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African Mining

Recent reforms and increasing stability boost investment interest in Sub-Saharan region.

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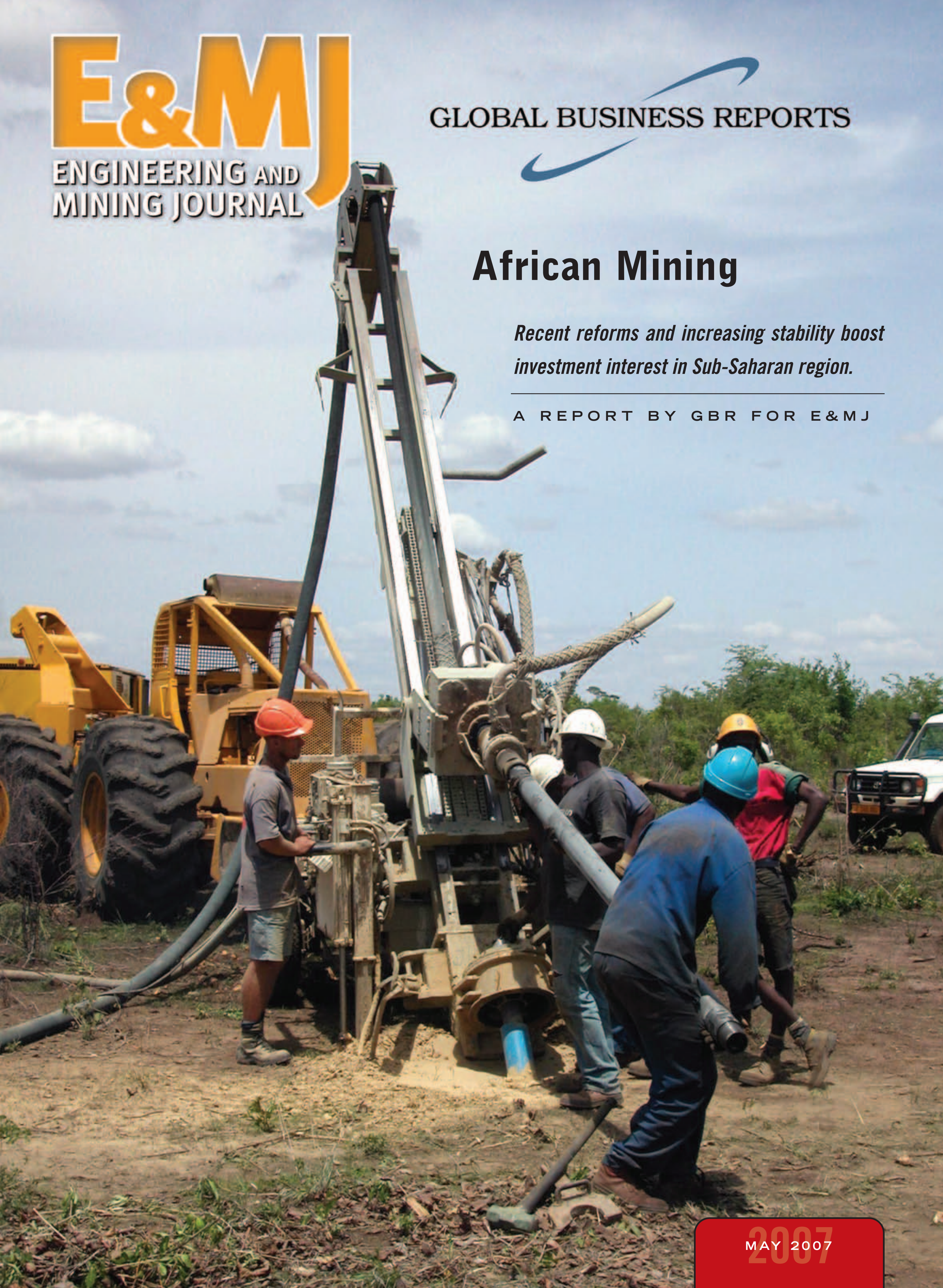

MAY 2007

A New Age for Mining in Sub-Saharan Africa

Regulatory and fiscal reforms throughout this historically turbulent region attract investor interest

The global mining industry is experiencing a mineral boom with the highest commodity prices seen in over a decade, due in large part to the industrialization of both China and India. Mining in the Southern African Development Community (SADC) countries is a vast industry, contributing approximately 60% to the total foreign exchange earnings and 10% of total GDP, though in some member states it runs as high as 50%. The region is an important player on the international mineral market contributing between 11% and 45% of the world supply of eight major commodities, which include chromite, cobalt, diamonds, gold, manganese, copper, platinum and uranium, and has considerable potential in the dimension stone sector and other industrial minerals.

Amazingly, South Africa was rated the smallest recipient of net foreign direct investment last year. That is obviously of great concern for the local industry but it also implies a huge opportunity for the rest of the region, whose diversity and richness of minerals was perhaps overlooked in the past. The number of conflicts on the continent has decreased from roughly 25 in the early 1990s to about 4 today. In addition to this, the majority of today's youth/voters were not part of the liberation struggle and have different priorities tending toward country development and employment opportunities. To exemplify this, of the 680 million people in the Sub-Saharan region, 45% are below the age of 15.

There have been substantial changes in the governance of mining at an international level over the past 20 years with the most significant changes being implemented over the last 10 years. Programs such as the Extractive Industries Transparency Initiative (EITI) support improved governance in resource-rich countries through the verification and full publication of company payments and government revenues from oil, gas, and mining. EITI works to build multi-stakeholder partnerships in developing countries in order to increase the accountability of governments. Private mining companies, on the other hand, have generally come to terms with issues concerning the allocation of long term operating licenses.

Since 2000, the SADC region has followed this trend, making a series of regulatory and fiscal reforms in the mineral industry and generally increasing the attractiveness for mining investment across the region, with a focus on South Africa, Tanzania, Zambia, Botswana, Mali, Ghana and the Democratic Republic of Congo (DRC). Almost half the world's mined gold is from the Witwatersrand in South Africa, and the majority of known platinum group metal resources (PGMs) are in the Bushveld Complex (South Africa) and the Great Dyke of Zimbabwe. Similarly, the Copperbelt of Zambia and the DRC form a world-class deposit. In long-established mining areas the industry has matured, but there remains great scope for future development. In South Africa, improvement in the gold price has enabled the development of new mines and a successful transition from surface to underground mining. In Zimbabwe, new PGM mines are planned near existing mines at Ngezi, on the Great Dyke. In Zambia, one of the world's largest undeveloped copper deposits is scheduled for commissioning later this year. Elsewhere, in Botswana and Angola there are very active exploration projects for diamonds, while the development of offshore, diamondiferous gravels continues in South Africa and Namibia. In Malawi, sandstone-hosted uranium deposits are of current interest. Ilmenite is being successfully mined in Mozambique. In Madagascar, nickel exploration and production are thriving. In Tanzania, reform by the 1997 Investment and the 1998 Mining Acts encouraged exploration of old gold properties and artisanal mines in the Archean Greenstone Belts. This resulted in various mines going into production, including North Mara and Tulawaka.

The mineral investment sentiment in the region remains high with a sustained level of exploration. Investors and governments are being rewarded with discoveries of major profitable mines across a range of commodities. This current trend should continue as older deposits reach maturity and world demand for mineral resources continues to grow. Historically, mineral-rich African countries explored and mined their resource on their own, but a lack of capital and the high-risk nature of investment meant that development of new assets and infrastructure lagged. By last year, most countries in the Southern African region had generally evolved to assume the role of facilitator and regulator to private sector mining development. They have much to gain from the development of their mining economies through taxation and other benefits, with the primary risk being assumed by private investment. Securing black empowerment, poverty alleviation through job creation and training, dealing with the HIV/AIDS pandemic and environmental conservation are high on the region's mining legislation agenda.

Generally speaking, progress in the SADC region has been good. One challenge relates to legislation, which is not

Southern African Development Community

The Southern African Development Community (SADC) traces its roots to the early 1980s. The initial aim of the community was to coordinate development projects in order to lessen economic dependence on the then apartheid South Africa.

With the ending of apartheid and the welcoming of South Africa into the community, the organization counts Angola, Botswana, DRC, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe as members.

It has a vision of economic and social integration through free movement of trade, capital, and labor; policy harmonization and project coordination; and eventual creation of a common market and a unified Southern Africa. Key details of implementation protocols have yet to be negotiated.

always developed with a long-term perspective, thereby creating onerous obligations on mining companies in downcycles. Tension relating to this can be seen in Zambia, where mining companies have been under pressure by the government, in light of quadrupling copper prices, to increase the share of proceeds going to the central treasury. It is important that governments develop policies that ensure them sufficient benefit in the good times, while maintaining a realistic view to the cyclical nature of mineral prices.

