MACIG

THE OFFICIAL MINING IN AFRICA COUNTRY INVESTMENT GUIDE

2015

Welcome Note from the Publishers

In 2014, the Investing in African Mining Indaba™ and Global Business Reports partnered to launch the inaugural issue of the Mining in Africa Country Investment Guide (MACIG). The first edition was received with an overwhelmingly positive response. We are delighted to present this 2nd edition, which will focus on 13 African mining jurisdictions selected from a culmination of months of detailed research and on the ground interviews.

2014 was one of the most challenging years for the mining sector. Commodities prices continued their sluggish performance and the corresponding impact to mining companies was even more pronounced. The recovery of larger global economies has been slower than anticipated, and the ferocious demand from China, a critical consumer of mining resources, has significantly eased. Further complicating the sector's ability to overcome the challenges has been the tragic Ebola outbreak specifically in Western Africa.

Despite all these challenges impeding our ability to jumpstart the mining sector, there have been very positive advancements in our sector. The aggressive measures taken by mining companies to address costs and improve efficiencies have started to yield strong results. The temperature on issues of civil unrest, labor disputes and adjustments to mining code and charters has cooled within the sector. The combination of these elements, along with some future positive predictions for commodities, is a welcome sign for investors seeking to reengage the sector.

This 2nd edition of the MACIG guide will give readers an unprecedented view into some exciting countries with an appetizing investment climate, specifically: Angola, Botswana, Democratic Republic of Congo, Ghana, Guinea, Mali, Mozambique, Morocco, Namibia, Rwanda, South Africa, Zambia and Zimbabwe. Each section will highlight a jurisdiction including an interview with the Minister, geological map, and a country fact sheet - plus GBR's market analysis and private sector comments. This in-depth analysis gives our audience the most current information and insights to make intelligent investment decisions and enhance their expertise on mining on the African continent.

The annual Investing in African Mining Indaba is the world's preferred destination and brand in African mining. Our 2015 program is our strongest to date and reaffirms our core value proposition of providing a platform to allow interaction between investors, mining companies and government to drive investment into the mining sector in Africa.

We thank our global community of more than 7,000 professionals for their continued support of our event. We look forward to providing you with another week of unparalleled content, networking and investment opportunities as you have come to expect from the annual Mining Indaba.

Sincerely,

Jonathan Moore
Managing Director, Mining Indaba™
Twitter symbol: @MiningIndaba_JM

Agostina Da Cunha,
General Manager,
Global Business Reports

TABLE OF CONTENTS

SOUTHERN AFRICA

EAST AND CENTRAL AFRICA

WEST AND NORTH AFRICA

TRAVEL, INDEX & CREDITS

This research has been conducted by Anita Kruger, Elisa Iannacone, Molly Concannon, Sharon Saylor and John V. Bowlus.
Regional Management by Sharon Saylor
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The Official Mining in Africa Country Investment Guide

Welcome to the second edition of The Official Mining in Africa Country Investment Guide (MACIG) produced in partnership with African Mining Indaba™ and Global Business Reports.

After six months of extensive on the ground research, we are pleased to bring you what we consider the top ten most exciting mineral exploration and mining investment jurisdictions across the African continent. We have also chosen to profile three countries that we believe have potential for investment based either on the sheer scale of their mineral wealth or the steps that their governments are taking to create a transparent and attractive business environment. Some of you will certainly agree with many of our choices, but we expect some of them to spark a useful and lively debate.

In late 2014, African Mining Indaba™ launched a poll on its website asking readers: "Which country you would like to see most featured in MACIG 2015?" We received the results at the start of 2015 after our research was completed, and out of the 12 countries selected, we have in fact profiled ten of them as either a top investment destination or one which we believe you should keep your eyes on. Please see Figure 1 for final results.

For this edition, we spent a longer time in the Southern African region, partly as a result of the maturity of these mining jurisdictions. In a time of low commodity prices, these jurisdictions have continued to thrive and contribute significantly to national GDP levels, albeit at a lower rate. The willingness of the government in each of the countries that we profiled also influenced our choice. This underscores the importance of governments' communicating their message and the developments that they would like to highlight, explaining clearly their mineral policies, and speaking to a large audience of mining investors. We were also limited in our travel in the second half of year due to the outbreak of Ebola in some of the West African countries that we were intending to profile.

The reasons behind our inclusion of each country are included in the regional overviews at the start of each section. We have relied heavily on both quantitative and qualitative data collected throughout our research in each country as well as key economic indicators found on the first page of each country's overview. •

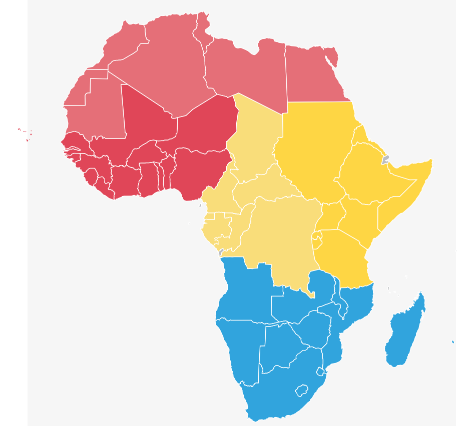
WHICH COUNTRY WOULD YOU MOST LIKE TO SEE FEATURED IN MACIG 2015?

Source: Africa Mining Indaba™

Angola	6,8%
Congo	10,1%
Democratic Republic of Congo	10,8%
Ghana	9,5%
Mali	9,5%
Mauritania	6,8%
Mozambique	11,5%
Namibia	5,4%
Rwanda	7,4%
South Africa	11,5%
Zambia	7,4%
Zimbabwe	3,4%

Regions

While there is some discussion about the exact division of Africa's regions, we have chosen to follow the groupings of the African Development Bank. This varies quite substantial from other regional definitions, such as those of the United Nations, and are as follows:



North Africa
West Africa
Central Africa
East Africa
Southern Africa

Disclaimer

For the quantitative data we have included in each country profile, it is important to note that these figures are intended to provide a broad picture of the country rather than an entirely accurate overview. We have made substantial efforts to ensure that all figures come from the most reliable sources, and have listed those sources where applicable. Yet almost without exception there will be equally reputable sources that give slightly differing data. Some figures, such as the average all-in sustaining cash cost of gold production in each country, are based only on available data. Others, such as production figures, are based on the latest available data and, given the rapid growth of African mining in the past few years, may no represent exact output. All figures, unless otherwise indicated, are accurate as of December 2014. •

Africa: A Future Center Of Gravity For Global Mining?

Upon first mention to outsiders, Africa can elicit a host of negative stereotypes, most common among which are corruption and political instability. When it comes to the economic sphere, decrepit infrastructure and an insufficient labor force are the primary concerns of foreign investors. These concerns cannot be swept under the rug, but they also cannot be simply applied to all jurisdictions because they are located on the African continent. Africa's mining industries are as diverse as the continent's cultures, languages, topography, and historical experiences.

The rise of Asia's dynamic economies, most acutely China's thirst for commodities, has propelled African mining forward in the past two decades. The growth of many of Africa's mining industries slowed during the downturn in global commodities markets in recent years, as prices remain low and multinational firms reluctant to invest money in risky plays that appear to have built-in constraints, namely a shortage of power generation, water, and infrastructure. Nonetheless, two factors make Africa impossible for miners to ignore. First, the volume, depth, and diversity of its mineral reserves are mind-boggling. Second, its geographical location at the crossroads between major continents and consuming markets makes it the ideal center from which commodities can fuel the global economy. Unlike the oil and gas sector, in which the Persian Gulf is the undisputed center of gravity of world production, the mining industry has multiple production centers across the globe. But Africa, with its massive minerals and ideal geography, could well be the next, and perhaps only remaining, bonanza. Many companies recognize this and are positioning themselves on the continent now so that they can diversify their exposure to specific minerals and expand their production of core minerals when global markets recover.

While Africa is not yet ready to overtake established jurisdictions such as Canada, the United States, and Australia, the continent's mining leader, South Africa, already belongs among the top-tier jurisdictions and has a staggering diversity of minerals. Another example of Africa's diversity lies along one of its most renowned finds: the Copperbelt stretching from Zambia to the Democratic Republic of the Congo (DRC). The DRC recently passed Zambia as the number one copper producer in Africa, and the healthy competition between the two countries will undoubtedly encourage improvements in both countries' industries. West and Central African countries such as Ghana, Gabon, Mali, Republic of Congo, Cameroon, Liberia, Guinea, Cote d'Ivoire and Sierra Leone contain some of the world's largest, untapped, high-grade iron ore and gold deposits. Tom Albanese, Chief Executive Officer of Vedanta Resources, says: "we certainly see Liberia as having world-class potential to be a bigger iron ore exporter in the coming years… Currently we are working on infrastructure solutions that are making use of historic rights of way and in some cases roads that are still there." The continent as a whole offers so much to the global mining community.

Investment in infrastructure, water supplies, and power generation now will pave the way for Africa's future role in global mining, and, more than ever before, Africa's host governments are committed to crafting mining regulations that achieve the desired balance of encouraging investment and exploration while ensuring that mining activity in their countries and the wealth that it generates improve the lives of its citizens. Moreover, concern for the environment and for incorporating global best practices are shaping governments' regulatory regimes. The former will go a long way towards improving how Africans view the mining industry and will bring African mining exploration and production practices in line with those of established jurisdictions. Moreover, they will also extend the life of Africa's mines. Longer mine lives will bring more consistent revenues to these developing countries. All of this is to underscore a major theme of mining in Africa: those countries that invest for the long-term and in partnership with host governments will be rewarded. Whereas in the past, quick profits fueled rapacious and opportunistic practices, now sustainable, environmentally conscious commitments are the norm.

Africa is clearly blessed with unmatched mineral resource potential. This potential, coupled with its geographic position at the crossroads of world trade patterns, give Africa the potential to become a future center of gravity for global mining. The challenge will be to continue to have stability in governance, which can not only reduce the risks for foreign investors but can also, and more importantly, help African governments build more transparent and efficient mining industries. This challenge will not be swiftly overcome, but the framework for a new political order in Africa is being laid today, and greater transparency is already helping the continent move forward. •

Angola
Botswana
Mozambique
Namibia
South Africa
Zambia
Zimbabwe

Southern Africa

IMAGE: Shutterstock

Southern Africa

Blessed with abundant resources, some well established mining jurisdictions, and business environments that according to many are more easily navigated than its counterparts up north, southern Africa features heavily in our report this year with with six countries represented amongst our top 10 mining investment destinations (South Africa, Botswana, Mozambique, Namibia, Zambia, Zimbabwe and our up and coming country of Angola). Roughly half of the world's vanadium, platinum, and diamonds originate in the region, along with 36% of gold and 20% of cobalt. The top countries in southern Africa share some commonalities in geology, however in terms of political stability we have selected countries that have higher risk and potentially greater return based on the under exploitation of the countries mineral wealth or in some instances are lower risk with sound legislation and geological data, each attracting a different type of investor.

Although South Africa maintains its position as the regional service hub, southern Africa's mining industry is emerging from the shadows of this dominant regional mining player and both mining companies and services are moving north. Thanks to their proximity to South Africa, southern African countries are able to draw upon the world-class expertise right at their doorstep. Apart from its prolific mineral reserves, South Africa's strengths include a high level of technical and production expertise, and comprehensive research and development activities. A well established service and support sector is necessary and many of the continent's industry, financial, and technology leaders can be found in South Africa. Although South Africa has faced several difficult years, in terms of production values and mineral potential the rainbow nation still remains a key country for mineral investment. While some countries have long mining histories, such as Botswana, consistently rated amongst the top mining destination in Africa according to the Fraser Institute rankings, is best known for diamonds but is diversifying into as coal and uranium. The Botswana government aims to steal the glory from South Africa and establish itself as the southern Africa's regional hub by diversifying by investing in the country's infrastructure.

Zambia's history also dates back to the 1930's, and over the years, Zambia has continued to impress and attract investors, especially those interested in exploring the copperbelt but with a smaller risk appetite than what's needed by its copper rich neighbour, Democratic Republic of Congo. Zambia has incredible potential for the eager investor, however discussions around taxes have the potential to undo the hard work that has built up the country's reputation. The governments proposed increase in mineral royalties up to 8% will undoubtably have detrimental impacts on current operations and potential new ones. These imminent decisions will determine how well Zambia will be positioned for further investment in the future.

Similarly, Namibia's mining industry has seen significant new investments across commodities, and the Namibian government is determined to unlock and optimise the country's resource potential. Growing demand from mining, and oil & petroleum products has triggered the development of projects such as the Walvis Bay Harbour. Initially scheduled for 2016, it was pushed ahead of schedule to 2015, and will cater to the import and export of commodities. The development of infrastructure, such as the plans for a 230 to 250 mW generation facility in the Erongo Region will also support the industry. The government is committed to improving the administration processes "the environmental legislation changed in 2013...the new terms have had an impact on the progress of specific EPLs, giving longer turnaround times for environmental approvals." explains Jan Fourie, Director of Mining at Lithon Mining Engineers, a local EPCM in Namibia who has worked extensive with both the public and private sector on environmental issues.

The same can not be said for Mozambique, a country in the midst of addressing Africa's most difficult challenges, a lack of sufficient infrastructure to export these commodities and a skilled labor shortage that threatens the evolution of mining throughout the region. Mozambique's known mineral wealth comprises mostly coal, gold and aluminum, with coal production expected to be the greatest growth driver for the mining sector in the next few years. The Tete province and the Zambezi area holds significant coal reserves. While Rio Tinto has recently sold its main operations to India's International Coal Venture Private Ltd (ICVL) with some controversy, Vale continues to mine and expand on its assets.

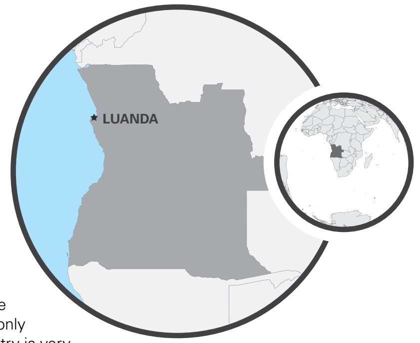
Zimbabwe's mineral wealth remains undisputed, yet not surprisingly the country is struggling to reach the production levels as new investors still remain cautious of the political stability and shy away from investment. However given the low base of investment in the mineral rich soils of Zimbabwe, there exists real potential. Zimbabwe has experienced 7% growth in GDP over the past four years and has maintained its low inflation rate. Albeit still far from being the jewel of Africa, with the right policies we are confident Zimbabwe can become a key destination of choice for investment dollars.

Similar to Zimbabwe, Angola's reputation of corruption has not done itself any favours in the development of the mining sector. However, Angola this year was rated amongst our up and coming destinations. ``Despite the nation's reliance on the oil and gas sector the ministry is putting in place significant steps to diversify further into the mining industry. As Africa's second largest diamond producer, only 40% of the country's estimated diamond resources have been explored. Thus, significant mineral resources still remain underdeveloped, and not just in diamonds. The country is slowly beginning to attracting more foreign investment, even smaller players see opportunities within the sector. Adriaan Grobler, managing director of Lithon Mining Engineers from Namibia explains, "we have also formed a strong association with some companies in Angola. It is complicated to operate there without knowledge of the country, so this is a part of a longer term strategy." How these relationships develop will ultimately pave the path for the oil giant's entrance into mining. •

> "We have also formed a strong association with some companies in Angola. It is complicated to operate there without knowledge of the country, so this is a part of a longer term strategy."
>
> \- Adriaan Grobler, Managing Director, Lithon Mining Engineers

Angola

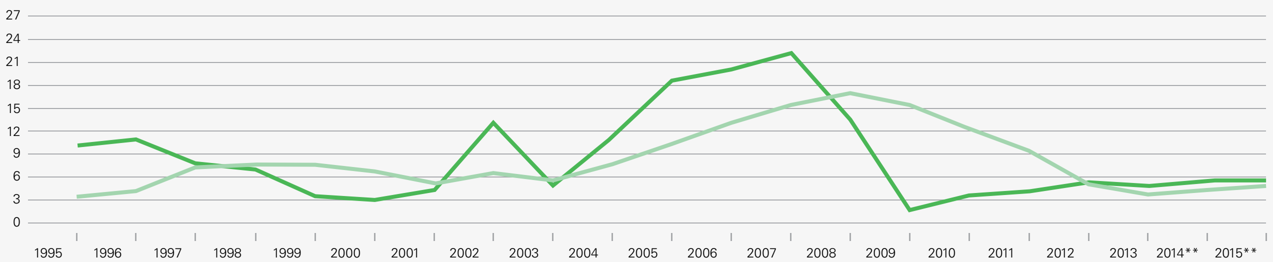
Angola is a former Portugese colony and after independence suffered a 27-year civil war between 1975 and 2002. Over the past decade, Angola has enjoyed one of the fastest GDP growth rates in the world, largely on the back of its oil and gas reserves. The country's mining industry holds substantial potential: it is Africa's third largest producer of diamonds and it has undeveloped potential for copper, gold, iron ore, nickel, uranium, vanadium, zinc, and other minerals.Economically it has done very well, with GDP growth dropping into negative figures only once (2009) since independence. Botswana's mineral industry is very well established: diamonds play a large role in the economy, and base metals, coal, gemstones and various industrial minerals are also produced. Unexploited mineral resources include chromium, gypsum, manganese, and others.



Population: 19,088,106 (July 2014 est)
Land Area: 1,246,700 sq km
Official Language(s): Portuguese
Capital: Luanda
Chief of State: President Jose Eduardo Dos Santos
Head of Government: President Jose Eduardo Dos Santos
GDP (PPP): $131.8 billion (2013 est.)
Growth Rate: 5.6% (2013 est.)
GDP per Capita: $6,300 (2013 est.)
Economic Sector Breakdown: agriculture: 10.2%, industry: 61.4%, services: 28.4% (2013 est)
Exports: $70.84 billion (2013 est.): crude oil, diamonds, refined petroleum products, coffee, sisal, fish and fish products, timber, cotton
Imports: $26.09 billion (2013 est.):machinery and electrical equipment, vehicles and spare parts; medicines, food, textiles, military goods
Major Trade Partners: China, United States, South Africa, India, Portugal, Brazil

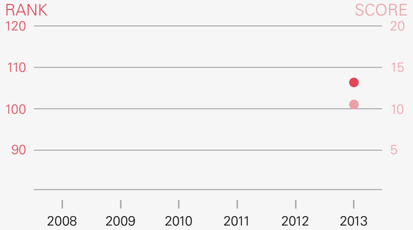
GDP GROWTH (%)

SOURCE: WORLD BANK, EIU



FRASER INSTITUTE ANNUAL SURVEY OF MINING COMPANIES

SOURCE: FRASER INSTITUTE



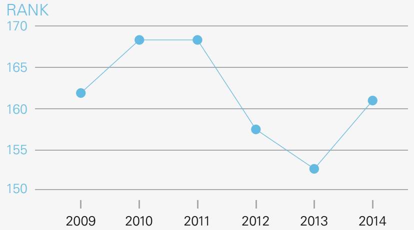
MINE PRODUCTION

SOURCE: BRITISH GEOLOGICAL SURVEY

	as of 2012 in kg
Diamonds	8,330,996
Salt	40,000
Gypsum	200,000

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

SOURCE: TRANSPARENCY INTERNATIONAL



FOREIGN DIRECT INVESTMENT

SOURCE: UNCTAD

*inflows, $ million

2011	-3024
2012	-6898
2013	-4285

MINING SECTOR CONTRIBUTION TO GDP

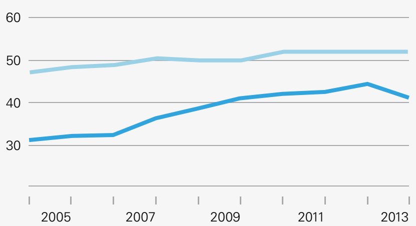
SOURCE: AFRICAN ECONOMIC OUTLOOK

2008	59%
2013	47%

These values do not include artisanal mining. Diamonds formerly contributed roughly 94% of the total mining contribution to GDP according to the OECD, although this is falling.

IBRAHIM INDEX OF AFRICAN GOVERNANCE

SOURCE: MO IBRAHIM FOUNDATION



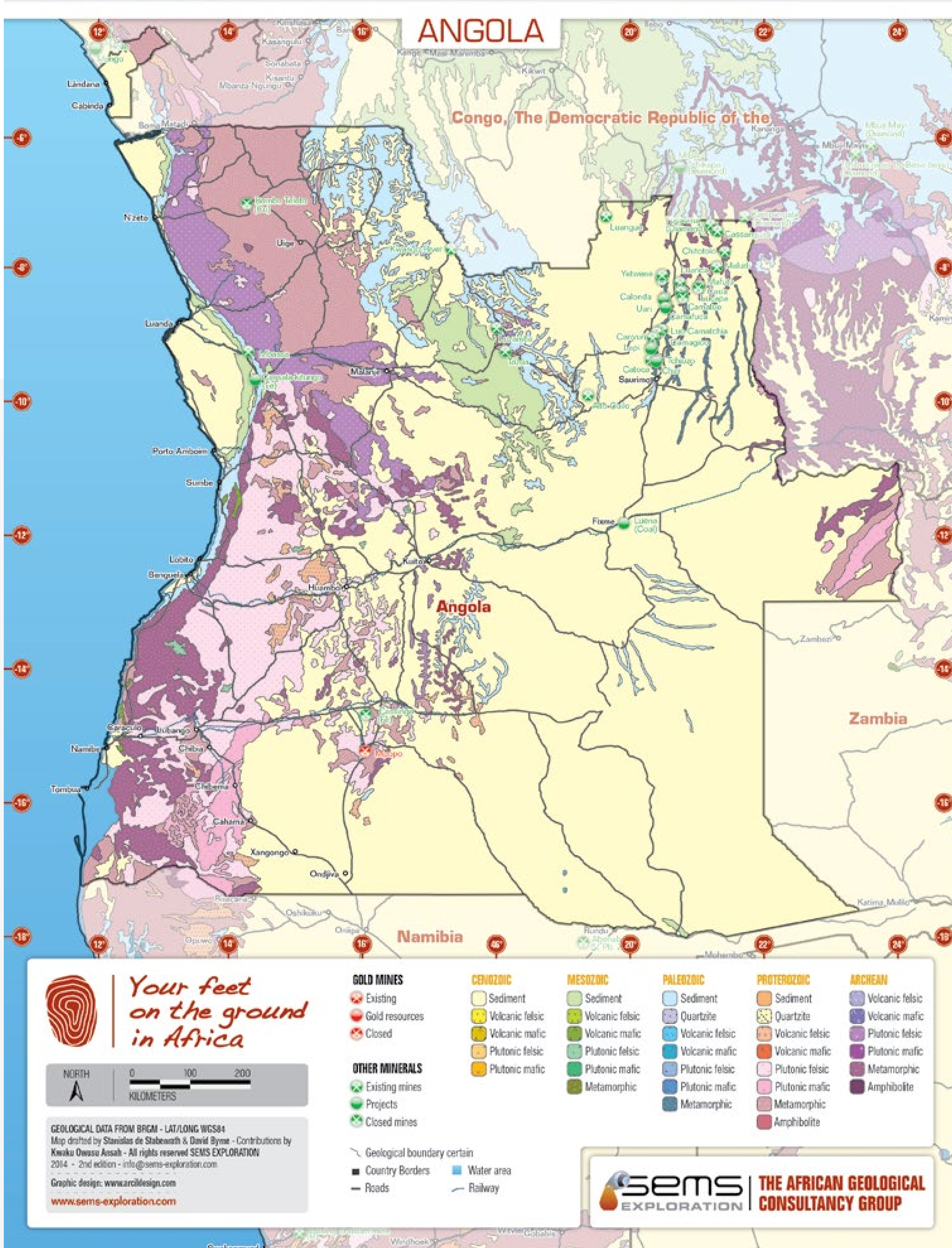
INFRASTRUCTURE INDICATORS

SOURCE: UIC, IEA, CIA WORLD FACTBOOK

INFLATION

SOURCE: WORLD BANK

2012	10.3%
2013	8.8%



Honorable Francisco Queiroz

Minister of Mining and Geology
Angola

Despite its tremendously rich resources, Angola has not attracted the investment it needs to fully develop the mining industry. What steps is the ministry putting in place to foster the growth of a sustainable mining sector and help diversify its reliance on oil?
Angola has a strategic plan for the ownership and development of its resources. A decade after more than 25 years of war, we are reconstructing the whole country, establishing infrastructure and developing a national plan for investment of our natural resource industry, with a focus to attract new investment in the mining sector.
Our constitution states that all the mineral resources belong to the state, and therefore adopted models to access the mineral resources in the country through national concessionary companies. These include Sonangol for oil, Endiama for diamonds, and Ferrangol for iron ore, as well as other potential minerals, which are also 100 percent state-owned.
Any national or international investors interested in accessing Angola's diamonds, gold or metals is required to negotiate directly with the national companies to form a joint venture for the exploration of the minerals. It means that in the oil sector for example Sonangol is present in every oil company in the industry and negotiates from 10 to 30 percent of its ownership. In the mining industry the percentage of ownership is negotiable depending on what the investors bring to the table, how much they want to invest and what technologies they have.

The new Mining Code and the National Geological Plan (Planageo) is an ambitious plan to attract investment into the mining industry. Can you outline the pivotal milestones that this plan aims to achieve and what timeframe we can expect these to be realized?
The national geological plan is an ambitious plan that will change the face of the country. Within ten years we expect to see a mining boom in the country and a major contributor will be the access to geological data that we do not have today. We have already contracted companies that will conduct the aerial, geophysical, geological and geochemical surveys across the country, which is a large undertaking based on the size of Angola. This project is an example of the government's commitment to develop the industry and is funded by the government. A budget of $400 million will be used for the implementation of this plan, which includes the training of human resources, environment management as well as the construction of geological institutes and regional geological centers throughout the country.

The new mining code introduced in 2011 was intended to attract foreign investment and boost exploration for diamonds and other minerals. Since then, there has been an increased interest in the country's industry. Bordered by well-established mining jurisdictions on the continent including DRC, Botswana, Zambia and Namibia, what sets Angola apart from its resource-rich neighbors?
There are several aspects that are appealing in Angola and the most important is the political and social stability and the fact that there is a legal framework in the country that is competitive and distinguishes it from the other African countries. Our legislation in the mining sector defines the rights for the investors, there are clear and transparent procedures that guarantee the laws are stable. We are creating favorable conditions for mining companies, including lowering taxes from 35 percent to 25 percent.
The other aspect is its potential, which given the vast land, and the tremendously under explored areas, Angola has huge opportunities. The government wants to diversify its mining activities from diamonds into iron ore, gold, and phosphate and invites potential investors to come and see what Angola has to offer. We are committed to using the country's oil wealth to diversify the economy and improve infrastructure.

How can we expect the mining industry to evolve in Angola in the medium-term?
We are certain the national plan will generate more investment from the international community. We already have interest from the South Africans, Canadians, Australians, and of course you cannot ignore China when you look at investment. Russia is already present in Angola and will continue its investment. In the next three to five years, we expect to see a major rush of new investors in Angola.
In Africa, Angola will become the center of the interest of international investors in the mining industry. A big challenge for African countries is how to develop the relationship between our nations and the Western countries that want to invest. In Angola we are working on a strategy and the contribution will be based on our experience. The critical point is the ownership of the natural resources, and Angola will offer a stable and win-win relationship for both the state and the private sector. •

Botswana

Since Botswana gained its independence from Britain in 1966 it has established an impressive democratic system and a reputation as the least corrupt country in Africa. Economically it has done very well, with GDP growth dropping into negative figures only once (2009) since independence. Botswana's mineral industry is very well established: diamonds play a large role in the economy, and base metals, coal, gemstones and various industrial minerals are also produced. Unexploited mineral resources include chromium, gypsum, manganese, and others.

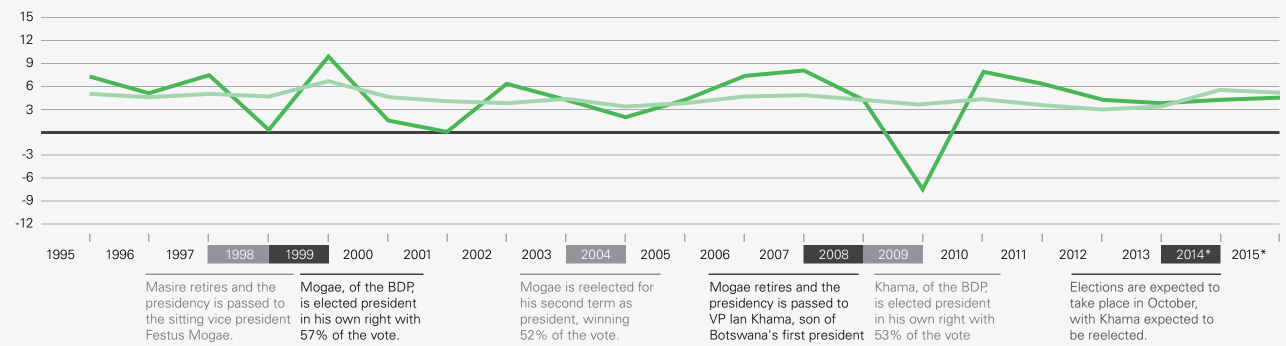
Population: 2,155,784 (July 2014 est)
Land Area: 581,730 sq km
Official Language(s): English
Capital: Gaborone
Chief of State: President Seretse Khama Ian Khama
Head of Government: President Seretse Khama Ian Khama
GDP (PPP): $34 billion (2013 est.)
Growth Rate: 3.9% (2013 est.)
GDP per Capita: $16,400 (2013 est.)
Economic Sector Breakdown: agriculture: 1.9%, industry: 35.7%, services: 62.4% (2013 est)
Exports: $7.569 billion (2013 est.): diamonds, copper, nickel, soda ash, meat, textiles
Imports: $7.389 billion (2013 est.): foodstuffs, machinery, electrical goods, transport equipment, textiles, fuel and petroleum products, wood and paper products, metal and metal products
Major Trade Partners: South Africa, UK, China, Belgium, Namibia, Zimbabwe, Israel

GDP GROWTH (%)

SOURCE: WORLD BANK, EIU

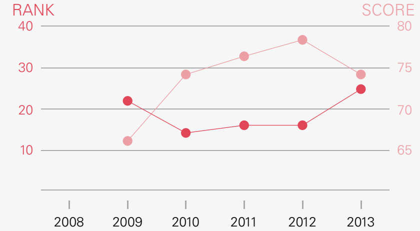
BY YEAR 5-YEAR AVERAGE

*projection



FRASER INSTITUTE ANNUAL SURVEY OF MINING COMPANIES

SOURCE: FRASER INSTITUTE



MINE PRODUCTION

SOURCE: BRITISH GEOLOGICAL SURVEY

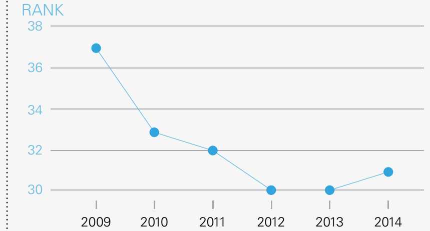
as of 2012
in mt unless otherwise stated

Copper	35,768
Diamonds	20,478,000
Nickel	17,948
Cobalt	195
Coal	1,454,724
Gold**	1,096
Salt	398,481
Platinum**	435
Palladium**	2,613
Natural Sodium Carbonate	248,629

**in kilograms

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

SOURCE: TRANSPARENCY INTERNATIONAL



FOREIGN DIRECT INVESTMENT

SOURCE: UNCTAD

*inflows, $ million

2011	1093
2012	147
2013	188

MINING SECTOR CONTRIBUTION TO GDP

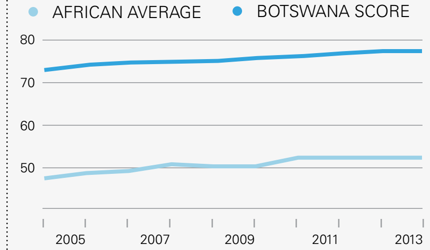
SOURCE: AFRICAN ECONOMIC OUTLOOK

2008	29.2%
2013	21.9%

These values do not include artisanal mining. Diamonds formerly contributed roughly 94% of the total mining contribution to GDP according to the OECD, although this is falling.

