded as the country's most developed mining sub-sector. 2009 saw Kazakhstan achieve its long held ambition of becoming the world's leading uranium producer, achieving output in the region of 14,000 mt, a 60% year-on-year increase from 2008. As well as capitalizing upon such growth with a further 30% increase expected for 2010 up to around 18,000 mt, a key strategic interest for national uranium giant Kazatomprom is to further develop downstream capacity within the nuclear fuel cycle. Leading international firms such as Areva and Cameco are working in partnership with Kazatomprom in order to help achieve the stated goal of moving the industry downstream.

"Further developing downstream capacity is an important part of Kazatomprom's strategic focus," said Kazatomprom Vice President Sergey Yashin. "The agreement is if you want access to Kazakhstan's uranium resources then you should give us something in return that will benefit Kazakhstan over the longer term. Kazatomprom can mine uranium independently; however we are focused upon developing Kazakhstan's technological base. We have major partnerships with companies such as Cameco and Areva. Kazatomprom's focus upon technology transfer is best demonstrated in the plant we have under construction in Ust-Kamenogorsk designed to

process raw uranium into more developed energy producing products."

In terms of international participation in the Kazakh uranium sector, a significant proportion of the globe's established players are already present in the market. Of greatest note are Areva (Southern Mynkuduk and Tortkuduk mines), Cameco (Inkai mine), Sumitomo Corp. (Western Mynkuduk mine), Toshiba (Khorassan-2 mine) and Uranium One (Karatau and Akdala mines). All international players in the market are required to work in partnership with Kazatomprom in order to develop both technological capacity and ensure production is in line with Kazakhstan's legislative requirements. Yashin highlights Kazatomprom's and Kazakhstan's ambitions for the industry by

leveraging international partnerships. "The goal for Kazatomprom is to participate in all elements of the nuclear fuel cycle, either by investing in Kazakhstan or internationally. We want to use our own uranium to have coverage throughout the entire nuclear value chain; not only to sell to Westinghouse or Toshiba, but to use uranium to provide end services ourselves. Kazatomprom is currently working on the construction of a processing plant alongside Toshiba, as well as an enrichment plant alongside RusAtom. The next stage is the construction of fuel assemblies alongside Areva; this will produce the final product. Kazatomprom is also working alongside Japanese and Chinese companies to produce pellets, as well as in partnership with Russian companies to build a small scale reactor. All of these projects significantly increase Kazatomprom's technological potential. We aim to complete all of these projects by 2016. The most important thing is enrichment as this significantly increases Kazatomprom's status and profitability. We plan to have our agreement with RusAtom concluded by the end of next year. We expect to have a nuclear power plant finished in Kazakhstan by the year 2020."

#### Gold

As uncertainty in the global economy continues to linger and gold prices continue to break records, the world's relatively untapped gold mining regions such as Kazakhstan have become of increasing interest. NYMEX gold prices have increased by almost 500% since 2000, from \$250 to



AIDD (Australasian Independent Diamond Drilling) working on drilling operations at Bakyrchik project, a large underground gold resource, 70% owned by AltynAlmas. Total measured, indicated and inferred resource, indicates 62.5 million mt at 6.6 grams/mt gold based on a 3 g/mt gold cut-off.





Photo: SSGPO/ENRC, iron ore mine, Rudniy/Kazakhstan

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Kazakhmys South mine Zhezkazgan complex. (Photo courtesy of Kazakhmys)

more than \$1,300 this year. Kazakhstan has not been excluded from the resultant gold rush seen throughout the world's gold rich regions.

According to the United States Geological Service (USGS), Kazakhstan has the world's ninth largest proven gold reserves

with 1,900 mt. In terms of output, however, Kazakhstan barely makes it into the world's top 20 gold producing nations with around 20 mt/y according to the British Geological Survey. President Nazarbayev has set out a clear target for gold production in Kazakhstan to reach 70 mt/y before

2015; raising the spectre of significant opportunity for international investment into Kazakhstan's lucrative gold mining market.

Kazakhstan's two major gold deposits are Vasilkovskoye (Kazzinc) with approximately 360 mt and Bakyrchik (Ivanhoe Mines Altynalmas) with approximately 277 mt; both of which are subject to very exciting development projects as this report goes to press. In terms of metallurgy, Kazakhstan's gold deposits are complex poly-metallic ores often presenting significant challenges during processing stages of production. Much of Kazakhstan's gold is produced by copper and zinc producers such as Kazzinc and Kazakhmys as a by-product of refining processes breaking down the complex poly-metallic ore bodies typical of Kazakhstan's geological profile.

The Bakyrchik deposit in particular has presented a number of challenges to Altynalmas' innovative team led by gold mining Executive CEO David Woodall. "The Kyzyl gold project has one of the most metallurgical complex gold ores. The main challenge with our deposit is we have arsenic grades as high as 1.4% and carbon grades as high as 4%," said Woodall.

By working with an international team of metallurgical and chemical experts, Alty-



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Vice-president – Rogachev Alexander Alexandrovich

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President Nursultan Nazarbayev—being shown latest Kazzinc investments in Ust-Kamenogorsk by Nick Popovic, CEO of Kazzinc. (Photo courtesy of Kazzinc)

nalmas has successfully modified a fluidized bed roasting technology that will reap high enough gold yields in order to make the enormous Bakyrchik gold deposit profitable to mine. “The company started investigating various metallurgical techniques to achieve economic recovery of the gold from this deposit,” said Woodall. “To date we have tested BIOX, hydrometallurgy, single stage oxidative roasting, two-stage oxidative roasting as well as the two stage fluidized bed roasting technology. We began with existing parameters in terms of past gold processing; this was related to technologies developed by the world’s major gold companies. We started there and initially failed to go beyond a 70% recovery range. We kept changing the testing parameters until we achieved a recovery range of between 78% and 92% gold recovery in bench scale testing. This gave us confidence to build a pilot plant. We took this proposal to the Altylnalmas board and were given approval for the construction of a pilot plant in Colorado. The pilot plant test work has now reduced the gold recovery range to between 86% and 90%. This was a really ground breaking achievement. We are now confident at achieving an 88% gold recovery.

“The company is planning to commence construction in the second quarter of 2011,” said Woodall. “We have just completed a pre-feasibility study and are now moving into a feasibility study and detailed design that will be completed in quarter one of 2011. First gold production is expected in quarter two of 2013 and full production is expected in quarter four of 2013. We will have nearly 600 staff working at the Kyzyl gold project with more than 95% of these employees being local Kazakhs. Our first

full year of production is expected to yield around 12.5 mt of gold. We are looking to incrementally add around another 100,000 oz/y. By 2015 we will be aiming to produce around 15 mt/y of gold. This very much sits in line with President Nazarbayev’s target of achieving national gold production of 70 mt/y. We do not want to stop here; the deposits are shown to exist to at least 1,200 m. Our plan is use the previously developed infrastructure in the form of two 550 m concrete lined vertical shafts to develop a second mining front and target a production level of more than 20 mt/y of gold.”

Kazzinc’s Vasilkovka mining complex also has the capacity to raise present Kazakh gold production by approximately 100% from today’s volumes with a proposed processing capacity that will enable the production of 15 mt/y of gold by 2011. “Kazakhstan’s gold industry is predominantly refractory in nature and the main impediment to development over the past decade or two has been the limited success of various technologies with refractory ore bodies,” said Kazzinc President Nick Popovic. “With the combination of hydro-metallurgical and pyro-metallurgical technology, mineral processing has the upper hand. We believe we can bring value to the table whether it is by outside purchases, joint venture agreements or off-take agreements. We are totally flexible. Kazzinc intends to have discussions with many established players in order to either purchase ores, or to help optimize profits by mutual agreement.”

Kazakhstan’s significant gold reserves have also aroused the interest of international junior firms. “I am beginning to see a great deal more interest from Australian

players in Kazakhstan; I am not sure for the reasons, however there is certainly an increase in interest at the moment,” said Jason Stirbinskis of Central Asia Resources.

It would be fair to conclude Kazakhstan’s increasingly favorable regulatory regime coupled with the country’s vast mineral resources are the reasons stimulating interest from established mining centers.