Mark Bristow, CEO of Randgold Resources, believes the gold industry in Africa is not taking a long-term approach to profits and hence is in an unsustainable situation. Bristow outlined his view on the industry at this year's mining INDABA in Cape Town: "Because we're in a bull market which rewards production rather than profits, nobody is focusing too much on this financial underperformance, but ultimately it's not a sustainable situation. Stakeholders expect rewards and their patience is not infinite. When host governments, for example, see that mines are not producing the promised profits, and therefore not paying the anticipated taxes, it prompts them to tax through royalties."

A staunch supporter of social development plans with a long-term perspective he concludes, "Africa is changing and if you can be flexible enough to change with it, it has huge opportunity. Africa is vastly unexplored and needs mining revenue and infrastructure more than any other continent." Randgold Resources is focused on the African continent mostly in the West where it has two mines, a feasibility stage project and exploration projects in Mali, Senegal, Burkina Faso, Côte d'Ivoire and Ghana, as well as Tanzania in the SADC region.

There have been discussions and efforts put toward creating a vision of a single economic entity within the region through more profound legislative integration to facilitate cross border investment, but this has yet to materialize into anything significant. Because of the inherent complexity of the regulatory regimes, prudent investors may find it beneficial to independently review the mining and tax laws and other regulatory policies of the specific country in which they are interested. This report will focus on South Africa, Tanzania, Zambia, Botswana and the DRC.

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South Africa: Balancing Riches

Wesizwe Platinum, a junior broad-based empowerment company has seen its share price steadily increase since its listing on the Johannesburg Stock Exchange in December 2005. (Photo courtesy of Wesizwe/Photographer: Melanie Low)

South Africa contains some of the world's richest and most diverse mineral deposits. The country is the world's largest producer of platinum, gold and chromium, and also holds significant deposits in antimony, coal, iron ore, manganese, nickel, phosphates, tin, uranium, gem diamonds, copper and vanadium. In 2006, roughly 55 different minerals were produced from more than 1,000 mines and quarries—of which 45 produce gold, 26 produce platinum-group minerals (PGMs), 64 produce coal and 202 produce diamonds, all as primary commodities. The discovery of diamonds in 1867 and gold in 1886 formed the historic backbone of the country's initial industrial development. Over the past two decades, the non-gold mining sector led by PGM, coal and ferrous metals sectors has been the mining industry's growth locomotive.

While South Africa boasts infrastructure comparable to most developed countries, its cost structure is distinctly third world. At around 1.70 US cents per kilowatt-hour, it has one of the cheapest electricity costs in the world, even though its generating capacity is stretched. Labor rates are competitive although rising due to the lack of new young talent and the "brain drain" characterized by the emigration of highly skilled people to Europe, North America and Australasia. Despite the global commodities boom, the South African mining sector is only just starting to benefit with investment up 7.2% in 2006. In that same year, the mining and quarrying sector contributed US$17.8 billion (or 7% to Gross Value Added) to the economy, a nominal increase of 12.6% over the previous year.

Total primary mineral sales earnings climbed an impressive 28% year-on-year to $28.8 billion which represented 30% of merchandise exports for 2006. The contribution of gold to total annual primary mineral export sales value decreased to 18.6% in 2005, from 23.7% the previous year. Gold has long been South Africa's top mineral earner, but slipped into second place behind PGM in 2004. PGM consolidated its position as the main contributor to South African primary mineral sales revenue in 2006, accounting for 33.6% of total mineral sales, followed by coal with 19.5%, closely followed by gold in third place at 19.2%. During 2006, the mining industry employed 447,500 workers which accounts for about 3% of South Africa's economically active population.

Empowerment Legislation

Prior to 1994, when the country was ruled by the white minority, discriminatory policies excluded a large section of the population from full participation in the minerals industry. To rectify the resulting imbalances, Black Economic Empowerment (BEE) was introduced as a unique program encompassing both public and private sectors. Although still being integrated into economic legislation, its understanding is fundamental to doing business in South Africa today.

Initiatives such as BEE are part of the country's efforts to reverse the effects of the apartheid era, however, it is critical that a balance be maintained, ensuring value continues to be added to the economy and that incentives for both foreign and domestic investors are maintained. When BEE was first implemented in 1993, the "across the board" results were mediocre focusing solely on the transfer of enterprise ownership to a partner of the 'previously disadvantaged group.' The result was that a small group of ambitious individuals from the previously disadvantaged group accumulated a vast amount of wealth but failed to benefit the majority of the intended benefactors.

In response to this obvious short coming, the focus of BEE shifted from being exclusively ownership oriented to addressing other elements such as employment equity, skills development, preferential procurement, enterprise development and corporate social investment amongst others. The refocused strategy of the BEE initiative is referred to as the Broad Based approach to BEE. Each of the areas, or pillars, mentioned above has a set quota objective that contributes to awarded points on a scorecard under the Department of Trade and Industry's BEE Codes. Although to different degrees, depending on size, structure and sector, every company operating in South Africa is obliged to work under BEE legislation. The development of industry-specific BEE charters is an on-going process. However, charters have already been developed for several key sectors, including mining, the petroleum and maritime sectors, tourism and financial services.

As one of the country's more visible and wealthier industries, the mining sector was one of the first under pressure to comply but was also one of the first to embrace the BEE initiative with a negotiated charter being agreed upon and signed in 2002. The Charter, and hence BEE, is also one aspect that the government considers when awarding new mining rights and in the conversion of old mining rights. The conversion process is set for completion in 2009. As a result of the legislation, ownership of mining and exploration rights, traditionally held by the largest companies, has opened up the market to new players. Applications for conversions are steadily flowing in, although there are complaints of unduly long delays caused by government bureaucracy.

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The equity component of BEE eventually dictates that at least 26% of any entity is to be held by previously disadvantaged persons by 2009. Correspondingly, the sector has seen a flurry of joint ventures between locally established companies on one side and foreign operators as well as historically established (majority white owned) companies on the other. As junior companies tend to be start-ups and have flexible organizational structures, the implementation of BBBEE, for the most part, has not been an issue. As a result, several black-owned firms and investment houses such as Mvelaphanda Resources and African Rainbow Minerals (ARM) are now beginning to play an important role in the mining industry both on the investment side and in operations. ARM traces its origins to the Anglo Group in 1933, and is a perfect example of how adapting to the new legislation and supporting transformation can be successfully implemented into the business model. ARM went through a significant restructuring program in 2004 to turn the company around and is today recognized internationally as being a successful black owned company. Their exploration portfolio includes copper

South Africa is trying to off set the high cost of deep gold mining with legendary global gold prices. (Photo courtesy of Africon Consulting)

projects in Zambia, a copper-cobalt project in DRC and a gold project in Namibia. Aside from running mines, ARM's growth strategy is through joint ventures as a preferred BEE partner.

Simmer & Jack, a gold and uranium producer, is another example of a company that has successfully integrated BEE. At the start of 2005, Simmers made its first appearance as a re-constituted viable business following the introduction of a new management team and new shareholders. Since then it has been among the top performing resource stocks on the Johannesburg Stock Exchange (JSE) for two years running, with the share price increasing almost fivefold in 2006 alone. Simmers production's has increased by 415% year-on-year for the past two years and has entrenched its position as a uranium player through its subsidiary, Uranium One (67.2%). BEE investments currently account for a direct equity-ownership stake of 32% of the company.

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BEE is not something that might happen; it is something that is happening. It is recognized as a business imperative to operating in South Africa. There are many good opportunities to create partnerships with local South African BEE companies. The sector has had sufficient time to produce some legitimate and highly competent Black-owned players who are transforming the mining business environment at an impressive rate.

Missed Opportunities in the Commodities Boom

While the global commodities boom has been on an impressive upwards march for the past five years, South Africa has clearly missed out on some of the benefits of the surge as year-on-year investments in the mining industry fell by 20% in 2004, and 13% in 2005, before a welcome recovery of 7.2% growth in 2006. Unclear and demanding legislation may have acted as a deterrent to foreign direct investment, losing out to other Southern African countries perceived as being easier environments to operate in, such as Tanzania, Ghana or Botswana. Last year the World Bank reported South Africa to be the country with the lowest net foreign direct investment in the Sub-Saharan region (negative $1 billion).

However, the introduction of new laws in 2004 and the significant changes these required are not the only culprits for the poor performance. Based on work done by a tripartite "High Level Task Team on Investment" established in mid-November 2006, and comprising of the government, the Chamber of Mines and organized labor, it was recognized that capacity constraints in infrastructure and the volatility of the local currency (the Rand) were also significant constraints to investment and growth in the sector. According to Roger Baxter, chief economist at the Chamber of Mines, all three factors had served to constrain investment. In 2004, for example, coal exports from South Africa declined by 5%, a direct consequence of rail infrastructure limitations. Mining companies subsequently negotiated agreements with the country's rail operator, Spoornet, to invest in upgrades worth approximately US$1.4 billion to expand coal export lines.