IBRAHIM INDEX OF AFRICAN GOVERNANCE

SOURCE: MO IBRAHIM FOUNDATION



INFRASTRUCTURE INDICATORS

SOURCE: UIC, IEA, CIA WORLD FACTBOOK

BOTSWANA AFRICA WORLD

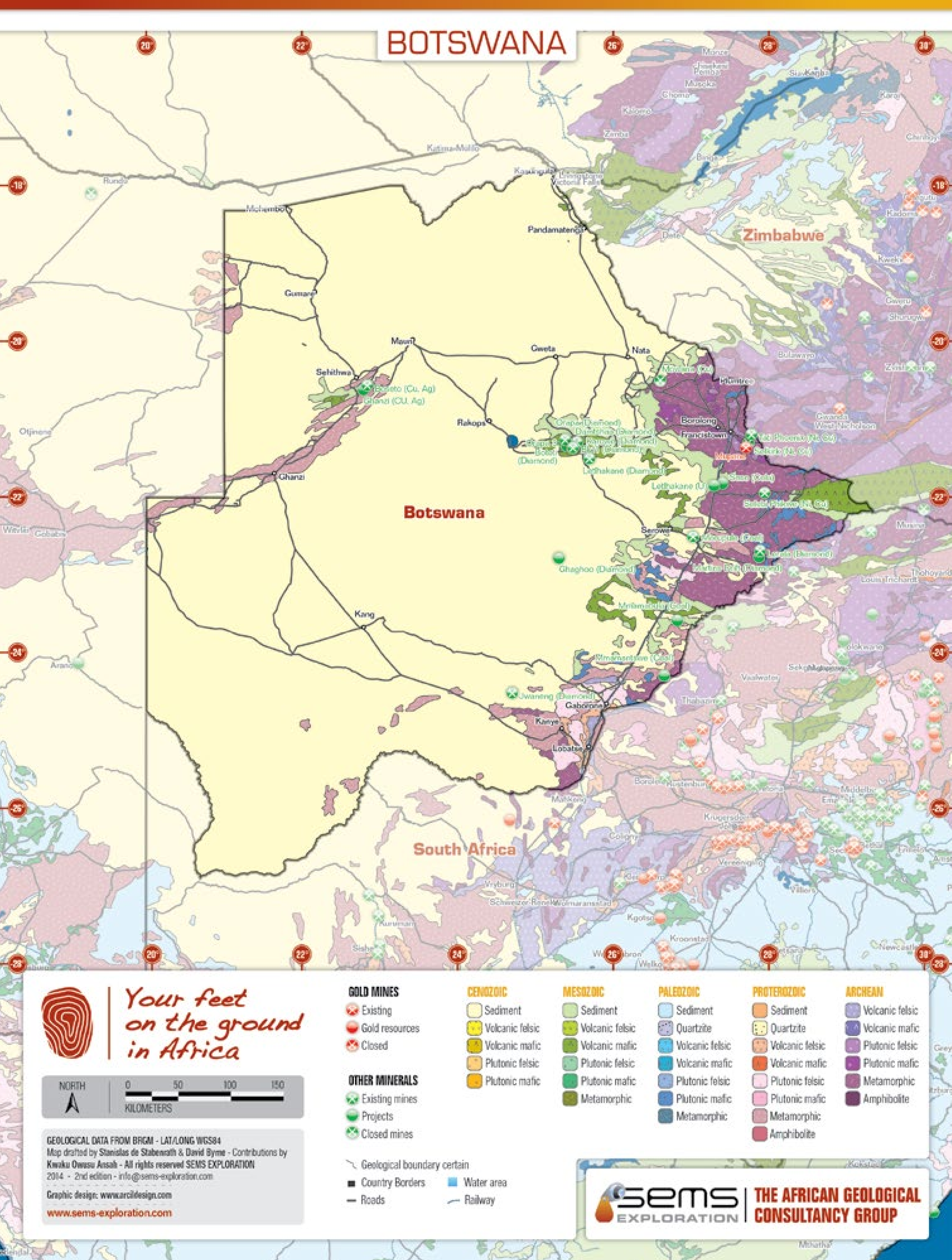
	Botswana	Africa	World
Railway - km/10,000 km2	15	29	77
Roads - km/1,000 km2	31	79	262
Electricity - kWh/capita (gross production + imports - exports - losses)	109	603	3076

% 25 50 75 100

BUSINESS ENVIRONMENT RANKING

SOURCE: WORLD BANK, IFC, HERITAGE INSTITUTE, WEF

Name (out of)	2012	2013	2014
Doing Business Rank (189)	54	65	56
Index of Economic Freedom (177)	33	30	27
Global Competetiveness Report (148)	80	79	74



Honorable Onkokame Kitso Mokaila

Ministry of Minerals, Energy and Water Resources
Botswana

Contribution to Botswana's GDP from the mining sector has increased compared to 2013. How important is mining to Botswana?

As the country's GDP anchor, the mining sector's importance cannot be overemphasized. Mining generated roughly 26.6% of GDP as of the end of the second quarter of 2014 and 38% of government revenue. The mining sector is Botswana's second largest employer and continues to grow. Above all, it creates links with other industries that provide support service or key inputs.

What is mining's importance to Botswana's development and what are the key objectives for your renewed term as Minister of Minerals, Energy and Water Resources?

Mining, as a key driver in the economy, will continue to receive attention, in particular facilitating the base metals and coal sectors to develop and further diversify the mineral revenue base. The development of the coal resources is key in addressing the energy needs of the economy. Botswana, along with other countries in the region, has been experiencing challenges of power shortage. Hence the ministry's key focus is to secure the supply of power for the economy, and develop the necessary infrastructure to transfer water to economic centers. Three main power projects will be implemented: the development of a 300-megawatts (MW) brown field independent power producer (IPP) power station, a 300-MW greenfield IPP power station, and a 400-KV transmission line from Morupule to Maun, to supply power to mining projects in the northwest.

What would you like to highlight to an international mining audience?

Botswana takes international investor perceptions very seriously and continues to review and implement measures to address issues, which have been highlighted by investors as red tape, to improve the "doing business" environment. Botswana has consistently been rated highly by internationally recognized entities, such as the Fraser institute. Of particular note are the country's Policy Perception Rating, Best practices Mineral Potential and Investment Attractiveness Index, which reflects the country in a more objective manner through a third-party review. Botswana enjoys favorable ratings from Moody's Investors Services, with the country's sovereign credit rating at A2 on domestic and foreign bonds and a stable outlook.

How do Botswana's mining regulations compare to those of its mining neighbors, such as South Africa, Zimbabwe and Zambia?

Botswana and its neighbors, South Africa, Zimbabwe and Zambia, are members of the Southern African Development Committee (SADC), and share some regional mining protocols that are signatory to African Mining Vision, hence commonalities are inevitable. However, each country is guided by its own mineral policy and economic needs. Botswana and its neighbors are in different economic and political situations, which influences the regulatory framework of each country. In general, investment in Botswana's mineral sector continues to recover from the recent global economic crises, as evidenced by exploration activities.

What are the greatest challenges that need to be addressed for mining operations in Botswana?

The greatest challenges affecting mining and related operations in the country are power shortages, water scarcity and the development of heavy-haul infrastructure. Regarding power, the country has opened markets for Independent power producers to increase their supply through the national utility provider, Botswana Power Corporation. Several projects are being advanced to address the situation. The development of heavy haulage infrastructure is being carried out through bilateral relations with neighboring countries and the private sector. The development of the country's integrated water plans: North South Carrier pipeline, Chobe Zambezi project to Pandamantenga and Northwestern mining ventures, are underway.

Can you elaborate on Botswana's strategy for its vast coal reserves?

Botswana has developed a coal road map aimed at exploring the best ways of monetizing the vast reserves in the country. The key areas identified are power production for domestic consumption, the generation of power for export (coal by wire), and export itself.

What is Botswana's strategy to diversify its mining industry?

A base metal beneficiation strategy is underway, with feasibility studies ongoing to explore the possibility of creating copper beneficiation facilities to serve local and regional needs and turn Botswana into a metallurgical hub.

Do you have a final message to international investors?

Botswana is committed to providing a favorable fiscal regime and regulatory framework for investment, as well as securing power and water supplies to drive mining operations and economic activities. The country remains open to all investors and will help guide their ventures here. •

Botswana

Botswana is a stable country with a growing economy and a history of transparency in business and politics. The country has only scratched the surface of its mineral potential and similarly to Namibia, has a long history of diamond mining as its strongest resource. However, it is the government's new goal to make Botswana a hub for the Southern Africa Region by diversifying the industry and investing heavily in the country's infrastructure.

Exploration

The softening of commodity prices has tended to trigger a shortage of exploration expenditure. However, "Botswana has a significant amount of mineral diversity, and there is exploration taking place for diamonds, coal, copper, nickel, uranium, gold and iron ore," said Charles Siwawa, CEO of the Chamber of Mines of Botswana Chamber of Mines. The primary resources being explored at present are coal-bed methane and diamonds, with a significant amount of coal projects having moved onto pre-feasibility stages. "We would like to see coal-bed methane at more developed stages and perhaps in production as there are huge opportunities for the resource in the country," said Siwawa.

Various exploration companies have seized upon opportunities Botswana has to offer, obtaining favorable results. "Shumba Coal has experienced continuous growth since we began operations in the country," said Thapelo Mokhathi, Director, Shumba Coal. The company is close to terminating the exploration phase for their Sechaba Thermal Coal Project, which holds approximately 1 billion metric tons (mt) of coal. "Our goal to become the country's premier coal exploration, development, and production company is well on its way," said Mokhathi.

Exploration within the Kalahari Copperbelt is taking place to determine Botswana's potential for copper production as well as other base metals. Discovery Metals Limited, one of the companies exploring the area, entered Botswana as a junior explorer over eight years ago. Though DML started production on the Bosetto Copper project in mid-2012, they continue exploring a tenement of over 10,000 square kilometers (km). "Out of this, we have only explored around 30%. The Boseto project itself is only a fraction of the explored ground so there is significant potential for growth and further development," said Mokwena Morulane, Country Manager, Discovery Metals Limited.

It is expected that the mining industry's contribution to Botswana's GDP will continue to increase as a result of growing diamond revenues, as well as the development of other base metals. "Currently, the mining contribution to GDP stands around 22%, but I think in 2015 it will increase to 30% because there is a confirmed diversification of mineral wealth," said Siwawa.

Production

Despite major in-roads in terms of diversification in the mining sector, diamond production in Botswana has continued to grow. "Diamond production will continue to be a significant GDP contributor as there is still diamond exploration taking place and the resource is vast," said Siwawa. The country's mines are pushing hard to extend the resource up to 2050.

Diamonds

With five diamond mines in production and several in the exploration phase, revenue from diamond production should increase in Botswana. The country's Karowe diamond mine has generated substantial profit through the production of rare blue diamonds. President Ian Khama inaugurated Gem Diamonds' Ghaghoo diamond mine in the middle of

2014. Botswana currently holds 25 cutting and polishing companies and has "seen the beneficiation of diamonds in the country, which has been successful, and has positioned Gaborone as an international diamond centre," said Morulane.

The Botswana Investment and Trade Center (BITC) has attracted major players into the country such as De Beers, which up until 2013, conducted all global sales out of London. "The largest achievement that the country has attained is the relocation of the Diamond Trading Company (DTC) to Botswana," said Letsebe Sejoe, CEO, BITC. The DTC was established as a 50/50 joint venture between De Beers and the Government of Botswana, for the sorting and valuing of Debswana's diamonds.

Since 2011, not all diamonds from Debswana have been sold to De Beers. The DTC Botswana now works with De Beers and the Okavango Diamond Trading Company, which is a government body. "The Okavango Diamond Trading Company started buying around 10% by value of Debswana's production in 2011, and this is set to increase 1% yearly, until it reaches 15%," said Paul Rowley, Executive Vice President, De Beers Global Sightholder Sales. "De Beers' Global Sightholder Sales were transferred to Gaborone from London, as part of a ten-year agreement with the Government of Botswana," said Rowley. This shift comes as a government initiative to make the country's global importance as a diamond center increase. Botswana is also the source of nearly 65% of De Beer's product. "Though most buyers currently fly into the country to make a purchase and leave, the medium-term goal is to have clients operate within the country after purchase," said Sejoe.

Coal and Coal-Bed Methane

Botswana's vast coal deposits will lead the next mining wave in the country. "Botswana has the second largest coal deposit in Africa, standing at over 200 billion mt," said Siwawa. Jindal Africa has secured a mining license to begin coal extraction in early 2016. African Energy Resources is now working with First Quantum Minerals (FQM) to develop a coal mine that will eventually produce enough power to support FQM's operations in Zambia.

With over 12 coal and coal-bed methane projects in exploration and pre-feasibility stages, Botswana is hoping to become a leader in power production. Though the country's coal is not of high quality, it is washed coal can be used for power generation. According to Mokhathi, "Botswana has a major opportunity, which we are now starting to see companies exploit, to become an energy hub for the region. Neighboring South Africa consumes vast quantities of coal and the region is in high demand for power." The demand for coal from China and India has also become a target for the country's coal exports.

The main obstacle to mining coal and coal-bed methane in Botswana is the lack of infrastructure in the country. "The only thing that is currently holding back production is our lack of a railway line. Botswana is land locked and thus a railway line is needed to move the coal from Botswana to the coast," said Siwawa.

With the growth of energy producers in the country, a stronger focus has been placed on the environmental impact of coal production. "The key is to make sure that the industry is sustainable in the long run. New environmentally sensitive and cleaner technologies are being developed to create greener, more efficient, and sustainable power stations," said Mokhathi.

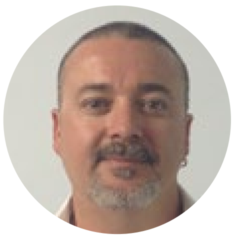
IMAGE: Martin Larcher

Copper-Nickel

Expectations are high for the Kalahari Copperbelt, where the potential for copper production has optimistically been compared to Zambia and the Democratic Republic of Congo. "There are copper-nickel deposits such as the Khoemacau copper mining project and the Dikoloti nickel deposit. Both of these projects are expected to receive a mining license in 2014 and start construction of the mines in 2015," said Siwawa. Tsodilo Resources has an agreement with FQM to develop copper-nickel for eventual exports.

Copper projects in Botswana are looking to increase production and several companies are exploring for further growth. With stabilized production at the Boseto copper project sitting at 24,000 mt of copper per annum, Discovery Metals has looked to increase this figure to 36,000 mt of contained copper per annum. The company continues exploring their 10,000-square km tenement on the Kalahari Copperbelt for growth and further development.

The Botswana government has plans to further beneficiate base metals through the creation of copper smelters and refineries. "At the moment, the only smelter in the country is used primarily for nickel and owned by BCL," said Morulane. Discovery Metals Limited is also looking to develop underground operations. "Currently the mining of the Zeta and Plutus deposits is through open pit mining where the strip ratio is around 10:1 and even 13:1 at times. If we go underground there is no strip ratio and no waste," said Morulane.



> If China continues building on quality controls, they will become a significant competitor for equipment manufacture in the future. About 95% of the equipment that is coming in is giving us high value for money.
>
> **- Rodney Baker, Managing Director, KPJ Drilling**

Regulatory Framework

Once known as the British protectorate of Bechuanaland, Botswana has stood as an independent country since 1966. For decades it housed anti-apartheid activists and refugees fleeing its southern neighbor. Now a peaceful democracy, it has become one of the fastest growing economies in the world with a GDP per capita of $7,317, according to the Ibrahim Index of African Governance (IIAG).

Botswana consistently ranks amongst the countries with highest transparency and best governance in the continent. "In Botswana, businesses thrive on certainty and predictability of policy and business environment. Botswana has been ranked by Moody's and the NSNP and given a constant investment grade of solid credit rating for 10 years plus, which speaks volumes to the investment risk that is assigned to this country," said Sejoe. "Botswana has a solid civil service and the regulators are not overly bureaucratic. The country does have challenges in terms of response times, but this problem is mainly faced outside of the mining sector," added Shakila Khan, Lead Attorney, Khan Corporate Law.

Botswana is experiencing an increase in regulation generally, with "the most pertinent changes in the mining sector being the introduction of the Environmental Assessment Regulations in 2012. Up until this point, Botswana has been successful in implementing new regulations and we hope to see this continue," said Khan.

Though Botswana has a small market, competition amongst commercial banks in the country is substantial. "In Botswana, the top four banks control 80% of the industry and thus small banks struggle in this market. As a smaller bank, Capital Bank can provide a personalized service at a profit to the company where the customer still feels valued," said Jaco Viljoen, Chief Executive Officer, Capital Bank Ltd. Smaller banks face challenges in serving the mining companies given that mining deals are often over 100 milllion Pula, so they tend to focus on service providers. Another challenge is that "especially in the diamond industry, the polishers and buyers mostly come from India and thus they use the Indian banks and International Banks like Standard Chartered, which are present in Botswana," said Viljoen.

> Botswana has a solid civil service and the regulators are not overly bureaucratic. The country does have challenges in terms of response times, but this problem is mainly faced outside of the mining sector.
>
> **- Shakila Khan, Lead Attorney, Khan Corporate Law**

Ecsponent Capital (RF) Limited, a company focused on financial services and vendor finance, has targeted a niche market in Botswana for its operations. "We found that, especially within Botswana, there is a lot of support in place for local vendors, but they have very little to no access to credit. There are companies that focus on invoice discounting, where players will take a discount on their invoice and therefore fund their operations. However, even established vendors run into cash flow issues. Ecsponent realized this as an incredible market to access and we have created a way to manage the process sufficiently. We assume a very involved role throughout and manufacturers and suppliers are paid directly by Ecsponent," said Euné Engelbrecht, Chief Executive Officer. Although Botswana´s regulation is that 70% of funds that are raised in-country can be taken abroad, Ecsponent has chosen to invest locally. "Ecsponent uses the funds for local companies and avoids spending them across the border. If asset managers were forced to spend money locally, there would be more capital for vendors," added Engelbrecht.

Though the Pula is prone to fluctuations against the dollar, Botswana has no exchange control, which allows companies to keep their money in foreign currencies. "Trading in Botswana can be done in any major currency (like USD, Euro, ZAR) and that makes it much easier to do business in the country," said Viljoen.

Infrastructure

Though a diversified landscape in metals such as copper, gold, iron ore and even silver is slowly starting to emerge in Botswana, there are still several structural challenges to overcome. The development of infrastructure is key to attracting foreign direct investment. As a country largely covered by the Kalahari Desert, Botswana's mining projects have often faced with a severe lack of water, power and road connectivity. "There are challenges like power lines that run too low and roads that are not wide enough to carry the loads of the equipment being transported. The government is working hard to improve this and Giant Transport aims to continue growing despite the challenges," said Sean Bester, General Manager, Giant Transport.

Comments on the Investment Climate, Regulations and Laws that Affect Mining Companies in Botswana.

Generally Botswana seeks to create an attractive climate for investment and has continued to develop a regulatory framework that is broadly favorable to an investor.

No approval is required for equity investments in Botswana companies by foreign entities. However, with respect to certain activities, such as mining, foreign investors wishing to invest in Botswana are required to register a company in Botswana in accordance with the Companies Act. There are also no limitations on the amounts of equity investment in Botswana companies by foreign entities. Companies operating in the mining sectors are not subject to any particular requirements with respect to their structure.

There are no ownership requirements by indigenous persons. In terms of the options of the State to acquire shareholdings, the Mines And Minerals Act specifies that on the issue of a mining licence only (that is to say this participation right does not apply to companies seeking prospecting or retention licences), the Government shall have the option of acquiring up to a 15 per cent working interest participation in the proposed mining company.

The Government shall, on issuing the licence, inform the applicant as to whether or not it is exercising its option, and of the working interest percentage it wishes to take.

The above relates to all mining licences except those relating to diamonds. Where diamonds are concerned, any application for the issue, renewal, transfer or amendment of a licence to mine diamonds shall initiate a negotiating process, in good faith, between the Government and the applicant covering all technical, financial and commercial aspects of the proposed project, including Government participation. Although the Government has these rights, in the past it has not always sought to exercise its option to take up an equity participation in mining companies.

Khan Corporate Law (KCL) is a specialist corporate law firm in Botswana that focuses on providing legal services to mining companies, banking and finance institutions, corporate advisory firms, large corporates, multinationals, private equity funds, Government and parastatals.

KCL has handled some significant transactions since it was established and as a result, domestic and international market recognition for its strengths continues to grow. The firm has completed key mandates in the mining and minerals sector.

KHAN CORPORATE LAW

RESULTS DRIVEN

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Postal Address: P.O. Box 1561, Gaborone, Botswana
Physical Address: 5th Floor, North Wing, Exponential Building, Plot 54351, New CBD, Gaborone, Botswana.

Power and Water

Though the country is still importing power from South Africa and sometimes Mozambique, the government is working hard to become self-sufficient. "The government is developing the infrastructure to store six to nine months worth of fuel in Botswana. Whenever there are production strikes in neighboring countries, Botswana will be prepared. By 2020, I am confident that Botswana will not buy power from anywhere else and that we will produce enough to support our mining industry as well as other industries," said Nicholas Zachem, Director, Zac Construction.

"Power generation is by far the biggest contributor to the mine's unit costs. This is because we are currently having to generate the mines' power needs through a diesel powered power unit," said Morulane. Larger transmission lines will be run from northwest Botswana and, given the country's diverse flora and fauna, sustainable strategies are being explored to avoid disrupting the environment as much as possible.

"Botswana is a flat country and thus the collection and storage of runoff water is very difficult. In the mining industry, there is a strong reliance on underground water, which is a non-renewable natural resource, and this poses a significant environmental problem," said Rodgers Thusi, Mineral Processing & Operations Management, Gidary Technical Solutions. The government has plans set in place to draw water from the Zambezi River to satisfy the country's need. "The government is focusing on running two lines, one for agriculture and the other for potable water. Construction is not yet fully certain, but it should begin within the next two years. The second line for potable water will run into Gabarone to feed different damns," said Zachem.

Roads and Railway

In March 2014, an agreement was signed with Namibia to develop the trans-Kalahari railway, which will allow resources to reach Walvis Bay. "The trans-Kalahari railway running into Walvis Bay is under construction now. We will also connect to Mozambique in order to export coal to India and China," Zachem explained. High demand for coal from China and India is present across the region, as well as from South Africa.

Sanitation and connectivity top Botswana's agenda for continued development. The country "has high ratings in the Fraser Institute as mining jurisdiction because of the government's deliberate efforts to make it conducive for investment," said Morulane.

Service Providers and Equipment

Increased market demand has represented higher competition amongst service providers and a rapidly growing local SME sector. Companies are relying on client-service offerings to differentiate themselves. "The company is open seven days a week and we are always available for our clients. Client service is the most important aspect of the plant hire and transport business, but also one that a significant amount of plant hire companies lack in Botswana, which differentiates Giant Transport apart from competitors," said Bester.

Though companies are preparing for an increase in coal production in 2015, diamonds are still the major focus. Having completed work for Gem Diamonds and Petra Diamonds, Hentie Dewet, CEO, Dewet Drilling says one of its "largest achievements was the reverse circulation drilling which was used in kimberlite mines." This process was used primarily for De Beers', Debswana and South Africa's Venetia mine. "The first drill that the Bauer-Dewet joint venture created was for directional drilling. The company built a 100 ton directional drill and achieved the African record for directional drilling, which is 500 meters vertically and 1300 meters horizontally," said Dewet.

Although local providers maintain a competitive advantage with years of local experience and a range of product offerings, the influx of Chinese products is undeniable. "If China continues building on quality controls, they will become a significant competitor

> Client service is the most important aspect of the plant hire and transport business, but also one that a significant amount of plant hire companies lack in Botswana, which differentiates Giant Transport apart from competitors.
>
> - Sean Bester, General Manager, Giant Transport

for equipment manufacture in the future," said Rodney Baker, Managing Director, KPJ Drilling. Having provided its own specifications and quality controls, KPJ Drilling is importing equipment from China. "About 95% of the equipment that is coming in is giving us high value for money," added Baker.

Skilled Labor and Training

The difficulty of finding skilled labor in Botswana has deterred investors from entering the country and posed challenges for companies operating there. "The demand for skilled personnel in the mining industry is very high and the availability of local expertise, as Botswana is a small country, is a massive challenge for the country," said Thusi. "The most important target for Botswana at the moment, is to stimulate the growth of the industry. Once there is investment, citizens will be employed and that is how the industry will grow," said Siwawa.

Newly re-elected President Ian Khama has stated that two of his most important goals will be education and the development of skilled labor in the country. The Chamber of Mines of Botswana has secured an agreement with the government and GIZ to start training the country's future mining technicians. Mr. Siwawa said the Chamber of Mines had "started the program with 100 students and in about four years we will have highly qualified artisans, competitive with international standards, who will be incorporated into our mining houses [...] it is our target to have 1000 students in training over the next few years."

Future Prospects

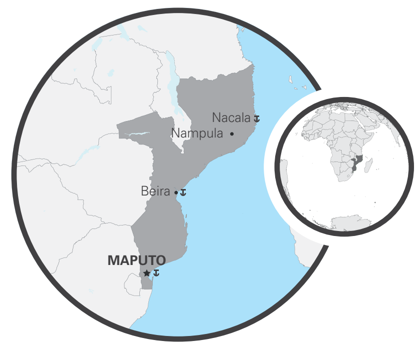
Botswana is working hard to diversify and strengthen the mining industry, which is still mostly reliant on diamonds. "We would like to welcome and encourage investors to look at base metals and other minerals outside of diamonds. It is not just a diamond destination," Morulane said.

Despite the country's small market, it is part of a 57 million people international market through the Southern African Customs Union. "SACU is a free trade area with members being Botswana, South Africa, Lesotho, Swaziland and Namibia," said Sejoe. "Botswana may have a small population but we have vast land and diverse resources with the capacity to connect to the whole of the region's market," said Zakhem.

Though the wheels have been set in motion for the country to become a hub in the region, there is still a long road ahead in order to achieve this target. However, Botswana is a peaceful democracy with low tax rates and a government that is aggressively supporting the development of its mining industry. "There are significant plans from Government to promote and develop the resources in the country and there is a strong push towards diversifying the economy in Botswana," concluded Khan. •

Mozambique

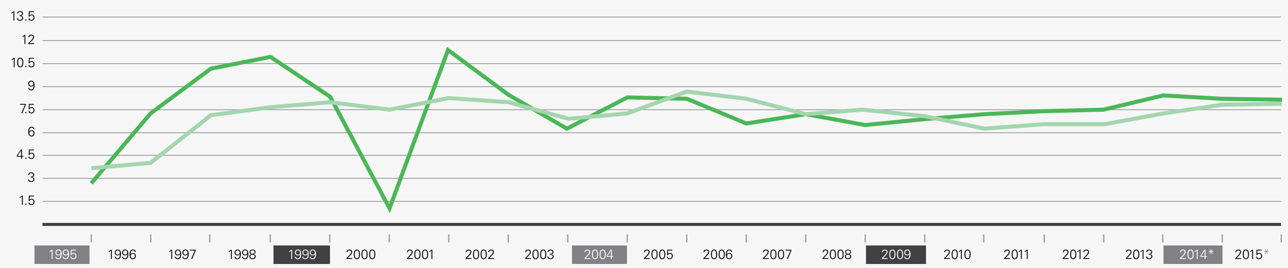
Mozambique was a Portugese colony that suffered heavily from the slave trade. After a decade-long struggle for independence it then suffered a civil war between 1977 and 1994. Recently, however, it has enjoyed a period of political stability and extended high economic growth. Its mining industry holds undoubted potential to become one of the region's leaders in this sector. It is a significant global producer of aluminium, ilmenite, tantalum and zircon, and has production potential for coal, gold, copper, iron ore, vanadium and other minerals.



Population: 24,692,144 (July 2014 est)
Land Area: 799,380 sq km
Official Language(s): Portuguese
Capital: Maputo
Chief of State: President Armando Emilio Guebuza
Head of Government: Prime Minister Alberto Clementino Vaquina
GDP (PPP): $28.15 billion (2013 est.)
Growth Rate: 7% (2013 est.)
GDP per Capita: $1,200 (2013 est.)
Economic Sector Breakdown: agriculture: 28.7%, industry: 24.9%, services: 46.4% (2013 est)
Exports: $3.92 billion (2013 est.): aluminum, prawns, cashews, cotton, sugar, citrus, timber, bulk electricity
Imports: $7.068 billion (2013 est.): machinery and equipment, vehicles, fuel, chemicals, metal products, foodstuffs, textiles
Major Trade Partners: South Africa, Belgium, China, India, United States

GDP GROWTH (%)

SOURCE: WORLD BANK, EIU



1995: The last UN peace-keeping contingents leave the country. Mozambique joins the Commonwealth of Nations.

1999: Chissano wins a second term. Opposition RENAMO claims fraud and threatens a return to civil war, but backs down.

2004: Chissano declines to run for a third term and elections are won by Armando Guebuza of FRELIMO

2009: Chissano wins a second term with 75% of the vote. SADC calls the result "a true reflection of the will of the people"

2014*: The Mozambique Democratic Movement, formed out of RENAMO in 2009, may slightly shift dynamics in October elections.

INFLATION

SOURCE: WORLD BANK

2011	10.4%
2012	2.1%
2013	4.9%

MINE PRODUCTION

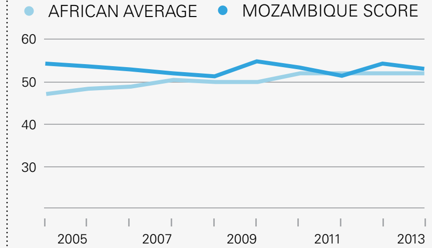
SOURCE: BRITISH GEOLOGICAL SURVEY

as of 2012
in mt unless otherwise stated

Bauxite	8,600
Aluminium	562,000
Bentonite	500
Beryl	12
Coal (bituminous)	54.432
Gold (in kg)	100
Salt	110.000
Tantalite	150
Ilmenite	574.500
Rutile	6.500
Zirconium	46.900

IBRAHIM INDEX OF AFRICAN GOVERNANCE

SOURCE: MO IBRAHIM FOUNDATION



FOREIGN DIRECT INVESTMENT

SOURCE: UNCTAD

2011	2663
2012	5629
2013	5935

*inflows, $ million

MINING SECTOR CONTRIBUTION TO GDP

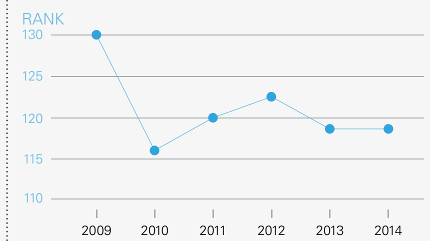
SOURCE: AFRICAN ECONOMIC OUTLOOK

2008	1.5%
2013	2.4%

These values do not include artisanal mining. In 2011 the National Director of Mines put the contribution at 3%, expected to rise to 7% by 2014.