Perhaps the most established junior firm operating in Kazakhstan is Hambleton mining, a UK-based AIM-listed gold producer with interests in Kazakhstan since 1998. Hambleton’s key operation is the Sekisovskoye deposit, an open-pit mine and underground development complemented by a multi-functional processing plant at the same site. “Hambleton is currently producing gold from an open-pit at an annualized rate of around 30,000 oz/y, but this will rise significantly when we start to process ore from underground, which is around three times higher grade,” said Hambleton Director Nick Bridgen. “We have capacity to process up to 1 million mt/y of ore depending on its hardness. The open-pit will be exhausted in about three years’ time and then we will treat the low-grade ore we have been stockpiling. We are now developing the underground mine, from which we expect to extract about 500,000 mt/y, so when the open-pit and low grade ore is exhausted, we will have up to 500,000 mt surplus milling capacity. Our plan is to use this capacity to process ores we source externally, in fact, we have already started to buy ore from third parties. It makes sense for us to develop this business as there are a number of small deposits throughout Kazakhstan that cannot justify building their own processing



Dr. Alexander Yakubchuk—director, COO for Orsu Metals, precious and base metals company (TSX & AIM listed).



facilities, but can produce good grades of ore. Our Sekisovskoye plant is able to treat a wide variety of ores and concentrates. We have another processing plant called Ognevka, which is currently on care and maintenance. This is a flotation plant that could treat most base metal or sulphide gold ores. We are currently reviewing what to do with this facility. We expect to begin underground mining at the end of next year; this will significantly increase our production by around 70,000 oz/y which, together with the remaining production from open-pit and any production from bought-in ores should bring our total to nearer 100,000 oz/y. In terms of other expansion plans, we are currently in negotiations with the government with a view to acquiring a number of new gold deposits."

Central Asia Resources, Orsu Metals, Frontier Mining and Alhambra Resources are among some of the other junior firms with on-going interests in Kazakhstan's gold sector. As gold prices remain high and Kazakhstan's immense mineral wealth is scheduled to become available to international investors through the removal of the present moratorium on exploration that is in place, the expectation is that activity in Kazakhstan's junior gold market is set to experience significant sustained levels of growth over the medium term. "Given the existing mineral wealth of Kazakhstan, and taking into account the ambitions of the current government, I believe with the right approach Kazakhstan has every opportunity to transform itself into a global mining destination of great significance," said Alexander Yakubchuk, COO, Orsu Metals.

#### Copper

As the prospects of major discoveries in the conventional copper producing regions of Latin America continues to diminish, the forecast for emerging sources of copper supply such as Kazakhstan increases greatly.

With some 40 million mt in proven reserves according to the USGS, Kazakhstan is within the top five copper rich nations of the world. Copper production estimated to be around 400,000 mt for 2010 places Kazakhstan at 10<sup>th</sup> position globally for copper output, translating into a significant opportunity which is starting to be taken notice of by the world's leading copper players such as Rio Tinto.

Kazakh copper production is overwhelmingly dominated by domestic behemoth Kazakhmys. With 16 open-pit and underground mines, 10 concentrators and two



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Oleg Novachuk—CEO of Kazakhmys, one of the two FTSE 100 Kazakh Mining companies.

smelting and refining complexes, Kazakhmys produced 320,000 mt of copper in 2009, representing around 80% of Kazakhstan's total output for that year. Kazakhmys' strategic objectives in Kazakhstan are focused upon new constructions of processing plants as well as the upgrade of existing facilities and the continued expansion of output with mine developments such as Bozshakol and Aktogay projects that will come into production in 2014 and 2015 respectively. "The main thing to note about Kazakhmys is it has developed as an integrated company—more so than most other copper miners around the world," said Oleg Novachuk, Kazakhmys CEO. "All of our ore is processed through to finished metal, which allows us to capture more value and makes us less vulnerable to external shocks. And for us, being integrated includes running our own coalfields and power stations, so that we are not dependent on others for our power. Security of power supply is going to be even more important in the future."

In 2005, Kazakhmys listed on the London Stock exchange. "This gives access to capital and a wide range of expertise. We have a strong board and the combination of international corporate governance and local knowledge is powerful," said Novachuk.

Kazzinc is Kazakhstan's second largest copper producer with approximately 60,000 mt production in 2009. The Maleevsky underground mine in Eastern Kazakhstan represents approximately 85% of Kazzinc's total copper output. Kazzinc is making a US\$700 million investment in copper smelting facilities. "The policy of



Kairat Kelimbetov—CEO of Samruk-Kazyna, Wealth Sovereign Fund of Kazakhstan.

President Nazarbayev has been for a long time to focus on the complete recovery of all possible resources that can be extracted from the ground," said Popovic. "Thanks to the natural deposits Kazzinc controls, the company is now more poly-metallic than any other mining company in Kazakhstan. Once we have the Ust-Kamenogorsk copper smelter and refinery up and running, the facility will be the world's most complex non-ferrous and metallurgical plant with a copper, lead and zinc smelter, all on an industrial scale. When it comes to processing, however, our aim is not only to recover all possible metals, but to also recover all metal by-products, whether these are zinc, copper, lead or gold."

In terms of new players into Kazakhstan's copper market, of greatest interest is Rio Tinto's very recent entrance in partnership with national mining champion, Samruk-Kazyna. A memorandum of understanding signed between the two companies in June 2010 lays the foundation for Rio Tinto's exploration interests in Kazakhstan's copper reserves. "We believe Kazakhstan has the type of geological make up to challenge countries like Peru and Chile in terms of their copper resource," said Rio Tinto's Global Head of Exploration Eric Finlayson. "The Oyu Tolgoi discovery was a game changer in terms of peoples' expectations for copper reserves in this part of the world. We believe the prospects for copper in Kazakhstan are very good. Kazakhstan is very stable in terms of safety for our people, the infrastructure here works quite well, the Kazakh workforce is very highly trained, the com-



Felix Vulis—CEO of ENRC, a leading diversified natural resources group with integrated mining, processing, energy, logistical and marketing operations. The Group's assets are mostly located in the Republic of Kazakhstan and comprise Kazchrome, Zhairem GOK, SSGPO, Aluminum of Kazakhstan, Kazakhstan Aluminum Smelter (KAS), Eurasian Energy Corp. (EEC) and ENRC Logistics.

mercial framework works well for us and the government is very supportive of the mining industry here."

#### *Chromium and Manganese*

Robust growth in India and China's construction sectors has translated into significant increases in demand for ferroalloys. Ferroalloy output will have to double in the next decade if it is to keep up with expected growth in stainless steel production. Ongoing power outages in South Africa's ferroalloy production sector leave the Kazakh market well placed to capitalize from the expected increases in demand.

At 300 million mt, Kazakhstan's chromium reserves are the second largest in the world behind South Africa's. Manganese reserves stand at 600 million mt placing the country's reserve in third place globally. ENRC is solely responsible for Ferroalloy production in Kazakhstan with 2.4 million mt of chromium and 1.3 million mt of manganese ore extracted in the first half of 2010. Chromium extraction increased by 25% from 2009 and manganese extraction by 39%, reflecting sustained increases in global demand.

Very much aware of the huge potential in Kazakhstan's vast ferroalloys reserves, Russian mining conglomerate Mechel recently entered the market on the back of its acquisition of London based Oriol Resources. Mechel is currently developing a US\$250 million mine at Voskhod, and is



undertaking feasibility studies for the construction of a smelter at the mine site. "If you look at both the mineral and human resources, Kazakhstan's mining sector is extraordinarily well placed for a sustainable growth trajectory. I am confident about China's near term prospects for growth and Kazakhstan's mining sector will inevitably benefit from this economic performance," said Felix Vulis, CEO of ENRC.

#### Coal

With almost 34 billion mt of coal, Kazakhstan ranks eighth globally in terms of proven reserves with 3.5% of the overall total. Kazakh coal reserves are centered on the Northern regions of Pavlodar and Ekibastuz. With production at 96 million mt in 2009, Kazakhstan ranks eighth globally in terms of annual production. Kazakhstan's coal portfolio is dominated by bituminous and anthracite reserves accounting for 30 billion mt, with the remaining 4 billion mt accounted for by sub-bituminous and lignite forms of the black rock. Coal production declined by approximately 10% in 2009 as the knock on effects of the global financial crisis were felt, with export volumes to key export markets such as Russia declining.

Despite recent concerns regarding Kazakhstan's external coal markets, both foreign direct and domestic investment into the sector has continued relentlessly. Kazakhstan's largest coal producer, Bogatyr Komir, was recently acquired in a takeover deal by UC Rusal of Russia and National Welfare Fund Samruk-Kazyna from Allied Industries of the United States. ENRC has increased its interest in strategic coal miners such as Shubarkol Komir with a 25% stake purchased in February 2009. Arcelor Mittal retains a flat level of investment into its Kazakh coal mining operations at US\$150 million per year amid safety concerns surrounding gas leaks at its Karaganda operations. Overall, Kazakhstan's coal mining industry has a clear focus upon modernization and the implementation of new technologies. "Bogatyr Coal places a strong focus upon the implementation of new technologies in our operations so as to continue to raise productivity," said Viktor Shchukin. "Each of our excavators can mine from 25,000 up to 30,000 mt of coal per day. Between 2006 and 2018, we will be investing US\$600 million in technological upgrades in our operations. As a result of this investment production will increase by 8 million mt/y, enabling Bogatyr Coal to continue to meet the



Saryarka—loading coal from mine into haul truck.

demands of the 17 power stations and industrial enterprises in Russia and Kazakhstan. Bogatyr Coal sources much of its equipment abroad; in particular, our drill rigs come from Atlas Copco."