On the currency front, the rand exchange rate against the U.S. dollar appreciated by roughly 48% in 2002 which undid a huge amount of gains in dollar denominated commodity prices. However, this situation has subsided somewhat as the rand has weakened slightly since early 2005 while commodity prices have continued to boom, including record prices for gold and PGM. Consequently, the last 18 months has seen a significant improvement in prices and investment is starting to respond. To draw a comparison, over the last two years, the level of the Australian dollar versus the U.S. dollar match those of the South African Rand against the U.S. dollar with a correlation of over 90%. Yet in 2005, Australian fixed investment in mining in real terms was up 35%, South Africa's was down by 13%. Global exploration expenditure increased 225% from 2003 to 2006, whereas South Africa achieved only 138% growth. Encouragingly the 45% growth in global exploration expenditures in 2006 was matched by South Africa's exploration numbers.

However, there are issues of legislation and regulation that are seen as having the greatest negative impact on investment. One of the issues is environmental legislation where triplication of requirements and bureaucratic capacity constraints delayed the issuing of new mining rights and the conversion of existing licenses. It is reported that processes such as water license applications can take up to two years which in turn postpone environmental management program reports that are a fundamental part of issuing a mining license.

Today, the vast majority of global exploration, especially green-field projects, are being undertaken by junior companies from Canada and Australia. Almost 60% of venture capital funding comes from the same two countries. What is interesting is the fact that the rest of Africa's growth in direct mining exploration improved by US$300 million over the last three years. The equivalent in South Africa was just $18 million, miniscule given the country's leading status on the continent. At the end of the day, legislation in other African countries can tend to be less onerous with more efficient licensing procedures.

Baxter summarizes: "The South African mining industry has agreed to the transformation targets as part of redressing issues that are historically inherited. Exploration is so high risk that BBBEE should be encouraged, but not made a requirement. The general consensus is let the resources be found then let BEE kick in."

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South African diamond exploration company Diamondcore Resources has experienced both the benefits and drawbacks of the BBBEE process. CEO Theo Botoulas states, "We have been at the forefront of implementation and as such I think we are one of the few exploration companies to implement BBBEE on the ground. As a result of our efforts we were granted the very first prospecting right in the Northern Cape through the new Act. Assessing the current situation, I think that when considering a prospecting right, the act should give more recognition to the fact that exploration is extremely risky. Prospecting rights are treated as if they would be a successful mine site, and that is often not the case." Despite this complaint, most players in the sector agree that the government is accessible and tries to accommodate for the private sector's needs.

Taking the statistics into consideration, developing legislation beyond the teething stages quickly and efficiently is key to regaining investor interest in the South African exploration sector. Baxter notes the encouraging turnaround in the sector: "High level engagement is taking place between the industry and the government as well as with the parastatals providing key services. In true South African fashion we have engaged in tripartite dialogue, identified the challenges and are looking at solutions to deal with the constraints."

With investor attention on other Southern African countries, South Africa has a small window of opportunity to revise and adjust its policies to encourage these investors back. On assessing the success of BBBEE one can look at the flurry of joint ventures between locally established companies and foreign ones on the one hand, and on the other the loss of exploration investment to African neighbors at a time when the industry globally is experiencing a boom. Post-apartheid, the country finds itself trying to balance future social and economic stability with investor friendly legislation.

Flow-Through Shares Could Help Investment Flow In

A further challenge to investment in exploration in South Africa has been the paucity of venture capital that can be raised locally. Start-ups and smaller BEE companies have difficulty raising funds as local investors and financial institutions tend to be risk averse, regardless of boasting the most developed financial sector on the continent with the JSE ranking in the top 20 globally. Both the private sector and the government are looking at introducing "flow-through shares" tax incentives to regain investor interest in exploration. The incentive gives a tax deduction to investors in exploration companies that incur expenses before they begin to generate income.

A similar model was introduced in Canada in October 2000 as a temporary measure to help moderate the effect of a global downturn in mineral exploration in the 1990s. The original three-year program has been extended three times since its inception and is currently due to expire in March 2008.

As a result of the Canadian measures, exploration expenditures have risen from approximately $300 million in the late 1990s to more than $800 million in 2004, becoming the number one destination for exploration investment. Australia is also reviewing the system of flow-through shares for its mining industry. In addition, there is a comprehensive review of corporate law taking place under the Department of Trade and Industry and this is expected to reduce the risks to venture capital funding.

Investor Comfort

Considering the pioneering nature of South Africa's legislation and the fact that it has been a work in progress for only 13 years, it is understandable that there are implementation issues that need to be addressed. In doing so, it is important that the government balance short-term needs with longer-term strategies. South Africa is ideal as an investment destination for both greenfield and brownfield projects as well as being an entry point to the rest of the continent. With a vibrant business environment, a developed transportation and communication infrastructure, a sound judicial system, sound financial markets and a stable political/economic environment, the pro's tend to outweigh the con's.

Investment into South Africa should be for the long-term, demonstrating support and tolerance for the fact that the business environment is in a transition period. The tripartite system increasingly recognize that a competitive, stable and predictable mining environment is vital to attracting investment into a long term industry like mining. With the significant policy reform process already reasonably advanced and with the unique South African tripartite manner of dealing with challenges, the prognosis for the country to grow investment in mining is increasingly looking promising.

Democratic Republic of Congo: Entering a New Era of Peace and Prosperity?

The DRC has lived through perpetual political, social and diplomatic instability since it gained independence from Belgium in 1960. Colonel Mobutu installed himself as President through a coup in 1965 and managed to stay in power through 32 years of civil war, often employing brutal force against his country's own civilians. Mobutu was finally overthrown by a rebellion led by Laurent Kabila (father of the current president) in 1997 only for Kabila to be assassinated in 2001. Troops from Angola, Chad, Namibia, Sudan, and Zimbabwe have intervened to support the recent Kinshasa regime. The DRC has experienced one of the world's deadliest conflicts since World War II, with more than 3 million dead during their civil war between 1998-2003. A transitional government held a successful constitutional referendum in December 2005 and elections for the presidency, national assembly, and provincial legislatures last year. Joseph Kabila was sworn in as the first democratically elected president since Congolese independence.

With a reasonably clear popular mandate—58% in the run-off round—and a strong majority in parliament, Kabila controls roughly three fifths of both houses and is empowered to consolidate peace and stability in the country. He is also seen as a supporter of international mining companies and has provided on the ground security to protect operations and attract much needed investment. An abundance of natural resources including cobalt, copper, niobium, tantalum, petroleum, industrial and gem diamonds, gold, silver, zinc, manganese, tin, uranium, coal, hydro generated power and timber have been severely mismanaged in the past with minuscule reinvestment into basic infrastructure and social programmes. Will the establishment of democracy bring a new era of peace and prosperity?

Rehabilitation: Two Decades of Neglect

The largest hiccup for ground operations seems to be both the geriatric transportation systems and limits to power generation and distribution. Although the DRC generates a substantial amount of electricity, it is estimated that the local power grid reaches only 5%-10% of the population. Rural roads are not in good condition, although the main road between Kolwezi and Lubumbashi is being rebuilt. In general, roads around the copper-cobalt mines are being upgraded from dirt to tarmac. With the boom in mining, the level of exports (final products) and imports (mining equipment) are going to increase. This is expected to place pressure on customs services which will require restructuring to deal with the growth. Nevertheless, DRC should not be considered as a lost cause seeing as the country has the potential to attract world-class investments and vast mineral wealth with which to drive progress.

As always, it comes down to the management of the country and its ability to counter the "resource curse" experienced in most resource rich areas, certainly in the African context. The new government will need to reassure the Congolese people that mining deals are delivering them tangible benefits, or risk inflaming political tensions. Assisted by the World Bank, the drafting of the current Mining Code is now very comprehensive but, on the other hand, legislation covering civil and legal disputes is in its infancy and will need to be developed quickly. Obtaining political stability in the North will be key to taming negative perceptions of the country's security.

High Risk = High Return?

Foreign perceptions of Africa as a corrupt, politically unstable, disease ridden and famished continent at war, with little to no infrastructure is skewed when looking at countries such as South Africa, Botswana or Zambia, but true if we are talking about the DRC. This vast country represents one of the highest economic, political and security risks on the continent. Regardless of this, as established mines around the world come to the end of their lives, mining companies are looking to the DRC as one of the few places where big new deposits can still be found under its relatively unexplored terrain. It is an ideal country for junior exploration companies and investors with a taste for high-risk/high return projects. Several large companies are considering investing billions of dollars, encouraged by the introduction of the World Bank-drafted mining code in 2003. Alongside infrastructure deficiencies, language is considered to be one of the biggest hurdles to doing business in DRC, especially because government documents are required in French. Like many on the continent, corruption is also a big issue and salaries are taxed at a spectacular rate of 55%. Today, the DRC resembles Ghana in the 1980s and Tanzania in the 1990s, when both nations were in the early stages of mining development. The case of the DRC is more complex, however, as investor confidence is extremely low, resulting from a legacy of mismanagement and corruption.