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

SOURCE: TRANSPARENCY INTERNATIONAL



INFRASTRUCTURE INDICATORS

SOURCE: UIC, IEA, CIA WORLD FACTBOOK

● MOZAMBIQUE ● AFRICA ● WORLD

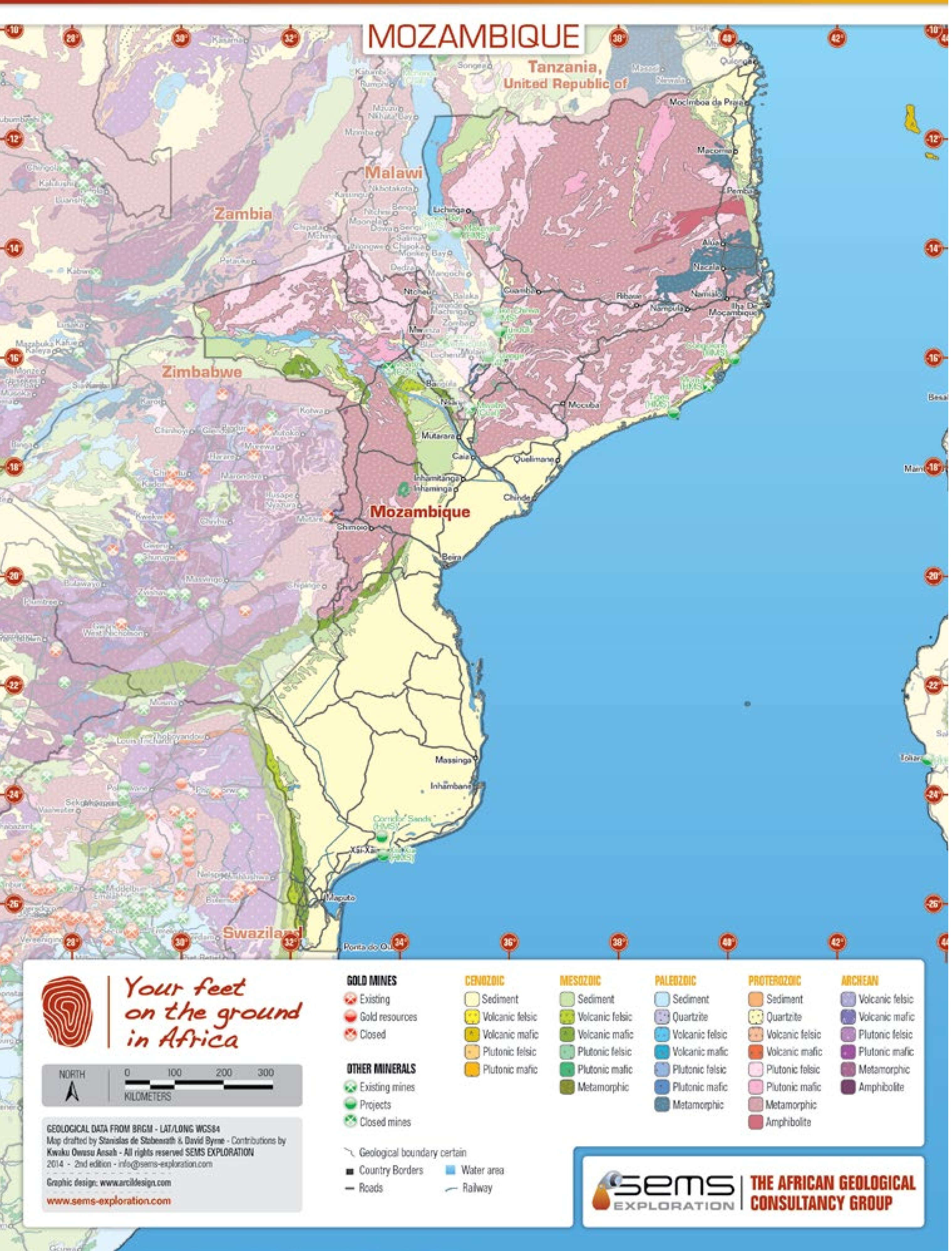
	Mozambique	Africa	World
Railway - km/10,000 km2	59	18.2	76.2
Roads - km/1,000 km2	37	204	904
Electricity - kWh/capita (gross production + imports - exports - losses)	459	592	2933

% 25 50 75 100

BUSINESS ENVIRONMENT RANKING

SOURCE: WORLD BANK, IFC, HERITAGE INSTITUTE, WEF

Name (out of)	2012	2013	2014
Doing Business Rank (189)	139	142	139
Index of Economic Freedom (177)	108	123	128
Global Competetiviness Report (148)	133	138	137



Mozambique

Mozambique is a country on the move. The skyscrapers that line the Maputo skyline tell a story of rapid development, much of it on the back of the exploitation of the country's vast coal reserves. Troubled by a history of Portuguese colonialism and a destructive civil war that spanned almost two decades and ended in 1995, Mozambique is on a path of rapid recovery with a focus on rebuilding lost infrastructure.

Mozambique is set to take its place amongst the world's top 10 coal producing countries by 2017 with an expected output of 41.8 million tons. To reach this goal, investment in infrastructure will be crucial. Over the last two decades Mozambique has proved to be a sound investment destination, which is a reputation that the country is keen to uphold. For 2015, the World Bank has ranked Mozambique 127 out of 189 economies in terms of ease of doing business, which is a notable increase from its rank of 142 in 2014.

Mineral Wealth

Mozambique's known mineral wealth comprises mostly coal, gold and aluminum, with coal production expected to be the greatest growth driver for the mining sector in the next few years. The Tete province and the Zambezi area holds significant coal reserves. While Rio Tinto has recently sold its main operations to India's International Coal Venture Private Ltd (ICVL) with some controversy, Vale continues to mine and expand on its assets.

During the first half of 2014, Mozambique's mines produced 246,000 metric tons (mt) of coking coal and 230,000 mt of thermal coal. Since 2011 Vale has been producing coal from its Moatize mine, which has a capacity of 11 million mt per year. ICVL now holds the mining and exploration licenses that Rio Tinto had owned up until September 2014, which includes the Zambeze Project, the Tete East Project and the Benga mine.

While Mozambique is generally associated with coal, gold production is expected to grow significantly over the next few years, albeit from a low base. Most notably, the Manica project with its flagship Fair Bride deposit has a resource base of 923,200 million ounces (oz) at 3.01 grams per mt (g/mt). The deposit, owned by Auroch Minerals, is situated 4 kilometers (km) north of Manica and 270 km away from the Port of Beira. By 2017, gold production in Mozambique is set to increase to 85,000 oz from 25,000 oz in 2011.

Another key revenue generator for Mozambique is aluminum, with BHP Billiton operating one of Africa's largest aluminum smelters in a joint venture with Mitsubishi Corporation (25%), the Industrial Development Corporation of South Africa (24%) and the government of Mozambique (3.9%). In 2012, the country produced an estimated 550 mt of aluminum, consistent with levels of the preceding eight years.

Tantalum, ilmenite, rutile, zirconium and beryllium are also mined on a smaller scale in the country. Another exciting project is Baobab Resources' pig-iron ferrovanadium project. "Baobab first started working on the project in 2008 and we drilled the first hole in March 2009. Since then we have completed over 90,000 meters of drilling and had found a global resource of over 750 million mt," said Ben James, managing director of Baobab Resources.

Regulatory Environment

Mozambican mining law dictates that the government owns all mineral resources. Private companies can perform extraction operations if they hold mineral rights, which are determined by the scale of proposed operations.

One of the key uncertainties for mining

companies is security of land. Under the mining law, mining concessions are granted by the state for the time equivalent to the life of mine up to a maximum of 25 years. Foreign companies cannot own land. Exploration licenses are issued for five years with an option to renew for a further three years.

In hopes of increasing exploration, the government is also aiming to create an enabling regulatory environment. Ernst Laubscher, financial manager of Agua Terra explains: "The Mozambican government is trying to incentivize exploration and is trying to make it as easy as possible for companies to come to Mozambique and do business. One such is incentive is a tax break on companies that are in the midst of exploration." In terms of taxation, a corporate income tax of 32% is levied on mining companies as well as royalty taxes that are set at 3%, but varies for precious metals, gemstones and diamonds, which are 5%, 6%, and 10% respectively.

The regulatory environment is also in the midst of changes to make Mozambique a more attractive investment and mining destination. Titos Munqhehete, business manager for Golder Associates in Mozambique said: "there is a huge willingness from the Mozambican government to put legislation in place that is on par with international standards and that is a good sign. Mozambique is in the midst of establishing the entire legal framework that is necessary to develop the resources."

Power and Infrastructure

As is common throughout Africa, serious investment in infrastructure and power generation and distribution will be required for mining to flourish alongside the rest of the economy.

Mozambique's current electricity generation capacity is 2,200 megawatts (MW), which is supplied mostly through the hydro electricity plant at Cahora Bassa, through Hidroeléctrica de Cahora Bassa (HCB), owned jointly by Portugal (7.5%) and Mozambique. 65% of Mozambique's electricity is exported to South Africa, which is unfortunate, as only 18% of Mozambicans have access to electricity. In 2013 the country's power demand was 1,600 MW, but was rising at a rate of 15% per year.

In some areas of Mozambique, infrastructure is well developed, but infrastructure remains a hurdle that is slowing further growth and exploration and the mining sector is particularly hampered. According to Ernst Laubscher, financial manager of mining drilling company Agua Terra, "to get equipment, food, diesel, stock, and consumables into remote areas is very difficult and costly. As the infrastructure in Mozambique is lacking, it takes the workers very long to get to the sites as well. Mozambique moves at a very slow pace and is a logistical challenge if you have to clear stock or if you need critical parts."

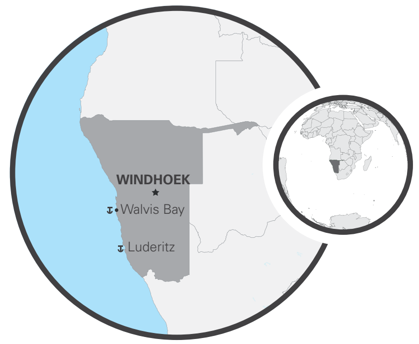
The country is currently undertaking major infrastructure rehabilitation and expansion. The private sector has pledged to invest $34 billion in infrastructure development by 2020. For companies such as BSI steel, infrastructure expansion has been a lifeline, "At the moment the majority of BSI's work is focused on fabrication and construction and there is not a significant amount of work coming from directly from the mines," said Andrew Brett, branch manager of BSI Steel Mozambique in Tete. Upgrades to the port of Beira and well as the Sena railway and the Nacala Corridor Project are already underway. This also brings optimism to the services sector that supports the industry. "We are optimistic about the work that is being done on the railroad to Nacala, which should be finished by 2015 thus bringing in more work for us," said Ernst Laubscher of Aguq Terra.

High Hopes

If the country can continue to maintain a stable political environment, as it has been able to do for over a decade, growth prospects remain positive. With elections behind and a drive for growth ahead, it is expected that Mozambique will boast with projected GDP growth figures of 8.2% in 2015, keeping the country amongst the most dynamic economies on the continent. As for the mining sector, Carlos de Freitas of Tete Engineering sums it up: "there is much hope that new mines will develop as Mozambique still has much mineral wealth such as iron ore, gold, uranium and precious and semi-precious stones. There is an unlimited amount of mining opportunities in Mozambique and people are only starting to scratch the surface now." •

Namibia

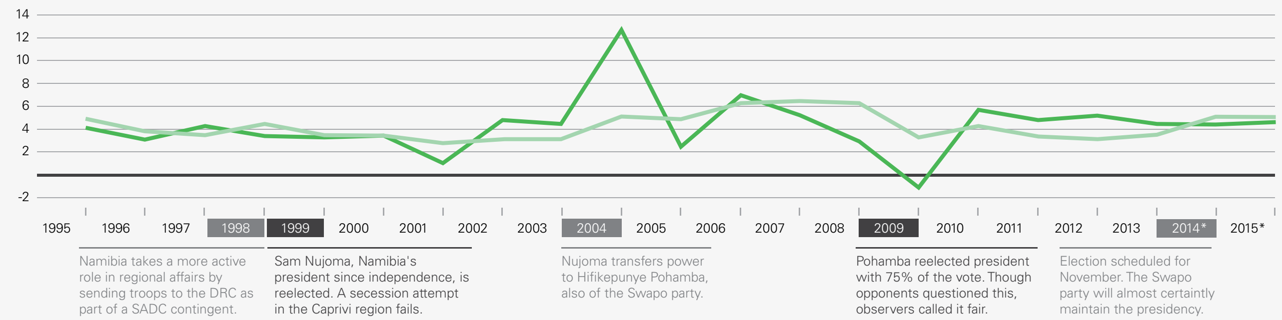
Namibia gained independence from South Africa in 1990, after previously being a German colony until 1920. It has had a stable multiparty democracy in place since independence and has enjoyed strong economic growth. Namibia's mining industry forms a significant part of its economy: the country is the world's second largest producer of diamonds in terms of value, and the world's fifth largest producer of uranium. It also produced copper, gold, lead, manganese, silver and zinc, and has potential for iron ore.



Population: 2,198,406 (July 2014 est)
Land Area: 824,292 sq km
Official Language(s): English
Capital: Windhoek
Chief of State: President Hifikepunye Pohamba
Head of Government: President Hifikepunye Pohamba
GDP (PPP): $17.79 billion (2013 est)
Growth Rate: 4.4% (2013 est)
GDP per Capita: $8,200 (2013 est)
Economic Sector Breakdown: agriculture: 7.7%, industry: 29.6%, services: 62.6% (2013 est)
Exports: $5.124 billion (2013 est.): diamonds, copper, gold, zinc, lead, uranium, cattle, white fish and mollusks
Imports: $7.084 billion (2013 est.): foodstuffs, petroleum products and fuel, machinery and equipment, chemicals
Major Trade Partners: South Africa, UK, Angola, India

GDP GROWTH (%)

SOURCE: WORLD BANK, EIU



INFLATION

SOURCE: WORLD BANK

2012 **6.5%**
2013 **5.6%**

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

SOURCE: TRANSPARENCY INTERNATIONAL

RANK 2013 **57**
RANK 2014 **55**

ALL-IN SUSTAINING COSTS ($/OZ AU)

SOURCE: BANRO CORPORATION Q3 2013 FINANCIAL STATEMENT

653

AISC is based on the World Gold Council's guidance note of June 2013 and is a metric including all costs related to production plus costs related to sustaining production. Country values represent the average from those companies who make this information available, and is taken from Q3 results.

MINE PRODUCTION

SOURCE: BRITISH GEOLOGICAL SURVEY

as of 2012
in mt unless otherwise stated

Copper	5,304
Diamond**	1,667,000
Fluorspar	90,834
Gold***	2,402
Lead	11,300
Manganese	42,000
Salt	738,000
Silver***	2,376
Uranium	4,249
Zinc	193,600

**in carats ***in kilograms

MINING SECTOR CONTRIBUTION TO GDP

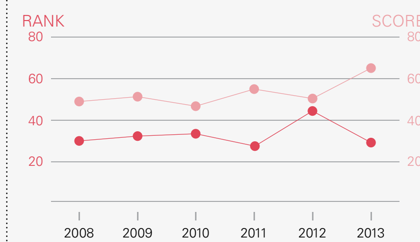
SOURCE: AFRICAN ECONOMIC OUTLOOK

2008 **17.6%**
2013 **12.3%**

These values do not include artisanal mining. Mining's contribution to GDP has been falling over the past decade, yet remains the largest single contributor to GDP.

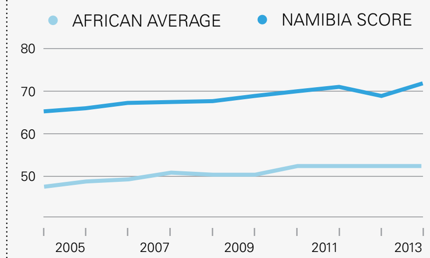
FRASER INSTITUTE ANNUAL SURVEY OF MINING COMPANIES

SOURCE: FRASER INSTITUTE



IBRAHIM INDEX OF AFRICAN GOVERNANCE

SOURCE: MO IBRAHIM FOUNDATION



INFRASTRUCTURE INDICATORS

SOURCE: UIC, IEA, CIA WORLD FACTBOOK

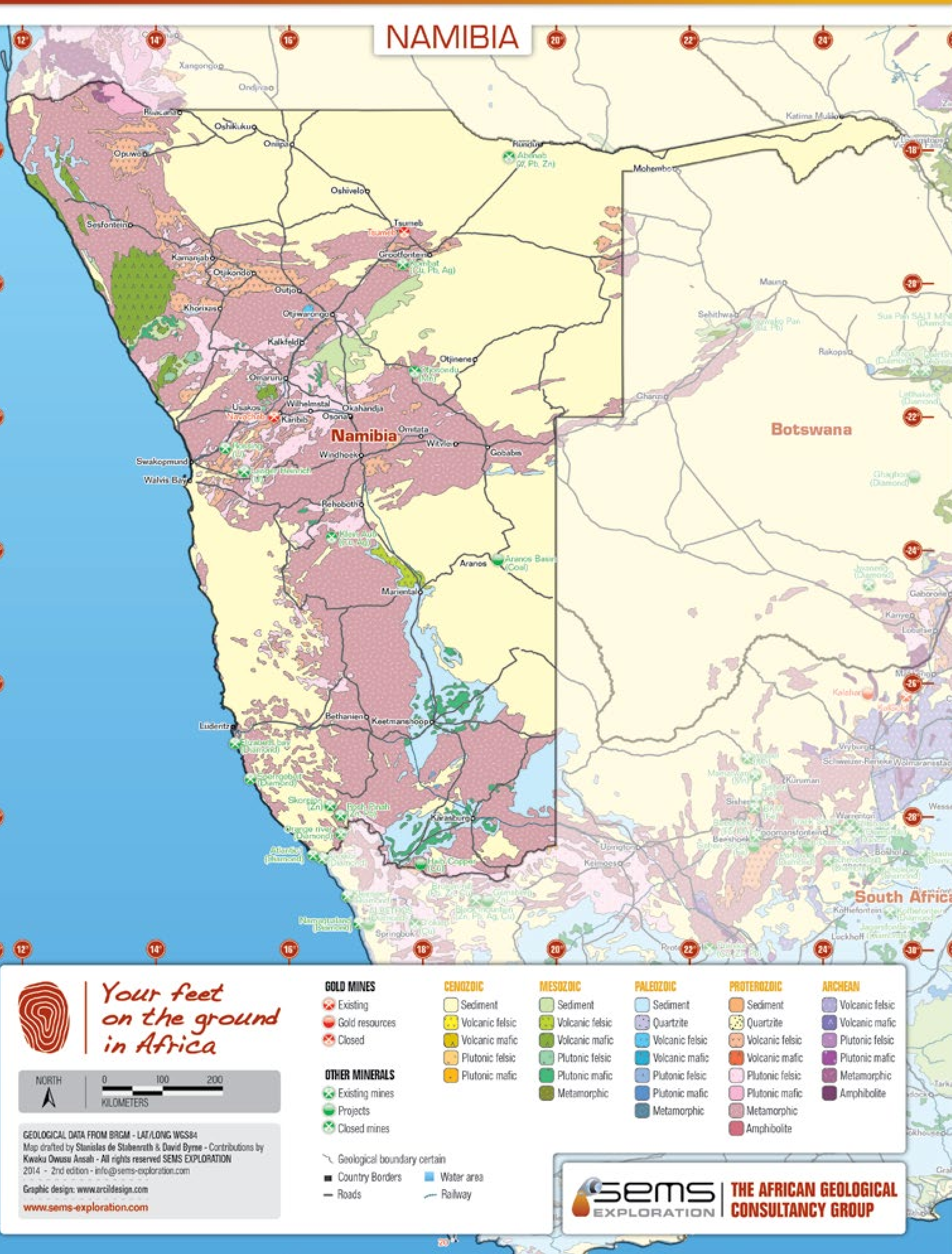
	NAMIBIA	AFRICA	WORLD
Railway - km/10,000 km2	32	29	77
Roads - km/1,000 km2	54	79	262
Electricity - kWh/capita (gross production + imports - exports - losses)	817	603	3076

% 25 50 75 100

BUSINESS ENVIRONMENT RANKING

SOURCE: WORLD BANK, IFC, HERITAGE INSTITUTE, WEF

Name (out of)	2012	2013	2014
Doing Business Rank (189)	78	94	98
Index of Economic Freedom (177)	76	84	94
Global Competetiviness Report (148)	83	92	90



Honorable Isak Katali

Minister of Mines and Energy
Namibia

Entering your fourth year as Minister of Mines and Energy, what key milestones would you like to achieve for the mining sector in the next year?
The Ministry of Mines and Energy would like to complete the review of the Namibian mining act.
We are also working hard to finalize some of the current delays and issues as such as the issuing of mining licenses. Currently, we have many licenses that have been put on hold and others that have taken too long to process. We aim to review these and deal with the backlog of applications.
The Ministry of Mines and Energy will work together with the Ministry of Trade and Industry in the identification of the minerals that need to be beneficiated.

Are there salient points with regards to the review of the mining act that you would like to highlight to investors?
There are administrative issues that may be affected, for instance we will address the issue of Exclusive Prospecting Licenses (EPL). As it stands now, when the license is close to expiry the owner is required to place an application for renewal. However, the law is very silent on whether someone else during that period can also apply for the prospecting license. Currently, once the renewal application is lodged, the EPL is still active and does not prevent other applications. This creates a negative perception if all of a sudden they put in application for renewal and someone else is applying. At the moment, the new applicants however realize that there is nothing that prevents them from applying according to the law. This is an example of a key aspect that is under review.

It has been a difficult year for the global mining community. Although Namibia experienced some difficult months in production overall, the industry saw positive growth for most of the minerals except gold and uranium. What contributed to these increases?
It can be attributed to the growth in the economy and the resilience of the companies operating in Namibia. Even though there are difficulties, they continue to operate with good deposits in a stable country.

What is the Ministry's strategy to mitigate the impact of the closure of some of the current mines?
We expect new mining projects to come online and new mining licenses to be applied for. We plan to continue growing despite issues that some of the mines are having.
What the mining industry in the world needs to know is that we have a stable democratic government, one of the best geological surveys in the world with a comprehensive geological database, and we are continuously improving. We have security of tenure, good infrastructure, and a very competitive environment for investment, supported by the transparent, open door policy of the government.

What would you like to communicate to the international mining community about the mining sector in Namibia?
As we always say, Namibia is a stable and peaceful country, and whoever is interested in our minerals is welcome to come to Namibia. They must be prepared that it is not business as usual, as currently we are talking very seriously with companies about localization and increasing the local content in our mining licenses. Although nothing has changed in terms of laws and policies, we want investors who adhere to our policies. Investors should not come to Namibia because the Namibian government wants their money and skills. They should come to Namibia because they need the resources that are in Namibia, and this should create the balance between what is best for the investor and what is best for Namibia.
Over the years, Namibia has attracted significant numbers of both foreign and local investors in the minerals sector. To me, that is testimony that we do things correctly, meaning that the investors have confidence in our policies, legislative frameworks as well as our administrative processes. •

Namibia

Known for its gem-quality, alluvial placer deposits along the Orange River, Namibia is the world's second largest producer of diamonds, as well as the world's fifth largest producer of uranium. Despite depressed global commodity market conditions, major investments towards the continued development of Namibia's mining industry and other sectors are still ongoing in the country. Though primarily known for its uranium and diamond production, Namibia is now focused on diversifying for growth.

The past year has brought many changes to the Namibian mining landscape, with three major mines under construction, Swakop Uranium's Husab, Weatherly International's Tschudi copper project and B2Gold's Otjikoto gold mine. With substantial foreign direct investment entering the country, the Namibian government is determined to unlock and optimize the country's resource potential.

Production

Though booming with optimism, Namibia has still experienced the effects of the global capital shortage in the mining sector. "Namibia has certainly faced challenges with the softening of uranium prices and the iron ore price dropping by around 37%," said James Grobler, Member of the Board, Lodestone, a junior set to begin production of high grade iron ore in 2015) with high-grade iron-ore. Other companies have re-focused their operations all together, in reaction to the circumstances. "We have closed down LLD Diamonds Namibia diamond cutting factory completely since the downturn in the diamond market. Currently Sakawe (Samicor) is not very active in the diamond business as we are focused on the exploration and the mining of phosphates along the Namibian coastline to produce fertilisers," said Kombadayedu Kapwanga, Regional Director, Sakawe Mining Corporation.

Uranium

Softening commodity prices have not stopped Swakop Uranium's Husab project, scheduled for full production in 2017 and aiming to become the world's second largest producer of uranium oxide. Husab is "a major project from China as they are investing N$22 billion ($2 billion) in the country and Swakop Uranium's resources will be exported to China," said Veston Malango, CEO, Chamber of Mines of Namibia. Nonetheless, many listed companies and private sector investors are waiting for prices to rise again and meanwhile, projects are placed on hold. "The Chamber of Mines is optimistic that we will see an improvement in the next 12 months," said Malango.

Exploration companies have also faced challenges in raising capital funding. Reptile Uranium is a subsidiary and the sole focus of its Deep Yellow parent company. Deep Yellow raises funds through the ASX to fund the flagship operation in Namibia, Reptile's Omahola project. "The context of the environment in which we operate is complex and very challenging. Things have deteriorated substantially since the Fukushima disaster and capital availability is incredibly scarce across the junior sector. We took a conscious decision to move slower and be cautions with expenditure to survive for the long term," said Greg Cochran, Managing Director, Deep Yellow Limited.

Junior Bannerman Resources has a world-class project ready to position the company amongst the world's top ten uranium mines. Bannerman has already confirmed the development and technical aspects of the Etango Project, "DFS shows that the project is financially attractive at long-term uranium prices. Bannerman is quite confident that, when uranium prices rise and we are ready to move forward with the project, we will be granted a mining license," said Len Jubber, CEO, Bannerman Resources. Bannerman Resources raised US$4 to fund a heap leach demonstration plant to de-risk the project in the eyes of potential development partners and financiers. Bannerman Resources identifies Namibia as a sustainable growth market "our commencing with the construction of the heap leach demonstration plant is testimony to this commitment," said Jubber.

With more nuclear power plants either in construction or final planning stages now than ever before, the demand for uranium is bound to rise. Taurus Minerals Limited of Hong Kong, partly owned by the China General Nuclear Power Company (CGN) and the China-Africa Development Fund, have a 90% stake in Swakop Uranium. "Uranium's primary use is as fuel for nuclear power plants [...] and there is renewed interest in nuclear energy as one of the clean alternative energy sources of the future. Worldwide, more than 50 plants are currently under construction and 149 plants are planned," according to Swakop Uranium.

As air pollution increases from coal-fired plants, mainland China is working hard to position itself as a nuclear energy leader with over 21 nuclear power reactors in operation and nearly 30 under construction. "China continues to build nuclear power plants at an incredible pace. The Middle East, Korea, and India are the next generation of nuclear power builders. The UAE is already building two and by 2021 they are aiming to have four. Saudi Arabia is talking about a 16 plant target," said Cochran.

Namibia has agreements with all countries party to the international non-proliferation agreement. "Namibian uranium is highly sought after because of reliability of supply and the environmentally and socially responsible way in which the industry is operated," explained Jubber.

Diamonds

Namdeb, a 50-50 joint venture between the Government of the Republic of Namibia and De Beers, is expanding its diamond resource to 2050 and beyond. The two subsidiaries within Namdeb are Namdeb Diamond Corporation, which targets land licenses, and Debmarine Namibia, which is focused on offshore licenses. "Namdeb Holdings has an exclusive marketing agreement with the Namibia Diamond Trading Company (NDTC), which sells all the diamonds produced by the Namdeb Holding Group. In 2013 Namdeb experienced a N$9 billion dollar turnover, and produced 1.7 million carats of gem quality diamonds," said Inge K Zaamwani-Kamwi, CEO, Namdeb.

Diamond mining still represents a major contribution to Namibia's GDP. "Currently the diamond mining industry in Namibia is in high demand and prices are relatively positive," said Zaamwani-Kamwi. Measures are being set in place to position the company for the long-term in Namibia. One of Namdeb's major focuses is to ensure sustainable mining, which means they must re-asses the environmental impact of their operations constantly.

MACIG 2015

Copper

London based Weatherly International's $88.3 million dollar investment for refined copper to be produced for the first time in Namibia is rapidly approaching production. "Tchudi will produce 17,000 tonnes of copper per year, for an initial mine life of 11 years. Officially we are going to produce in the second quarter of 2015, though we are on track to achieve this goal comfortably," said Craig Thomas, Operations Manager at Weatherly International. The company has also re-opened two underground mines, Otjihase and Matchless, with the target to produce 7,000 tons of copper concentrate per year and a scope to produce 10,000 tons per year.
Most of Weatherly International's concentrate is exported to China due to low freight costs. Regarding Tschudi, "we secured an off-take agreement with a North American fund called Orion, which is in turn associated with another commodities trader, Redkite." said Thomas. Plans to source acid for heap leaching from the plant at the Tsumeb Smelter are underway. With Husab and Tsumeb building their own acid plants, and Skorpion evaluating similar possibilities, acid for heap leaching will be sourced locally. "Perhaps eventually Namibia will have an acid production surplus and then become an acid exporter," said Thomas.
Kunene Resources has signed a joint venture agreement with First Quantum Minerals for the development of the Kaoko Project license given that the geology has a strong resemblance to the Zambian Copperbelt. Since Kunene discovered cobalt for the first time in Namibia, "we have established that the Kaoko Belt is an analogue for the Copperbelt through discovery of a horizon of copper cobalt, which is almost identical to the mine series in the DRC or the ore shale in Zambia. Kunene has had experienced academics and professionals from Zambia visit the project to confirm our findings," Brandon Munro, Managing Director, Kunene Resources said.
The Okanihova copper sulfide target encompasses an area of 3,500km2, which was once used as a South African armed forces base. The plot now houses Kunene Resources' flagship exploration operation. "Kunene has found very broad intersections of low-grade primary sulfide copper, which is a very good sign of future prospects, but it still requires higher grade and, or scale to become economically viable," explained Munro.

Gold

With full production scheduled for 2015, B2Gold's Otjikoto gold mine will place Namibia as Africa's seventh or eighth largest gold producer. "B2Gold is one of the fastest growing gold producers in the world and the additional potential of Otjikoto's over 140,000 ounces of gold is very significant to our corporate profile," said Bill Lytle, Country Manager, B2Gold Corp. The recent discovery of the Wolfshag satellite deposit, near the project's current pit, is presently being engineered to become a reserve that will be included as a part of the mining schedule and ten explorations licenses are still being explored.

Iron Ore

There is undeniable potential for iron ore within Namibia. While exploring for uranium, Reptile Uranium has discovered iron ore and is currently looking for a development partner. "On our quest looking for uranium we stumbled upon a very well-located iron ore deposit and have drilled out about 120 million tons of iron ore to date," stated Peter Christians, Country Manager, Reptile Uranium.
Lodestone, with a high-grade niche product of 66%, has recently completed the PFS and received approval for their Dordabis iron ore project. Plans to expand the resource through exploration and drilling are in order, if commodity prices improve by mid-2015. "Lodestone aims to explore and develop a world class high-grade iron ore deposit in Namibia," explained Grobler. The company's target is to produce 2 million tons per year at a 66% iron ore average grade.