Established in 2008, SaryArka Energy provides an excellent example of innovation in Kazakhstan's coal mining sub-sector. A Dutch-Kazakh joint venture, SaryArka aims to develop the Zhalyn deposit into an economically viable mine. Where many companies have tried and failed before, General Director Yakov Mamontov outlines the core challenges the company has faced and their vision for the deposit moving forward. "The Zhalyn deposit is not



Yakov Mamontov—general manager, Saryarka Energy LLC.

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large but it is difficult to work. A total of 11 companies have attempted to develop this deposit before us and failed. The reason this deposit is so difficult to develop is because of the large amounts of water. At the depth of 2.5 m you find a lot of underground water. No one believed that it would be possible to extract the coal from here and they thought that we would fail as well. We have showed our critics if the company is qualified and experienced then you can always overcome difficulties. We got the contract and we received the license for sub soil use on January 22, 2009. The government contract gave us one and a half years for preliminary work, for the second year the result had to be 100,000 mt for production, then 300,000 mt, and by 2012 it is supposed to reach 500,000 mt. According to the contract, in 2010 we were supposed to be extracting 100,000 mt, but we are going to extract 650,000 mt of coal this year already. Last year, we applied to the government and to the ministry to change the contract so the terms can be changed and expected production amounts to be increased. Our current production numbers were supposed to be reached only in 2013, so we are way ahead."



Abdraman Yedilbayev—general director of Gornoe Buro, owner of several projects and awarded for research studies. Bapy, its iron ore deposit in Karaganda is one of the newly developed mines in Kazakhstan.

#### Iron Ore

Kazakhstan's iron ore reserves are positioned at seventh globally according to the USGS with approximately 17 billion mt of proven reserves. Despite the country's wealth in reserves, output is relatively modest and wholly dominated by ENRC subsidiary SSGPO. SSGPO produced 21 million mt of iron ore in the first half of 2010,

a 46% increase from 2009, reflecting resurgences in global demand.

Established as an iron ore start up 10 years ago, Gornoe Buro provides an excellent example of the ever increasing international focus of Kazakhstan's next generation of mining companies. "We are currently looking into going global. We have received some good proposals from India, Afghanistan and many South African countries. Our main focus for export markets is primary metals concentrate. Moreover, we also see a lot of opportunities in exporting steel overseas to China, Iran, or Pakistan where there is a huge demand for metals. We aim to become the first company in Kazakhstan which will export metals produced from the ore abroad," said Abdraman Yedilbayev, general manager, Gornoe Buro.

#### Phosphates

Although occupying a relatively small proportion of Kazakhstan's mineral production market at around 3%, Kazakhstan's huge phosphate reserves have a positive outlook given the renewed focus on this valuable mineral following takeover maneuvers by both Vale and BHP Billiton in recent months. Mukash Iskandirov, general director of market leading firm Kazphosphate



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Mukash Iskandirov—general manager of Kazphosphate.



Kazphosphate—state of the art production facilities. (Photo courtesy of Kazphosphate)

best summarizes the phosphate markets turbulent past and positive outlook within the context of the company. “On the basis of existing mines and plants, Kazphosphate was established in 1999. Now we have two main mining complexes in Karatau and Zhanata city. We have six mines overall, two underground and four open-pit mines. Our estimates show that we have approximately 1.9 billion mt of phosphate in these mines, but overall the phosphate amount in the

whole Karatau basin is estimated to be 15 billion mt. In these areas there are about 45 deposits and Kazphosphate is currently working on only six of them. Kazphosphate also has two plants for the production of phosphoric fertilizers, with an annual capacity of 600,000 mt/y. We have the largest production of yellow phosphorus in the world; there are only five other countries where yellow phosphorus is produced. Our production of phosphorus is 120,000

mt. We also produce technical phosphates with an annual production of 120,000 mt. We transport all of our materials using our own railroads and trains. Kazphosphate is an export-oriented company. About 75%-95% of our materials are exported to roughly 27 countries in the world. Our largest importers are European Union countries, then Russia and then China.”

The opportunities presented by such a wealth of phosphate reserves have not been

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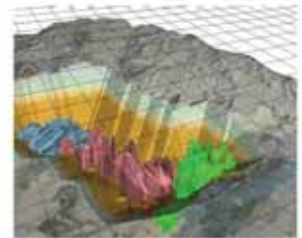
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overlooked by junior companies such as Sunkar Resources. Sunkar's share price has doubled in recent months as the market wakes up to the huge potential the company's Chillisai reserve encompasses. Kazakhstan's huge quantities of sulphur by-product from the oil industry serve to maintain cheap cost structures for Sunkar. "Sunkar has a formal obligation to mine 10 million mt/y," said Serik Utegen, CEO of Sunkar Resources. "This rate of production is only economical when you have fertilizer manufacturing facilities adjacent to your mine site. Sunkar at full production and processing capacity will produce over 1.7 million mt/y of fertilizer, more than 2% of present global consumption. We are quite wary about ramping up to full scale production immediately given the quite crowded market for the global supply of phosphate fertilizer. We plan to incrementally increase our production until we reach half capacity in 2014 and then full capacity in 2017. We expect to be the market leaders in Kazakhstan following our first stage of production. The Kazakhstan Government now has a very clear focus upon the development of a strong agrochemicals industry in the country. The demand for phosphates in Kazakhstan's agricultural industry is 500,000 mt of P<sub>2</sub>O<sub>5</sub> nutrient per year. Kazakh domestic producers presently provide about 100,000 mt of this demand, leaving 400,000 mt of demand reliant upon imports. Sunkar Resources will be very well placed to satisfy this demand from domestic production. All of our analysis has shown this business to be extremely lucrative; the price of fertilizer is currently expected to hover between US\$350 and US\$450/mt. At this price, we will be expecting to make significant profits with export to the Western Chinese market. The cost structure of our business is so unique and competitive internationally that we are able to ensure a profit given our comparative advantage of production cost relative to the price defined upon international markets."

### Lead and Zinc

Reserves of zinc and lead in Kazakhstan are approximately 30 million and 10 million mt respectively. Kazakhstan's lead reserves are the largest in the world. Reserves are concentrated in Eastern Kazakhstan around Ust-Kamenogorsk as well as in Southern Kazakhstan in close proximity to Shymkent. Both zinc and lead production in Kazakhstan are dominated by major domestic firms Kazzinc and Yuzhpolimetall. Kazzinc production for 2009 was 300,000 mt of zinc and 80,000 mt of lead. Kazzinc is driven by a strategy of advanced industrialization, employing some of the world's leading technologies to ever increasingly improve the efficiency and productivity with which Kazakhstan's complex poly-metallic ores can be processed. "Kazzinc definitely has further expansion plans," said Popovic. "This year we are finishing two projects: the Vasilkovsky gold mine is one plant that we have commissioned this summer, and the copper smelter and refinery is being commissioned at the end of this year. These two projects have a total investment value of \$1.4 billion and this is only the first page. The next page is pursuing our two main branches of development—the development of the rare metals side and of the base metals side."

### Bauxite and Alumina

Aluminum production in Kazakhstan was left relatively unaffected by the global financial crisis given the long-term nature of contracts between suppliers and their markets. Current bauxite output for 2010 stands at around 5 million mt from a relatively small total known reserve of 360 million mt. ENRC's Aluminum of Kazakhstan division is dominant in production of both bauxite and aluminum throughout the country.





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## Exploration in Kazakhstan

"The biggest potential for Kazakhstan is in geological exploration," said Popovic. "Despite the massive geological drive that took place during Soviet times, there was a 15 to 20 year period following the breakup of the Soviet Union when stagnation followed. Money was not available for geological exploration. In the initial stages, most companies considered there was enough in their portfolios without a need for more exploration. However, most companies today are public one way or another and a large mining base is in the interest of the mining companies themselves. Whereas before geological exploration was in the sole domain of the government, now it is more in the interest of the private sector to participate in exploration. The established players in Kazakhstan including Kazzinc are not the first tier of companies involved in geological exploration, and that does leave a vacuum for other companies to claim a stake in this ever growing and exciting mining sub-sector."

Despite Kazakhstan's enormous mineral potential, exploration activity today is very limited and the number of active junior companies very low relative to vibrant contemporaries such as Peru or Chile. The

three most pervasive reasons for such a lack in exploration activity are the high costs associated with Kazakhstan's lack of infrastructure, difficulties in accessing financing following the global financial crisis and the moratorium on new exploration activity introduced in 2008 to prevent rampant speculation in Kazakhstan's mineral properties.