In 2005-06, renewed activity in the mining sector, the source of most exports, boosted the country's fiscal position and GDP growth by 7.5% in 2006. Most investors, however, are sitting on the sidelines waiting for more stable conditions. Others, in particular exploration companies, already see the vast opportunity and mining investment has begun to pour into the country in anticipation of a stabilised political situation. A range of companies including Adastra Minerals, Africo Resources, African Diamonds, BHP Billiton, Phelps Dodge, Anglo Gold, Banro Corp. and Katanga Mining are currently operating in the DRC. In the case of Katanga Mining, their rehabilitation of a mine complex at Kolwezi, located on the Congolese copperbelt, started open-pit operations in April of this year with production scheduled for September.

CEO Art Ditto began negotiations to create the Kamoto joint venture in early 2003, predicting a political enviroment sufficiently stable to facilitate mining. As it is, his investment strategy has proved right. "This is one of the rare places in the world where the underlying size and grade of the ore will support a business much bigger than is being contemplated now. It is unparalleled and unique." The reserves and resources stand at 200 million metric tons (mt) of ore at an average copper grade of 3.50%. When up and running, the mine will produce 150,000 mt of refined copper and 5,000 mt of refined cobalt a year. "We are currently on phase one of four which entails refurbishing a section of the concentrator and the metallurgical facilities as well as beginning production both on surface and underground at a rate that would match the amount of capacity we put back into the concentrator." Ditto expects to finish phase one by the end of the year and be ready to scale up in 2008. Total operational cost per pound of copper over the life of the project is predicted to be US$0.22, making it among the lowest in the world. Furthermore, because exploration has not been carried out since the early 1980s, there is significant potential for new discoveries.

The Katanga province generates an estimated 70% of the DRC's economy and contains most of the country's proven base metals wealth. There is a perception that the entire country is dangerous, but Katanga can be considered a safe haven where security, in general, is not a major issue. Africo Resources, a Canadian mineral exploration and development company, traded on the Toronto Stock Exchange, is advancing the development of its high-grade Kalukundi cobalt-copper deposit in the Kantanga province. Grant Pierce, CEO, gives an insight into operating conditions in the country, "Africo is committed to building the mine without resorting to corruption, which does make some things more difficult. The government is now taking a closer look at the issue acknowledging that foreign investors require greater protection. The most challenging part of doing business in the DRC is understanding the legal system and doing business without corruption. The DRC, in my opinion, is one of the last frontiers on the planet for mineral exploration. You can possibly include Angola in this category also." The company has an aggressive plan in place to convert existing resources into reserves, bringing the mine into production in 2008. The mine will create an estimated 500-550 jobs, 25 of which will be occupied by expatriates.

African Diamonds, the AIM and Botswana listed diamond explorer, has recently acquired a 35.42% share in Belgian consulting company Bugeco, for just over $1.6 million in cash. The key asset of Bugeco is a joint venture with De Beers in 21 licenses covering more than 800,000 hectares of prime prospective diamondiferous ground. Initial exploration has discovered several new kimberlite clusters in an area where alluvial diamonds are already in evidence. Analysis indicates the presence of microdiamonds in several of the newly discovered kimberlites. This new joint venture combines the technical expertise of African Diamonds, the financial leverage of De Beers and the political network of Bugeco.

Mentioned above is only a selection of interesting projects underway, with a host of licenses currently being applied for. These companies can be seen as the more risk seeking and maverick in nature, looking for large returns to compensate for difficult working conditions. Assuming the country can come to grips with both its infrastructural and political challenges, the influx of new companies and investors will no doubt be great. In the mean time risk savvy investors should shift their focus to the DRC.

Zambia: Regaining Former Copper Glory

Zambia is a peaceful country and among the most stable economies in the region. It has been a major base metal mining country for more than 80 years. Previously a British colony, the country gained independence and its current name in 1964. As a country, it forms a natural hub for the sub-continent's diverse activities, sharing common borders with eight different neighbors. The history of the Zambian mineral sector is speckled with stories of success and failure; the high point being Zambia's position as the world's second largest copper producer.

Three governments have been in place since independence. The first government, led by socialist President Kenneth Kaunda, stayed in power for 27 years investing heavily in social and health programs, established off the back of copper reserves. However, inability to diversify its economy meant that the local economy declined 30% between 1975 and 1990 when world wide copper prices slumped. Correspondingly, investment in the mining sector dropped dramatically and infrastructure began to deteriorate with large mining houses such as Anglo American retracting their operations from the country. Kaunda voluntarily stepped down following civil unrest and allegations of mismanagement. The ban on political parties was lifted, a new constitution drafted and elections were held. The elections brought Frederick Chiluba to power with mixed results and he narrowly survived a coup d'etat. The third and current government led by President Levy Mwanawasa, in power since 2002, and democratically re-elected in 2006, has assumed the role of rehabilitating the mining sector.

The Cable Belt Conveyor is the longest single drive conveyor in Africa. It has the unique feature of negotiating two horizontal curves. (Photo courtesy of Luanshya)

Mwanawasa has been quick to act in attracting mining investment through the privatization of government owned copper mines and a fair and comprehensible Mining Act and Mineral Charter. The government is described as open, clear and has direct communications with the mining companies answering to the general needs of business operations. Through its efforts, the last five years have seen a flurry of reinvestment due to the country's low investment risk status and naturally, the effects of the 'super commodity cycle.' The last 18 months in particular have been revolutionary in terms of increasing investment, exploration concessions and improving infrastructure development. Today, roughly 80% of Zambian land is under some kind of mining concession.

Exploration and Mine Development

Zambia's copper/cobalt belt, stretching across the north of the country, is one of the greatest reserves in the world. There are also reserves of nickel, platinum, uranium, diamonds, gold and iron ore. The country is also well known for its gemstones, especially emeralds and amethyst. The Mining Code was revised in 1995 with the privatization of the mining sector at the top of the agenda and was based on that of New South Wales, Australia. It is regarded in most part as manageable and fair with discretionary power lying with the Ministry of Mines. There was a technological hiccup in the past with duplicate mining licenses given to different parties due to the lack of computerization of the process, a project now assisted by the EU.

Environmental legislation will be developed from its current underdeveloped state, especially with social pressure mounting after several contamination incidents. Prospecting licenses are awarded for two years with a chance to renew through negotiations. Zambia has always been regarded as an oasis of peace and stability in the region, considering its neighbors' historical and current problems. The infrastructure is relatively advanced with well built main road arteries and rail connectivity to ports in Dar es Saalem (Tanzania) and Durban (South Africa). Transport is, however, in need of upgrading which is currently budgeted for and under construction. Electricity is generated locally through hydroelectric power. On the downside, there have been hints of the government wanting to increase royalties and/or tax to better benefit from the four-fold increase in world copper prices, indicative of a short-term mentality that might rock the investment boat.

A major hindrance to growth in the sector is the lack of geologists in the country and region. There is a common consensus that between 50 and 70 geologists are needed on the ground right now to develop current projects under consideration. This is a big issue considering the technical university of Zambia only produced two geologists this year and seven last year. Both the government and the private sector are doing what they can to attract talent from other countries and to encourage locals to return who momentarily left the industry with the downfall of the mining sector. The lack of skills is both a hindrance and an opportunity to local consultants such as GeoQuest. This risk savvy consulting company, who can be considered veterans in both Zambia and the DRC, provide geological services from grassroots exploration right through to the feasibility stage. Located in Lusaka, Zambia's capital city, the company has an operating network geared toward providing a vehicle for foreign mining companies to gain a foothold in the region without the need for setting up a local office. This is key, considering Zambia borders no less than eight mineral rich countries with varying degrees of stability and general development.

In Zambia alone there are projects in all stages of development from grass roots to brownfields and rehabilitation. With today's rate of investment and development, it is estimated it will take five to eight years to return the sector to its former glory assuming the government maintains the current incentives. Some of the larger companies currently gearing up production include Konkola Copper Mines (KCM), First Quantum Minerals and Equinox Minerals together investing more than US$2 million. The importance of KCM to the Zambian economy is undisputed. The company is the largest business in Zambia accounting for one-sixth of the country's GDP and contributing one third of the country's exports. Originally an Anglo American company, it has since changed ownership and undergone restructuring on several occasions. It is now held in majority by Indian group Vadanta. The group boasts production capacity of 1.5 million metric tons (mt) a year, evenly split between copper, aluminium and zinc. The company has ambitious plans to double current capacity. Elsewhere in Zambia, KCM is expanding operations through their Konkola Deep Mine expansion that will take their existing open-pit operation currently at 600 m and 950 m to 1,400 m underground. A new acid plant and the expansion of an existing smelter are also planned. Also worthy of mention is the fact that they operate the largest mine shaft in the world. It is said to be one of the wettest mines with an astonishing 290,000 m^3 of water extracted each day. This figure will increase to a predicted 430,000 m^3 for the next seven to eight years as the mine is deepened before settling on 350,000 m^3 for the rest of the mine's life.