Manganese

Shaw River has discovered 17 million tons of manganese with the Otjozondu project. "The company will commission a plant through January 2015 and we will be producing about 12,000 tons to 15,000 tons of product per month. We retain the capacity to triple that with the equipment that we will have on site," said Peter Cunningham, Director, Otjozondu Mining. A settlement agreement has positioned Shaw River as the sole owner of the Otjizondu project. Though the company´s immediate focus will be on production rather than expanding the resource, there are still 144 km to be explored within the Roper Line of Lode.

Marine Mining

Namdeb is increasingly focusing on marine mining, through Debmarine Namibia, in light of slowing terrestrial output for diamonds. "The technology required in the diamond marine mining environment is unique to Namibia and it is pioneering on a global scale. […] Moving forward, Namibia's diamond mining operations will depend heavily on marine or offshore operations," said Malango.
Namdeb is constantly searching for potential development opportunities in the country and creating new technologies for marine mining with De Beers' research and development department. "What we have been able to mine so far from the offshore license is less than 10% of the total area," said Zaamwani-Kamwi. Mid-water licenses are currently being explored and it is Namdeb's target to start mining them by 2018. "We are working to improve the level of confidence in the mid-water resource," she said.
Samicor, which has explored Namibia's west coast for over 13 years, has discovered a marine phosphate reserve of over two billion tons, placing Namibia as third globally for phosphate rock reserves. Operating under LL Namibia Phosphates (LLNP), Samicor has applied for a mining license for the project and will be building a pilot plant for it in Q1 2015. The target is to start production in 2018. "Our strategy is to turn our rock phosphate into a fully manufactured product, such as phosphoric acid and fertilizer. […] The capacity of the pilot plant will be around 2,5 million tons per year and will be producing about 550,000 tons of phosphoric acid," said Kapwanga.
Though marine mining promises great potential for the country, environmental risks for marine phosphate production are still being assessed. "Samicor has to make sure that during our mining operations we do not disadvantage or disturb the ecosystem, or other marine operations such as fisheries," said Kapwanga. Samicor is collaborating with various partners to develop their technology and environmental impact. The project will require $1 billion and Samicor will be looking for technical and financial partners.
Carla Murta, Laboratory Manager at Bureau Veritas Namibia explained: "Some of the materials that are settled on the bottom layers of the ocean, where phosphates are normally found, are not generally in contact with top layer living

organisms, which are used for human consumption." Though it is still uncertain what effect this may have on the marine landscape, "the government has placed a moratorium on marine mining due to their concern about how this new process will affect the environment in the country," she said. Namibia's coastline is also being explored for oil and gas. Lithon Mining Engineers pioneered the first marine phosphates project in Namibia. "This type of mining requires a new level of science, which is still challenging to grasp fully. Currently the government is conducting an independent assessment to see how viable this new industry is, in terms of environmental impact […] it is going to take a while for the different industries to accept it and understand each other," said Jan Fourie, Lithon Mining Engineers. The Namibian government understands the importance of developing marine mining and is a 10% owner of Samicor.

Regulatory Framework

Colonized by Germany in the late nineteenth century, later ruled by South Africa in the early twentieth century, the Namibian cultural fabric was woven with a history of genocide, forced labor and racial segregation. Namibia now stands as one of the most stable countries in Africa and has been an independent country since 1990.

The Chamber of Mines has operated in the country for 45 years and membership has nearly doubled in the past nine years. "Namibia has a very positive and straight-forward regulatory procedure. The Chamber of Mines has worked hard to ensure that the country's regulatory bodies clearly convey their intentions in the media so that everyone is aware of what is happening," said Lytle.

In spite of having solid regulation, Namibia is one of the most heavily taxed countries in the Southern Africa region. Mining is the highest taxed industry, "Namibian tax rates go up as high as 55% for diamond mining, with additional taxes and royalties added on to that, and other mining operations at 37%. Even in oil and gas production there is an additional profits tax," said Robert Grant, Senior Partner, KPMG.

New tax proposals were recommended by the Minister of Finance three years ago, but "the Chamber proved that the new proposals were detrimental to the to the mining industry and the proposals where then revised," said Malango. The Namibian government understands the importance of developing a strong mining industry within a stable environment. "Namibia is a very favorable investment destination as confirmed by the Frazer Institute Annual Surveys of Mining and Exploration companies, which in the last two years, have shown Namibia to be the second most attractive investment destination in Africa," said Malango.

The Development Bank of Namibia (DBN) provides financing for viable enterprises that contribute measurably to Namibia's economy. "The number of employment opportunities that the project will create is a major consideration. The Bank also considers skills development, transfer of technology, and decentralization of economic activities in its decision to finance projects," said Martin Inkumbi, CEO, Development Bank of Namibia. Though loans can only be made up to N$300 million to a single group, the bank is familiar with securing partnerships with other financial institutions to support the development of infrastructure, industry projects and even SMEs.

Being pegged one to one to the South African Rand, means that raw product imports experience currency fluctuations. "The biggest challenge in Namibia is the rate of exchange, […] at the moment the Rand is loosing value every day," said Jannie Kirsten, Managing Director, Desert Mining Suppliers.

Infrastructure

The mining industry is acting as a strong trigger for infrastructure development in Namibia. The development of projects such as the Walvis Bay Harbour, initially scheduled for 2016, was pushed ahead of schedule to 2015 and will cater to the import and export of commodities. "The mining industry can be seen as a catalyst for the further development of infrastructure in Namibia. Mining is important as it brings development to otherwise highly isolated locations and it does generate a need to expand ports, roads and utilities," said Barnabas Uugwanga, Director of Business Development at Lithon Mining Engineers.

Namibia's direct access to the Atlantic Ocean through Walvis Bay and Luderitz provides many advantages over its landlocked neighbours. The country is "increasingly becoming a key transport and logistics hub for the region. Namibia has a seaport and is well connected to its neighboring countries in the region. This presents an excellent investment opportunity for those looking at transport and logistics opportunities to service the southern Africa region," stated Inkumbi.

The port access holds potential for Namibia's export market, particularly for salt. "We used to only trade in markets within Africa but felt the need to expand our horizons, and we are now looking at new international markets such as North America, Brazil and Europe," said Andre Snyman, Managing Director, Walvis Bay Salt Holdings.

While expanding Namibia also looks, like the rest of the region, to South Africa. "Genet South Africa is Gecko Namibia's support base in South Africa and it fuels our growth within the country," said Pine van Wyck.

One of the greater challenges for international investors and producers looking at Namibia has been the size of its market. However, the strategic positioning of the country has been considered an asset for business. "Though the population of Namibia is only about 2 million people, the country is positioned as a gateway into the region's market, which has over 300 million people," said Inkumbi. "Through the head office of the Gecko Africa Group, which is based here in Namibia, we have serviced projects in Angola and Zimbabwe with additional plans to expand into Zambia and Portugal where we have interests in grass-root exploration projects," said Pine van Wyck.

Access to power resources remains a major operational challenge for Namibia. "We have a massive shortage and import around 60% of the country's total from South Africa. There are agreements between the two countries in place, which will come to an end in the next year and terms will have to be re-evaluated," said Grant. The development of new infrastructure, such as Nampower's N$3 billion 230 to 250 mW generation facility in the Erongo Region, aims to address this problem, however gradually.

With the Kalahari Desert to the east and the Namib Desert to the west, Namibia suffers from intense water scarcity. All the mines in Swakopmund are currently drawing water from the same source. "The whole coastal region is under pressure for water supplies in the country given that the only way to access the resource is desalination. The Areva desalination plant is currently running at 120% of capacity," said Christians.

Major efforts are being set in place by the government as well as financial institutions to further develop Namibia´s infrastructure. Inkumbi said the DBN aimed to have "made a significant impact in financing entrepreneurs in manufacturing and infrastructure development projects such as road and railway expansion," in the next few years.

Equipment

Mining and infrastructure development in Namibia is a strong trigger for equipment companies to grow. "At the moment Gecko Namibia has around 90 machines in the country. The number is constantly increasing due to the needs of our own operations as we continually secure construction projects," said Pine van Wyk, Managing Director, Gecko Namibia.

Increased competition with service providers in the country has led companies to focus on improving their after-sales offering. "We have our own workshops, mechanics and provide training services for all of our operators. Given that we have over 60 machines in Namibia, we can more easily supply our clients with a new machine, in case of a breakdown," said Johan van Wyk, General Manager, Windhoek Renovations. Fast turn around times for part replacements are indispensable and companies are working hard to ensure this, despite the remoteness of certain projects.

Namibia has seen an increase in Chinese equipment imports. "A significant amount of Chinese companies are slowly starting to gain recognition within Namibia, and that does pose a challenge for Desert Mining Suppliers. However, Chinese equipment has a tendency to be less reliable than the internationally established brands," said Kirsten.

Skilled Labor

With a total population of 2 million people, Namibia has a serious shortage of skilled labor. "The greatest challenge for investors looking at Namibia is the skilled labor shortage," said Grant. Though the government is pushing to have skills recruited locally, many have had to source their employees from other countries. "The mining

Bill Lytle

Country Manager
B2Gold Corp

B2 Gold's Otjikoto project is set to position the country as the seventh or eighth largest gold producer in Africa. Could you provide a brief overview of your progress with Otjikoto?
B2 Gold has been involved in Namibia since December of 2011. In 2012, we focused on completing the feasibility study and establishing a solid relationship with the government. We secured a mining license in December that year and immediately started construction in 2013. During 2014, we erected our mill, set up a power plant, and we had our first gold pour in December 2014. Otjikoto is B2Gold's cornerstone project at the moment.

Is B2Gold exploring further for opportunities within Namibia?
Absolutely, we have a full exploration branch operating in Namibia and we currently hold 10 exploration licenses that we are keeping active. Last year we spent approximately $8 million in exploration activities. Since our involvement with Otjikoto, we have extensively explored the area around the project and have an exciting discovery with the Wolfshag satellite deposit, which is almost immediately adjacent to our current pit. Currently the exploration team is turning it over to the engineering department, to turn the deposit into a reserve that can go on the mining schedule.

Have you noticed any areas of improvement within the current regulatory framework in Namibia?
Namibia has a very positive and straight-forward regulatory procedure. The Chamber of Mines has worked hard to ensure that the country's regulatory bodies clearly convey their intentions in the media so that everyone is aware of what is happening. I have nothing but good things to say about the Namibian regulatory framework.

With a total population of 2 million people, Namibia has a serious shortage of skilled labour. How has B2Gold navigated this challenge?
B2Gold works with its own construction group on projects around the globe. Its primary focus is to hire and train locals for international standard work. We will always believe that all employees should be able to operate in any project we may have throughout the world. We are not only investing on building the project but on leaving a legacy of a solid operational group in the country.

Could you elaborate on the B2Gold's CSR work within the country?
It is a requirement and mandate from B2Gold Corporate that CSR is made a priority. When we entered Namibia in 2011, we went out into the communities to ask people directly on what they wanted us to focus. The standard answers around education and health emerged, but, surprisingly, there was a huge demand for environmental conservation. We took their requests into our model and last year the Chamber of Commerce awarded us an award for Environmental Awareness across all industries. We were also awarded the Best Enterprise Award. We won these two awards based on the CSR work we're doing in Namibia. •

industry requires a high level of skilled labor and we struggle to recruit the skills locally," said Malango. Companies are spending vast sums of money on training to build the local skills. However, "most mining houses have their skills brought in from out of Namibia," said Grant.

Mining is key for the continued development of Namibia and it is responsible for vast amounts of job creation and training. With Swakop Uranium's Husab project, B2Gold's Otjikoto gold mine, and Weatherly International's Tschudi copper project, nearly 8,000 jobs will be created over the construction phase and around 3,000 further jobs in the long-term. "There are mutual benefits Weatherly brings to Namibia, and we have a strong focus on job creation, transfer of skills, value addition and local equity shareholding. Namibia needs job creation and by this time next year we will be responsible for over 1,000 jobs created," said Thomas.

"When we want to source someone from outside Namibia, we first have to convince the government that it is indispensable to bring these people into the country," said Johan du Toit, MD, Windhoek Consulting Engineers. The Chamber of Mines has worked with the mining companies to secure work permits and visas for recruits made in other countries. "It is one of our strategies to develop and train our people on a continuous basis. Teaching local workers is a part of our social responsibility model, to do our part in raising the standard within the country," said Snyman.

The Namibian mining industry's continued growth has also increased competition amongst service providers. Local players are strengthening and competing with international companies, finally presenting the option to source local. "Namibia has historically relied on international service providers for mining services, drilling and construction. Gecko Namibia has positioned itself to fill the gap as a national company that is capable of fulfilling these needs for the industry," said Pine van Wyk.

Certain companies have decided to vertically integrate in order to survive the competitive environment. "Our strategy is based on vertical integration and diversification, all of the companies work together for the success of the Group, this allows us to reduce costs and offer these savings to the client," said Peet Strauss, Managing Director, Strauss Engineering. The Strauss Group now holds four companies: Strauss Construction, Quality Brick and Block, Strauss Transport, and JPK Electrical.

Future Prospects

Though still growing strong with diamonds and uranium, Namibia's diversification process has just begun. "Namibia is definitely the Guardian of Africa and the opportunities in the country are endless. With all of the projects entering the country and the diversification we are witnessing, we are in for a surprise in the next 7 to 10 years," said Johan van Wyk.

The presence of other metals and minerals may not be as strong as other parts of the region, but the country's stability is what makes Namibia so promising. Though "it does not have an extraordinary geology for copper, like Zambia and DRC do, it has a stable government and sufficient support systems set in place," says Thomas. Political stability is attractive to investors, as well as Namibia's strategic position as a regional hub for transport and logistics. "Investors are increasingly recognizing the importance of low sovereign risk, established infrastructure, community support, geographic location, and weather patterns," said Jubber.

Namibia is gearing for continued growth and diversification of its mining industry. The Chamber of Mines will continue to work closely with the Namibian government to "explore further value addition opportunities of minerals in order to maximize benefits to the national economy and the country at large. We are very optimistic about the diversified future for the country's mining sector," said Malango. The DBN is prepared to support international investors. "The DBN can finance joint ventures between Namibian entrepreneurs and international investors setting up business operations in our economy," said Inkumbi.

International investment is welcomed in Namibia and the country is looking to grow. "Namibia is open for business. The regulations set in place are mining friendly, the infrastructure is very good, the work environment is enjoyable. The main problem we have with people we bring to Namibia is that they do not want to leave," concluded Lytle. •

Mines Need Integrated Approach to Water Risks

Mining projects will find it increasingly difficult to secure community and government support if they fail to manage impacts on surface water and groundwater – not only during the life of the mine but in the post-closure phase.

This warning from SRK Consulting (SA) partner and principal hydrologist Peter Shepherd comes as African countries follow global trends in clamping down ever more strictly on water pollution from a range of sources. Mining is the second largest industrial user of water, using between seven and nine billion cubic metres each year – the equivalent of the combined water usage of Nigeria and Malaysia.

"All over the world, water is becoming the focus of attention, and Africa is no different," said Shepherd, who has worked extensively on mine water projects on the continent. "As the demand for fresh water rises, communities and farmers are doing what they can to secure adequate allocations. This involves much greater activism regarding allocations and pollution of water resources, which is having an increasing impact on mine water supply and usage."

As with other aspects of exploration and mine development, public participation is becoming a key principle of integrated water management – and is now frequently a legislated part of the compliance process. Indeed, such public participation is increasingly recognized as vital to business sustainability generally, and not limited just to the arena of compliance. Much of SRK's work in the mineral sector relates to a strategic approach to stakeholder engagement as a building block for sound community relations.

According to a recent report by industry analysts Frost & Sullivan, mining has become one of the most dynamic markets for water and wastewater treatment. The report predicts that by 2016 the industry's demand for water-treatment equipment and services could be worth \$3,6 billion.

Shepherd said it was undeniable that mining could adversely affect water quantity and quality, and posed a significant risk to Africa's water resources. Consumers in this day and age require more awareness of environmental and sustainability issues from mining companies, before accepting their products. "Mining operations can substantially alter the hydrological and topographical characteristics of the mining areas, affecting the surface runoff, soil moisture, evapo-transpiration and groundwater behaviour," he said.

"The possible extent and complexity of mining's impacts makes it vital to adopt an integrated approach to mine water management, indeed, many countries' regulations now demanded such an approach as shortages of clean water are experienced and the true cost of water becomes apparent."

Integrated water management includes resource-directed measures, which aim to protect and manage the receiving environment, and source- directed measures, which aim to control the impacts at source through pollution prevention, water reuse and water treatment mechanisms. "Disregard for integrated water management issues in mining development will ultimately lead to unsustainability in the sector, as damage to water resources is arguably the worst environmental consequence of mining," said SRK (SA) partner and principal civil engineer Kurt Uderstadt.

The costs of managing water for mining purposes, such as pumping and treatment costs, can also continue beyond the life of the mine if not properly planned and implemented, said Uderstadt – creating unforeseen and potentially unmanageable financial risks. "Planned management of key items such as potable and non-potable water supply, groundwater supply, surface drainage and groundwater ingress can reduce a mine's developmental costs, improve regulatory compliance, avoid litigation and provide sustainable mine closure," he said. "Often, minor changes in the mine development plan result in large improvements in integrated water management."

An integrated strategy must take into account the various catchment management strategies and other initiatives that are in place on a macro scale such as the reconciliation studies that have been prepared for the various catchments within the country, said Shepherd.

Based on the principle of integrated mine water management, regulations may also require that attention be paid to 'cumulative impacts' in the planning and developing of a mine, said Shepherd. "Each of the elements of a mining operation needs to be considered for its potential impact – such as the shafts or pits, the waste dumps, the tailings disposal facilities, metallurgical plants, haul road and residential areas," he said. "But the law also requires that the mine assess the cumulative impact of all these factors together."

In addition, in a country like South Africa, where authorities demand an integrated approach to water management, regional impacts need to be investigated before a mine can be considered compliant. The regional aspect emerges because mines are often geographically concentrated, especially when extracting from the same orebody. "This invariably leads to hydrological interconnections between neighbouring mines, affecting surface water and groundwater," said Shepherd. "The result is that each mine's activities will have consequences for the others, so these regional interactions need to be defined in every mine's water management plan."

"There is also an emphasis on the use of suitably qualified persons," said Shepherd. "Many of the aspects of integrated water management require hydrological, geohydrological and geochemical modeling or specialized technical design work." According to Shepherd, the most important aspects for mines to address in terms of best practice guidelines for water management were the prevention of pollution, the minimisation of impacts, and the management of the discharge of waste water. "Minimising impacts involves using as little of the local water resources as possible, re-using and reclaiming what you do use, and treating water wherever necessary," said Shepherd.

He emphasised the importance of planning from the earliest stages of a project, to reduce risk and costs later in the life-of-mine. "Pollution prevention strategies can be effectively planned, developed and implemented in the exploration, operational and closure phases of the mining operation," he said. "This reduces the management and financial burden associated with remediation during the operational and especially closure phases."

"Climate change will also affect mine water management, as changing rainfall patterns will make certain areas drier and others wetter," said SRK associate partner and principal scientist Manda Hinsch. "This will impact on the operations of slimes dams and other pollution control strategies, and calls for more attention to be paid to disaster management."

The sector has made considerable progress in recent decades in addressing many of the water challenges encountered on mine sites, among which have been advances in water saving strategies through thickened tailings. "The advantages of thickened tailings have been numerous," Shepherd said. "There is reduced water reticulation, a smaller pool on top of the tailings storage facility, and less danger of infiltration or seepage; there is also potential for co-disposal of tailings and waste rock." He said that general 'housekeeping' and operating practices have also improved, steadily raising the bar for water management standards over recent decades.

"When working with clients, we recommend and help implement a range of solutions that supports both compliance and longer term sustainability," said Shepherd. "For instance, it is important for mines to avoid cross-contamination of materials and chemicals by keeping the work area clean and organized. They need to segregate their waste streams based on each stream's level of contamination, which means careful consideration of piping and storage facilities.

"Proper safeguards need to be installed – such as bunded areas, diversion berms and concrete paving – alongside the implementation of better cleanup practices like washing and sweeping. We encourage clients to consider the general layout of the site and process plant, as well as the placement of their facilities. Finally, it is vital they have a good understanding of the plant and water circuits."

Protection of groundwater resources is a particular concern in water-scarce environments, as any impact by mining could negatively affect other users. Specific requirements apply to the management or rehabilitation of groundwater, according to Shepherd.

"It is important firstly to understand the geological, geochemical and hydrogeological environment," he said. "Once the source has been conceptualized, then the potential risks to human health and the environment can be identified, followed by the assessment of an appropriate management strategy. In cases where contamination may have occurred, we need to understand the history and pollutants before any rehabilitation options can be considered."

Shepherd listed some of the most important aspects considered in the sector to address mine water management.

- impact prediction
- stormwater management
- waste and sewage treatment
- water and salt balances
- water monitoring systems
- management measures
- water management for mine closure

Some of the main impacts to be predicted and avoided would be dewatering, mine inflows and contamination, he said.

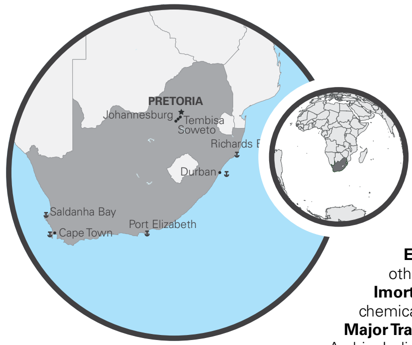
"The problem of dewatering can occur when mining activity leads to groundwater resources drying up, affecting springs, boreholes and baseflow to rivers," said Shepherd. "Mine inflows take place when groundwater flows into mine workings, causing slope instability and other problems with mining. Contamination is essentially any reduction in the quality of groundwater, and can be caused by various mining and related activities."

He cautioned the mining sector not to be complacent about its water management strategies, especially as this vital resource becomes more scarce and costly. "Remember that public sentiment will always trump mining companies when it comes to competition for water, even if the mining companies are compliant with the letter of the law," said Shepherd. •

South Africa's National Water Act describes Integrated Water Resource Management (IWRM) as comprising all aspects of the water resource, including water quality, water quantity and the aquatic ecosystem quality. The IWRM approach provides for both resource-directed and source-directed measures.

South Africa

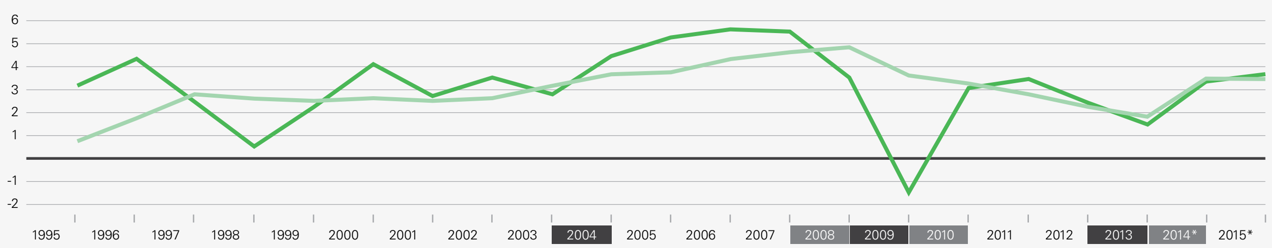
South Africa has long been the African continent's dominant political and economic power, although in recent years its rate of growth has not kept pace with some of its continental peers (despite its membership of the BRICS). Nonetheless, it maintains an edge. Its mineral industry is one of the strongest in the world: it is the top or one of the top global producers of platinum, vermiculite, chromium, palladium, zirconium, vanadium, rutile, ilmenite, manganese, and gold, along with production of many others.



Population: 52,981,991 (July 2014 est.)
Land Area: 1,219,090 sq km
Official Language(s): IsiZulu, IsiXhosa, Afrikaans, Sepedi, English, Setswana, Sesotho, Xitsonga, siSwati, Tshivenda, isiNdebele
Capital: Pretoria
Chief of State: President Jacob Zuma
Head of Government: President Jacob Zuma
GDP (PPP): $595.7 billion (2013 est.)
Growth Rate: 2.0% (2013 est.)
GDP per Capita: $11,500 (2013 est.)
Economic Sector Breakdown: agriculture: 2.6%, industry: 29.0%, services: 68.4% (2013 est.)
Exports: $91.05 billion (2013 est.): gold, diamonds, platinum, other metals and minerals, machinery and equipment.
Imorts: $99.55 billion (2013 est.): machinery and equipment, chemicals, petroleum products, scientific instruments, foodstuffs.
Major Trade Partners: China, Germany, United States, Japan, Saudi Arabia, India

GDP GROWTH (%)

SOURCE: WORLD BANK, EIU



Mbeki is reelected with 70% of the vote, and the ANC wins 279 seats in the National Assembly (out of 400).

Mbeki resigns as president due to accusations of political interference. Motlanthe becomes caretaker president.

Jacob Zuma of the ANC replaces Mbeki as the ANC's candidate and wins 66% of the vote to become president.

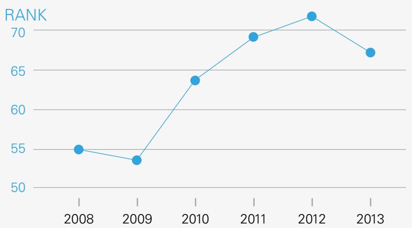
South Africa becomes the fifth member of the BRICS. South Africa hosts the 2010 FIFA World Cup, the first time it is hosted in Africa.

A number of labour disputes and strikes affect a number of sectors, including mining.

General election scheduled for April-July. Although the ANC is expected to win, they face growing competition.

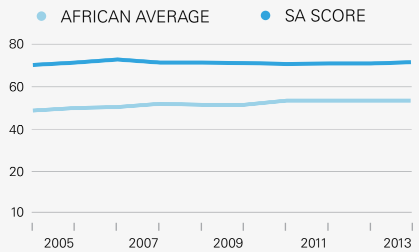
TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

SOURCE: TRANSPARENCY INTERNATIONAL



IBRAHIM INDEX OF AFRICAN GOVERNANCE

SOURCE: MO IBRAHIM FOUNDATION



MINE PRODUCTION

SOURCE: BRITISH GEOLOGICAL SURVEY

as of 2012
in mt unless otherwise stated

Aluminium	665,000
Antinomy	3,044
Bentonite	120,566
Attapulgite	15,850
Chromium	11,310,223
Coal (anthracite)	3,005,136
Coal (bituminous)	255,570,657
Cobalt	1,102
Copper	81,000
Diamond**	7,245,403
Feldspar	94,458
Fluorspar	240,000
Gold***	154,178
Gypsum	558,242
Iron Ore	67,100,474
Pig Iron	6,421,000
Chrome	3,000,000
Kaolin	20,499
Silico-Manganese	346,000
Manganese	654,000
Ferro-Silicon	133,000
Nickel	45,945
Vanadium	16,000
Silicon Metal	47,000
Platinum***	128,590
Paladium***	74,738
PGM (other)****	51,010
Salt	399,135
Magnesite	80,000
Silver***	67,304
Talc	8,857
Pyrophyllite	5,000
Pyrites	330,000
Lead	52,489
Uranium	551
Crude Steel	7,119,000
Vermiculite	132,886
Zinc	37,034

**in carats ***in kilograms
****in kilograms, excluding platinum and palladium

MINING SECTOR CONTRIBUTION TO GDP

SOURCE: AFRICAN ECONOMIC OUTLOOK

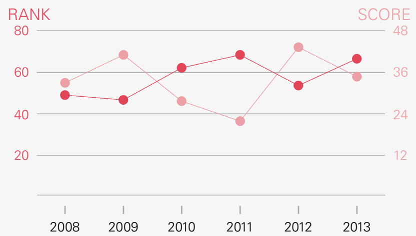
2008 **9.7%**

2013 **9.6%**

These values do not include artisanal mining but do include petroleum.

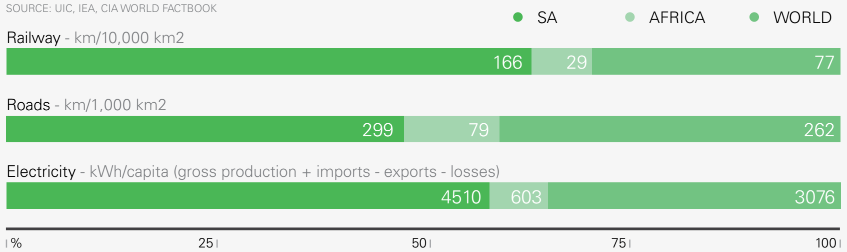
FRASER INSTITUTE ANNUAL SURVEY OF MINING COMPANIES

SOURCE: FRASER INSTITUTE



INFRASTRUCTURE INDICATORS

SOURCE: UIC, IEA, CIA WORLD FACTBOOK



Roger Baxter

Chief Operating Officer
Chamber of Mines, South Africa

Despite the global economic slowdown, low commodity prices coupled with industrial action in the mining sector, the industry remains a key pillar of the national economy. What contributions and what improvements can you highlight that have we seen over the past year?

Despite the fact that certain components of South Africa's mining sector are highly exposed to the European economy, the sector still contributes significantly to the development of the country. In 2013 the mining sector was responsible for about eight percent of the gross domestic product on a nominal basis and a multiplier effect about 18.7 percent. The industry employed more than 510 000 people and more than 20 billion rand in taxes were paid. About 20 percent of private investment in the economy was made by the mining sector and in addition about half of the total merchandise exports are still derived from this important industry.

One of the most significant achievements that we have seen in the past 20 years in the mining industry is the progress in reducing the fatality rate. We still had 93 fatalities in the industry, however this is an 85 percent improvement in the last two decades. We are operating the deepest mines in the world with depths of up to 3.9 km and we have made huge progress in addressing some of the fundamental issues around fall of ground for instance. We want every mineworker to go home safe every day.

If we look at the other broader challenges that the industry has faced, a degree of labor unrest was a big point in 2012 with the Marikana tragedy, which tainted South Africa's investment reputation. However, there has been a lot of work that has gone into addressing the social wage issues, which led to those strikes. In 2014, we did have a significant platinum strike that lasted more than five months which is unprecedented in South Africa's mining sector, but the strike was done within the legal frameworks and there were a number of different interventions to resolve the strike and ultimately it was resolved. When the platinum sector was standing still it had a massive material impact on a large number of other sectors in the economy, which in a negative way reinforced the role that mining does play.

The African National Congress rejects nationalization as a principle; however, investor perceptions remain uncertain. What improvements can we investors expect moving forward?

In 2014 there was a lot of work done to improve the regulatory framework for the South African mining sector. The amendment bill for the Mineral and Petroleum Resource Development Act (MPRDA) has gone through parliament and we have been involved in an extensive process of engagement with government to amend the principle legislation developed in 2002. We have resolved the nine substantive issues that we had concern over and the bill is currently waiting for the signature of the President. Further work is also being done to streamline the environmental licensing process to a single channel process.

South African's mining legislation is congruent with global best practices. We have a well-entrenched principle between business and government on key issues of legislations and a lot of other countries do not have those in place. For example, if you look at the way in which companies are regulated in South Africa; South Africa's auditing and reporting standards as well as the quality of our stock market regulation are ranked number one in the world, number ten for investor protection, and number two for the efficacy of our corporate boards according to The World Economic Forum's (WEF) Global Competitiveness Report 2013-2014.