Paradoxically the global financial crisis significantly lowered costs for exploration, but also pulled any available finance away from willing suitors in the market. Exploration costs in Kazakhstan remain extremely high as equipment shortages are widespread throughout the industry and common use infrastructure is very limited. The imminent lifting of Kazakhstan's moratorium on exploration, however, is expected to set off a wave of activity from already established juniors in the market and international firms with a close eye upon expected changes. Despite their strong position in the market, green field exploration from Kazakhstan's major players remains relatively weak. "On average companies spend huge amounts of capital to explore new sites, but in the end will only find one of them to be profitable," Yakubchuk. "The average chance is 1%

and the key is to find such a prospect that will eventually pay back all the costs for exploration. However, many companies in Kazakhstan do not want to risk exploration, especially in greenfields. The government needs to know what is going on in the country. Most importantly the bureaucratic system has to start working faster and more efficiently."

New national mining company Tau-Ken Samruk has been established with the intention of both raising awareness of Kazakhstan's excellent mineral potential as well as easing the process for new entrants into the market to undertake exploration activities on sites of interest. Chris Welton of Rio Tinto outlines how the company's relationship with Tau-Ken Samruk has influenced their exploration strategy. "Rio Tinto is fully committed to running an intensive grass roots exploration program in Kazakhstan, as well as looking for partnerships with junior firms. Rio's agreement with Tau-Ken Samruk outlines explicitly our commitment to put exploration dollars in the ground. We have structured our agreement to enable significant investment in exploration throughout Kazakhstan. Needless to say we will still be looking at known resources here. It is important to

note exploration costs in Kazakhstan are very high and continue to increase. This is something that Kazakhstan will have to look at in order to ensure sustained investment in the exploration market. High exploration costs generally result in a drop in quality, before prices level out as competition in the market increases.”

### Tau-Ken Samruk—Kazakhstan’s National Mining Champion

By resolution of the Kazakh government January 15, 2009, Tau-Ken Samruk was established as Kazakhstan’s national mining champion with three clear objectives. Primarily, Tau-Ken was established to consolidate the Kazakh government’s mining holdings under the auspices of one entity. Tau-Ken aims to improve efficiency in the mining regulatory process for approvals and raise awareness and investment in the sector. “There are significant competitive advantages from working with Tau-Ken Samruk,” said Bolat Svyatov, Tau-Ken CEO. “Companies that work alongside Tau-Ken Samruk can negotiate directly with the government for new exploration prospects, as well as working outside of the current moratorium on exploration activity. Tau-Ken Samruk’s development strategy is very

closely linked to that of the government. This means companies working alongside Tau-Ken Samruk will be closely aligned with the government of Kazakhstan’s strategic aims for the industry. It also aims to bring increased exploration activity from international investors, working with strategic partners to raise technological standards and better understand the vast resource wealth held within Kazakhstan’s huge landscape. On top of this Tau-Ken Samruk wants to work alongside international companies to develop new technologies tailored to Kazakhstan’s geological profile.”

Tau-Ken Samruk has already made significant strides toward further raising interest and investment in Kazakhstan’s mining industry, with flagship deals alongside Rio Tinto, Bateman Engineering and JOGMEC of Japan. Zhandos Abishev, director of mining at Kazakhstan’s national sovereign wealth fund Samruk-Kazyna, outlines Tau-Ken Samruk’s ambitious strategic outlook. “Tau-Ken Samruk’s objective is not only to attract capital, but new technologies and management methods also. Kazakhstan has very complicated poly-metallic geology; we want to attract new technologies to adapt to these conditions. We have ongoing negotiations with international com-

panies such as Rio Tinto and Bateman Engineering in order to achieve this. Our aim is for Tau-Ken Samruk to be one of the world’s top 10 mining companies by the year 2020.”

### Kazakhstan’s Services and Equipment Supply Chain

In terms of services and equipment supply, the Kazakh market has traditionally been dominated by domestic firms servicing the vertically integrated models of the big four (ENRC, Kazakhmys, Kazzinc and Kazatom-prom), and their former Soviet Union brethren. However, as the Kazakh mining market opens up to international finance and investment, international standards and Kazakhstan’s huge potential as a mining center are increasingly drawing attention from established international players throughout the mining industry’s ancillary value chain.

Investment opportunities abound as the number of industry leading firms from Caterpillar to Liebherr increasingly show interest in working alongside Central Asia’s most exciting mining projects. “Increasingly we are seeing significant expansion in our customer base from mid-tier Kazakh firms seeking finance on interna-



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tional financial markets. Kazakhstan's capital markets are relatively under-developed at present, thus galvanizing finance hungry mining firms to look further afield," said Tony Thornton of SRK Consulting. "SRK is well positioned to assist with the due diligence process required for such transactions. SRK is establishing an office here with a strategic focus upon working with mid-tier Kazakh companies to raise finance from international financial centers such as London and Hong Kong."

Largely unknown to the international market, Kazakhstan boasts some extremely impressive domestic services firms involved in key areas of the mining service chain. Kazgiprotsvetmet, Vostokshah-tostroy, Iskander and Vostok Prom Geo, are some extraordinarily skilled firms with clear potential to expand into regional and international markets, as well as welcoming international investment partnerships. Such companies have a clear advantage in the Kazakh market as local firms. "There are many advantages to being a 100% local company. Most importantly we know the local mentality of the people," said Vladimir Gamayunov, managing director of drilling contractor Iskander. "We take into account the Soviet attitude some compa-



Vladimir Gamayunov—executive director of Iskander.

nies and people still have here. Working with such companies is challenging for foreign companies and we have an advantage in this respect."

As international financiers have increasingly become interested in Kazakhstan's mining market, due diligence requirements for listings such as Kazakhmys' and ENRC's on the London Stock

Exchange are increasingly placing direct requirements for an increase in equipment standards and internal procedures on the Kazakh mining industry. In turn, this new drive for an increase in standards has created significant opportunities for international services and equipment providers to drive rapid growth within the Kazakh mining market. "Kazakhstan with its climatic conditions and its wide outspread countryside forms a challenge not only for equipment designers but also for the complete product support chain," said Reimund Fassbender of Liebherr Export AG. It also forms a fantastic opportunity for suppliers of capable equipment.

The uranium sector in particular has been highlighted by numerous international players such as Hatch and Boart Longyear as a key interest area with significant growth potential. "Hatch works with a variety of minerals. Currently we are particularly interested in uranium. This is something we want to pursue in Russia and Kazakhstan. Our specialty in uranium is strong and we are participating in various tenders in Kazakhstan in order to start operating in this sector," said Hatch's General Director for Russia and CIS Andrei Torgashev.



## Road and Mineral Technologies

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## Drilling

Many of Kazakhstan's most prospective regions were intensively drilled throughout the Soviet era and today's drilling contracting market is dominated by several domestic players; notably Iskander, Topaz, Vostok Prom Geo and Volkovgeology. Regardless of domestic dominance in the drilling market, established international firms such as Boart Longyear Drilling Services and Australian Independent Diamond Drilling (AIDD) are showing an ever increasing interest in Kazakhstan. "The competition is very high in this market and we have many companies competing for contracts that are also increasing their drilling fleets," said Sergey Martishev, deputy director of Vostokprom Geo. "Many drilling companies are modernizing in order to be closer to Western companies. This market has its opportunities and difficulties. In the last four months, for example, we know of several companies that have come in and started working here. We feel the competition in each tender that we participate in. We charge more for drilling, but we complete our projects faster."

Martishev insists upon the quality service levels Kazakh companies such as Vostokprom Geo are capable of delivering. "One of our recent successes has been working for Kazzinc, where we were able to drill a hole 2 km and 11 m deep in 84 working days. That means we drilled 1,800 m in one month and with one drilling rig. In the former Soviet Union, no one has been able to drill to such a huge depth in the last 25 years. We have tried to take the best experience from both of Russian and Western technology."

"The decision was taken to come into Kazakhstan following the significant upturn in mining activity that occurred in 2007," said Zelimkhan Barakhoyev, general director of AIDD. "We now have three drilling rigs in operation in Kazakhstan and around 80 members of permanent staff. We have plans to increase the fleet of rigs to 11 by the end of next year. We have a range of contractors that fly in from a number of international locations such as South Africa and Australia that assist with our more complex operations, ensuring that we maximize our fleet usage as well as helping to train the local staff AIDD employs."

As the government of Kazakhstan continues to drive forward ambitious growth targets in both mining production and exploration, the services market is extremely

attractive for established international players. "Kazakhstan will be extremely important for Boart Longyear moving forward," said Glushko. "I believe Kazakhstan offers greater opportunity than Russia and is a significant move for us in terms of consolidating a presence in the vast potential of Central Asia. Moreover, the educational level of the drillers that we have interviewed so far in Kazakhstan has been of an extremely high quality, with an excellent mining education."

Despite the relatively high skills levels of Kazakhstan's drilling workforce, the key limitation for drilling contractors to ensure sustained growth in Kazakhstan's drilling contractor market is the availability of Kazakh drillers to fill the high volume of vacancies opening up in the market. Both international and domestic companies have to develop innovative recruitment processes in order to attract Kazakhstan's best talent. Martishev highlights the experiences that Vostokprom Geo has had working alongside Ust-Kamenogorsk's Technical University. "I am very satisfied with the students we have worked with. This partnership has not only provided the students the opportunity to see how the drilling work is on the ground, but it has also provided Vostokprom Geo with a great recruitment tool and the knowledge that we are getting the very best people into our company."