First Quantum Minerals is developing Kansanshi, one of the oldest known mines in Zambia, with evidence of direct copper smelting dating back to the 4th Century. Since the rediscovery of these ancient workings in 1899, the Kansanshi deposit has been intermittently mined for the recovery of high-

Smelter working through the night at Chambishi. (Photo courtesy of Chambishi Metals) grade copper from both underground and open-pits. The total production from the Kansanshi deposit to date is approximately 80,000 mt. The Mopani Copper Mines (MCM), a joint venture with Glencore, will also see a cash injection of just over half a billion dollars to triple its production.

Equinox Minerals' Lumwana project involves one of the world's largest undeveloped copper deposits with measured and indicated Reserves presently totalling 321 million mt averaging 0.73% copper with additional Inferred Resources totalling 417 million mt averaging 0.6%.

The processing of Lumwana concentrates into copper metal will be conducted mostly at smelters in Zambia. Negotiations are underway with a number of regional smelters, letters of intent having been signed with Palabora Mining Company of South Africa, Ongopolo Mining & Processing Ltd. of Namibia and Mopani Copper Mines Plc. of Zambia.

The copper, lead and zinc ores are not only extracted in the country but also smelted and refined into metals prior to export. In addition, the precious metals plant in Ndola, recovers bullion and other metals from the slurries. Cobalt is recovered through a leaching process. Copper metal fabrication into cables, though small, is an increasingly important industry. Foundries produce mill balls from scrap iron while calcinations of lime and cement production constitute important industrial mineral related activities. Glencore, who already own two acid plants are keen on building a third, have a concentrator without actually knowing the total resource specifics in the country; a definite sign of good things to come.

Luanshya Copper Mines (LCM) has other issues as it historically hired thousands and supported the surrounding town's economy. Development of mining technologies and mechanization in the sector has reduced the labor intensive operations and hence substantially reduced the workforce. As has been the case in most of Southern Africa for the past decade or so, both the government and the private sector are in the spotlight and held accountable for direct return on local resources. One of LCM's main concerns is finding ways to counter the social impacts by investing heavily in areas of the local economy such as secondary industries, food production and craft training. LCM is continuing with the upgrading of the Baluba Shaft Complex, but is focused on expansion through the Muliashi project, currently undergoing feasibility study. The mine will produce ore that will be concentrated at their Luanshya facility and then transported to Chambishi for final "A" grade refinement. A new Muliashi plant will be constructed in the future to centralize all concentrating. The investment will drastically increase the scale of operations and reduce costs through an integrated scalable operation. The company will be looking to re-list on the London Stock Exchange to fund this expansion.

The largest land concession owner in the country, Zambezi Resources, have identified several resources and will be developing these through various joint ventures including one with Glencore. To further develop other properties, the company is actively looking to create more joint ventures. Given many years of experience in Zambia, 20 in-house geologists currently under contract, experienced staff and machinery (seven drill rigs) on the ground, Zambezi Resources is geared to manage significant operational expansions.

Zambia is one of, if not the most, desirable country to work in terms of business environment, infrastructure and general standard of living. However, the mining legislation will have to be further developed to manage growth in the sector, with a view to the longer-term consistent with commodity cycles. Taking everything into account, the private sector is reasonably confident that prevailing development agreements will not be unilaterally changed, and feel that they enjoy ample representation. The development of new legislation should be a collaborative process between the public and private sector. If the past 18 months are an indicator of what is to come, Zambia is set to regain its former copper glory.

Chinese in Africa for African Resources in China

China accounted for 22% of world copper demand last year, compared with 13% for the United States. A decade ago, the tables were turned with the U.S. accounting for 21% and China accounting for only 10%. This consumption trend looks set to continue in the near future, promising copper revenue for Zambia and its key copper producers. China's increased economic activities in Africa, including investments in energy and natural resources extraction, as well as loans to African governments have provoked accusations that it is becoming a new neo-colonial power in the continent. Last July, Zambian workers rioted in a wage dispute combined with allegations of dangerous working conditions. Confronting Chinese managers, the riot ended in the death of six workers.

In his eight-nation tour of Africa in February, Chinese President Hu Jintao cancelled a visit to Zambia's copperbelt province due to the threat of protests. A hostile reception should not have been anticipated, in light of the fact that Beijing financed and built the 2,000-km Tanzania-Zambia Railway between 1970-76 at an estimated cost of $400 million, linking the Copperbelt with the Indian Ocean ports at Dar es Salaam (Tanzania) and Mombasa (Kenya). The link is crucial to the export of Zambia's prime foreign exchange earner, copper.

Railways aside, the Sino-Zambian relationship dates back to the 1960s and now seems to be revitalized with the Chinese pledging roughly $800 million to the country. On the face of it, this must be a good thing although everybody is waiting to see what terms and conditions are attached. Nobody really knows what the Zambian government will be obliged to give in return. What has to be very carefully monitored by government and local companies is the influx of Chinese labor. Considering the country is running an unemployment rate of roughly 50%, it is imperative that locals do not feel the Chinese are taking Zambian jobs. Furthermore, it is widely known that infrastructural development led by Chinese companies, mainly roads, have been constructed often under questionable ethical conditions.

The general consensus is that language barriers and low engineering and technological skills currently hold the Chinese back. In Zambia, the Chinese influence is something that will continue to grow—how it is managed has yet to be seen. As is the case with most debates concerning China, it is at once the biggest opportunity and the biggest threat to business.

Tanzania: No Longer a Sleeping Giant

Since the liberalization of Tanzania's economy in 1986, and with today's stability, exploration companies are increasingly interested in discovering what's underground. (Photo courtesy of Lakota Resources)

Touted as one of the most amenable investment environments for mining on the African continent, the "sleeping giant" has recently benefited hugely from the boom in commodity prices, and consequent gold exploration discoveries on Tanzanian soil. Thus, despite its status as a predominantly agricultural nation, the performance of the Tanzanian mineral sector has continued to improve, with exports totaling just under $700 million in 2005 (3.5% of GDP). The government aims, as enshrined in the 1997 mineral sector policy, for a contribution of 10% by 2025. A socialist nation from 1967 through untill 1995, mining in Tanzania remained largely underdeveloped until 1997, when President Mcapa introduced a new initiative to encourage mining. Consequently, the Tanzanian mining industry is relatively young in terms of investment, causing investors to remark on the immaturity of the industry in terms of understanding and support. The upside of this, however, is that there remains huge untapped resource potential. Combined with a revised mining act, this renders Tanzania an attractive mining investment destination.

1998 marked the introduction of a revised mining act, closely modeled on Australian and North American mining legislation, creating an environment open and conducive to foreign investors. Salient features of the act include: the right to trade in mineral rights; improved security of tenure; clarity and tranparency; a non-discriminatory licensing procedure and environmental management legislation.

Stanley Robinson, president of Lakota Resources, a Canadian junior exploration company holding an interest in more than 1,300 km^2 of gold licenses, points out the generally progressive nature of the legislation. "The new mining act was developed in consultation with international mining companies and government bodies. It is very competitive and similar to some North American acts. It is clear cut from the perspective of a person applying for mineral rights and the steps required to retain those rights. On the government side, perhaps it is not so clear. The granting of exploration licenses, for example, can take longer than is stipulated in the act." John Deane, president of Tanzanian Royalty Exploration Corp., another Canadian junior exploration company whose business model is revenue from royalties believes, however, that it is still a lot easier to obtain prospecting permits in Tanzania than a lot of other African countries. He claims that companies in Tanzania can usually acquire prospecting licenses within two to three months, in comparison with South Africa which can take six months or longer.

Don McLeod, managing director of Resolute Tanzania, the first company to establish itself in modern Tanzania with their Golden Pride project in 1997, and now one of Tanzania's larger gold mining companies, notes the extent to which the government facilitated their entry to the market. However, he also draws attention to the changing face of the industry as it develops. "The industry is now entering a more mature phase meaning there are a larger number of companies present. Consequently, the development of legislation and the business environment has become more complex." In particular, some members of the government and the general public hold the view that the government is not getting a fair deal. This relates predominantly to certain tax incentives which were offered to new investors by the previous government to boost the industry. As a result, the industry is currently engaged with the government in revising existing agreements for the benefits of both parties.

Communication with the government takes place through a special government negotiating committee and the Tanzanian Chamber of Mines. Giving the industry a common voice, the Chamber plays an important role as an intermediary in discussions between the government and the private sector. As vice-chairman of the Chamber, Gareth Taylor (also executive general manager of Barrick Gold Tanzania), highlights the challenges that the Chamber often faces in trying to overcome the misunderstandings and misconceptions that are held by the government and the general public, who don't always appreciate the extent to which private mining companies have invested into Tanzanian health, infrastructure and education. With regards to the latter, the Chamber has been especially active in working with the private sector to develop better formal education for mining. This will in turn lead to the employment of Tanzanian people, benefiting the local economy and providing cost benefits for the companies concerned.