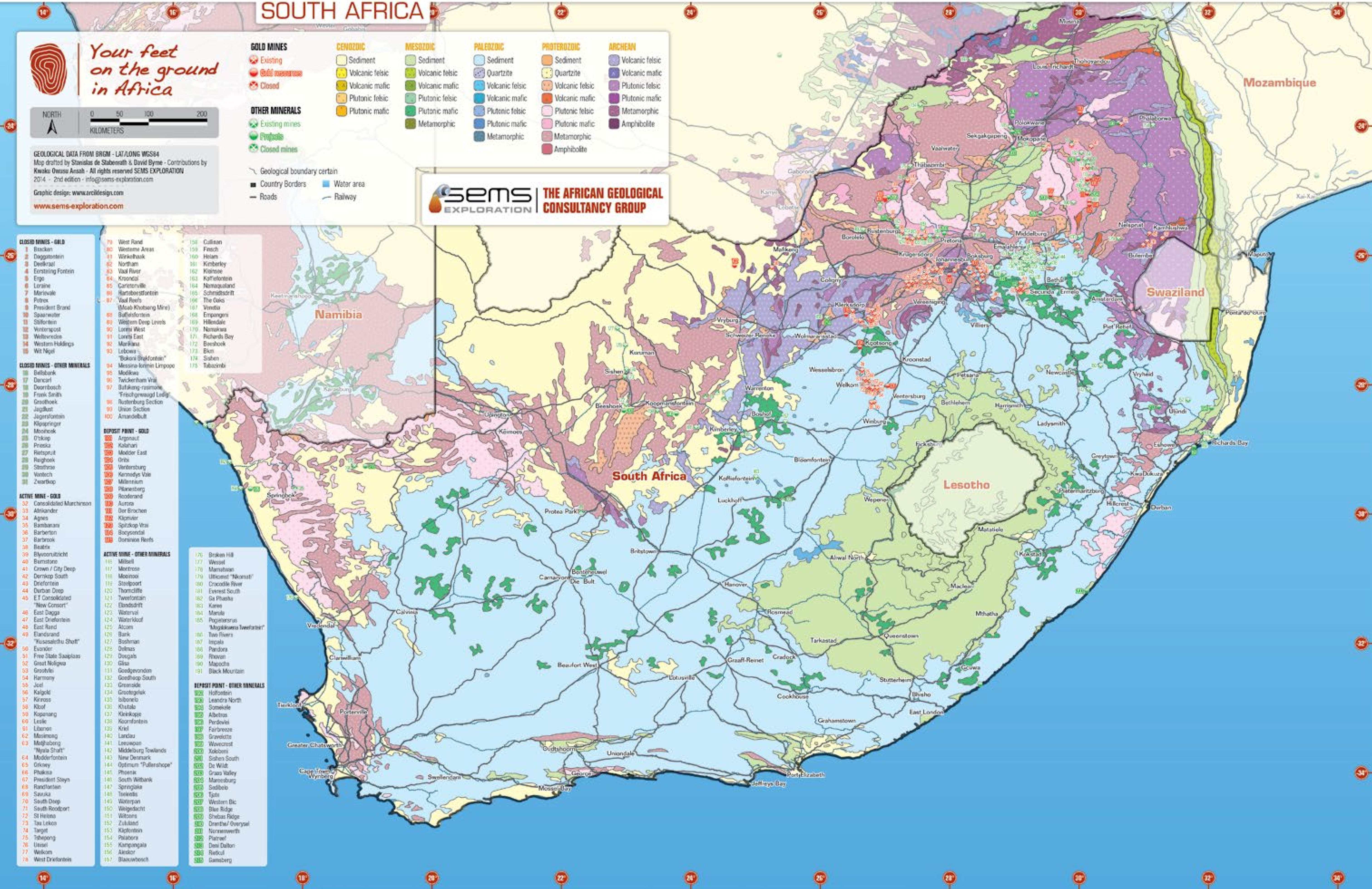
Both at the regulatory and policy level, we have focused on removing the uncertainties related to nationalization and the introduction of the resource rental tax as well as other factors that are concerning investors. On the tax side, we have a tax review process looking at how the tax system is enabling the mining system to contribute to the national development plan's objectives. We have provided substantial input to the tax committee process of what we think is a global competitive tax regime for the mining sector. We have focused on how to encourage exploration and deal with social issues such as migrant labor and housing issues.

What is being done from the public and private sector to address infrastructure constraints in South Africa?

We are clearly in a difficult position with China's slowdown, but the South African mining industry is a resilient industry, there is a lot of work going on at the moment and forward thinking of what we need to do to fix these constraints that are holding back the potential of the sector.

These include what we need to do at a regulatory level as well as infrastructure constraints. We have implemented project Phakisa, a results-driven approach, involving setting clear plans and targets, ongoing monitoring of progress in other sectors such as the oil and gas industry. This concept was borrowed from the Malaysian government, for stakeholders to collaborate in detailed problem analysis and priority setting. We are looking to apply this process to the mining industry next year. •

SOUTH AFRICA



South Africa

South Africa's mining industry finished the year with uncertainty, as companies faced lower commodity prices, higher labor costs, and a tarnished reputation from five-month strikes coupled with the lack of a reliable supply of electricity. Although the American economy is showing some signs of recovery, South Africa's major trading partners, including China and Europe, are still slowing down.

Despite some progress on the regulatory framework, the Mineral and Petroleum Resources Development Bill (MPRDA) is still waiting for President Zuma's final signature. According to Roger Baxter, Chief Operating Officer, Chamber of Mines South Africa, "We have resolved the nine substantive issues that we had concerns over...further work is also being done to streamline the environmental licensing process to a single channel process." He emphasizes: "Both at the regulatory and policy level, we have focused on removing the uncertainties related to nationalization and the introduction of the resource rental tax as well as other factors that concern investors."

Within the MPRDA lies the mining charter, also known as the Broad Based Socio Economic Empowerment Charter for the South African Industry, which was designed by the government to effect sustainable growth and meaningful transformation in the mining industry through specific targets. The mining charter stipulates that all mining companies should fulfill the 26 percent of total equity empowerment quota through shares or units of production by the end of 2014. A national audit of mining companies will bring to a close a 10 year process of empowerment in the mining sector in which firms are required to meet these social and labor as well as equity demands of the mining charter among others. All eyes will be on the recently appointed Minister of Mineral Resources, Adv. Ngoako Ramatlhodi, who is expected to make the audit reports of companies public this year and the backlash that could result should companies fail to comply.

According to industry officials, the social realms of the sector are not the only aspects that are outdated. "There is no future without modernizing the sector; we are still 30 years behind our operating structures. We have to improve production and deliver on expectation, and above all keep the relationships in balance," explains Mark Cutifani, Chief Executive Officer at Anglo American.

South Africa's mining sector took another hit in 2014, after facing labor unrest at Marikina in 2012. The industry lost R24 billion in revenue and more than R10 billion in employee wages in the platinum strike led by The Association of Mineworkers and Construction Union (Amcu) over wages. "There has been a lot of work that has gone into addressing the social wage issues that led to those strikes. In 2014, we did have a significant platinum strike that lasted more than five months, which is unprecedented in South Africa's mining sector, but the strike was done within the legal frameworks and there were a number of different interventions to resolve the strike and ultimately it was resolved. When the platinum sector was standing still it had a massive material impact on a large number of other sectors in the economy, which in a negative way reinforced the role that mining does play," reminds Baxter.

Addressing one of the major risks in the industry that led to the industrial action Roger Dixon, Chairman and corporate consultant, SRK Consulting emphasizes: "All stakeholders need to put the migrant labor system on the table. This is a fundamental issue in the mining industry and until we can tackle this issue we can not move forward."

Although South Africa's historic single sex hostile system has been taken out of the mining charter, "we still maintain the fly in fly out principle except with longer periods. Mining companies need to demonstrate a sustainable model of spreading benefits fairly to all role-players and establish their social license to operate...governments and private sector need to address the practicalities of inclusive development in mining areas. The family needs to be there, the children must go to the local schooling system and access the local health system," explains Roger Dixon. SRK was recently awarded two awards for their involvement in the Alchemy, Anglo Platinum project, the R3.5 billion social development framework for shared ownership. "This talks volumes about the importance of stakeholder engagements and SRK has the technical expertise and vast experience in this area," concludes Dixon.

Companies now are faced with the ultimate challenge of satisfying all key stakeholders. "We have three core constituencies, shareholders who are becoming more demanding, employees who want to be paid more and communities we work in," explains Cutifani. This will be a difficult balance to strike. South Africa will likely expect restructuring across the commodities, as companies look to cut costs and reduce labor expenses despite the unions' warnings to do otherwise. Fears of further strikes in the gold and coal sectors remain, as wage negotiations are expected in the second quarter of the year.

Amidst these cost cutting pressures, the service sector has had to adapt to the changing needs. Fox Projects, a centurion based EPCM implements a hybrid model for employment. "For most of our projects we form project teams comprised of owners team people as well as our people, historically clients didn't do this, but due to cost pressure we devised this way of working and tested with a few clients and based on this approach other opportunities opened up...during mining recessions our model is favored more than other contracting models," says Mike Fox-Martin, Founding Member.

Danie Van Wyk Jnr., senior technical manager at J.A. Engineering, a local manufacturer and supplier of specialized gear boxes in the coal mining industry, provides alternative cost effective solutions: "we listen to what our customers need by partnering with them to see how we can reduce costs in a tough economy by improving quality and training on product use. Our main focus has been on the supply of new and repair gearboxes as an alternative to OEM equipment. Our strategy for reverse engineering is not to copy and paste but to re-engineer and deliver a superior product to the market."

With neighboring mining jurisdictions showing impressive growth, albeit from a lower base, the South African government and industry will have to work together to overcome these challenges and see the sector on its way toward a better growth trajectory. For the moment the situation for South Africa seems less rosy than for much of the rest of sub-Saharan Africa where mining policy is less developed and therefore, for the moment, also less complex with the possibility of higher returns. If the World Bank is able to launch its proposed $1 billion fund to thoroughly map Africa's mineral resources it will also do a lot to attract investment into the mining sectors of countries where a lack of adequate data has been debilitating to investment thus far. As companies look north, South Africa's Industrial Development Corporation (IDC) can help alleviate some of the risk. "The state-owned Export Credit Insurance Corporation provides a scheme that allows South African companies to invest in the rest of the continent particularly in countries where there are political and commercial risks. This is one scheme that the IDC can access to get preferential rates and pass those onto the project," said Mbuyazwe Magagula, SBU Head, Mining and Minerals Beneficiation SBU.

Now more that ever both producers and service companies are looking to diversify and spread their risk away from South Africa. "BMG has decided to expand our business into certain African countries with a fully-fledged BMG joint venture operation as opposed to simply distribution. Fifteen years ago 50 percent of our business was mining, today less than a third of our turnover is mining and the strikes and political situation have reinforced how key this was to diversify...as of 2014 we have our first external branch in Mwanza, Tanzania...our plan is to do 30 percent of total sales into Africa to shift total dependency on our operations in South Africa and SADEC and expand beyond our borders," explains Ian King, Director African Operations, Bearing Man Group (BMG).

Despite the rainbow nation's mineral endowment, the current policy decisions, according to Mark Cutifani, chief executive officer of Anglo American, will continue to stifle the growth and prosperity of the sector: "we are ranked outside the top 50 mining countries besides having over a trillion US dollars worth of reserves, and real values in terms of our companies have declined by 30 percent. To create a sustainable mining sector we need to remove the uncertainty from the highest level of government. South Africa as a country needs to be credible in the eyes of the investor, even if it is not a policy that investors agree with, the rules have to be clear and transparent and the investor then has the choice to operate in that environment or not."

> All stakeholders need to put the migrant labor system on the table for discussion. This is a fundamental issue in the South African mining industry and until we can tackle this issue it will be difficult to move forward.
>
> - Roger Dixon, Chairman and Corporate Consultant, SRK Consulting

However, South Africa's mining industry still remains a key pillar to the development of the national economy, contributing about eight percent to GDP, employing more than 510,000 people, and bringing in more than R20 billion in taxes. About 20 percent of private investment in the economy was made by the mining sector and roughly half of the total merchandise exports are still derived from this important industry.

At the end of 2014, South Africans experienced load shedding across the country, and the mining sector warned that a constrained system will place further strain on the nation's energy intensive users and could cripple some of the mining companies and once again adversely affect the growth of the economy. "South Africa needs to focus on improving infrastructure, rail and power has to be available at the right cost, ports accessible and upgraded. Until South Africa can give investors the confidence that we have the fundamentals it makes it very difficult for people to invest," explains Mzila Mthenjane, Executive Head, Strategy and Corporate Affairs, Exxaro.

According to Baxter, South Africa has "made good progress on promoting regulatory and policy certainty. We are making strides on encouraging greater labor market stability and peace and the stakeholders are working together to unblock infrastructure constraints. We are encouraged by the steps that we have made. We are engaging extensively with the new Minister, and the progress is pointing in the right direction. The private sector will have a greater role to play."

South Africa is at a critical turning point. As we move forward in 2015, the way in which government, industry and labor deal with infrastructure constraints, labor market stability, stakeholder engagement, and regulatory and policy certainty will, in essence, determine South Africa's ability to regain its stature and competitive edge in the global mining area and enhance its image as a preferred investment destination in the long-term. •

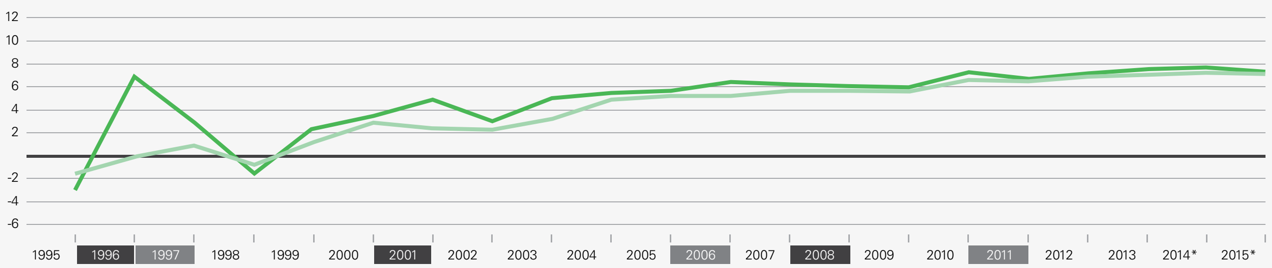
Zambia

After independence from the British, Zambia was ruled by 18 years by the founding president. Since 1991, however, it has established a democratic system. Economically, it has high and stable growth and shows a long-term improvement in business environment indicators. Zambia is one of the world's largest producers of copper and cobalt and is a significant global producer of gemstones. Potential also exists for gold, iron ore, zinc, lead, manganese and nickel.

Population: 14,638,505 (July 2014 est)
Land Area: 752,618 sq km
Official Language(s): Bemba, Nyanja, Tonga, Chewa, Lozi, Nsenga, Tumbuka, Lunda, English
Capital: Lusaka
Chief of State: President Guy Scott
Head of Government: President Guy Scott
GDP (PPP): $25.47 billion (2013 est)
Growth Rate: 6% (2013 est)
GDP per Capita: $1,800 (2013 est)
Economic Sector Breakdown: agriculture: 19.8%, industry: 33.8%, services: 46.5% (2013 est)
Exports: $8.547 billion (2013): copper/cobalt, cobalt, electricity; tobacco, flowers, cotton
Imports: $8.216 billion (2013): machinery, transportation equipment, petroleum products, electricity, fertilizer, foodstuffs, clothing
Major Trade Partners: South Africa, China, DRC, Kuwait

GDP GROWTH (%)

SOURCE: WORLD BANK, EIU



Elections are boycotted by the main opposition party, UNIP, and Frederick Chiluba of the MMD is reelected.

An attempted coup d'etat fails. 84 people, including former president Kenneth Kaunda, are arrested.

Levy Mwanawasa of the MMD wins the presidential election. The MMD lost parliamentary majority, but regained it in byelections.

Mwanawasa is reelected with 43% of the vote and the MMD win 75 of the 159 national assembly seats.

Mwanawasa died in a Paris hospital and was suceeded by his vice president Rupiah Banda.

20 years of MMD rule come to an end when Michael Sata of the Patriotic Front wins the 2011 elections.

MINING SECTOR CONTRIBUTION TO GDP

SOURCE: AFRICAN ECONOMIC OUTLOOK

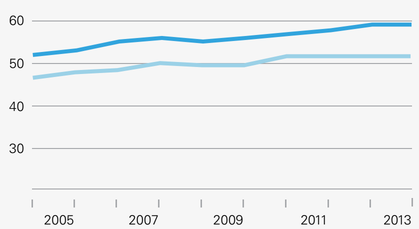
2008 **3.9%**

2013 **2.2%**

These values do not include artisanal mining. In 2012 the Minister of Mines said the sector accounted for 9% to 10% of GDP, which he planned to double to 20% by 2020.

IBRAHIM INDEX OF AFRICAN GOVERNANCE

SOURCE: MO IBRAHIM FOUNDATION



BUSINESS ENVIRONMENT RANKING

SOURCE: WORLD BANK, IFC, HERITAGE INSTITUTE, WEF

Name (out of)	2012	2013	2014
Doing Business Rank (189)	84	90	83
Index of Economic Freedom (177)	96	93	88
Global Competetiveness Report (148)	113	102	93

MINE PRODUCTION

SOURCE: BRITISH GEOLOGICAL SURVEY

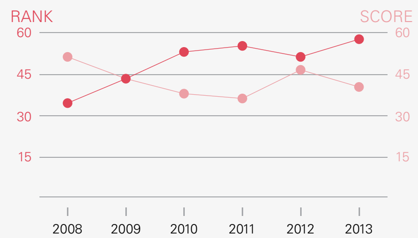
as of 2011
in mt unless otherwise stated

Beryl	6
Cobalt	5,956
Copper	739,759
Gold**	3,493
Nickel	2,869

***in kilograms

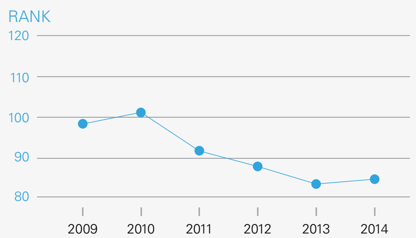
FRASER INSTITUTE ANNUAL SURVEY OF MINING COMPANIES

SOURCE: FRASER INSTITUTE



TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

SOURCE: TRANSPARENCY INTERNATIONAL



INFRASTRUCTURE INDICATORS

SOURCE: UIC, IEA, CIA WORLD FACTBOOK

ZAMBIA ● AFRICA ● WORLD

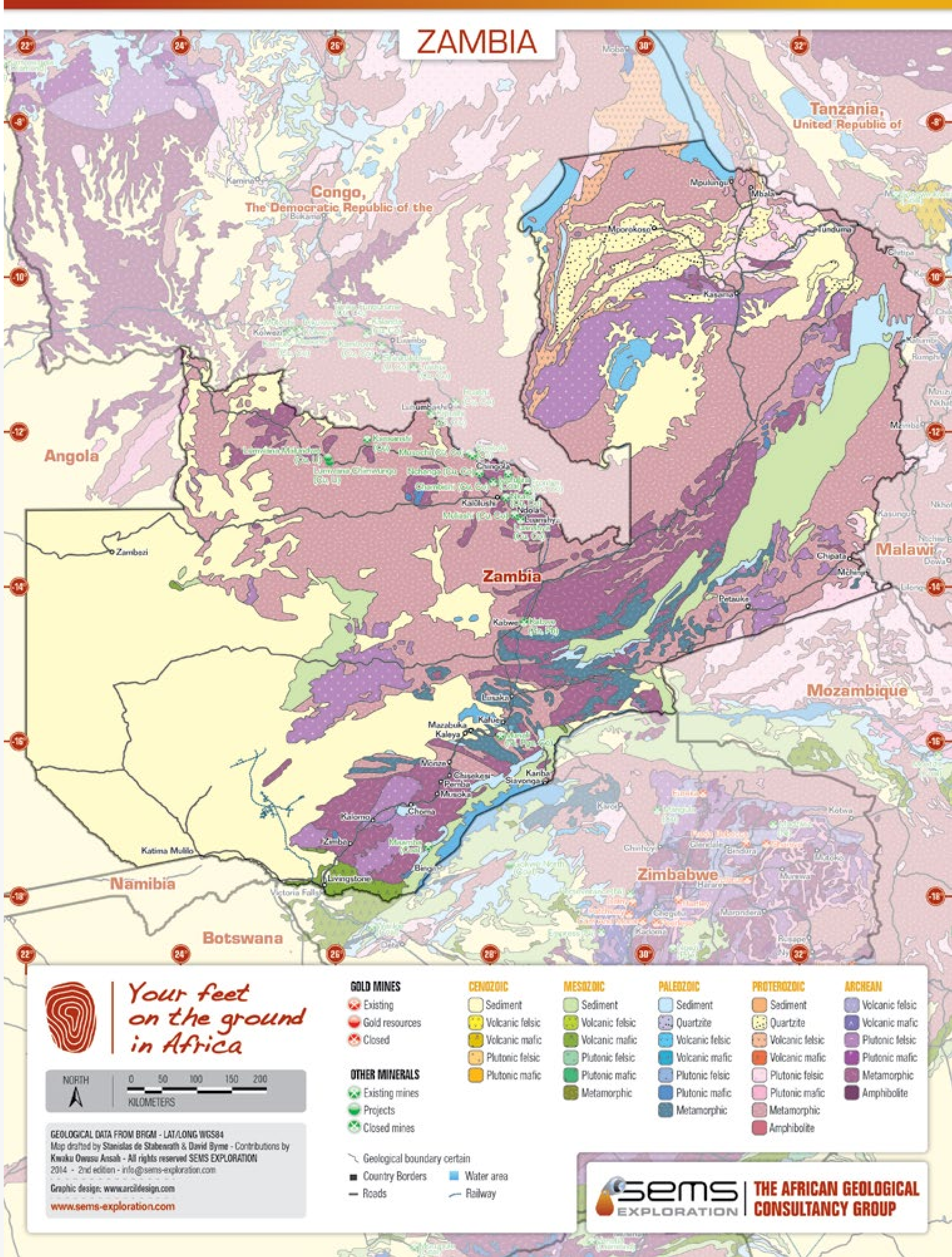
	Zambia	Africa	World
Railway - km/10,000 km2	28.66	18.2	76.2
Roads - km/1,000 km2	121.5	204	904
Electricity - kWh/capita (gross production + imports - exports - losses)	606	592	2933

% 25 50 75 100

INFLATION

SOURCE: WORLD BANK

2010	8.5%
2011	6.4%
2012	6.5%



Honorable Christopher Yaluma

Minister of Mines, Energy and Water Development
Zambia

The DRC has taken over Zambia as the number one copper producer in Africa. What were the factors behind this and do you think Zambia can regain its long-standing prime position?
Competition in any industry will drive the business. The DRC surpassing Zambia is a wake-up call for our government and industry. Zambia must look at ways of innovating in the industry and also review the incentives that we offer to make the climate more convincing and attractive for investors. Competition changes the way Zambia looks at the mining business, production and new technologies. Innovation includes bringing in more automated equipment and mechanization on the open pits, while also increasing the production and life span of the mines. While we want to make sure that we do not lose labor, with mechanization we can produce more. New mines are also being set up, which will definitely increase production in Zambia.

You mentioned creating a right policy environment for the miners. In 2014 the SI 55 has been revoked after less than a year of its implementation. What message does that send to investors and what do you want to tell them with regards to stability?
The government listens to its investors. If something is not working well, we are not going to keep it just because it works for us. It should also work well for the investors. Currently, we are also reviewing the Mining Act. This is how we reach out to the industry. What was contained in our policy launched in 2013 is still eminent in the Act. We are trying to give as much opportunity to the industry to discuss problems where they still do not feel comfortable. We must, however, ensure that Zambians also have the opportunity to participate in the mining industry. At the same time, we want to ensure that the investors are still growing their investment and their returns. Our foreign exchange policy will remain very liberal.

Zambia has been looking at diversifying the mining industry for some time now. Have you seen an uptake in exploration for minerals other than copper in Zambia?
Yes, there are explorers coming in for iron and gold is also taking ship. Gold has not yet gone into large-scale mining, but there is a spread. There is a refinery coming up, where byproducts are being produced from the mining as well. Illegal mining for gold is a problem and are trying to put up boundaries through the investors. We will normalize the licenses where we know that there is illegal mining activity so that people can invest and the Zambian economy can get full benefit out of its minerals.
Two of the biggest challenges the mining industry in Zambia faces was the infrastructure, that being the roads and energy. In the Copperbelt road development is visible, but what is happening on the energy front?
On the energy front, we have done sufficiently. At the Kariba North hydro plant extension we have commissioned a 280-megawatts (MW) unit In December 2013 and in February 2014 we commissioned another 80 MW unit, which makes it a total of 360 MW in a year's time. Currently on the Itezhi Tezhi hydroelectric project we will add 120 MW, the first 60 MW by August 2014 and the other 60 MW by the end of 2014. The 750-MW Kafue Gorge Lower hydropower project is due to start producing electricity by 2018 or 2019. We are aggressively trying to go into renewable energies. In the next two years solar might add close to about 800 MW. We are also trying to tap into wind energy. At the end we want to be the net exporter of energy. The biggest target to achieve for 2014 is to once again be the number one producer of copper in Africa.

Do you have a final message for investors looking at Zambia?
Zambia is very flexible in terms of our policies. We interact. We welcome the inputs from the industry to make the mining industry in Zambia more comfortable for the investor. It is an environment of discussion, which will lead to further investments. Our economy depends on investment, thus we must make the policies more favorable than in other places. From a government point of view, we try to alleviate taxes. Zambia is very investment-orientated and listens and learns from inputs from the industry. There is also continuity in production in Zambia. The government and policies are in place to ensure that we are doing the best for the people of Zambia. It does not mean that if the mining sector is doing well that the population is doing badly. They can and must do well together. •

Zambia

On 24 October 2014, all eyes were on Zambia as the country lost its fifth president, Micheal Chilufya Sata. Over the last few years, Zambia has been heralded as one of Southern Africa's most politically stable countries. With the presidential by-elections in January and questionable tax proposals for the mining sector in 2015, the investment community is eager to see if Zambia can uphold its hard-earned reputation as a beacon of stability in Southern Africa. In 2013 Zambia achieved stable growth at 6.5%, a rate that was lower than predicted due to a poor agriculture harvest. Mining remains the backbone of the country's economy, and while the sector has performed as well as can be expected, it is not without its challenges.

History

Zambia has a rich mining history. Industrial mining dates back to the 1930s with the discovery of the world-class Copperbelt, found in the Lufilian Arc that it shares with the southern DRC. The globally constraining financial repercussions of World War II and further difficulties of raising capital meant that this sector, although promising, remained fairly unexploited. However, despite its hesitant start, the sector flourished during the colonial era, at the end of which in 1964, the country was boasting copper production levels upwards of 600,000 metric tons (mt) annually.
When Zambia gained independence in 1964, the country under its newly elected president Kenneth Kaunda was poised to become a role model for Africa's developing economies. The rapid development of the mining industry and high copper prices were central to plans for economic growth and increasing the welfare of the country and its people. Strong global copper prices in the late 1960s and in early 1970s bolstered these goals, and Zambia transformed from a rural economy to one of industrial development and urbanization. By 1969, Zambia was classified as a middle-income country with one of the highest GDPs in Africa and its economy rivaled Malaysia, Turkey, and South Korea, and was double the size of Egypt. Its copper production reached an all-time high of 740,000 mt, with the sector employing over 48,000 people.
However, in 1969, president Kaunda announced the nationalization of Zambia's copper mines in an attempt to redistribute wealth. All rights of mining and prospecting as well as all rights of ownership of minerals were reverted to the state. Questionable economic reform through privatization and the collapse of the copper price after the first oil crisis meant that by 1974 Zambia's copper mines were experiencing poor profitability and the country incurred substantial debt to maintain social provision. The country's economic decline continued after the second oil crisis in 1979, as interest rates skyrocketed and the country plunged headlong into a severe economic depression. Over the next two decades, Zambia's per capita income shrunk by 50%. No new mines were opened after 1973, and production levels were driven down to just over 250,000 mt by 2000. The contribution of the mining sector the country's GDP had fallen from almost 33% in 1973 to below 8% in 2003.
Recognizing that a shift in mining policy could have been a contributing factor in the country's economic demise, the Zambian government announced that it intended to sell 49% of its stake in all parastatals in the early 1990s and the process of privatization commenced in 1996 after a few failed attempts. After privatization, the sector has showed sustained recovery up until today. According to the Zambian Chamber of Mines, copper production in 2013 reached 760,000 mt, exceeding its previous annual high of 740,000 mt in 1969, with 2014 production estimated to be near 800,000 mt. Since 2000, the mining industry has seen combined investment totaling over $10 billion. The World Bank currently classifies Zambia as a low-middle income country based on its GNI per capita, but 60% of the

population still lives below the poverty line.

Institutional and Regulatory Framework

In Africa, political instability and corruption remain deterrents for foreign investment. In 2014, Zambia ranked 107 out of 189 countries in terms of the ease of doing business according to the World Bank, compared to last year's ranking of 94. This ranking is relatively strong compared to the average ranking of 140 for sub-Saharan African, and places Zambia just behind South Africa, Botswana, and Namibia.

The Zambian Development Agency (ZDA) was established in 2006 to promote and facilitate investment in the country. It aims to streamline business registration and licensing which takes on average 17 days. In addition to the establishment of the ZDA, the Private Sector Reform Program from 2009 to 2014 has been another attempt by the Zambian government to enhance the business environment by improving access to financial services, infrastructure, regional and international markets, transparent regulation and open public private sector dialogue.

In 2013, the big story on the regulatory front was the introduction of Statutory Instrument 55 (SI55), which aimed to promote transparency of foreign cash flow and added substantial administration costs to operations. In 2013 and early 2014, mining companies created such a stir that the government revoked SI55, which pleased the sector. Andy Ndululbila, marketing manager of Atlas Copco Zambia said, "It is easy to do business in Zambia especially after some of the SI's that produced some problems have been revoked. The government is ready to listen and to talk to anybody."

According to players on the ground, the revocation of SI 55 lends a vote of confidence to the Zambian government and their ability to adapt to the investment environment. "The ministry of finance, central bank and the Zambian revenue authority learnt a lot around Zambia's trade flows and the SI's were very useful in terms of Zambia now having a far clearer and more scientific idea as to where the country earns its revenue. SI 55 allowed for audit trails to be put in place around the flows so that people who were avoiding payment of taxes and royalties are now being held to account. The SI's where honorable in their intent and I think that they have achieved a significant outcome. The revocation of the SI's demonstrated governments' ability to change as required," said Paul C Richards, head of corporate and investment banking at Stanbic Zambia.

However, after the 2014 budget speech, mining companies were subjected to the unwelcome news of tax hikes for both open-pit and underground operations. While many mines are threating to scale back operations or go into care and maintenance due to economic unviability, it remains to be seen if their voices will be heard as loudly as they were in 2013 with the introduction of SI55.

Mineral Royalties and Taxes

The current mining regime in Zambia is a royalty-tax system that is found in many mining sectors across the world including neighboring DRC, Botswana and South Africa. With this approach the government charges a royalty and then imposes the general tax regime. This includes a Pay-As-You-Earn tax of 25% to 35% and a standard value added tax (VAT) of 16%. Corporate income tax is at 35% with an incentive of a rate of 30% for companies listed on the Lusaka Stock Exchange and foreign companies are taxed only on profits derived from Zambian sources.