Kayrbek Kenzhalin—JV of leading construction contractor Vostokshahtostroy and Australian world-class of Central Asia Resources.

Given the vertically integrated operating models used by Kazakhstan's major mining players such as ENRC, Kazakhmys and Kazatomprom, the scope for significant growth in engineering and construction services has been relatively limited until now. "Some of the large companies around Kazakhstan have their own mining construction departments and they only work with those, but we are a private company and we are willing to offer our services to anyone who needs our assistance. This gives us the flexibility to work all over Kazakhstan and with any client. Although



Kazgiprotsvetmet.



there is a free market, I would not say that we have that many competitors," said Kayrbek Kenzhalin, president of Vostokshaktostroy.

However, given the exciting growth forecasts for Kazakhstan's mining industry and the increasing focus upon international standards, numerous established players such as Bateman, Hatch, AMEC Minproc and Leighton Asia are now showing heightened interest and presence in the market.

## Engineering

Having been established for more than 60 years, Vostokshaktostroy is the clear market leader in terms of mine construction. The company has vast experience working alongside Kazakhstan's technical institutes in designing and approving construction plans for many of the country's most productive mineral deposits. "Vostokshaktostroy prefers to work with larger international companies because their approach to negotiations is very different than what you can expect from local companies in Kazakhstan," said Kenzhalin. "International companies bring with them a Western standard of negotiation that is very helpful when it comes to partnerships and work arrangements. Many companies here in Kazakhstan have inherited the Soviet mentality of doing business, and this makes it difficult to conduct business with them. I think our own company is still in the process of forming our distinct identity. I cannot say we are a fully Western company, but we are constantly striving for the best standards of work and business."

Established in 1947, Kazgiprotsvetmet (KGCM) is a leading Kazakh engineering firm, which collaborates with Kazakhstan's leading mining firms on a significant proportion of the country's most exciting mine site developments. KGCM provides a full range of engineering services from development schemes, feasibility studies, engineering proposals, to complex project designs encompassing local enterprise, infrastructure, energy, transport and environmental impact assessments. KGCM is widely acknowledged to be a key driver of improvements of technological and procedural standards in Kazakhstan's mining industry working alongside well established international players such as Metso, Outotec and Siemens. Some of KGCM's most notable project achievements of recent times include the construction of the Bozshakolskogo mining and processing complex for Kazakhmys in association with



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Bolat Svyatov, CEO of Tau-ken Samruk and Eric Finlayson, global head of exploration at Rio Tinto—signing a MoU in Astana, at the Astana Mining & Metals Conference.

Aker and Fluor, as well as the continued work with ENRC to increase iron ore production to 60 million mt/y. KGTSM's activities are not confined to Kazakhstan alone, with operations in Russia, Ukraine and Kyrgyzstan to complement the services on offer in the Kazakh mining market. "There was immense growth after the crisis and we see a lot of investment coming into the mining sector recently," said Tokan Chaizhunussov, KGTSM's president. "We immediately saw an increase in the amount of work on various types of projects. Requests for work have come in at a fast pace, so much that in order to take care of all our clients' needs we have had to use subcontractors."

From an international perspective, Bateman Engineering has led the charge into Kazakhstan's lucrative engineering market. Having established its first CIS office in Moscow in 1994, the company has now set up office in Almaty. Now working in tandem with Tau-Ken Samruk, Bateman has a clear strategy to develop into one of the leading engineering and project management players in Kazakhstan's mining market. "The reason we signed the MoU with Tau-Ken Samruk was not only to develop our operations within the country, but to also identify ways of how Bateman can help Kazakhstan raise technological standards. As we continue to undertake projects in Kazakhstan, we will be using our best-practice technologies and techniques, and, naturally, our Kazakh partners will be able to master these technologies and benefit from our experience,"

said Yuri Gavrilov, Bateman's director for the CIS region.

Kazakhstan's particularly complex metallurgical profile makes the importance of having well established and internationally renowned laboratory services vital to the continued growth and transparency of the mining industry. The Kazakh laboratory testing market today is dominated by three players: Topaz, SGS and Alex Stewart Kazakhstan. "Today SGS provides traditional Testing Inspection and Certification (TIC) services to the Kazakh market's national leaders in mining and metallurgy," said SGS Kazakhstan's Managing Director Alexander Voznyuk. "SGS forecasts a substantial increase of international companies' investment activity in the mining sector. As more and more international companies come to Kazakhstan, SGS believes there will be new opportunities on the horizon for them and for SGS as a top level service provider. SGS is well positioned to stay on the top of this growth trajectory, offering our local experience in synergy with the knowledge of our top international mining experts working for the SGS Group."

Topaz is a unique Kazakh company, comprising numerous smaller Kazakh companies in a cooperative that offers an entire end to end service offering to the Kazakh mining industry. General Director Bulat Bagadaev, who is also the president of the association of Kazakhstan Geological Companies, provides an overview of Topaz's history and unique service offering. "Topaz was established in 1929 by various smaller companies who decided to group together

and merge into one company. In Soviet times many deposits in the Altai region and other areas of Kazakhstan were developed by our company. After the fall of the Soviet Union, the process of privatization began and not many companies were able to survive. In 1996, our company became even smaller and that is when I became the president. Since that time the company has grown substantially. Now we work on the territory of all of Kazakhstan and we also work in Russia. We are one of the only companies that operate in the full spectrum of mining work from the exploration stage to all types of drilling work. Despite the increasing competition, we are not going to let go or give ground in the mining sector. In order to remain a leader in the drilling sector, we recently began a modernization campaign of all of our equipment by switching to newer and more technologically sophisticated western equipment. We are also modernizing all of our lab facilities in order to expand and strengthen our lab services to the mining sector. As our financial profits increase, we intend to develop all the separate departments in our company to the point where they can become separate companies. I think these actions together will put our company at the forefront of the mining market."

## Laboratory and Consulting Services

The Kazakh mining consultancy sector is dominated by three established international players, these being SRK Consulting, IMC Montan and Wardell Armstrong. While Wardell Armstrong already has an established branch office in Kazakhstan, SRK is



Bulat Bagadaev—general manager of Topaz Geological and head of the Drilling Association in Ust-Kamenogorsk.



in the process of setting up office, IMC Montan continues to run its Kazakh operations from Moscow. Tony Thornton, Kazakhstan country manager for SRK Consulting explains the attractions of the Kazakh market and the company's reasons for now establishing a physical presence in the country. "In a nutshell, Kazakhstan has a vast untapped resource base that is very attractive for development. Kazakhstan is definitely an emerging market, which now having had a dramatic birth into the global market economy faces a number of challenges to make the most of what is here. SRK has the international experience of similar sorts of emerging markets that enable us to perform well in such an environment. SRK has been engaged on a number of projects in Kazakhstan over recent years, establishing a branch office here is now a natural part of that evolution."

Increasing demand for recognized consultancy services in the Kazakh mining market are being driven by the pre-requisites of international finance and the various due diligence processes required to achieve such investment. "IMC Montan's main business is scoping, pre-feasibility and bankable feasibility studies," said John Bacharach, director of IMC Montan. "These studies are done for various reasons such as when a company decides to develop a new deposit, when acquisitions are made, or when a company wants to receive external bank and international financing. When this happens, the banks and institutions often demand an international independent study by a recognized entity and that is a large chunk of our work. Our other direction is independent resource and reserve valuations which are often needed for attracting finance. The third direction of our company is technical support to the industry, improving productivity, reducing costs, and introducing new technologies."

"The paramount reason for the use of international consultancies in Kazakhstan is that Kazakh companies now realize they need to adhere to international standards in order to achieve financing, particularly following the global financial crisis. Everything mining companies now do in Kazakhstan has to be bankable in order to achieve investment and finance," said Julia Boiko, CIS regional manager at Wardell Armstrong's.

One of the key challenges for Kazakhstan's mining industry to meet its potential when resource endowment is concerned is the business culture within the country. As Tony Thornton of SRK elaborates, this presents an excellent opportunity for the international consultancy sector to come and contribute to the development of Kazakhstan's mining industry. "Although Kazakhstan has a long tradition in mining, the key challenge from our perspective is the development of the skills required to undertake the transition from a centrally planned economy toward a market economy competing on the global stage. There is a distinct lack of such skills. I am not saying they don't exist; however there is certainly room for improvement in this area. In particular, there is a lack of technical specialists that have the skills to communicate and operate that is line with international standards that global financial institutions want to see. SRK spends much of its time working with clients to provide such skills. Kazakhstan has some world class geologists with no understanding of market economics; there is room for improvement in such areas."