Speaking in February at the Mining Indaba in Capetown, President Kikwete highlighted the importance of mutual benefits: "Much of the dialogue with the mining companies has been to make sure that the exploitation of Tanzania's mineral resources would benefit the investor, the government and the local communities." Under the revised tax payment incentives cited at the Indaba, specific mining companies operating in Tanzania will pay the existing corporate tax of 30%. The determination of the time frame for payments will be a result of negotiation with these companies, and will relate to the assessed life span of a mine.

His speech brought to the public's attention the agreements that had already been reached between the new government and Barrick Gold Tanzania and Resolute Tanzania in late August 2006 and late November 2006, respectively. Barrick was the first to agree with the government to remove the clause in its earlier contract that required the company to pay 15% additional capital allowance on unredeemed capital expenditure. In return, Barrick will be required to pay US$7 million per year until it starts making profits. Deo Mwanyika, executive general manager for Corporate and Legal Affairs for Barrick Tanzania, recounts that, "Barrick's decision to revise its contractual regime with the government was made freely as a gesture of good corporate citizenship." Resolute Tanzania agreed to revise certain tax concessions in recognition that its operations had now moved on to a more mature phase of operation. The company estimates the cost impact of this package to be about $10-$15 per ounce of production. Not-withstanding, McLeod is optimistic, con-cluding that, "The overall attitude of the government is very positive. They are seeking a sustainable and long-term beneficial environment. Tanzania is overcoming decades of socialism, you can't change people's perspectives overnight. President Kikwete has only been in power for just over a year."

In terms of overall political stability, Tanzania is perceived as being a stable environment. In the words of William Kagaruki, country manager of IAMGold, "Tanzania is a very peaceful and friendly country and we are very proud of the fact that we are one of the few African countries that has not had a crisis." Fritz Neeling, executive officer of Anglo-

Gold Ashanti's Geita mine is a little more cautious, drawing comparisons with other countries the company operates in, including Namibia and Ghana, emphasizing the higher level of risk in Tanzania. He links this to the economic immaturity of the country and some frustration and impatience amongst the people, but balances this risk against the expectation for higher economic returns.

On an infrastructural level, Tanzania remains largely underdeveloped. The country's main port at Dar es Salaam is severely congested, a result of poor road and rail infrastructure which makes it difficult to move cargo out of the port. Insufficient infrastructure for the passage of large earthmoving equipment and machinery has led some mining investors to use the port at Mombasa in Kenya instead. Robinson believes that the country has a long way to go in terms of developing power supply and road infrastructure, but does not see the problems as being insurmountable. Speaking from the north of the country, Deane has seen recent improvements in roads in the region, and expects to see a tar road from Mwanza to Dar es Salaam within the next six months, creating new business opportunities.

Extending the discussion from transport to infrastructural support in general, Taylor uses a comparison with South Africa to reiterate the immaturity of the industry in Tanzania. "Investors have to import at huge cost but also huge opportunity. There is an impatience to develop the kind of support industry that can be found in South Africa within 10 years, however this can only be achieved by the government. If you compare Tanzania with Botswana which has a very small population and a very mature and well established and profitable mining industry, the proceeds from the government are much better felt by the people in that country. It takes a huge amount of time to invest in a mine, add to that the immaturity of the support industry, and just about everything you bring in comes at a premium meaning your payback period is longer."

General sentiment appears to be that increased commitment from the government is required to overcome infrastructural obstacles and push development forward.

Dominating the industry, 48.2 metric tons of gold was produced in Tanzania in 2004 (more recently this figure has been boosted by several large gold mining projects which have come on stream), and the country continues to rank number three in gold production in Africa after South Africa and Ghana. The majority of gold mining takes place on the greenstone belts around Lake Victoria and in the Proterozoic rocks in the Southwest of the country. Consistent with the mining reform policy, between 1998 and 2003 five modern large scale gold mines were put into production and the number of prospecting licenses issued reached 2,360, compared to a total of 10 licenses in 1990. By 2006, this figure was at 3,570. As a comparison, 30 years prior to 1995 no viable mine was opened.

In February 1999, the Golden Pride mine, owned and operated by Resolute Tanzania, became the first modern, large scale gold mine in Tanzania. It has been producing approximately 200,000 oz of gold annually and the company plans to extend the project another six to eight years. Resolute Tanzania has a number of joint venture exploration projects underway and are gradually increasing their reserves, notably in the Nyakafuru region.

Representing the largest gold producer in Tanzania, Taylor emphasizes the diversity of opportunity for minerals in Tanzania. "The minerals are here in reasonable quantities, there are some very promising prospective areas and pretty good ore bodies. We probably spend between $6-$8 million per year in exploration. From a Barrick perspective we are focusing here, and if we grow, we'll grow here." In addition to a number of greenfield projects, Barrick currently has three gold mines in production.

Their Bulyanhulu mine began production in 2001, on one of the largest gold reserves in East Africa. At the end of 2005, the mine had 10.7 million oz of proven and probable gold reserves. In 2005, the mine produced 311,000 oz of gold at a total cash cost of $358 per oz. Barrick's North Mara property, consisting of three open-pit deposits, produced 250,000 oz in 2005. More recently, the company's small but highly profitable Tulawaka mine began production in the first quarter of 2005. A 70:30 joint venture between Pangea Goldfields Inc., a wholly-owned subsidiary of Barrick and Northern Mining Explorations, Barrick's share of production was 87,000 ounces of gold at a total cash cost of $253 per oz in 2005. While the mine life is limited (it has only two years remaining), it is hoped that it can be extended with a small underground operation. Construction of a new gold project, Buzwagi Gold mine, has just been approved, and the mine is expected to start production within the next two years. It will add another 200,000 oz to the current 1.8 million oz that the sector is currently producing.

Production from these properties together with anticipated production from the company's Kabanga nickel project (currently spending $95 million on pre-feasibility) will give Barrick 70% of Tanzania's total current mineral production.

In production under an AngloGold Ashanti joint venture agreement since 2000, and wholly owned by the merged AngloGold Ashanti since 2004, Tanzania's Geita mine was once the largest gold producer in East Africa and constitutes one of the most extensive gold mine developments in the world.

With a total of 2,256 employees, the mine had an annual production in 2004 of 692,000 oz at a total cost of $250 per ounce. Gold production is set to decline, however, to between 562,000 and 585,000 oz in 2006, at an expected total cash cost of between $297 and $309 per oz. A change from contract to owner mining was implemented by the company in July 2005 to address spiraling contractor mining costs. The legacy of decades of shelter provided by insular government policies, Tanzania offers a wealth of opportunity as the country crawls out of its socialist shell. This entails drawbacks in the underdeveloped infrastructure and administrative functions that facilitate ease of business. However, recognizing this, the government is allocating significant expenditure to addressing these shortcomings.

The 1997 mineral sector policy and 1998 Mining Act have greatly facilitated foreign mining investment and there are promising signs that the negative sentiment surrounding tax incentives is being overcome following positive negotiated outcomes between the government and Barrick Gold Tanzania and Resolute Tanzania.

Education and skills development are seen as the most important contribution that foreign mining companies can make to advancing the Tanzanian minerals sector and the economy as a whole.

However, for the staggering pace of mining development to continue, investment into road, rail and energy infrastructure is imperative.

Botswana: The World's Largest Diamond Producer by Value

Formerly the British protectorate of Bechuanaland, Botswana adopted its new name upon independence in 1966. Since then, the country has transformed itself from an agricultural based economy into a nation consistently displaying one of the highest economic growth rates in the world. Botswana has enjoyed democracy and elections on a regular basis since independence, although the same party has always remained in power. The constitution is the overriding authority which is respected by all levels of society. The success of the country can be attributed to good management, fiscal discipline, progressive social policies and four decades of uninterrupted civilian leadership. The country stands as a beacon on a continent that has more often than not torn itself apart; a model to its neighbors and one that international institutions are keen to promote.

Botswana has transformed itself from one of the five poorest countries in the world into a middle-income country with a per capita GDP of $11,200 in 2006, and a literacy rate of over 80%. Rich in resources including diamonds, copper, nickel, salt, soda ash, potash, coal, iron ore and silver, mineral extraction is focused principally on diamond mining which currently accounts for more than one-third of GDP and 70%-80% of export earnings. In keeping with this safe, stable environment, the country's third president recently retired voluntarily to let his vice-president step into his position.

Not Without a Fight

The government is not, however, without its problems. Well-maintained public health facilities are widespread to deal with what could be considered the country's Achilles' heel, the HIV/AIDS pandemic. It is estimated that one in every four adults has contracted the virus making it the second highest prevalence rate in the world. The life expectancy at birth is a shocking 34 years. The national HIV/AIDS awareness campaign program is prevalent throughout the country. There are good support structures in place which are sponsored by both the government and the private sector, namely De Beers. The challenge, as in the rest of the continent, is to overcome the social stigma associated with the virus, encouraging infected persons to come forward. To be taken into consideration is the lack of adequate reporting of HIV/AIDS cases by other countries, especially Asian and African countries which translates into skewed statistics. Although still struggling, Botswana receives praise for its early recognition of the problem and its pro-active attitude toward combating it.