In 2013 there was some unhappiness from mining companies when the rate of mineral royalties was increased from 3% to 6%. However, mining companies' woes were far from over as this year, the minister of finance, Alexander Chikwanda announced that this rate would increase to 8% in 2015 for underground mining operations.

Zambia's largest mining investor, First Quantum Minerals has made it clear that these terms will be detrimental to both their open-pit and underground mining operations, will lead to a decline in new job creation and fewer opportunities for wealth creation for Zambian citizens. Barrick Gold Corp. has stated that these taxes seriously threaten the economic viability of its Lumwana mine as at current copper prices, the proposed royalty would double the tax burden on Lumwana. ECMining, a family-operated manufacturer and service provider to the mining industry has experienced steady growth since it was created in 1992. The supplier of electric motors and drill rigs for First Quantum, has also suffered with the situation. "ECM also experienced some challenges with the new government and the changes in regulatory processes regarding the taxation of copper exports. This is affecting the mines in terms of VAT returns," said Iain Anderson-Slight, Director, ECMining. One of the main criticisms against this proposal is that it taxes companies on gross revenue and not the bottom line, which means that it does not take operations costs into account, which have risen substantially over the last year.

Apart from the direct economic impact that the tax changes will have on the mining houses, the more important consequence may be an indication of an unstable policy environment. "What investors look for in a jurisdiction is the predictability and stability of the fiscal regime or tax jurisdiction that they are operating in. Once we understand that, one can look for predictability and stability in that tax regime. We need the tax regime to be consistent." Who said this? The new guideline also proposes to impose a 30% corporate processing and smelting tax and open-cast mining will also be subjected to a 20% mineral royalty tax. Government is adamant that it will follow a consultation process before the changes are implemented. It remains to be seen if a solution can be found that will protect the economic viability of the current mines and attract further investment.

Licenses

There are three types of licenses available for large-scale operators and three similar licenses for smaller-scale operators. For large-scale operators, a prospecting license gives the holder the right to prospect for any size of area for a two-year period and is renewable. A retention license allows the holder to retain an area over which feasibility studies have been completed, but where development of the deposit is not possible due to market conditions. This license is subject to the Minister's agreement. Finally, a large-sale mining license offers the holder exclusive rights to carry out mining operations and other incidental activities for a maximum of 25 years. Applications for these licenses need be accompanied by the environmental protection plans and employment and training proposals for Zambian citizens.

These licenses are similar for smaller operators. Prospecting permits for small-scale miners relate to areas of 10 square kilometers (km). Small-scale mining licenses are valid for ten years and renewable and relate to areas smaller than 400 hectares (ha). Non-renewable artisans' mining rights are given to locals for an area smaller than 5 ha and are valid for two years. Lastly, the gemstone license gives the holder rights to mining operations to an area smaller than 400 ha and is limited to ten years.

Zambia's Mineral Wealth

Zambia's vast mineral wealth is globally recognized. While it is currently the world's seventh largest copper producer behind Chile, China, Peru, the United States, Australia and Russia, the country is poised to rank amongst the top five copper-producing jurisdictions in the near future as expansions plans for key mines and new developments in Solwezi near completion. However, Zambia's mineral wealth does not end solely with copper. The country hosts a wide range of other mineral reserves such as gold, lead and zinc and gemstones.

Copper and Cobalt

Zambia is widely recognized as the largest copper producer in Africa in 2013. Earlier in 2014 it was reported that the Democratic Republic of Congo, which shares the rich Archean belt with Zambia, had overtaken the country as the number one copper producer in Africa, but this is yet to be confirmed. Zambia is responsible for approximately 4.5% of global copper production annually. Another key feature of Zambia's copper deposits is that it yields an exceptionally high grade of 2% to 3%, compared to the global average yield of around 0.8%. An estimated one billion mt of copper ore has already been mined in Zambia, with a further two billion mt of reserves that are yet to be exploited.

With expansion plans at leading mines such as First Quantum's Kansanshi mine and new mines such as the Sentinel project in the Solwezi region that started production in Q3 2014, Zambia is on track to delivering on the projected 1,2 million mt of copper annually. John Gladston, in charge of Zambia Government Affairs for First Quantum Minerals explained the production plans for its copper mines: "By the end of 2014 FQM is going to have two world-class producing mines. I have confidence that the increased production that we will see out of Sentinel and the expansion of Kansanshi will get Zambia back into the number one position. First Quantum would like to produce copper at a rate of 300,000 mt/y at Sentinel. Sentinel mine has a billion tons of copper at a grade 0.5%, while Kansanshi has 860 million tons with an oxide component, which typically yields better grades than pure sulfides. With a relatively low-grade ore body at Sentinel we will need to mill around 60 million mt/y of very hard ore. When Kansanshi started, it was designed for about 110,000mt/y copper and is now producing 260,000 mt/y. At the current expansion rate, production will raise will to about 400,000 mt/y. Sentinel will be an even bigger grassroots project and if more material is found, there is always the prospect of adding a third train to take it above 400,000 mt/y."

As the backbone of the mining industry, other prominent copper mines include the Lumwana copper mine owned by Barrick Gold Corporation; the Mopani mine owned by Glenocre Xstrata (73%), First Quantum Minerals (17%) and ZCCM-IH (10%); Konkola copper mine, owned by Vedanta Resources (79%) and ZCCM-IH (21%); Lubambe copper mine owned by Vale SA (40%), African Rainbow Minerals (40%) and ZCCM-IH (20%); and the Chibuluma copper mine owned by Metorex (85%) and ZCCM-IH (15%).

The softening of copper prices since a high of $8,000 per mt in 2012 combined with the recent announcement of increased royalties on sales has caused widespread unease among active mining companies. Low-grade mines such as Lumwana will be especially affected as the open-pit operation already has constrained margins and a 20% royalty tax will seriously challenge the mine's economic viability. Geoffrey Mulenga, president of the Association of Zambian Mineral Exploration Companies (AZMEC) also believes that the new policy is not conducive to the sector and further investment. He said, "There are a few uncertainties at the moment. There are certain things that government do not realize that it effects the income from investors."

As new applications for copper are continually discovered and developing countries continue to grow, the long-term demand for copper should continue to drive up its value. The metal has already recovered slightly from the 2013 low of $6,000 per mt to the current $6,700/mt. However, the Zambian government is also aware that copper is a depletive resource and the country's over-reliance on the metal is not only risky in terms of short term price fluctuations, but for long-term, sustainable growth. Paul C. Richards, head of corporate and investment banking of Stanbic Zambia, agrees that from a financial perspective there is a definite trend to diversify. "Copper and agriculture underpins the Zambian economy. Copper is the formal underpinning of the economy and agriculture underpins the informal sector, but Zambia continues to make significant strides in diversifying the economy away from the overreliance on copper. Commercial agriculture is growing exponentially and attracting substantial investment. Fundamentally the Zambian economy is growing and there is significant appetite for Zambian risk. Local currency interest rates have increased over the last couple of months and thus foreign investors are coming into Zambia," said Richards.

While copper is thriving, the country should leverage the benefits and wealth accrued to build a serious manufacturing sector around the mining sector as well as a sustainable agriculture sector. On a smaller scale, diversification within the mining sector is also an important goal, as the areas further away from the copperbelt remain largely under explored. At the moment, the Zambian mining industry remains synonymous with copper, accounting for an estimated 75% of the country's total export earnings. As expansion of the industry continues, this will remain the case for a long time to come. However, Zambia's vast mineral wealth and further mining potential should not be ignored.

Gemstones

Notorious for their deep green color, Zambian emeralds are among the world's highest quality. Zambia currently produces around 25% of the world's emeralds and is home to the world's largest emerald mine, the Kagem mine, which is 75% owned by Gemfields. The government, through ZCCM-IH owns the remainder of the shares. In April 2013, the government issued a directive that all emerald auctions be held within Zambia as part of the effort to increase transparency and for the country to accrue more benefits in gemstone trading. Auctions had historically taken place in Jaipur, London, Johannesburg and Singapore.

Despite a shaky start with a small buyer turnout in the first auction in April 2013, five successful auctions have been held in Lusaka. In 2014 the three auctions held of emerald and beryl mined at Kagem, generated revenues of $84.4 million as the average sales value of high-quality gemstones increased form $4.40 per carat (ct) in 2009 to $59.31/ct in 2014 and low-quality gemstones increased from $0.31/ct to $3.32/ct. With the consistent and substantial strengthening of emerald prices, Gemfields saw an improvement to its bottom-line, despite a year-on-year drop in yearly emerald and beryl production at Kagem, from 30 million ct in 2013 to 20.2 million ct in 2014. In December 2013, Kagem was able to declare dividends of $8 million, $2 million of which went to the government of Zambia with its 25% stake in the mine.
Other gemstones opportunities in Zambia include amethyst and aquamarine, of which Zambia hosts the largest deposits in Africa, although they remain largely unexploited. Small-scale operators currently dominate this sector, although the government and Gemfields each own a 50% stake on Mapatizya Amethyst Mine, which holds the world's largest amethyst deposit.

Industrial Minerals

Industrial minerals will play a pivotal role in the development of the manufacturing and agriculture sectors as well as the expansion of the mining industry in Zambia. Limestone and dolomite is abundant around Lusaka with even more deposits in the Southern, North Western, Northern and Luapula Provinces. High-purity, low-MgO limestone is currently being mined in the Copperbelt in Ndola. Limestone is typically needed where there are oxide copper ores, which are generally found on the DRC side of the Lufilian Arc, the geological feature from which the copperbelt's mineral wealth stems from.

Zambia also boasts a wide range of minerals including feldspar, silica sands, talc, barite, phosphate and clays, in undetermined amounts.

Coal

Coal is seen as a key growth area, as Zambia has substantial resources and has been producing coal since 1967. Maamba coalmine produces the bulk of Zambia's coal, through its open-pit operation in the south of Zambia near Lake Kariba. Maamba Collieries Ltd (MCL) is a subsidiary of Nava Bharat (Singapore), which holds a 65% stake, with the minority shared owned by the Zambian government through ZCCM-IH. MCL holds estimated total reserves of 140 million mt of coal, made up of a combination of both high-grade and thermal. Coal output from MCL has already increased from 90,000 mt in 2012 to 400,000 mt in 2013. It aims to produce a projected 800,000 mt a year.

While Zambia does not have the capacity to become a world-leading coal producer, Business Monitor International estimates that production will increase to more than 2 million mt in 2017. This increase will also have a significant impact on Zambia's mining sector as a whole, as Zambia seeks to address its electricity deficit issues over the next three years.

Gold

Zambia has a history of small-scale gold mining with 20 known deposits that have produced just over 2 mt since the early 1900s. The most prominent contributors to this sector have been Dunrobin, Sasare and Matala. In total, more than 300 occurrences of gold have been reported in Zambia and some of these are being re-evaluated. While the government is reconsidering Zambia's gold prospects and the development of the sector, there are still a few hurdles that need to be addressed, the biggest of this being illegal mining. As Minister Christopher Yaluma explains: "Illegal mining for gold is a problem and put up boundaries through the investors. We will normalize the licenses where we know that there is illegal mining activity so that people can invest and the Zambian economy can get full benefit out of its minerals." Gold is not on the forefront of the Zambian mining sector, but has the potential to contribute and opportunities in this area should not be discounted.

Lead and Zinc

Lead and zinc deposits were first found at Kabwe in the Zambian Central Province in 1902. The Kabwe ore bodies are comprised of a group of pipe-like deposits with a very high-grade core of coarse sulphide with a general grade of 33% zinc and from 14% to 28% lead. While Zambia boasts large lead and zinc deposits, the Kabwe mine was closed in 1994 due to environmental issues. Currently, Berkeley Mineral Resources Plc. owns the Kabwe mine with estimated ore bodies of 51 million mt. The mine is under care and maintenance while envi-

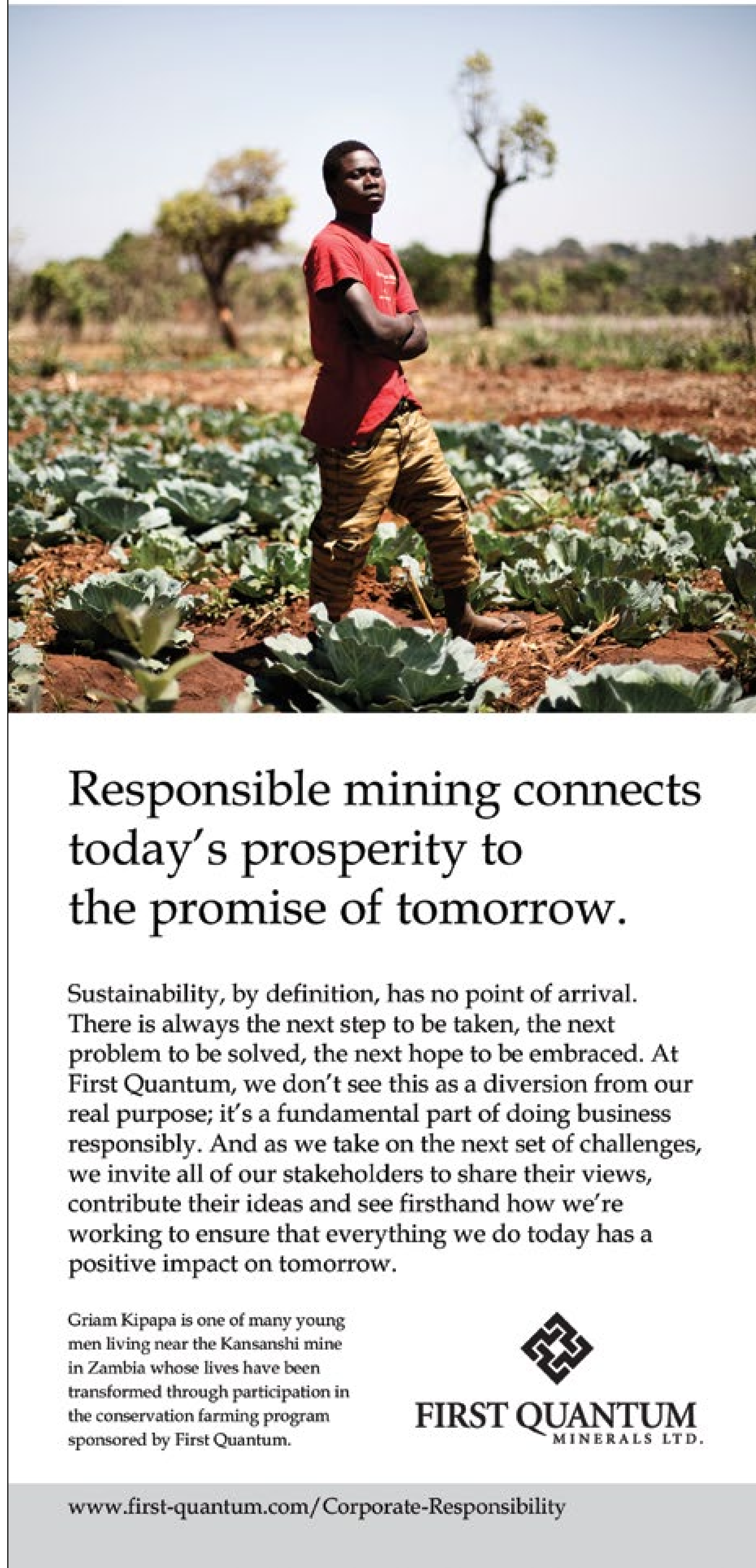


IMAGE: Artush - Shutterstock

ronmental rehabilitation is taking place. Recently the Kabwe deposits have presented renewed interest due to rising resource prices, advances in ore processing technologies and the economic potential of zinc and lead and accompanying silver, antimony, germanium, indium, and copper trace elements. Sable Zinc mine in Kabwe, owned by Glencore has also been put under care and maintenance following the recent tax controversy in Zambia.

Manganese

If Zambia's Manganese Corporation estimations can be quantified, the country may well be sitting on 15 million mt of high-quality manganese, which could make it the world's eighth largest manganese producer, behind Gabon. Apart from Kaboko Mining and Zamanco Minerals, manganese in Zambia is mainly extracted by privately owned small-scale firms. In 2013 Kaboko Mining confirmed that its 6000-mt stockpile at Mansa mine in the North Western province contains 50% manganese. However, Zamanco announced in June 2014 that it would wind down its Serenje manganese project due to a difficult operating environment and its general resources outlook. This may refer to disconcerted communities that feel that manganese mining has been done with no consideration for the environment or communities. For now, Zambian manganese production is declining.

Industrial Minerals

Industrial minerals will play a pivotal role in the development of the manufacturing and agricultural sectors and the expansion of the mining industry in Zambia. The importance of access to accurate data will play a pivotal role in the development of the mining of industrial minerals, as Zambia boasts a wide range of minerals including feldspar, silica sands, talc, barite, phosphate and clays, in undetermined amounts.

Limestone and dolomite are abundant around Lusaka with even more deposits in the Southern, North Western, Northern and Luapula Provinces. High-purity, low-MgO limestone is currently being mined in the Copperbelt in Ndola. Limestone is typically needed where there are oxide copper ores, which are generally found on the DRC side of the Lufilian arc, the geological feature from which the Copperbelt's mineral wealth stems from.

Parastatal Ndola Lime Company (NLC) is responsible for most of the limestone produced in the country, but Zambezi Resources recently announced the approval of its Mpande Limestone project's environmental impact study (EIS). It is still unclear when production will start, but drilling results thus far confirm a large-scale limestone deposit of high quality material, suitable for applications including lime and/or cement production.

As the limestone industry keeps growing, the peripheral manufacturing sector is also developing and companies such as Dangote Industries Zambia is also in the midst of completing the construction of a $400-million Dangote Cement Plant with the capacity of 1.5 mt/y.

Infrastructure

Realizing its goal of reaching middle-income status by 2030, Zambia is dependent on sustained economic growth and diversification. Sustainable economic growth can only be achieved with adequate infrastructure development, including both reliable electricity supplies and transportation infrastructure.

Electricity

Apart from a favorable and stable policy environment, a stable and sufficient electricity supply is the most important variable in Zambia's mining sector. Zambia's current generation capacity is around 1,800 megawatts (MW), which is almost solely generated from hydropower through state-owned Zesco.

Until 2005, Zambia was a regional electricity exporter, but when maintenance and rehabilitation commenced on many of its hydro power plants the country became a net importer. As Zambia offers some of the region's lowest electricity tariffs, funding for generation capacity upgrades and new projects have been

hard to come by. In June 2012 the Energy Regulation Board (ERB) announced plans to gradually raise electricity tariffs to provide additional funding to improve Zambia's energy infrastructure. The ERB aims to stimulate investment in the sector by endorsing power sector investments prior to project implementation, which assures reasonable returns through an approved tariff.

The mining industry is Zambia's largest power consumer, accounting for around 55% of total consumption. With only 22% of Zambia's total population currently having access to electricity and in-line with the drive to create a favorable investment climate, a number of new power projects are underway in Zambia.

Zambia is aiming to become a regional hub for hydro-electricity generation and is hoping to supply its surplus demand to its neighboring countries by as early as 2017. This will be done through various hydro-electricity expansion projects as well as smaller scale coal-fired plants. In terms of hydro-electricity potential, Zambia holds 28% of the water supply of the SADC region. It has the potential to generate 6000 MW of hydro-electricity and exploit the remaining 70% that has not yet been tapped into. The private sector through Public Private Partnerships (PPP) will also play a pivotal role in realizing the country's potential.

Transportation

Zambia's is bordered by eight countries, which provides it access to the entire region of 170 million people. Zambia's transportation system is dominated by road and rail with over 75% of traded goods being transported through these avenues. However, the state Zambia's road infrastructure is limiting and adding costs to doing business. With only 7,300 km of Zambia's 40,000 km road network being paved, it is no surprise that costs of frequent replacements of parts of transportation vehicles are extremely high.

To reduce the cost of doing business, the Zambian government has launched the Link Zambia 8000 project. The three-phased road development scheme is to be completed by 2017 and has the ambitious goal of constructing and rehabilitating 8,200 km of roads to link all provincial capitals. Combined with the Pave Zambia 2000 program that will see the upgrading and repairing of 2000 km of roads, the Zambian government has already committed to invest $5.4 billion into Zambia's road infrastructure over the next few years.

The opportunities that arise from the vast infrastructure expansion should be used to Zambia's advantage. At the moment Chinese companies have the ability to provide cheap credit for large infrastructure projects, which prohibits local competition in the tendering process. China will keep funding infrastructure projects in exchange for access to Zambia's natural resources and currently accounts for up to 50% of the Zambian construction market. To ameliorate this problem and to facilitate knowledge and skills transfer, countries in the region, including Zambia, are attempting to pass legislation that will require foreign investors to partner with a local company in the development of infrastructural projects.

Zambia's proximity to other developing mining countries makes it an ideal distribution hub and point of departure in the sub-Saharan and Central African region. An efficient railway system in Zambia can be a game-changer in the region. The Zambia railway network has been operating on two systems; the Zambia Railways Ltd (ZRL) and the Tanzania-Zambia Railway System (TAZARA). Plans to rejuvenate the country's railway system were made clear when ZRL announced a new management board. Progress, however has been slow to follow and in many cases mining companies choose to develop the road and rail infrastructure independently to ensure greater efficiency and timely completion. Being landlocked also means that Zambia is especially reliant on road networks to access the ports of its neighboring countries for imports as well as exports. With heavy road traffic on routes to the ports, of Dar-Es-Salaam, Durban, Benguela, Beira and Maputo, the regional railway system is becoming increasingly important.

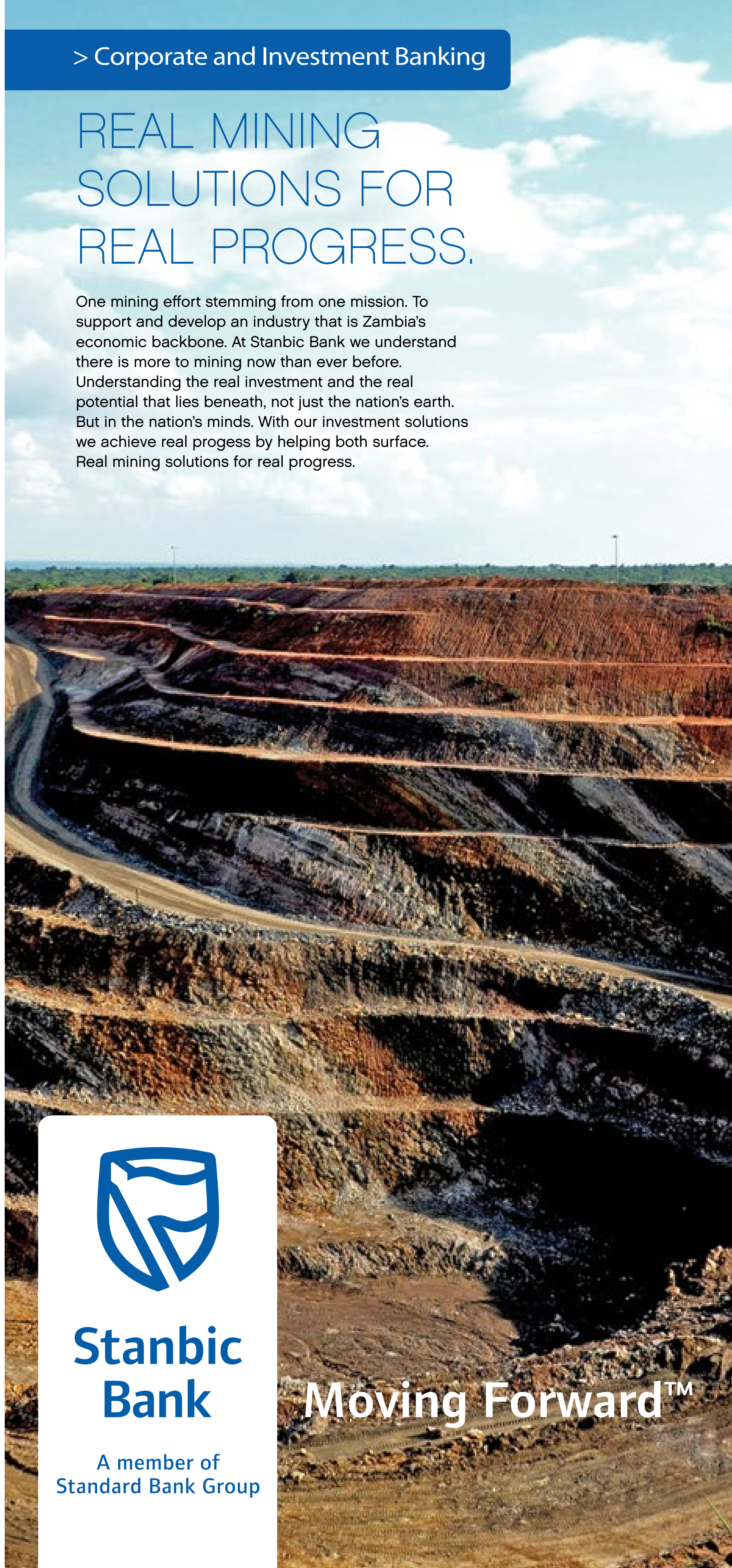
MACIG 2015

The hope is that the North-South Corridor Project will also enhance efficiency in cross-border trade in the region. It is a collaborative project between Zambia and seven of its neighboring countries to improve the road and rail system between Dar-Es-Salaam and the Copperbelt and between the Copperbelt and South Africa's southern ports. This project will not only aim to improve the physical transportation system, but also the regulatory environment by promoting intra-Africa trade between Tanzania, the DRC, Malawi, Botswana, Zimbabwe, Mozambique, South Africa and Zambia.

Services

Zambia is a net importer of goods with no manufacturing sector to speak of yet. This has led to a situation of distributors supplying the Zambian mining industry with a wide array of consumables but limited value added services. Unike many of its mining neighbors, growth in Zambia's mining service sector has been stable over the last few years, yet the global economic downturn and current mining contraction was still felt to some extent. "Initially Atlas Copco had a respectable growth in terms of revenues and the amount of work. However in terms of employee base, we had to downsize as with the mining industry. Thereafter Atlas Copco in Zambia has grown steadily, but over the last two years we had to hold back again. Revenue has still steadily been climbing," said Andy Ndulubila from Atlas Copco Zambia.

Increased competition amongst service providers in Zambia from South African companies has forced several companies to head further north in search of new opportunities. "There are renewed investments in many sectors in Zambia, and all these new companies are trying to service the mining market. Thus, CathodeX had to expand rapidly into the Democratic Republic of Congo[…] Currently our main focus is the DRC as well as the copper belt in Zambia," said Chris Ndhlvu, Director, CathodeX. The company has already expanded into the Congo and started exporting equipment. Anderson-Slight added that



MACIG 2015

Tom Albanese

Chief Executive Officer
Vedanta Resources

You were recently appointed as chief executive officer for Vedanta Resources. Can you provide us with a brief overview of the company and its operations in Africa?

I have been involved with Vedanta Resources since September 2013 and as chief executive officer for the past few months. A number of businesses within Vedanta Resources, including those in Afri-ca, are world-class. Vedanta is primarily an Indian company in operations but has a global footprint. It has been a UK-listed stock for ten years and has performed successfully for its shareholders since its IPO. Our TSR performance has exceeded the stock index and the broader mining index over the ten-year period. From an operational perspective, Vedanta Resources has a clear ambition to be seen as a global mining company. We have been in Zambia for nine years and have invested in South Af-rica, Namibia and Liberia.

What is Vedanta's strategy to increase production at the Konkola Copper Mine in Zambia?

In Zambia we acquired the Konkola Copper Mine (KCM) business nine years ago. KCM had been one of the largest copper mines in the Zambian Copper belt for over 80 years and had been run on and off by the state mining company, ZCCM Investments Holdings Plc. and Anglo American. When we acquired it, there were only three to eight more years at the Nchanga mine. Our investments have added at least ten years. We also elected to go ahead with plans to exploit the deeper version of the Konkola copper mine, what is now referred to as the Konkola Deep Mining Project (KDMP). Vedan-ta Resources had the courage and foresight to develop Konkola Deep, at a time when copper was out of fashion. Two and a half billion dollars later, we have a new modern shaft facility, a new smelter, three new concentrators, a tailings leach plant, and new underground facilities. These investments could extend the mine life beyond 50 years.

Vedanta Resources has world-class zinc operations in India. What was its rational to acquire the Skorpion mine in Namibia and the Black Mountain mine in South Africa?

We like zinc as a business and saw an opportunity to apply our expertise in Africa. Since acquiring the Skorpion mine in Namibia, we have added resources to the pit and identified additional resources in the region. We hope to upgrade the refinery, which is currently only designed to handle copper oxide ores. We also hope to begin handling copper sulphide ores, which would involve the installa-tion of a roster facility and allow us to take zinc concentrates from the region around Skorpion and our operations across the border in the Northern Cape in South Africa. We see Skorpion and Black Mountain developing into a regional zinc complex, with all the material processed at the Skorpion mine. •

"about 30% of ECMining's business is in the DRC as the copper production is currently greater there, than in Zambia. Two years ago ECMining also started a logistics operation in South Africa to support the business in Zambia."

The slow-down in exploration projects has triggered many companies to search for more business abroad. "Exploration drilling has slowed down as of late, given that mines are starting to be built, so we are looking to source new clients within the DRC. […] Blu Rock is also considering moving into the DRC, given that it is several years behind Zambia and exploration is still strong there, though we are currently assessing whether the challenges are worth overcoming," said Kris Jedrzejczyk, Managing Director, Blu Rock Mining Services. The company has secured a production-drilling contract with Mopani and has plans to continue diversifying throughout 2015 to generate over 50% of their revenue from mining operations.

Achieving strong lead-times throughout Zambia and across borders is a major challenge which service providers strive to overcome. "Zambia is a large country with a small population and our projects are often hundreds of miles away from headquarters. This poses a strong logistical challenge to Blu Rock in terms of access for spare parts," said Jedrzejczyk. "Anyone that comes into the Southern Africa Region tends to set up base in South Africa. ECM's equipment comes from Brazil, Japan, the UK and the US, but it all passes through Johannesburg first," added Anderson-Slight. Travel from South Africa can also pose a challenge for operations. "Transport from South Africa can take long in terms of problems at the borders and customs clearing. The delivery date is very difficult to determine and there are various factors that influence it," said Bridgitte Chingaipe, Director of Zambia Operations, Pex Hydraulics. An added layer of difficulty comes into play when crossing the DRC border, where trucks can be stuck for days on a one-way lane. "Getting the equipment across the borders is perhaps the greatest challenge for ECM's operations, especially when going into DRC," said Anderson-Slight.

Despite the global mining slump, multinational companies such as Sandvik have recognized the importance of Zambia and the expansion that as been happening in the Copperbelt over the last few years and is investing heavily in its Kitwe operations. "Sandvik Zambia invests strongly and continuously in the country," said Jacques Britz, vice-president of sales for Sandvik in central Africa. He continues that, "Investing in the new facility will raise the industry standard, promoting economic growth in the country. The new facility will be focused on efficiency and competency development. Sandvik Zambia needs to become more efficient in order to drive our customers to follow suit and be able to increase their productivity. Skills development is pivotal for any company wishing to make a difference in their own business operations, as well as in the country in which they operate."