Given the transition toward international standards required by international financing, the opportunities for established and recognized services providers such as SRK and IMC Montan are enormous. "I expect SRK to expand to the size of our Moscow market over the course of the next two years," said Thornton.



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Local players are also offering their advice. Kazakhstan Mineral Co. (KMC) was established in 2005. "Our major business is in consultancy, we do pre-feasibility studies in local standards, resource estimates in local standards, and preparation of databases where we use Micromine products. We also work on databases, block modelling, and resource estimates. These are the major elements of our activity. The other part of our business is in exploration projects. We evaluate properties, develop targets and put together a booking program to explore new deposits. We have another company called GR Service, which is our joint venture with Iskander Drilling. We have a 50% stake in the joint venture and it has about 50 employees. We use this company as our arm to do geological exploration in the field. Taking KMC and GR Services together, we are able to conduct a project from its beginning phases until its last," said Managing Director Oleg Kim. "I feel the competition is pretty low for us since we are able to provide resource and estimates both according to local and western standards. Our current market share for consulting is roughly 50% in Kazakhstan. Other companies here in Kazakhstan who provide such consulting services usually have one or two people who work with Western standards and Kazakh companies usually stick with local standards."

Kazakhstan's safety standards in relation to recognized international standards fall short on certain levels; notably in the coal mining sector. "I think safety standards in the CIS, especially in coal mines, is a very serious issue. One of the things IMC Montan is trying to do is to raise awareness of this in order to make coal mining safety practices in the region closer to what you can find in the West," said Bacharach.

Kazakhstan's safety standards are increasingly being addressed by services and consultancy companies such as Baitau Partners. "Most importantly, the general attitude needs to change in Kazakhstan, because many mining companies do not take seriously the health and safety requirements," said Zhanibek Imangaliyev, director of Baitau Partners. "Part of the problem is, of course, companies consider the government's safety regulators as policemen and they do not like them. However, this is a self-perpetuated problem because the safety regulators' only goal has been to try and locate some kind

of safety hazard or violation and then punish and receive a large fine from the company. The more health and safety violations that health and safety regulators locate, the more the company gets fined. Instead of focusing on getting the company fined and punished, more emphasis should be put toward correcting behaviours rather than punishing them. Baitau has partners from the UK and we work with a company that delivers international qualifications for various standards, such as HSE, IEMA and IOSH. We have general safety courses for HSE, including more than 20 types of safety courses. We have a management and leadership division, where we offer courses for leadership and planning skills."

Again, it is clear as international financing requirements increasingly influence Kazakhstan's modus operandi, opportunities abound for companies engaged in niche markets such as health and safety provision. The key to success in Kazakhstan is aligning corporate strategy with local partnership.

### Professional and Financial Services

As the old maxim goes; investment into an emerging market is futile without the assistance of a generous banker, a loyal lawyer and a diligent accountant. The market for legal and accounting services is competitive with companies such as Grata and Salans operating with a clear focus on the Kazakh legal framework for mining investments, and PriceWaterhouseCoopers and Deloitte providing a diverse range of accounting and professional services to the mining market. Dana Inkarbekova provides an overview of the services Price Waterhouse has on offer

to the mining industry in Kazakhstan. "Our services have been divided into audit services, tax services and advisory services, which could be consulting or deal structuring. Tax services are important in Kazakhstan as the economy is dynamic and goes through various changes in legislation and taxes. Taxes for the extractive industries require expertise, experience and knowledge and we work very actively in this industry. Audit services are important to companies for financial reporting but also can provide corporate governance and allow them to be listed on international stock markets. Audit is one of the core services that we provide. Advisory has also played an important role due to the number of mergers and acquisitions and this is also an area where we are working with mining companies in Kazakhstan. We are the public accountants of general listed companies and we helped them in some cases to be listed on the London Stock Exchange and we are pleased with all of the growth that these companies have made. We work with several gold mining companies and we have had discussions with iron mines."

In terms of banking services to the mining industry, HSBC has very much taken the lead in focusing its corporate strategy on this key area of Kazakh industrial activity. "HSBC has a number of unique selling points within the market," said Mark Tate, head of HSBC Corporate Bank. "The most important one is our international connectivity; we have put credit lines in place where we have done off-take of finance, which allows the Kazakh client to get funding at cost, which is equivalent to the off-taker and the off-taker's credit rating. We have put in place trade finance structures



Blasthole drilling in Kazakhstan with Atlas Copco ROC L6 drills. (Photo courtesy of Atlas Copco Kazakhstan)



which will save clients a significant amount of money rather than funding at 14% in the local market. We have liquidity as well as a balance sheet that allows us to fund clients at an economic rate. Over the last two years, we have been the only international bank that has been pushing forward in this sector.”

HSBC's liquidity and international presence are vital to the mining industry, struggling to leverage domestic credit lines in the wake of the global financial crisis.

## Equipment Supply

Kazakhstan's equipment supply market has traditionally been dominated by capital goods imported from the former Soviet Union and China. The Kazakh procurement approach has been defined by short term cost analysis as opposed to the production life cycle approach employed in leading international mining centers such as Canada or Australia. The incumbent perception in Kazakhstan's procurement departments is that capital goods designed and manufactured in Europe, Australia and North America are overpriced. However, as an increasing number of international companies and investors do business in Kazakhstan, a shift in approach toward international standards is underway. Many financing agreements in Kazakhstan specifically outline the requirement for internationally recognised capital goods to be used such as Boart Longyear drill bits and Atlas Copco drill rigs. “The focus in Kazakhstan is very much on purchase costs as opposed to life cycle costs. In order to overcome this we leverage our network of contacts in Kazakhstan in order to reinforce the quality of what we have on offer. The business approach in Kazakhstan is certainly changing toward a management style; more and more they are focusing upon all of the costs that are connected with the management of equipment and procurement strategies,” said Henrik Applebom, director of Volvo.

As the Kazakh mining industry's procurement outlook turns towards international standards in terms of quality, functionality and inventory management, the market is increasingly opening up for recognized international suppliers to come into the industry. Boart Longyear is the most recent of a long list of international brands including Sandvik, Metso, Caterpillar and Atlas Copco that are now firmly established in Kazakhstan's mining equipment supply chain. President Nazar-

bayev's target of doubling mining production by 2015 is expected to herald a significant ramp up in demand for capital goods from such suppliers. Lead times are generally more than 12 months for the delivery of major capital goods, offering significant opportunities for not yet established suppliers to come into the market and pick up on the near term demands of Kazakhstan's major mining players. “In 2005, a decision was made to open a fully legal Atlas Copco office here in Almaty,” said Per-Arne Lindqvist, general manager of Atlas Copco. “Since then we have had a lot of growth and the number of our employees has increased greatly. We currently have offices in Ust-Kamenogorsk, Karaganda, and Zhezkazgan. Kazakhstan is one of the fastest developing markets in the mining sector and we saw many opportunities here for Atlas Copco to develop its business. The mining sector accounts for 80%-90% of our overall revenues in Kazakhstan. Right now we have about 50 employees in our office and that does not include our service sector employees. We work with the major companies here in Kazakhstan like Kazzinc, Kazakhmys, ENRC and their various subsidiaries.”

As of press time, a customs union was being introduced between Belarus, Russia and Kazakhstan. Although it is too early to tell the exact impact of such changes on the Kazakh equipment supply market, the general trend will be for already relatively high import taxes to increase for goods that enter the market from outside these three countries. Importing into Kazakhstan is a notoriously complicated process which requires the help of local specialists for both new and established players in the market. “When you import goods into Kazakhstan you need to follow certain procedures that are very different from those you would experience in the West. In Kazakhstan, the entire process is a little back to front,” said Chris Brodie, director of Prolog Central Asia. “All of your documentation must be written in Russian. Customs duty is calculated upon arrival. If any of your documentation or translations are inaccurate this process can go horribly wrong in terms of cost. You must develop close working relationships with your suppliers in order to navigate these regulations. You have to focus upon getting your documentation absolutely right in Kazakhstan. That is what Prolog specializes in.”

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## Transportation and Heavy Goods Equipment

Caterpillar's agent Borusan Makina is the market leader in Kazakhstan's transportation and heavy goods equipment supply market. Having been established in Kazakhstan since 1999, the company has had a very good opportunity to learn about some of the key challenges Kazakh mine sites encounter, such as production outages associated with a reactive approach to the management of parts and inventory. Borusan Makina has devised a transparent network of outlets throughout Kazakhstan's vast landscape in order to help mine sites overcome such issues. "Two key points that separate Borusan Makina from its competitors are availability of our parts for the equipment we sell and the breadth of our product offer," said Tako De Wit, director of Borusan Makina. "In terms of part availability, we have an on-going supply of about \$20 million worth of parts in the country of which roughly \$15-\$16 million are purely parts made for the mining industry. We have about 10 mining parts warehouses in Kazakhstan. Given the fact that we have been doing this business for the past 11 years, we have a fairly reasonable depth of skills and organization we can provide to our customers. Even though this is a very big country, larger than all of Western Europe, we have technicians and equipment parts available to most mining sites no more than two to four hours drive away. In addition, Borusan Makina offers customers consultancy services through a dedicated machine application team (production and scale studies as well machine selection support). This service is aimed at helping customers get the most out of their equipment."