Another problematic area is the high unemployment rate. After decades of rapid GDP growth, unemployment was officially 23.8% in 2004, but unofficial estimates placed it closer to 40%.

The country's largest company Debswana, a joint venture between the government and De Beers, employs about 6,500 people, or just 2% of the workforce.

Apart from the diamond industry, no other economic sector has experienced much growth. In the meantime, the educational system, well funded by income from the diamond trade, annually churns out large numbers of well prepared students who cannot find jobs, even when they have a university degree. Top planners in education have concluded that the government must restructure the system to prepare youths for export to the global economy.

Another issue is the size of government which employs 33% of the workforce, 45% if one includes state owned organizations. Such a system is unsustainable and the government is working to rectify the balance.

The New Diamond Capital

Botswana, the world's largest diamond producer with 74 kimberlites identified to date, is targeting a 17-fold increase in its fledgling cutting industry within five years.

With the full support of President Festus Mogae, downstream operations are set to be supplied directly from producers, as well as the De Beers' Diamond Trading Co. (DTC), which until now has been the exclusive marketing channel for Botswana's production.

"We can and will graduate from a diamond-producing country to a world-class diamond center," President Mogae recently told the press. In support of developing the sector, DTC, which is now based in London and provides industry services (primarily the aggregation of rough production), will migrate to Gabarone, Botswana, by 2008, creating a diamond exchange there. It is hoped that the move will attract related services to Botswana, such as diamond banking, security, insurance, technology and engineering as well as grading or diamond laboratories.

Currently the annual cutting and polishing industry is valued at a mere $30 million, a figure that the government intends to grow to at least $1.5 billion in five years time. There is a newly built full facility diamond park to host the diamond services.

"We hope that there will be a balance between employment creation through the cutting of smaller goods and profitable operations, which means cutting higher value goods. It is indeed our hope that all companies will do everything possible to ensure employment creation, but we also recognize that they should be viable," concluded President Mogae. The park is open to new diamond investors who no doubt will be visiting the new exchange.

Exploration

Botswana was one of the poorest countries on the planet prior to the discovery of diamonds in 1967. When the government struck the original deal with De Beers to develop the Orapa mine in a joint venture called Debswana (currently 50:50), it had to borrow from De Beers to pay for its share.

Today, the Orapa mine is still one of largest single diamond mining projects to be undertaken anywhere in the world and the Botswana government owns 15% of De Beers International. Debswana, is the largest diamond mining company in the world by both value and volume. About 60% of Botswana's surface area is covered by diamond prospecting licenses, the remainder being non-cratonic zones.

In line with its effective governmental style, the minerals act is simple: all minerals in Botswana are the property of the state and any company finding them guarantees the government a minimum 15% stake. A further stake can be negotiated and purchased as was the case with Debswana.

Tax and fiscal obligations are negotiated on a case-by-case basis. Also, the negotiation does not typically happen until the bankable feasibility study is delivered and the resource is defined.

Although the system seems to work so far, it is only doing so due to the small number of companies operating. Legislative development is required to facilitate growth. In general the feedback from companies currently in the country is positive and progressive. They feel the conditions are fair and have confidence in the government's resolve to legislate.

Creating the first opening in the market, Debswana is unbundling all assets deemed "non-economic" as part of their major restructuring project. Junior exploration companies have gladly entered the scene assuming exploration risk and developing assets the major haven't found to be economical.

Although Botswana is home to some of the most advanced diamond mining technologies, the juniors are bringing know-how to smaller scale mining. African Diamonds (Afdiamonds), for example, has set the record for the worlds deepest large diameter drill hole (23 inch diameter, 700 meter depth) on their AK6 property. This was, in part, to avoid the problem of the rig not fitting into the pit, a problem encountered at both the Jwaneng and Venetia pits: properties owned by Debswana and De Beers Consolidated Mines respectively, after leaving the drilling too late to do deeper sampling.

All in all, Botswana is one of, if not the most, peaceful, safest and easiest places to do business in Southern Africa. Mining legislation is clear and fair and the land is host to some of the world's largest diamond mines.

Afdiamonds is a joint venture with De Beers, the latter not being involved in the operations. James Campbell, managing director, has managed to pull together a highly sought after world-renowned team, selecting the best in every field required to analyze, develop and manage diamond projects in Botswana and now the DRC, following Afdiamonds' acquisition of 35% of Bugeco. With first production estimated for 2009, they will be looking to raise between $120 million and $150 million to develop the mine.

DiamonEx, also a new player, was awarded the Martin's Drift prospecting license that encompasses the re-opening of the Lerala diamond pipes. These deposits were previously mined on a trial basis in the 1990s. It is expected that DiamonEx will commence production this year at roughly 330,000 carats per year.

Larala was discovered by De Beers but unsuccessfully mined for roughly five years. Unlike its stakes in other diamond projects in Botswana, the government has not taken any equity in the DiamonEx project.

All in all, Botswana is one of, if not the most, peaceful, safest and easiest places to do business in Southern Africa. Mining legislation is clear and fair and the land is host to some of the world's largest diamond mines. If one is easily led by hearsay, rumor has it that it is cheaper to produce $1 of revenue at Debswana's Jwaneng mine than it is for the U.S. to produce one physical dollar bill.

Diamonds are Not Forever

The government of Botswana has taken a long-term perspective on its natural resources, especially concerning diamonds. Appreciating that resource revenues must be used to build a solid future for the country, they have to deal with high rates of unemployment and poverty. HIV/AIDS infection rates threaten Botswana's impressive economic gains, and an expected levelling off in diamond mining production overshadows long-term prospects.

The security of future government revenues is fundamental as the country's social security system is one of the best in the world, often compared to that of Sweden. Both Debswana and the government are looking at the development of other minerals to spread their risk.

Coal reserves could be developed to feed the growing demand for electricity in the region attracting the likes of South Africa's energy company Sasol. Uranium exploration is already ongoing and gold has been mined for quite some time although reaching maturity. Aside from the development of downstream diamond operations, mainly in the cutting and polishing fields, the country has high ambitions for the financial sector. The vision is one of establishing Botswana as 'Africa's Switzerland' on a geopolitical front, in the African context of course.

For the investor, Botswana has one of the most investor-friendly tax regimes on the continent. It is one of the only countries where capital gains can be moved in and out of the country with virtually no limitations and several accounts held in different currencies.

Working visas for expatriates are not an issue. It is said to be the least corrupt country in the region and crime is minimal. Infrastructure is adequate (although the country is landlocked) and the capital city, Gabarone, is clean and modern offering all the standard amenities.

Diamonds, while being a luxury item for many in the West, are a source of basic prosperity for the people of Botswana. Developing robust sustainable and diversified economies from diamond revenues will be the real test of the country's leadership. Will the diamonds of Botswana overcome the 'resource curse?' Yes, if they can support -not only prosperity but also pluralism.

Clean Diamonds

De Beers and Botswana were architects of the Kimberley Process, which seeks to prevent trade in the small number of gems produced to fund conflict in Africa. On December 13, 2006, (coincidently the same month Hollywood blockbuster *Blood Diamond* was released), a three-judge panel in the country's high court ruled that the eviction of the San (Bushmen) tribe from their diamond-rich game reserve was illegal.

Regardless of the merits of the case, the decision is significant insofar as it dispels the cynicism that many Western populations harbor about judicial systems in Africa.

To environmentalists, the Kalahari San are a perfect example of a 'noble savage' being driven to the periphery by modernity and consumerism, although there is little connection between the San removal and diamond concessions. The allure of diamonds as a fatally precious commodity has been attractive to journalists and must be considered with apprehension.

In the case of Botswana, diamonds have been the backbone of sound development. As for the Kalahari San, their decision not to embrace modernity must be respected.

Show Me the Money: Consultants, Contractors and Suppliers

No one appears to be feeling the commodity boom in Southern Africa more than the industry's support sectors. Not only are they experiencing the pressures of a huge workload coming from the mining industry, for most, mining is just one of the sectors comprising their business model. Construction and infrastructural development in general are experiencing similar booms. Combine this with consistently high commodity prices and mining houses tending toward outsourcing, 2010 World Cup plans and weakening of the rand, and not surprisingly the current growth trajectory is expected to continue.

Peter Terbrugge, chairman at SRK Consulting, summed up the situation as follows, "The current environment is bullish and we are extremely busy. In the last week I have had a number of calls from groups wanting to do listings documents in the next six months. The mining companies don't have the expertise to do this sort of work. It is quite a serious situation." Terbrugge is by no means alone in this situation. Chris Brindley, CEO at Sandvik Mining and Construction, machinery suppliers, describes a similar situation from the supplier side. The company has seen 600% growth over the past 10 years, with Africa now accounting for 8% of their business world wide. Brindley attributes the boom to an 80% growth in exploration and the development of new mines on the African continent. George Bennett, CEO of MDM Engineering, process and plant design specialists, sees this trend continuing as the growth in exploration over the last six years translates into feasibility studies and new projects being built.