Service companies that assume the role of training facilities often struggle to retain their employees as larger mining companies tend to offer more competitive salaries. "I have seen a trend in that Pex Hydraulics serves as a training facility because we are willing to teach people, and when employees have reached their learning capacity, they are approached by other companies, who might offer them higher wages," Chingaipe explained. However this trend does not act as a deterrent for service providers, given that the competitive climate in the country pushes companies to look for the most qualified people, and this often means training them themselves. "There is a significant amount of competition in Zambia and it is certainly increasing, but that only pushes Chantete to be better and we aim to be the best in the sector[…] We have a strong focus on skills transfer in the country and we are always building on experience, knowledge and showcasing what we have to offer," said Shaun McCann, Director of Operations, Chantete Mining Services.

The combination of skilled labor shortages and abundant opportunities in the mining sector has opened the door for more South African companies to set up operations in Zambia. "We recently completed a ten year plan for Mopani Copper Mine in Zambia. We literally went through the whole mine from geology through to processing. We modelled what they are doing and compiled a financial and technical business plan for them to move forward," said Mike Fox-Martin, Founding Member of Fox Projects in South Africa. Foz Projects is a South African company that recently opened offices locally as Fox Projects Zambia. When people enter the country from abroad, an emphasis is placed on the transferring skills. "As we have an investment license, Chantete brings in skilled labor from abroad and we work hard to provide intensive training and transfer the skills to the Zambians," said McCann.

With the development of the mining sector post privatization, the mining town Kitwe is starting to resemble areas of suburban South Africa, with many of the same South African companies, even grocery stores and restaurants. "Kitwe is considered to be a central point for business activities within the Copperbelt. The majority of the larger Mining Houses have either offices or operational sites based in or around Kitwe," said McCann. Companies that have had a presence in other areas of Zambia are looking to establish themselves more prominently in Kitwe. "Atlas Copco has three locations in Zambia at this moment and we are trying to get everybody under one roof. Atlas Copco thus has plans for warehouses and workshops in Kitwe."

Several service providers are also strengthening within nearby Ndola, where growth has continued. "The office in Ndola is central to our operations in Zambia as this is where our main engineering and workshops take place and where the bulk of our hydraulic repairs are performed," Chingaipe explained. "CathodeX has already expanded into the DRC and we are sending equipment up to DRC by the end 2014. In this region, CathodeX is looking to have a maintenance and manufacturing company based in Ndola, but with arms and equipment based in other mines. What the company is trying to do is to recapture the whole Ndola principle and make it the manufacturing hub for Southern Africa again. Ndola provides us with a significant amount of possibilities," said Ndhlvu.

Companies like New Concept Mining (NCM) that only opened its doors in Zambia in 2013 are also making plans to start manufacturing some of the key products that it supplies to the mining industry in Zambia and the rest of the region, in Kitwe. Ivor Chanda, sales director Africa for NCM said, "NCM wants to start on small-scale manufacturing before the end of 2014. We have already brought in the raw materials for the split set manufacturing and we are now trying to put the logistics together before we start manufacturing. The plan is to have a fully fledged manufacturing outfit in Zambia." In just one year, NCM has already had to expand it product range for its Zambian mining customers and is using the strategic location of its operations in Kitwe to leverage its coverage of the region. "In 2013 New Concept Mining (NCM) only supplied about one product line, the hydrabolt, to the Zambian mining industry, specifically to the Mopani and KCM mines. NCM has since grown significantly and has been adding and providing other product lines, of which the splitset is the biggest seller. NCM's customer base has also grown from KCM and Mopani to now include the Lubambe and Chibuluma mines. NCM is also about to start supplying to the mining industry in the DRC from the base here in Zambia. Outside of South Africa, NCM will service all clients including Zimbabwe, DRC, and Tanzania from Zambia," said Chanda.

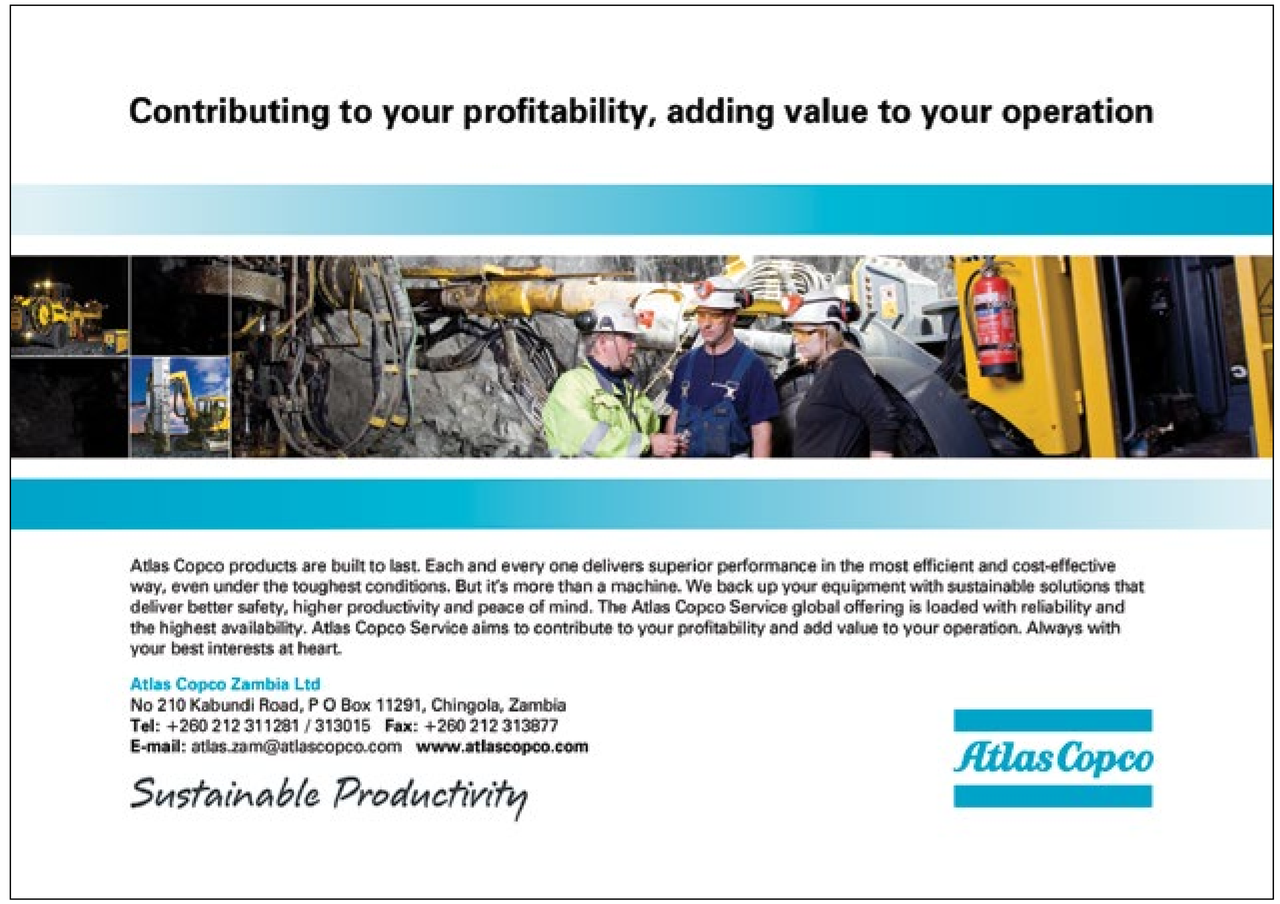
Another encouraging sign for the mining periphery is new companies that are coming in with new technologies that can help cut costs. Australian based Three Way Works has recently awarded the rights to supply their products in 10 African countries to a local Zambian. "The Air Seal Product is a state of the art tire sealant that is now available in Zambia and we now have the rights to supply these products to 10 African countries, including Angola, DRC, Malawi, Mozambique, Tanzania, Zambia, Zimbabwe and Ghana," explains Costas Morianos, Managing Partner of Three Way Works Zambia.

Cathode X has become a pioneer in the country, as the first company to import high-tech robotic welding into Zambia. This has allowed them to increase their service offering for the mining industry. "We are now able to do hi-tech robotic welding and we have incorporated a second production line. For the mining industry primarily, in addition to our flagship product which is the edge strips, the company is now able to do manufacturing of the whole cathode plate as well as just hanger bar replacements," said Ndhlvu. The company is also developing ways to cut down costs in the industry. Ndhlvu added: "A brand new plate costs around $600, but for $300, CathodeX is able to bring a disused plate back into service and put on permanent edge strips. The disused plate is like a brand new plate, and you are basically using a newer technology and very strong welding technique, which is not dependent on the skills of an operator."

Companies have worked hard to fuel business while still supporting the communities they operate in. "Community investment is most effective and lasting if it meets both business and social needs," says McCann. "We have learned to ride out tough times and keep close to the cutting edge of development in the smooth times. CathodeX is also looking to create awareness for international mining companies, so that they know that their requirements can be met locally," said Ndhlvu,. Zambia's ultimate target is to continue growing its mining industry. "The ultimate target is to continue growing. Zambia is a wonderful destination for mining, manufacturing and equipment supply. There is a solid and regulated market in which doing business comes easy," concluded Anderson-Slight.

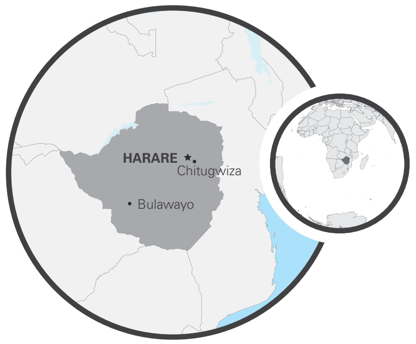
Conclusion

Zambia is still recovering from the mismanagement of the mining industry during its nationalization period, but policy reforms have steered the country into a direction of growth. While much is being done to promote open dialogue between the government and private sector, it remains to be seen if the government will heed the call of the mining sector to revise the proposed tax changes for 2015. Now is the time for Zambia to prove that it will remain the politically stable country that it has come to be known as and create an investment climate that is conducive to current and future mining prospects. •



Zimbabwe

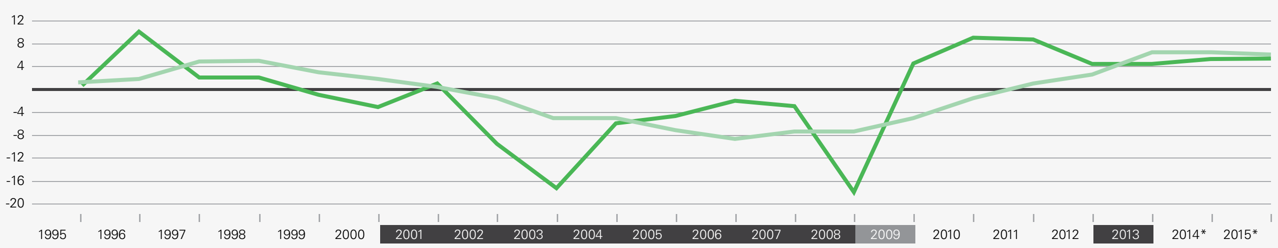
Zimbabwe was a British colony, after which it spent 14 years under a white minority government. In the past decade the rule of Robert Mugabe has brought the country to the brink of economic ruin and international pariah status, yet a small degree of political compromise after the 2008 election has restored economic growth and some degree of foreign investment. Zimbabwe has some of the world's largest chromite, platinum-group metals and diamond resources in the world, and substantial gold and coal resources.



Population: 13,771, 721 (July 2014 est)
Land Area: 390,757 sq km
Official Language(s): English
Capital: Harare
Chief of State: Executive President Robert Gabriel Mugabe
Head of Government: Executive President Robert Gabriel Mugabe
GDP (PPP): $7.496 billion (2013 est)
Growth Rate: 3.2% (2013 est)
GDP per Capita: $600 (2013 est)
Economic Sector Breakdown: agriculture: 20.1%, industry: 25.4%, services: 54.5% (2013 est)
Exports: $3.144 billion (2013): platinum, cotton, tobacco, gold, ferroalloys, textiles
Imports: $4.571 billion (2013): machinery and transport equipment, other manufactures, chemicals, fuels, food products
Major Trade Partners: South Africa, China, Democratic Republic of the Congo

GDP GROWTH (%)

SOURCE: WORLD BANK, EIU



Zimbabwe's "Lost Decade" is a time of economic collapse and hyperinflation. Inflations peaked at 79,600,000,000% in November 2008. Zimbabwe went from being the "breadbasket of Africa" to a net food importer, with 5.1 million of its 12.6 million population struggling to obtain one meal a day by 2007. A cholera epidemic affected over 1 million people. Zimbabwe was suspended from the Commonwealth of Nations in 2002 and in 2003 the country voluntarily terminated its membership. 2005 elections were heavily criticised and resulted in a victory for Robert Mugabe and his ZANU-PF party. 2008 elections saw the opposition Movement for Democratic Change – Tsvangirai (MDC-T) party make substantial ground (it was widely suspected that they won a majority) and a power-sharing agreement was reached, with Mugabe remaining as president and Morgan Tsvangirai becoming prime minister.

Dollarisation of the economy by Finance Minister Patrick Chinamasa ends hyperinflation.

Peaceful elections are held, won by Robert Mugabe and ZANU-PF. A new constitution is approved by 94.5% of voters.

STATUS OF THE MINING CODE

UNDER REVIEW

Corporate Income Tax	25%
Mineral Royalties	5%
State Participation	51%*

*51% is to be held by indigenous entites, not necessarily the state

ALL-IN SUSTAINING COSTS ($/OZ AU)

SOURCE: BANRO CORPORATION Q3 2013 FINANCIAL STATEMENT

873

AISC is based on the World Gold Council's guidance note of June 2013 and is a metric including all costs related to production plus costs related to sustaining production. Country values represent the average from those companies who make this information available, and is taken from Q3 results.

MINE PRODUCTION

SOURCE: BRITISH GEOLOGICAL SURVEY

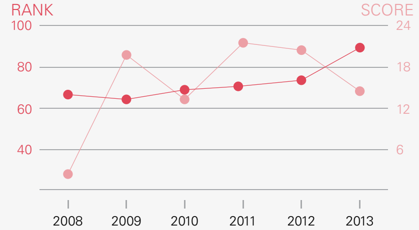
as of 2012
in mt unless otherwise stated

Chromium	119,409
Coal (bituminous)	1,593,600
Cobalt	121
Copper	4,724
Diamond**	12,060,163
Gold***	8,112
Graphite	4,421
Ferro-Chrome	60,205
Nickel	5,716
Phosphate Rock	34,600
Platinum***	7,664
Palladium***	5,901
PGM (other)****	2,090

**in carats ***in kilograms
****in kilograms, excluding platinum and palladium

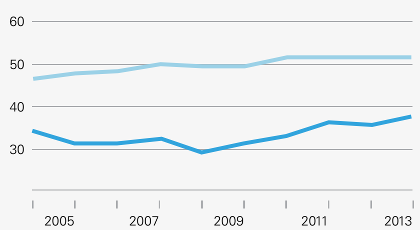
FRASER INSTITUTE ANNUAL SURVEY OF MINING COMPANIES

SOURCE: FRASER INSTITUTE



IBRAHIM INDEX OF AFRICAN GOVERNANCE

SOURCE: MO IBRAHIM FOUNDATION



FOREIGN DIRECT INVESTMENT

SOURCE: UNCTAD

2012	400
2013	400

*inflows, $ million

MINING SECTOR CONTRIBUTION TO GDP

SOURCE: AFRICAN ECONOMIC OUTLOOK

2013 **10.1%**

These values do not include artisanal mining. The USGS placed the 2008 value at 13.4% of GDP, and a report by the French Ministry of Foreign Affairs placed the value at 28% in 2011.

INFRASTRUCTURE INDICATORS

SOURCE: UIC, IEA, CIA WORLD FACTBOOK

● ZW ● AFRICA ● WORLD

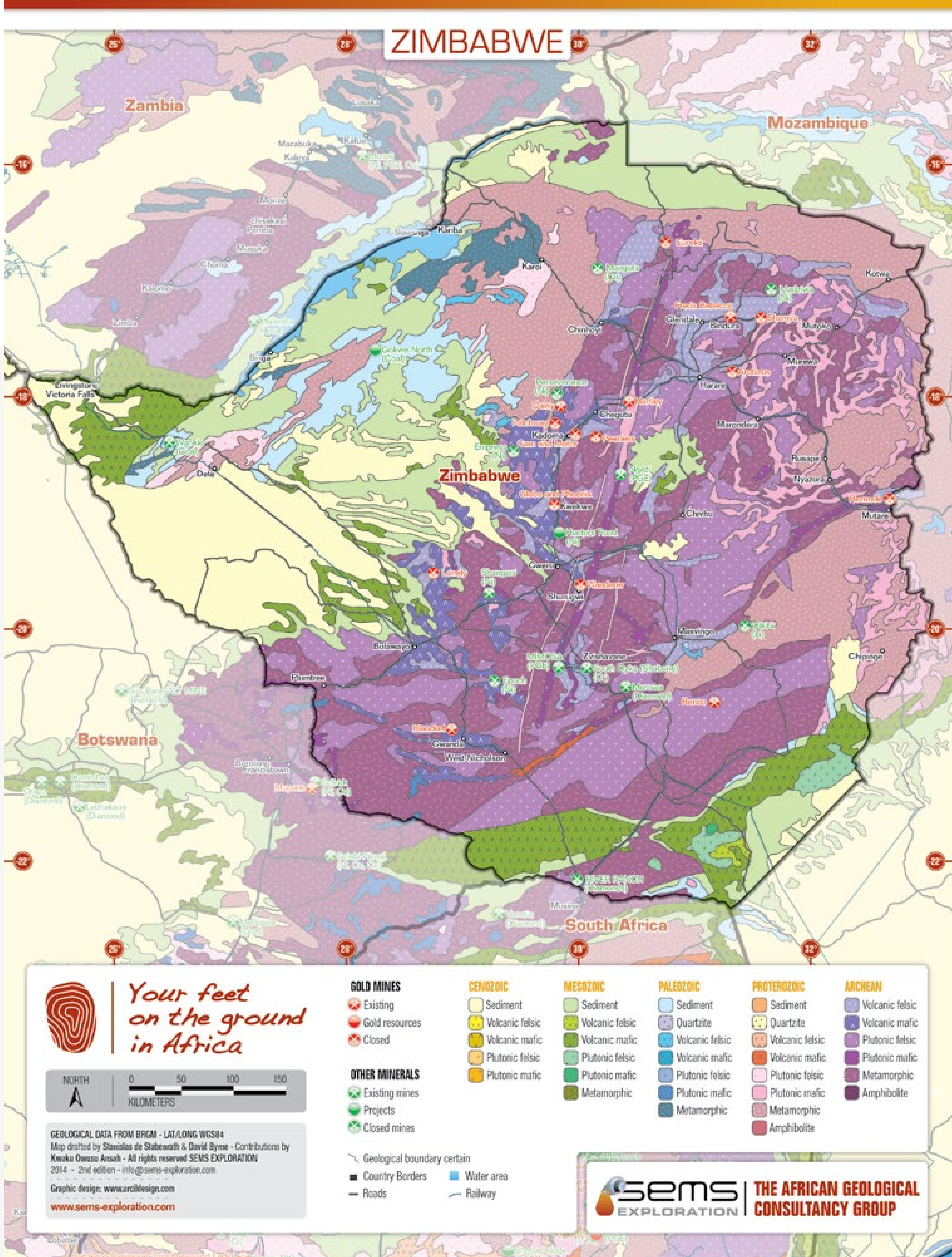
	ZW	AFRICA	WORLD
Railway - km/10,000 km2	88	29	77
Roads - km/1,000 km2	249	79	262
Electricity - kWh/capita (gross production + imports - exports - losses)	561	603	3076

| 0% | 25 | 50 | 75 | 100 |

BUSINESS ENVIRONMENT RANKING

SOURCE: WORLD BANK, IFC, HERITAGE INSTITUTE, WEF

Name (out of)	2012	2013	2014
Doing Business Rank (189)	171	168	170
Index of Economic Freedom (177)	178	175	176
Global Competetiveness Report (148)	132	132	131



Professor Francis P. Gudyanga

Permanent Secretary of
The Ministry of Mines and Mining Development

The Zimbabwean Ministry of Mines and Mining Development has recently been restructured. Can you give us an overview of the main changes in the governing model?
Over the last two years, Zimbabwe has restructured its Ministry of Mines and Mining Development. We now have five min-ing districts and provincial offices with the mining director at the head of each office. While Zimbabwe has ten provinces, there will be eight provincial mining offices, as the metropolitan province of Harare and Bulawayo are attached to the other rural provinces. Harare will be part of the Mashonaland East province and Bulawayo will be part of the Matabeleland North province. The offices are going to be headed by technical employees so as to increase the efficacy with which mining is-sues are dealt with. The restructuring came into effect in July 2014 as we have recognize that Zimbabwe has mining activ-ities throughout the country and restructuring will increase the presence and efficiency of the ministry in the rest of the country. The restructuring is also to ensure that we assist the small-scale miners as we felt that we were not available to this large sector of the industry and wanted to rectify that.

Recently there has been much press regarding diminishing diamonds reserves in Zimbabwe. Is there any truth to these claims and what would you as the ministry like to say to investors on this topic?
There is no basis to believe that the diamonds are diminishing. Assumptions come from the investors that have only been given certain areas to mine, but the investors had wanted additional areas. As a ministry we wanted investors to focus more on the exploration of conglomorates and kimberlites and less on the alluvial diamonds, which have been easily mined thus far. Zimbabwe is now consolidating the diamond industry. When diamond mining started, we had seven mining companies in a small area like Marange. From now on, we want no more than two companies in such a small area thus we are putting together a holding company called the Zimbabwean Diamond Industry and all the areas will be subsidiaries of this holding company. The ministry is integrating the existing companies in steps with the Marange provincial office, which will be completed within the next two three months.

In 2013 the ministry was hoping for increased beneficiation of metals and minerals in Zimbabwe and there were talks of the first platinum refinery to be built in Zimbabwe. Can you tell us how these plans have progressed?
Since 2013 the ministry has invited expression of interest in the construction of a platinum refinery, and two companies have been shortlisted. We have done the due diligence on one of these companies and are still in process of reviewing the second. Once we have concluded our findings, we will invite the winning bid to communicate about how they can go about building a refinery for the platinum. The next stage is then to decide what Zimbabwe will do with the platinum. In terms of value addition in the diamond sector, the ministry has also reviewed the licenses for cutting and polishing of dia-monds to encourage small scale or big scale cutting and polishing in the country. The goal is development of the jewelry industry both in diamonds and platinum.

Has there been more attention on Zimbabwe as an investment destination since the EU sanctions on diamonds have been lifted?
The European sanctions have been lifted, which has helped Zimbabwe, but there remain some prejudice assumptions. The international banks that assist Zimbabwe in transactions have been scrutinized and are sometimes penalized by the Office of Foreign Assets Control. This is because of other sanctions that have been imposed, especially by the United States. When Zimbabwe does an international transaction it is a hassle to get the money in and out of the country. As of 10 July 2014, the sanctions were reviewed and declared still to be effective. Zimbabwe is trying to use other currencies, but it is difficult to avoid the US dollar. The ministry has been working with partners to influence the US government on those sanctions and have them lifted.

Are there any other major policy changes that we can expect to see in 2015?
The ministry is coming up with an amendment of the Mines and Minerals Act, which will emphasize value addition inside the country. The Ministry is also reviewing the environmental aspects to ensure that there is rehabilitation of mining areas by the companies that come in to do the mining. Another policy that we are going to look at more closely is our "use it or lose it" policy. Companies must work on their resource claims or they will lose it. The ministry is also focusing on helping the small-scale miners by loaning them equipment and maintaining it. Small-scale mining will contribute about 20% to the gold sector when properly incentivized. •

Zimbabwe

Prior to 1999, Zimbabwe was known as "The Breadbasket of Africa," with thriving mining and agriculture industries. However, driving into the Zimbabwean capital Harare today one almost gets the impression of a country that time forgot. Roads, infrastructure and a city still stands, as there has been a serious lack of development and maintenance due to the country's recent unfortunate history. Emerging from what has come to be known as "The Lost Decade," Zimbabwe still faces many obstacles.

Before its dollarization in 2009, Zimbabwe had experienced the worst recession in its independent history. During this decade, the country was characterized by political crisis, economic collapse, social deterioration and emigration. The mining sector was seriously undermined. Isaac Kwesu, CEO of the Chamber of Mines Zimbabwe (COMZ) said, "The mining sector continues to be affected by the systematic challenges of the past. In Zimbabwe, there has always been an issue of capital, infrastructure (energy) and the shortage of skills. These problems remain prevalent today and have been affecting the growth in the mining sector."
The international community ostracized Zimbabwe and numerous sanctions were placed on it in an attempt to sway president Robert Mugabe's policies. Since dollarization, and with the opposition party, the Movement for Democratic Change (MDC) seemingly subdued, the political landscape appears to have become more stable and the government's focus has shifted to the rehabilitation of the economy.
The country has subsequently adopted an economic blueprint in 2013, the "Zimbabwe Agenda for Socio-Economic Transformation" (Zim Asset), which aims to attract foreign direct investment. The transformation plan is set to run from 2013 to 2018 and aims to ameliorate the strains of food security and nutrition, social services and poverty eradication, infrastructure and utilities, and value addition and beneficiation.
The mining sector remains at the center of Zim Asset and while new investors still remain cautious of entering the country, Zimbabwe's potential is visible through the success of those who have braved the political uncertainty, with their feet firmly placed on Zimbabwe's rich soil. "A few decades ago Zimbabwe had everything; minerals and agriculture and the infrastructure, and Manica still sees the potential of Zimbabwe, despite the tough times that the country has seen over the last decade," said Grant Davies, business development manger of Manica Zimbabwe.

The Road to Economic Recovery

Over the last few years, Zimbabwe's economy has shown promising GDP growth, averaging above 7% over the last four years. While reports still remain relatively conflicting, it is safe to say that from 2014 to 2017, the country will continue to grow, likely averaging at over 4%. Public sector reports are more optimistic, while private sector reports tend towards pessimism. Bodies such as the IMF take the middle ground, arguing that policy measures and reform programs that were implemented in 2014 are addressing the fiscal gap and enhancing stability.

Liquidity in the mining sector and elsewhere in the economy remains the country's most significant challenge. However, the Reserve Bank's Monetary Policy Statement indicates resilience in the Zimbabwean banking sector. Combined, the 19 operating banking institutions showed an aggregate net profit of \$13.84 million for the first half of 2014, compared to \$4.9 million for the same

ZIMBABWE

MORE THAN JUST A DIAMOND IN THE ROUGH

- Zimbabwe is a mineral rich country with great potential for further discoveries.
- The country has a huge and highly diversified mineral resource base.
- About 60% of the country's land is said to comprise of ancient rocks renowned worldwide for hosting rich varieties of minerals resources including platinum, diamonds, gold, base metals (e.g. nickel, copper, zinc and lead) and industrial minerals (limestone, phosphates, clay and dolomites) as well as coal.
- Zimbabwe has got the second largest deposits of platinum in the world.
- Approximately 30% of global known diamonds reserves are in Zimbabwe, now fully complaint with KPC.
- The sector contributes about 50% of the country's total export earnings.
- A primary objective of the new government plan is value addition and beneficiation in the country whenever and wherever possible.
- Industry growth in the medium to long term depends on the ability to attract investment into current and new projects, as well as investments into infrastructure fundamental to sustainable development of mining, i.e. power and railroad transportation. Investment of $5-7 billion is needed to grow the sector as following: platinum 40%, gold 33%, diamonds 11%, coal 8%, chrome 4% and nickel 4%.
- The opportunities for exploration are vast and will be central to brining the mining sector up to full speed.
- Zimbabwe is changing and the time to invest in Zimbabwe's Mineral wealth is now. The Government of Zimbabwe invites all serious investors to come and visit. We are open for dialog and recognise the importance of the private sector contribution, both local and foreign in creating wealth to the benefit of all.

More then just the diamond in the rough.

www.mines.gov.zw

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Zimbabwe Ministry of Mines and Mining Development

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period in 2013. During the same eight-month period, commercial bank loans and advances have increased by 22% to $2.9 billion. The downside to the lending increase is that the proportion of non-performing loans has increased from 15.9% from the end of 2013 to 18.5% by June 30, 2014, totaling $705 million. This has also rendered bank lending procedures much more restrictive.

While exports declined by 14% during the first eight months, imports have declined by 24.9% resulting in a significant decline in the trade deficit, from $3 billion to $2 billion. As a consequence, the decline in exports has had a less austere effect on liquidity.

Year-on-year inflation continued to decline in 2014 to 0,3% compared to 3.7% on 2012 and 1.6% in 2013, though the expectation is a rise in inflation to 2.3% in 2015.

In terms of ease of doing business, Zimbabwe is still ranked amongst the bottom of 189 countries analyzed by the World Bank, at number 172 in 2014, and 171 in 2015. Zimbabwe has also slipped three places to 180 in terms of the ease of starting a new business. In the analysis, access to electricity, obtaining credit and cross-border trading remains the most challenging factors.

Despite the implementation of Zim Asset, the private sector is reluctant to believe that it will have the promised impact of achieving a 10% GDP growth rate by 2018. This is also apparent from the slow economic recovery that the country is experiencing.

Regulatory Environment

Zimbabwe's rich mining history dating back from colonialism has left the country with a well-developed regulatory framework. In its more recent history, tax reforms and uncertainty still make it hard for investors to navigate the regulatory environment. The "elephant in the room" as it is often referred to by the private sector remains the country's indigenization policy. Yet the government assures that it need not be a deterrent for foreign investment and many mining companies that are already on the ground tend to agree.

Zimbabwe is governed by a combination of Roman-Dutch and English law with mining being legislated by the Mining and Minerals Act, which has been recently revised. Unlike many African mining jurisdictions, the Act provides security of tenure and has provisions for acquiring, maintaining and relinquishing mining rights.

Apart from new requirements in terms of in-country beneficiation, environmental management and indigenization, the revision of the mining act also seeks to create increased value for small-scale mining activities, which have been on the rise in Zimbabwe. As Professor Francis P Gudyanga, permanent secretary of the ministry of mines and mining development explains: "Over the last two years, Zimbabwe has restructured its ministry of mines and mining development. We now have five mining districts and provincial offices with the mining director at the head of each office. While Zimbabwe has 10 provinces, there will be eight provincial mining offices, as the metropolitan province of Harare and Bulawayo are attached to the other rural provinces. Harare will be part of the Mashonaland East province and Bulawayo will be part of the Matabeleland North province. The offices are going to be headed by technical employees so as to increase the efficacy with which mining issues are dealt with. The restructuring came into effect in July 2014 as we have recognized that Zimbabwe has mining activities throughout the country and restructuring will increase the presence and efficiency of the ministry in the rest of the country. The restructuring is also to ensure that we assist the small-scale miners as we felt that we were not available to this large sector of the industry and wanted to rectify that."