Vying with Borusan Makina for leadership in the equipment supply market is Turkuaz Machinery. Turkuaz was established in 2003 and supplies a diverse range of equipment to the mining industry from leading suppliers such as Hitachi. Sergey Grekhov, managing director of the mining equipment division, elaborates upon how the Kazakh government's plans to double mining production by 2015 will impact upon Turkuaz's Kazakh operations. "These governmental plans will be beneficial for our business; there is a lot of work ahead for us. We have many goals which we intend to achieve in order to retain our position in the market. In terms of growing our market share in the supply of excavators, we intend to achieve first place, in



Borusan Makina, the local dealer for Caterpillar in Kazakhstan. Tako de Wit, passing the management of the mining department to Aman Shakenov.

other words to have a 45% market share. In terms of all other forms of equipment, we intend to maintain our strong position with no less than 30% of market share. There is an enormous amount of open-pit mines in Kazakhstan which are undeveloped; potential for mining here is very large. As more companies begin to develop these mines, then naturally Turkuaz will start increasing our supply of machinery. As for what we are doing to position ourselves in the market, Turkuaz of course will continue to make interesting proposals for potential customers, offering various ways of financing the equipment, a high quality of service and competitive prices."

The expected growth in Kazakh demand for international equipment and the subsequent increase in competitors in the market such as Liebherr, Volvo and Komatsu has led to companies employing more and more innovative services strategies in order to retain customer interest and market share. "The market has grown

to be extremely competitive over the past couple of years," said Henrik Applebom. "Volvo has an extremely strong brand in terms of quality and efficiency, as well as an excellent service offering to complement the products. Volvo has a service centre in Almaty for maintenance and repair works. We also work a great deal with onsite solutions where we work in partnerships to provide service, mechanics training and driver development for improving safety and efficiency with regards to how our products are used. Safety and efficiency are increasingly on the agenda for the companies established in the Kazakh market both in mining and oil and gas. In particular we are performing training on how trucks should be driven, loaded and offloaded, as well as demonstrating efficient driving techniques, which is extending the life cycle of truck."

Although more focused on the construction sector, with just 10% of overall business coming from mining, Wirtgen offers a range of highly specialised machinery, with a clear focus upon surface mining. Wirtgen's story provides an excellent example of the opportunities present in the Kazakh mining sector. Having been established in Kazakhstan since 1998, the company is now making great strides toward increasing market awareness of the specialised products the company can provide to niche areas of the industry.

Boart Longyear, Sandvik and Atlas Copco have all now established offices throughout Kazakhstan as demand for their range of advanced drilling equipment continues to increase. While Chinese and Russian drill rigs have traditionally been favored, shifting procurement and opera-



Sergey Grekhov—head of mining, Turkuaz Machinery, the local representative for Hitachi equipment.



tional strategies have placed exponential increases in demand upon world-class drill rig suppliers. Per-Arne Lindqvist of Atlas Copco explains the impact such demands have had on lead times and how the company intends to capitalize upon strong expected near term growth in the Kazakh mining market. "One of the short term challenges we are expecting to see are the long lead times we are facing now when importing our equipment into Kazakhstan. The financial crisis had a big impact on the mining sector, and the demand for equipment fell dramatically. Now the economy has picked up again and many requests for equipment are coming through. As a result lead times to import equipment here have become very long, and for some pieces of equipment the lead-time is up to a year. Atlas Copco has grown very quickly since 2005 and we have had a solid development of our branch in Kazakhstan. Our organization is also very young both in terms of the age of our branch and the average age of our employees. Now is the time for us to mature and build a solid base in the country. From there we will continue to grow and expand. In five years I think we will be an established service company here in Kazakhstan and customers will want to work with us since we will be the leader in providing services and equipment to the mining sector."

A number of smaller scale equipment intermediaries such as Prolog Central Asia, Gateway Ventures, LSH International, Mining & Drilling Services and Kazakhstan Mining & Industrial Financial Co. (KMIF) have emerged that are able to offer more flexible options to their customer base, and a less bureaucratic means of delivering equipment than some of the larger international companies operating in Kazakhstan. "The Central Asian region is going to be one that will be growing very strongly in the coming years. Prolog's range of product and service offerings is extremely well positioned in order to benefit from such growth in the mining industry here. We have set out our stall here in Kazakhstan for Prolog to be considered the portal of choice for international companies entering the Kazakh mining market. Prolog has three clear business streams," said Brodie. "First, we offer a range of business support and consulting services for a whole range of supply related issues such as contracting, tendering, IPO related sign offs and logistics consulting. Our second stream Prolog works with is our representation and



ENRC-central maintenance control room at EEC, Aksu.

product supply wing where we specialize in the supply of repeat consumables for mining companies and mine sites. We focus specifically on engineering products within this stream. Prolog's third and largest business stream is the supply of products as required for a variety of projects throughout

the industry here. By products as required we mean products such as specialist chemicals and capital goods such as crushers. We don't have any specific allegiances in terms of suppliers, enabling us to be far more flexible and tailored in our choice of supplier. The way business is



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done in Kazakhstan is very different from what many international companies would have experienced in the past. Over time we have grown to understand these idiosyncrasies and are in a good position to assist international investors navigate the various systems in place here.”

Based in Kazakhstan's mining hub of Karaganda, Mining Financial Co. operates under a diversified business model whereby the company provides equipment, consulting and various project management services to both international and domestic investors into Kazakhstan's mining market. Mining Financial is increasingly gearing up the company's business model toward working in partnership with international investors new to the market that would greatly benefit from working in tandem with local partners. “Kazakhstan Mining Industrial and Financial Company has various tools with which it is prepared to assist foreign companies in developing their mining projects in Kazakhstan,” said Mining Financial Director Andrey Krivosheyenko. “We have the industrial base to construct a service center. Considering the experience we have in meeting the demands of our clients, we can ensure the success of any mining project. Despite the very negative effect of the financial crisis on the economy, progress continues. Little by little, 2010 has seen the industry expanding and improving and firms are once again buying new equipment. Precisely here we can be beneficial to companies coming from abroad. Kazakhstan Mining Industrial and Financial can help by preparing the initial set of documents necessary for foreign companies. We can provide all necessary documents required for a project, provide assistance with local operations, and render all possible support for the development of mining fields.”

## Mining Software

Four of the key players in the international mining software market are present in Kazakhstan's mining industry, providing software solutions and consultancy services. Datamine, Mincom, Gemcom and Micro Mine are all currently competing for the ever increasing interest in tailored software solutions for mining operations. Paradoxically the global financial crisis stimulated an upturn in demand for software solutions as highlighted by Andrei Nadein, regional vice president of Mincom. “The onset of the global financial crisis was a clear accelerator for our business, as



Andrey Krivosheyenko—director of Mining Financial Co, a very complex, up-and-coming, national player in the services market, based out of Ust-Kamenogorsk.

many companies in Kazakhstan begun to further examine ways in which they could improve their overall operations and reduce costs. Such companies realized they needed to clearly understand what was going on across their day-to-day operations.”

The most popular products in Kazakhstan's software market are those able to assist with asset and operations management on mine sites and geological modeling in exploration phases. Consultancy services that complement mining software sales are increasingly important in ensuring one's competitive edge in the market.

In terms of outlook, the prospects for software services providers in Kazakhstan are very positive. “Kazakhstan is a very comfortable place to do business, it is very safe and there is a huge amount of potential within the market,” said Andrew Pyne of Gemcom. “In terms of exploration, a great deal has been done at a surface level, however the sub-surface profile is largely unknown. Even in the Western Australian goldfields we are still making huge discoveries 100 m below surface level; Kazakhstan will be endowed with similar opportunities. I am very bullish about Kazakhstan. I think we have the potential to grow by up to five times by 2015. The enquiries we have had for new business over the course of this year have by far exceeded my expectations.”

## Plant Construction

Of the major international equipment suppliers for processing plant and mining operation constructions, Outotec is the most established company in Kazakhstan's mining market, having first established a physical presence in the country in 1997. Metso entered the market later, in 2002. “Metso Minerals was established in

Kazakhstan in 2002,” said CIS Regional Director Valeriy Korotkov. “Since that time, we have grown from two members of staff to 16 members of staff, and from €500,000 revenues up to €20 million revenues. We have also moved from representative office status to legal entity status, this allows a great deal more commercial flexibility and ability to fully satisfy our customers' demands. As a commercial entity we can keep larger stock levels and offset a greater number of risks a rep office generally encounters. We transferred from rep office status in 2009.”