Growth, however, is not without its difficulties. Maintaining the same quality standards was identified as a challenge, compounded by the difficulty in finding skilled personnel and increasing lead times on materials, components and parts. Rory Kirk, managing director of Hatch South Africa, process engineers, advocates caution, drawing a comparison between the current environment in South Africa and the overheated industry in Australia three years ago where commodity prices rose rapidly and resource shortages led to escalating costs.

As growth continues there is increasing selectivity on projects; nowhere is this better seen than in the consulting sector, a huge turnaround from the previous 'take what we can get' scenario. In the words of Zulch Lotter, managing director of UWP Consulting, "General growth in terms of turnover year on year is currently 40% which is not at a sustainable level. For the first time in my career of 35+ years we are becoming very selective about what we bid for." A sentiment shared by many; Terbrugge remarks, "We've had debates about how to handle turning work away. We are telling clients that we can do the work for them, but that there will be a delay of three months." The industry is also seeing a more overt trend toward collaboration, reflective of a more open and prosperous environment. At the same time, there is a move by those who have not already done so, to expand their services. For consultants this means a move away from a specialized model toward the objective of becoming a 'one stop shop.' In the words of Duncan Grant Stuart, a director at consulting firm Knight Piesold, "The minute you sit still and don't think about expanding you are going backwards."

Breaking with a traditional focus on South Africa, there is a definite trend toward expanding mining services to other African countries. Often, these projects are carried out for Australian and Canadian junior mining companies who increasingly see Africa as an exciting destination. For Dempsey Naidoo, chairman of PDNA, a significant BEE controlled consulting and engineering firm, South Africa is a springboard into the SADC region. With an office in Mozambique, Ghana, Botswana and Angola, he sees Africa coming out of a huge vacuum, from a political perspective. He highlights that improvements in operating environments over the last couple of years have been exponential. One company for whom a focus on Africa has worked especially well is Golder Associates, a Canadian-based international group of consulting firms. Fred Sutherland, CEO, explains: "We are pushing aggressively into Africa, Ghana is our next stop. We try to acquire companies with a similar culture and currently have a couple of targets in mind, notably in Mozambique." Sandro Scherf, managing director at Pilot Crushtec, suppliers of mobile crushing and screening equipment, provides a good example from the supplier side of changing perceptions with regards to Africa. Scherf explains that five years ago buyers were purchasing cheap equipment on the basis that they may have to leave it and run. Now, he is seeing a dramatic turnaround, as buyers for African projects are looking for state of the art machinery.

So why this turnaround? According to Greg Holmes, managing director at explosives supplier BME, the international mining houses are moving north of South Africa's borders to escape an over-regulated mining environment. Consequently, his company has moved with their customers into a large number of African countries, so that 40% of their work is now located outside of South Africa. While he highlights the importance and great intentions of empowerment, he believes that local representation in mines makes investment difficult, due to a lack of available/suitable human resources. Consequently, he believes that South Africa has not seen the growth that the mining industry anticipated several years ago. Commenting on the legislative environment in South Africa, Bennett sees South Africa losing mining investment to other Southern African countries where some of his clients are able to obtain a mining licence in three to four months, whereas delays in South Africa can take over a year. "It is a shame that South Africa, with such a developed mining history, is taking so long to empower companies to start investment in this country."

Nowhere is the stress of the growth phase more apparent than on a procurement level. The industry is experiencing massive shortages in machinery, materials and human resources. All equipment suppliers face the same procurement challenges as lead times are getting longer and parts now have to be ordered six to eight months in advance. Commenting on the effects that lead times for certain machinery have on pricing, Rob Elphinstone, managing director of Andru Opencast Mining, a contractor for small to medium sized open-cast mining operations, explains, "We have made bids on a number of projects and we are having to pay attention to how we price these. Current lead times are around 12 months on certain machinery so we have to be very careful when we price it to make sure we have those resources, meaning we have to be very aggressive on pricing." Contrary to what one would expect, however, price rates have so far remained fairly constant, but Elphinstone believes that increases will be felt this year with demand rising. Kirk sees containing costs as a threat to the industry, questioning its ability to reliably and predictably deliver cost-effective project investments. He explains, "While we all understand that a project is going to cost double what it did two years ago, the commodity prices have more than doubled too. So it is marrying that investment expenditure with what future prices might be."

The lack of qualified human resource talent is a global phenomenon for the mining industry, and Southern Africa makes for no exception. The lack of skilled human resources is universally recognized as a major hindrance and threat to growth and expansion. Grant-Stuart provides some interesting background to the origins of the problem in South Africa: "If you go back to the 1970s there was an engineering boom. Since then, however, we have seen declining expenditure in engineering services, therefore the number of graduates has been steadily dropping. Now we are faced with the situation where there is a huge gap in the middle order (early to mid-1930s to late 40s), which is a major threat to the industry." Terbrugge echoes this view, "The biggest threat to the industry is people. For many years mining and engineering has been on the back burner. We just have not had enough people graduating with the relevant skills. There is certainly an upturn in the number of students doing mining and geology now, but these kids are five years away from contributing."

In addition to this, there is a recognised drain of highly skilled mining labour to Australia and Canada, while South Africa does not tend to attract many resources from overseas. Perhaps surprisingly given their support structures, this has equally been the experience of international consulting firms. Sutherland explains, "People don't automatically think about coming to South Africa. Locally we have our own bursary program and we are often at the universities trying to recruit, but this is a very slow process. Golder's response to the problem has been to acquire a number of small companies with a view to building their overall capacity. He acknowledges, however, that this approach cannot completely solve their problems as they find themselves taking on the already substantial workload of the firms acquired.

In light of the unavailability of skilled personnel, the majority of companies see training from a grassroots level as the solution. Kirk believes that engineers on the African continent are extremely well trained, but highlights that there are more African trained engineers working in North America than in Africa. He explains, "Supply is low and parastatals and big mining houses have stopped producing skilled artisans. During the last cycle they had to become more cost conscious, which translated into a lack of investment in training." Hatch's solution has been to implement a massive internal training program, through bursary grants for university education followed by in-house training.

As Brindley points out, "You can own an ore body, but if you can't get the people to work it, it is going to be very difficult to develop it!" Acknowledging that the growth in mechanized equipment is limited by the number of people you have to maintain and operate the equipment, Sandvik has developed one of the largest apprenticeship training programs in Southern Africa with programs in South Africa, Zambia and Zimbabwe as well as in West Africa. The program has been very successful in training apprentices from a grassroots level over a two year period.

Another example of a comprehensive approach to training is the PDNA model with BEE as its center point. With a focus on empowering the individual, the company has successfully implemented in both South Africa and Mozambique an 'on the job' training program focused on technical training and management leadership and made major efforts to raise awareness about the opportunities that the mining industry can offer. On the success of this strategy, Naidoo comments, "We have helped raise the profile of the profession amongst all groups and now many of our peers are following."

However, Naidoo concedes that in spite of the fast learning curve and increasing responsibility given to motivate young employees, retention is definitely a constraint. Kirk also spends 25% of his time on retention, coming up with novel ways to train and remunerate existing employees.

In spite of the legislative hindrances to foreign investment, the generally held view is that BEE is a necessary and positive development. As one of only a few black controlled consulting/engineering firms in the local industry, Naidoo believes that BEE is a tag which has been slightly abused due to the government's focus on the equity element. However, he is happy to see strong BEE happening at various levels. He explains, "Our focus is meaningful BEE. We are trying to find candidates who are engaged in this profession and making them leaders and technical practitioners, not just investors. We have also afforded them investment in the company they are growing with, however we need a faster mechanism between the equity and organic start up–that is what we are trying to promote." On the necessity of BEE, he adds, "We need to train black technical people as they are the people who can take projects and make them work in the future. Our office in Mozambique is our most successful story in that the entire office is run by local staff."

On the explosives side, Holmes takes BEE very seriously, purchasing from black-owned companies. Furthermore, BME's holding company, Omnia Holdings, is currently devising a broad ownership plan for previously disadvantaged employees. Holmes acknowledges, however, that the explosives sector does not enjoy the luxury of buying from only BEE suppliers. "If every company took that stance, none would be doing business, the country is just not there yet. I think it is a good thing though to keep up the pressure. We are pressurising suppliers and our customers are pressurising us. We support that fully."

Business is booming for the support sector in Southern Africa, and with suggestions that the industry is currently in a "supercycle" there is much optimism that demand from China and India will continue to drive commodity prices, and thus the industry. After decades of being overlooked, Southern Africa and the wider continent is now a hot spot for foreign mining investment. So long as mining projects continue to expand in the continent, the support industries will follow. The major constraint to the industries' growth is a huge shortage of human resources. However, most see this as an opportunity to develop underskilled people who have the energy and potential to learn and become major contributors to the industry in the future.