Significant growth in Kazakhstan's plant construction market is being driven by a familiar set of fundamentals. International demand for mineral commodities is strong; Kazakhstan's government is driving ambitious increases in both production and industrialization; the culture of procurement and operational management in Kazakhstan is shifting toward more internationally recognized quality standards, and the financiers of the mining industry are increasingly demanding such standards. As all of the major mining players are announcing capital expenditure expansion plans, as well as new entrants to the market such as Rio Tinto and Ivanhoe Mines, who will have requirements for plant construction in the coming years. This niche sector in Kazakhstan's mining services and equipment supply market looks particularly buoyant.

## The Role of Russia in Kazakhstan's Mining Industry

Anyone working in Kazakhstan's mining sector today instantly recognizes the historical role that Russia has played in developing Kazakhstan's mining industry. Until only 20 years ago, Kazakhstan and Russia were joined as part of the Soviet Union and the history of Kazakhstan's mining is rooted deeply in the partnerships and cooperation that Kazakhstan and Russia enjoyed. This long involvement continues until today and has contributed to a multi-layered relationship between the two countries.

Last year alone, Kazakhstan was the third highest receiver of Russian FDI into CIS countries. Some of the largest areas of investment have been in the uranium and gold sectors. While news of Polyus's takeover of Kazakh Gold have questioned the exact role Russian companies seek to play in Kazakhstan, many see Russia as a stable and reliable partner in the efforts to develop Kazakhstan's mining sector.



“Historically speaking, Russia and Kazakhstan have been connected culturally, economically and politically for a very long time,” said Yuri Gavrillov, director of Bateman Engineering’s Moscow Office. “Russian companies have long been active in Kazakhstan, and it would be strange if Russia was not present in Kazakhstan and did not contribute to the development of the country’s mining sector.”

Cooperation on government levels has been particularly intense in the uranium sector. Rosatom, Russia’s State nuclear body has been seeking new levels of cooperation with Kazatomprom. This year, the two companies were on the brink of signing further cooperation agreements in addition to existing ones. Current plans point to Kazatomprom buying a uranium enrichment plant in Russia, in return for allowing Rosatom and its subsidiaries a piece of the pie in developing uranium mining within the country.

As one of Russia’s largest neighbors, Kazakhstan is considered by Russian companies as one of their top priority markets for expansion. For Russian companies, their entry to the Kazakh market often dates back to Soviet times. Kamaz, the world’s 11<sup>th</sup> largest provider of heavy trucks, entered Kazakhstan in 1978. Since then Kamaz’s Naberezhnye Chelny factory has been supplying Kazakhstan with up to 7,500 trucks per year. The advantage of having a decades long presence in a country is particularly valuable from the perspective of service and spare parts availability and these days a Kamaz truck can be fixed in any town or village in Kazakhstan, since you will easily find spare parts and Kamaz specialists, according to Anatoly Krygovih, director of the Kamaz Service Center in Almaty. While Kamaz does not produce any specific equipment for the mining industry, its trucks often operate in mines, and the company is actively planning to increase its presence in the country to take a 60%-70% share of the market by 2015.

Chetra Machinery is another company who got a head start in Kazakhstan’s market during Soviet times. Chetra was established in Russia during the 1970s and since then has become a global producer of equipment, including equipment for the mining sector, which now accounts for more than 40% of Chetra’s profits in Kazakhstan. “We have always been in this country, and thanks to the good relationship between Russia and Kazakhstan and



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the strong leadership of Kazakhstan, very comfortable conditions were created for developing our business here. Now we are not only producing and supplying our equipment to mining companies, but also offer a variety of services including training, and renovation of equipment, and production of spare parts," said Alexei Kuzmin, director of Chetra's marketing company in Kazakhstan.

Currently, Chetra is working with all of the major companies in Kazakhstan, particularly in the supply of bulldozers and trucks and currently holds an approximate 35% share of the market in terms of supplying such equipment.

While Russian companies seek to make their mark on Kazakhstan's mining sector, Russia plays an equally important role by serving as a platform and a base for Western companies involved in Kazakhstan, but who have not yet developed a physical presence there. Many international companies with a presence in Russia use their Moscow office as the headquarters for their work in the CIS.

John Bacharach has been involved in mining projects in CIS countries since the fall of Soviet Union, and now heads one of the consultancies that make up the IMC Montan joint venture. Specializing in various services, but particularly in scoping, pre-feasibility, and bankable feasibility studies, IMC Montan has already completed nearly 200 projects all across the CIS region, including more than 40 in Kazakhstan. Kazakhstan currently accounts for about one quarter of IMC Montan's profits.

For Yuri Gavrilov, director of Moscow's Bateman Office, Kazakhstan represents "the next big target." Bateman Engineering opened an office just recently in order to establish a physical presence. "Without a doubt we need a physical presence in the country to meet the local legislative requirements. As our projects there grow in number, so will our physical presence," said Gavrilov.

With an office of seven staff, Bateman Engineering's office in Almaty currently undertakes most of the legislative and representative functions, while the Moscow office still handles all the project work.

One crucial element that makes the process smooth for Russia based companies opening offices in Kazakhstan is the fact that most of the regulations and licensing legislation governing the mining industry were very similar if not outright

identical until recently. Given Kazakhstan's enormous uranium reserves and its status of the world's largest producer of uranium since last year, Hatch has been particularly interested in working on uranium in Kazakhstan. According to Andrei Torgashev, director of Moscow's Hatch office, Hatch has been continually building its expertise in the uranium sector. "In Russia we already have all the necessary licenses and we are in the process of receiving these licences in Kazakhstan."

While Hatch has not opened an office just yet, it has already worked on several projects in Kazakhstan and like many companies, is actively looking for partnerships and cooperation with local Kazakh companies ahead of establishing offices there. "I see our presence in Kazakhstan as very strong in five years and we might make Kazakhstan a regional hub for Hatch's work in CIS countries," said Torgashev.

Overall, Russia is positioned strongly to continue playing a role in developing the Kazakh mining sector. New developments such as the customs union will have a positive effect on Russian-Kazakh business and will also aid foreign companies with Russian branches to better explore and ultimately establish their offices in Kazakhstan and the CIS.

## Kazakhstan's Move Downstream

A fundamental milestone in President Nazarbayev's agenda to double mining production by 2015 is Kazakhstan's program of industrialisation, whereby the country's wealth in mineral commodities is being targeted as a platform to stimulate growth in the country's industrial base and further diversify the national economy.

A notable success in achieving these goals is the continued development and upgrade of the Ulba metallurgical plant in Ust-Kamenogorsk which is vital to Kazatomprom's strategic objective of building industrial capacity throughout the nuclear fuel cycle. ENRC's world class aluminum smelter completed in Pavlodar and the company's direct current furnaces at SSGPO's iron ore facilities are clear examples of how Kazakhstan's industrial base is being expanded on the back of the country's mining industry. As highlighted earlier, Kazzinc's US\$1.4 billion investment program is at the forefront of Kazakhstan's shift toward the implementation of world class technologies in order to fully capitalize upon the country's mineral reserves.

By no means confined to the extractive industries alone, Borusan Makina is developing a component factory in Karaganda. "Borusan Makina is currently investing US\$13-\$16 million in a Component Rebuild Center," said De Wit. "Here we will have a repair and rebuild factory where companies will be able to bring their used equipment components for processing. We will be able to strip all types of equipment down, reuse all of the parts that are salvageable, and install new parts. Critical to this process is the extensive testing procedures that will be included in the rebuild processes. This centre gives companies much more consistent quality than they would get with just repairs alone. The factory is currently being built in Karaganda where construction work started last year. We should have our first production toward the end of this year. With this center in production there will be four options when it comes to overhauling/repairing equipment; you can buy new parts and components from Caterpillar through Borusan Makina, Borusan Makina can perform repairs detailed to the customer's wishes and requirements, companies can purchase Caterpillar Reman components when the old components are sent back to Caterpillar who will remanufacture these, or you can buy exchanged components which will come out of our Component Rebuild Center. We are expecting to have about 120 people working there by 2015."

## Conclusion

Kazakhstan's immense mineral wealth has never come into question since the huge exploration activities undertaken during the Soviet era. Today's Kazakhstan has a renewed focus upon continuously improving the regulatory environment, raising industry practices to internationally recognized standards, and raising production levels year on year in order to bring Kazakhstan's production levels in line with the country's outstanding potential as a center of global mining activity. As major international players are increasing their interest in the Kazakh market, the investment opportunities throughout the value chain are widely acknowledged as being immense. Of greatest interest at this stage is Kazakhstan's resource potential for exploration companies and the numerous gaps within the equipment and services value chain which remains far from maturity at this stage.



# Innovating for long-term performance



After more than 100 years' experience of surface drilling, you might think there was not much left to discover. But our approach to product design and service support is always evolving, always improving. This constant process of innovation helps our customers get the results they need in quarries, mines and on construction sites around the world. This is what we call sustainable productivity.

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