Zimbabwe's Indigenization and Economic Empowerment Act remains in place since 2013. The indigenization act stipulates that 51% of any foreign company that wishes to operate in Zimbabwe has be owned by a designated Zimbabwean entity. This could be either through a previously disadvantaged Zimbabwean partner, a community share ownership trust or an indigenization or economic empowerment fund. Companies are allowed to structure the indigenous ownership within these parameters to best suit their needs. While there is some flexibility allowed by the act, indigenization remains a daunting aspect of doing business in Zimbabwe for many mining companies, especially because it appears to be ever evolving, thus creating uncertainty. Isaac Kwesu, CEO of the Chamber of Mines Zimbabwe (COMZ) said, "Stability of policy is not only needed with indigenization, but across all of Zimbabwe's policies. When one looks at some of the policies, there is discord and the policies do not speak to the same goals. This discord and inconsistency across policies makes it difficult for the investor to plan. Zimbabwe needs policies to be more predictable and stable. The mining sector is affected by a number of policies and legislations that must be synchronized to reflect the same thing. In the past few months the minister of finance and the minister of mines have been communicating and looking to synchronize the legislations and policies, which will be a positive development for Zimbabwe's mining industry."

Existing mining companies have braved indigenization legislation despite the funding constraints that the uncertainties in the policy arena have brought. The COMZ has also been lobbying for more benign tax system. Mineral royalties remain high with a 7% levy on gold, 12.5% on platinum and 15% on diamonds.

Zimbabwe's Mineral Wealth

Zimbabwe's mineral wealth remains undisputed, yet the country is struggling to reach the production levels that it was able to achieve in the late 1990s, prior to the "Lost Decade." The highest value contributors to the sector remain gold, platinum and palladium. Coal and ferrochrome also feature strongly, and there are high hopes for the further development of the still-controversial diamond sector.

IMAGE: View Apart - Shutterstock

Gold

Zimbabwe had historically built its mining sector on gold production as the country is situated on an Archean terrain that boasts with some of the highest yields per square kilometer globally. At its peak in 1999, the country produced 27 million metric tons (mt) of gold annually, compared to 14 mt in 2013. However, it is also to be noted that gold production has increased significantly since 2009, when total annual production was between 4 to 5 million mt. For the first half of 2014, Zimababwe's gold production was 6.8 million mt, indicating that annual production is likely to be similar to that of 2013.

The gold sector comprises of a few big players such as Mwana Africa's Freda Rebecca mine and Caledonia's Blanket mine, with a large and growing number of artisanal miners. Gold miners in Zimbabwe are struggling due to a 28% drop in gold prices last year, coupled with high royalties.

Platinum and Palladium

Zimbabwe sits on the world's second largest platinum reserves after South Africa. There are three known platinum blocks stretching along 550km mineral range known as "The Great Dyke."

Zimbabwe's main platinum mines are Zimplats and Mimosa mine, owned by Impala Platinum and Unki mine owned by Anglo Platinum. With the three majors producing 430,000 ounces a year there is a drive to increase production to 500,000 in order to justify setting up a local smelter. Professor Gudyanga elaborates on the progress of setting up Zimbabwe's first platinum smelter: "Since 2013 the ministry has invited expression of interest in the construction of a platinum refinery, and we have since shortlisted two companies that we believe are up to the task. We and have done the due diligence on one of these companies and are still in process of reviewing the second. Once we have concluded our findings, we will invite the winning bid to communicate about how they can go about building a refinery for the platinum. The next stage is then to decide what Zimbabwe will do with the platinum."

Zimbabwe's platinum production in 2013 reached 13 million mt, with production for half year in 2014 at 6.4 million mt. Palladium production has steadily increased from 5.3 million mt

MACIG 2015

in 2009 to 10 million mt in 2013. Half-year production statistics for palladium in 2014 is upwards of 5 million mt.

Coal

Zimbabwe has always been reliant on coal mining for the country's electricity generation needs. The country's total annual coal production for 2013 reached almost 5 million mt.

Zimbabwe's impressive coal reserves have led companies such as PER Lusulu Power to recognize the opportunities for electricity generation in the region. PER Lusulu has been awarded an Independent Power Producer (IPP) license in 2010 and are in the midst of reconstructing two 550-megawatt (MW) power plants, imported from EDF in France to Zimbabwe. As Pierre Nicolas, CEO of PER Lusulu Power Explains, "Each 550-MW unit is going to use 1.8 million mt of coal per year. Today, the largest coalmine in Zimbabwe produces about 30,000 mt per month. For each phase PER Lusulu Power is going to need five times more than that and will meet that demand from surrounding mines that are now going to start. PER Lusulu Power will hold a minority stake in the mines as we have to be sure that the coal supply and price remains adequate. The coal will be the biggest operating expense in the project."

Apart from the well-known reserves at Hwange, there are also new opportunities in coal mining that are surfacing in the southern parts of the country.

Diamonds

Zimbabwe is the fourth largest diamond producer in the world and sits upon an estimated 30% of the world's diamond resources with the Marange fields responsible for the majority of the country's diamond production. Zimbabwe currently has five noteworthy, diamond-mining firms operating in the country, namely Marange Resources, Mbada Diamonds, Anjin, Diamond Mining Corporation and Murowa Diamonds. The state-owned ZMDC has a stake in all diamond companies, and the Ministry has recently decided how to best structure this sector through the amendment of the Precious Stones Act. A major issue that was addressed in 2014 was whether or not to have a plethora of players and thus make more licenses available or if it is best to follow the example of countries such as Botswana or South Africa, where the diamond sector is largely dominated by a single or a few producers. Professor Gudyanga explains how the sector has been restructured: "Zimbabwe is now consolidating the diamond industry. When diamond mining started, we had seven mining companies in a small area like Marange. From now on, we want no more than two companies in such a small area thus we are putting together a holding company called the Zimbabwean Diamond Industry and all the areas will be subsidiaries of this holding company. The ministry is integrating the existing companies in steps and with the Marange provincial office and this will be completed within the next two three months. The ministry is also preparing for the diamond conference that will take place in November 2014 and this is where we will showcase the Zimbabwean diamonds."

The diamond sector in Zimbabwe is set to grow with the abolition of EU sanctions that were imposed on the country's diamonds, if resources and expertise can be secured to start the more costly process of mining the higher-value kimberlites.

Base Metals

Among Zimbabwe's vast variety of more than 60 minerals, the country boasts impressive nickel, chrome, copper and iron ore reserves. The chrome that is found in the Great Dyke is world-class and is seen as value adding because it can help revive the Zimbabwean manufacturing sector. Nickel dominates the country's base metal production in terms of value, with Empress Nickel and Bindura Nickel Corporation as the major players.

Zimbabwe has high quality iron ore grading from 40% Fe and above. While the hopes for resurgence in iron ore production were high in 2013 with the finalization of the transaction for Ziscosteel between ESSAR and government, production has been slow to get off the ground, as the government keeps making alterations to the agreement.

While copper production has been in decline in 2012, mostly due to a lack of exploration, production increased from 6.6 million mt in 2012 to 8.2 million mt in 2013. Half-year statistics in 2014 measure production at 4.1 million mt, which would equate to the same level of annual production as 2013 if production continues at this pace.

Zimbabwe's Future

Businesses in Zimbabwe can teach the world a lesson in adaptability. Having survived the trials of the past 15 years and facing uncertainties with political shifts in the offing, the private sector in Zimbabwe has proven resilient. "Atlas Copco Zimbabwe is working in a very difficult environment and needs to be innovative and creative. Atlas Copco in Zimbabwe needs to be creative in the way it is structured. It is unlike other branches, and we want to create a level of stability within the company. Atlas Copco in Zimbabwe is growing to a large extent, but we have had to be innovative to achieve that," said Davis Nongera, country manager of Atlas Copco Zimbabwe that has been operating in the country since 1952.

Zimbabwe has a well-developed infrastructure and skilled labor force and those who operate in this otherwise tough environment are proud to point out the opportunities that still exist, especially in the mining sector. Ian Bagshaw, managing director of Sandvik Zimbabwe emphasizes that the platinum sector will have far reaching affects on the economy, saying, "Platinum tons will have tripled from 2010 to 2020. These tons will all be commercially mined and mechanized. There are a lot of factors to growth, but the biggest remains the access to ore body. The more uncertain mining becomes globally and in South Africa, the more emphasis there will be on Zimbabwe. The opportunity here cannot be ignored."

The lack of liquidity is visible in the country and in the mining sector on which the country plans to anchor the economy while other sectors such as manufacturing and agriculture are rebuilt. A massive task lies ahead. Zimbabwe needs to attract significant levels of foreign direct investment each year, which is currently around 33% of GDP. This will depend heavily on the country's reputation in the international community and, central to this, will be the restoration of certainty to the operating environment. As Isaac Kwesu, CEO of Chamber of Mines Zimbabwe notes, "The issue remains the environment and the policies that need to encourage exploration in Zimbabwe. With the lack of clarity in terms of policies it remains difficult for both current operators and new investors to commit resources to Zimbabwe. The government is working with the private sector in trying to ensure that Zimbabwe address these policy concerns."

The resources that the country stands to unlock are undisputable, but as in many African mining jurisdictions, investor skepticism is keeping much needed capital at bay. "Zimbabwe needs some big investors coming in, as the majority of the mining in Zimbabwe is still small scale, yet the opportunities are vast to create huge mining operations," said Davis Nongera of Atlas Copco Zimbabwe.

What the country has to offer, in terms of mineral wealth and the low inflation that it has maintained over the last few years, offers real glimmers of hope that Zimbabwe's medium to long-term future is indeed bright. As the world waits for it to find its way through the intricate political environment it finds itself in, investors would do well not to discount Zimbabwe. With the right policies, it can once again become "The Breadbasket of Africa."

DRC
Rwanda

East And Central Africa

IMAGE: Shutterstock

East Africa

Out of all of Africa's regions, East Africa is the continent's youngest when it comes to mining. The region's first commercial gold mine was in Tanzania and only entered production in 1999. On the one hand, this raises many questions for companies about the transparency and stability of regulatory regimes and the inexperience of local and federal governments in dealing with the many questions surrounding the industry. On the other hand, it offers serious optimism, most notably for the reason that East Africa is filled with untapped mineral reserves. In recent years, the latter sentiment has won out, as companies have shown a surge of interest in coming to the region and setting up operations.

Tanzania stands as an exemplar of what East Africa as a whole could become. Tanzania is currently the fourth largest gold producer in Africa after South Africa, Ghana, and Mali, a fact that is so impressive because the country has only been producing gold for 15 years. Moreover, Tanzania is home to many other minerals, including diamonds, silvers, copper, and coal, as well as undeveloped deposits of nickel, iron ore, cobalt, phosphate, and uranium. It also is well situated geographically so that it can feed Asian markets. The country also has a major port at Dar es Salaam, which has been upgraded in recent years, and is building a new deepwater port development project at Tango, as part of the Mwanbani Economic Corridor Project. There is a third deepwater port being constructed at Bagamoyo with the help of the Chinese. With such direct links to Asian economies, Tanzania is perched to grow into a major mining jurisdiction in Africa. More importantly, the government has launched the sector on a positive trajectory. If Tanzania can replicate what it has done in gold, the government's goal of increasing mining's contribution to GDP to 10% will be easily attained.

Other countries in East Africa do not offer quite the promise as Tanzania, but that does not mean that they cannot catch up. Uganda and Ethiopia both offer interesting deposits and potentially great rewards, but rebel uprisings and separatist movements create a riskier outlook. Still, these hot zones are contained to certain parts of the country, and, if the right measures are taken, they can emerge in the future. Kenya offers another attractive jurisdiction, but foreign investment there has slowed since the government increased royalties in 2013. Investors are hopeful that greater transparency will prevail, with which the sector will swiftly regain momentum. Like Tanzania, Kenya is investing in new deepwater ports at Mombasa and Manda Bay.

Rwanda was selected this year as our up and coming country in East Africa for the region for a host of reasons, but none was more important than the country's reputation for welcoming foreign businesses. Sometimes referred to as the Singapore of Africa, Rwanda has gone to great lengths to create incentives for foreign companies to engage in mining and the industry has grown accordingly. The government has targeted a figure of $400 million in 2017 for the contribution of the mining sector to the Rwanda's GDP. Rwanda is known for three minerals: tin, tungsten, and tantalum, as well as small amounts of gold, for which new exploration is being undertaken. The quality of Rwanda's tungsten is renowned, and the country has grown into the world's fourth largest producer. It is also the world's fifth largest producer of tantalum. However, tin is its largest mineral export. Rwanda's 2006 privatization of the mining industry has been the transformation driver of its mining industry, but sustained regulatory transparency and incentives for foreign businesses have sustained the momentum. This is a jurisdiction that investors should keep an eye on.

Central Africa

Unlike East Africa, Central Africa has a far lengthier history in mining, and no country stands out more prominently in the region than the Democratic Republic of Congo (DRC), a veritable mining colossus. The DRC is famously estimated to have roughly $24 trillion in untapped mineral deposits, and it is jurisdictions like the DRC that make Africa a potential new center of gravity for global mining. It is also the reason that we have chosen the Democratic Republic of the Congo as one of our top ten mining destinations in Africa.

The problem in the DRC, as well as in other Central African countries such as Cameron and Chad, where resources are known to exist but remain unexplored, is political instability and violence. In addition to ongoing conflicts in Chad and the DRC, the Central African Republic's civil strife has intensified to absolutely horrific level in 2014 and added another layer of tragedy to the region.

In addition to politics, geography hinders the development of these jurisdictions. Chad and the Central African Republic are full land-locked, while the DRC has only 40 kilometers of coastline. The country's lone mining province, Katanga, is landlocked and relies on the central government in Kinshasa to ferry its minerals to world markets. A new railway line through Angola promises to help matters, but its operation will open new issues of transnational trade. In the case of Katanga, however, its location is also a blessing, as it is far removed from the violence in northern part of the country. The positive aspect of these disadvantages for the countries is that they are more eager for foreign investment, and companies have been welcomed. The risks are high, but for those willing to face them, the rewards are also great. •

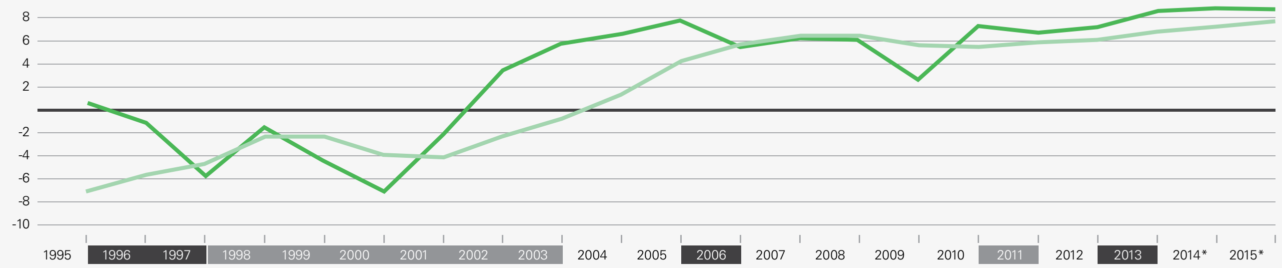
Democratic Republic of the Congo

The Democratic Republic of the Congo gained infamy under Belgium's colonial rule, and the problems caused by this legacy continue to play a role in the sporadic violence that continues to this day. Despite this, there are signs that some regions are significantly improving. The mineral potential of the Democratic Republic of the Congo is among the most exciting in the world. Despite the challenges facing investors, the country is a globally significant producer of cobalt, copper, diamonds, tantalum and tin.

Population: 77,433,744 (July 2014 est)
Land Area: 2,344,858 sq km
Official Language(s): French
Capital: Kinshasa
Chief of State: President Joseph Kabila
Head of Government: Prime Minister Augustin Matata Ponyo Mapon
GDP (PPP): $29.39 billion (2013 est.)
Growth Rate: 6.2% (2013 est.)
GDP per Capita: $400 (2013 est.)
Economic Sector Breakdown: agriculture: 44.3%, **industry:** 21.7%, services: 34% (2013 est.)
Exports: $9.936 billion (2013 est.): diamonds, copper, gold, cobalt, wood products, crude oil, coffee
Imports: $8.924 billion (2013 est.): foodstuffs, mining **and other machinery, transport equipment, fuels**
Major Trade Partners: China, South Africa, Belgium, Zambia, France

GDP GROWTH (%)

SOURCE: WORLD BANK, EIU



First Congo War leads to the installation of Laurent-Desire Kabila as president and the renaming of Zaire to the Democratic Republic of the Congo

Second Congo War, the deadliest in modern African history, officially ends with the establishment of a transitional government, although conflict with the Lord's Resistance Army and the Kivu and Ituri conflicts continues until 2008

First multi-party elections won by Joseph Kabila

Critics claim that constitutional changes make it easier for Kabila to remain in power

M23 troops briefly caputre Goma, the capital of North Kivu province

INFLATION

SOURCE: WORLD BANK

2012 **9.7%**

2013 **1.6%**

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

SOURCE: TRANSPARENCY INTERNATIONAL

RANK 2013 **154**

RANK 2014 **154**

ALL-IN SUSTAINING COSTS ($/OZ AU)

SOURCE: BANRO CORPORATION Q3 2013 FINANCIAL STATEMENT

1059

AISC is based on the World Gold Council's guidance note of June 2013 and is a metric including all costs related to production plus costs related to sustaining production. Country values represent the average from those companies who make this information available, and is taken from Q3 results.

MINE PRODUCTION

SOURCE: BRITISH GEOLOGICAL SURVEY

as of 2012
in mt unless otherwise stated

Coal (bituminous)	132,000
Cobalt	86,433
Columbite-Tantalite	261
Copper	608,400
Diamond**	20,140,000
Gold**	2,422
Silver**	12,342
Tin	2,462
Tungsten	4
Zinc	5,286

**in carats

MINING SECTOR CONTRIBUTION TO GDP

SOURCE: AFRICAN ECONOMIC OUTLOOK

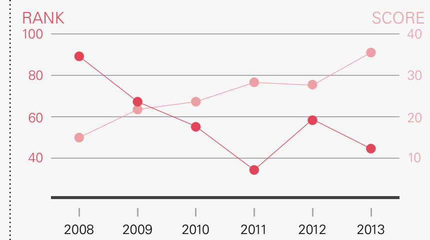
2008 **6.4%**

2013 **4.6%**

These values do not include artisanal mining. The USGS placed the 2008 value at 13.4% of GDP, and a report by the French Ministry of Foreign Affairs placed the value at 28% in 2011.

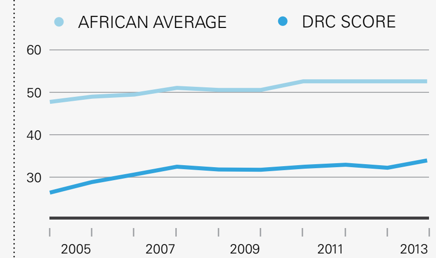
FRASER INSTITUTE ANNUAL SURVEY OF MINING COMPANIES

SOURCE: FRASER INSTITUTE



IBRAHIM INDEX OF AFRICAN GOVERNANCE

SOURCE: MO IBRAHIM FOUNDATION



INFRASTRUCTURE INDICATORS

SOURCE: UIC, IEA, CIA WORLD FACTBOOK

● DRC ● AFRICA ● WORLD

	DRC	AFRICA	WORLD
Railway - km/10,000 km2	17	29	77
Roads - km/1,000 km2	65	79	262
Electricity - kWh/capita (gross production + imports - exports - losses)	102	603	3076

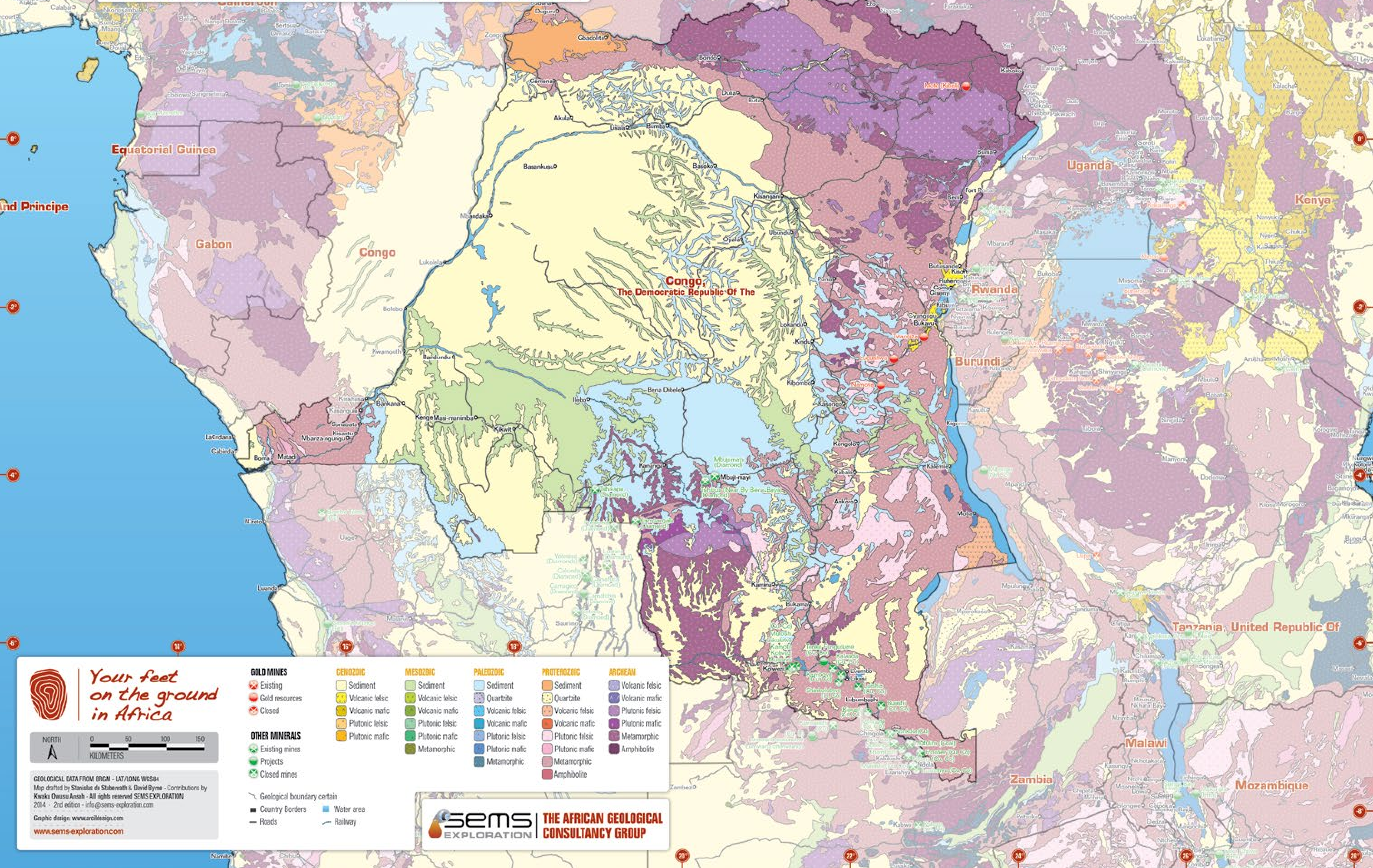
% 25 50 75 100

BUSINESS ENVIRONMENT RANKING

SOURCE: WORLD BANK, IFC, HERITAGE INSTITUTE, WEF

Name (out of)	2012	2013	2014
Doing Business Rank (189)	178	183	183
Index of Economic Freedom (177)	167	171	-
Global Competetiveness Report (148)	-	-	-

THE DEMOCRATIC REPUBLIC OF THE CONGO



His Excellency Moïse Katumbi Chapwe

Governor of Katanga Province
THE DEMOCRATIC REPUBLIC OF THE CONGO

In 2006 you found the Province of Katanga with a budget of just $21 million. Today, in 2013, the budget is $658 million. Given that Katanga does not receive substantial funds from the central government, how did you achieve this performance?
When I arrived in Katanga, the province was the third contributor to the DRC's GDP and after a year of my mandate, we were number one. Moreover, in 2007, Katanga was contributing only $80 million to the national treasury whereas now we bring in $2.8 billion. We have also been actively fighting corruption since I became governor: the monthly duty that we were receiving from customs in 2007 was $1.2 million while now it is $90 million. Some corruption is left but we are slowly and surely working to eradicate it. We are doing all of this to give people a better life, to build the roads, the water infrastructure, the electricity, the schools. Now, results can be seen everywhere: life changed in Lubumbashi, in Kolwezi, in Likasi. Sendwe Hospital in Lubumbashi has 2,500 beds today that are accessible to everyone, from all parts of the province, irrespective of their financial status. All these achievements would not have been possible without the trust that I build with the investors and our excellent collaboration. Katanga is supposed to receive back 40% of its contribution to the central government but today, we get only about 3% of that; adding the 4% for the salaries still leaves us under 10%. The central government should respect the constitution, which is very good, and should return the 40% to us because we will make good use of it, developing even more the economy.

Can you tell us more about the current situation of the mining industry in Katanga, and how you are dealing with the issue of power supply in the province?
In 2006, we were exporting 18,000 mt of copper cathode yearly and now we are at over 650,000 mt; if we include concentrates, that number goes up to more than 1 million tons. I was criticized at the time but I had a vision to create added value here: in two years' time, Katanga will be exporting 1,500,000 tons of copper cathode a year.
The electricity issue is a result of the mistakes of past governments, which should have signed the Inga project earlier with our South African partners. However, I want to reassure everyone that things will change very soon in Katanga. We are currently working on the Luapula project, at the border between Katanga and Zambia, which will bring 1,400 MW of new capacity in Katanga in two years' time. We also have several mining companies working on five different power projects, such as Tenke Fungurume at the Nseke hydroelectric power plant. Moreover, Inga phase two is going to be completed in December so with all this power coming online, Grand Inga will serve more for power exports.

What achievements are you the most proud of?
In 2006, there were 600,000 students in primary and secondary schools and now we have 3 million. We have to educate people, so as to give them a chance to do something once the resources disappear. With the help of mining companies, we are training technical people and rehabilitating schools across the province; the DRC needs a middle class. Road infrastructure is also essential: when the Belgians left Katanga, there were only 450 km of roads in a province the size of France. In six years, I have built 1,400 km of asphalt road and 5,000 km of dirt road. A lot of the credit for this goes to the South African IDC bank because they financed a great deal of our development projects. They helped us at the right time because people had nothing to eat and we were importing 90% of our food, while now that number dropped to 35%. I told mining companies to develop agriculture projects because food is a basic need. Without it, people will not be able to do anything and they will look towards their governor to find answers. As a leader, you have to understand the people and not forget them.

The dialogue to amend the 2002 Mining Code has started. What is your opinion regarding these amendments?
Changing the mining code is not good for the business community and we should keep the promises we made to these investors when they first came here. Perhaps new players can be subjected to these laws, but it is essential to have a dialogue and an agreement between the mining sector players, the chamber of commerce and the government: I am not going to accept this code otherwise. We run the risk of killing investment in the country and that cannot happen. It is my job as governor to create stability in my province, and if people lose their jobs as a result of this code, I will be responsible. I cannot agree with something that will negatively impact the business sector. •

Democratic Republic of Congo

The Democratic Republic of Congo (DRC) may be the world's most tantalizing mining jurisdiction for investors and multinational companies. The truly staggering figure is that the country has been estimated to contain $24 trillion in untapped, high-grade minerals, which includes the world's largest reserves of cobalt as well as noteworthy deposits of gold, diamonds, and copper. Some estimates measure the DRC as being home to 10% of the world's copper and 50% of its cobalt. The largest impediment for the sector is political instability. Only small-scale, artisanal miners have been able to harvest minerals in many parts of the country. Not only do artisanal miners fail to realize the country's potential but they also often leave environment damage by operating in protected areas that are home to endangered or threatened species.

The Promise of Katanga

Fortunately, the Democratic Republic of Congo is a vast country – Africa's largest in terms of geography – and the southern province of Katanga has mostly been able to avoid political unrest and build a flourishing mining industry that includes cobalt, copper, tin, radium, uranium, and diamonds. The provincial capitol, Lubumbashi, is also considered the mining capitol of the DRC and serves as a hub for the growing number of international mining companies exploring in the country.
Katanga exemplifies how successful mining could be in the rest of the DRC and is a critical component of the country's current stability, as 80% of the country's export revenues come from mining.
The Katanga Province has made swift progress in recent years under the leadership of its governor, HE Moïse Katumbi Chapwe, who came into office vowing high growth and social development. A businessman by training, the governor has set his sights on developing the province's mining industry. The early results are impressive. Katumpi has grown the province's budget by $21 million since the time that he took office to 2013, and overseen a rise in industrial investment from $5 billion to $20 billion. The mining industry has grown even more sharply in recent years. In 2012, DRC produced 580,000 metric tons (mt) of copper, but nearly doubled that figure to 942,000 mt in 2013. Katumbi's goal of reaching 1,500,000 mt per year by 2015 seems ever within reach.

Risks

Unfortunately, political instability has begun to undermine operations in Katanga and cast a dark shadow over the province's future. A group called Bakata Katanga wants the province to break away from Kinshasa and establish a separate state. The conflict has displaced over 600,000 people since 2012. Given the UN's stretched resources and commitment in northeastern DRC, it is unclear how enough force will be ushered in to provide security. Elections also loom in 2016, and will be an important barometer of Katumpi's rule. Since outside investors view Katumpi's rule as an unqualified success, new leadership could usher in uncertainty.
In addition to security risks, the threat of nationalization or changes to the mining code, Law 007/2002, are the primary reasons why miners shy away from the Democratic Republic of Congo. The government's revoking of First Quantum's license in 2009 remains the most cautionary tale. Negotiations over the country's mining code never cease, but suggestions made by government officials are cause for concern. In 2013, one such suggestion proposed that state participation be increased from 5% to 35%, an increase in the corporate tax rate from 30% to 35%, a 6% rise in royalty payments, and a reduction in exploration permits from 15 years to six. Such terms would make any investor hesitate, even in a jurisdiction as appealing from a mineral perspective as the DRC.
Power shortages have also historically crippled the mining industry, and 2014 was no exception. In March 2014, the DRC's prime minister told mining companies to halt expansion plans that would require additional power. Katanga demands roughly 900 megawatts of power for mining, but roughly half of that amount is available, forcing the country to rely on more expensive imports from Zambia. The country's vast hydropower reserves help, but miners are increasing looking for alternative and temporary power generation solutions.
According to Vinesh Surajlall, Director, Sub Saharan Africa of Energyst Rental Solutions South Africa (Pty) Ltd., "The reality is that mines in Africa are in re-

> We will see a huge growth in temporary power solutions, as the cost of grid power continues to increase at a phenomenal rate. We will also see diversification in the energy mix, as we move to newer fuel types including gas or hybrid but these are not typically available in the rural areas.
>
> - Vinesh Surajlall, Director, Sub Saharan Africa, Energyst Rental Solutions South Africa (Pty) Ltd.

mote locations, and it could take up to 10 years for these mines to use grid power in some cases. Every year lost in mining is never a year gained. We supply interim power typically for the site from the establishment phase to the production phase until the company accesses permanent power. The other advantage of the temporary power solution is the management of capital expenditure. Companies can outsource the supply and management of their power generation needs."

Production and Exploration

Despite the risks, major players continue to invest in the DRC, and the country recently overtook Zambia as the top producer of copper in Africa. Well-known names in the DRC include GlencoreXstrata (which merged its Mutanda Mining operations with its adjacent Kansuki project), Freeport-MacMoRan (with Tenke-Fungurume Mining), ENRC (with Boss Mining operations, and the Frontier and Lonshi mines), Tiger Resources (with its Kipoi project) and Mawson West. Merger and acquisitions have been plentiful in the sector in recent years and Chinese players are making their presence felt in the market: Jinchuan Group acquired Metorex and its Ruashi Mining operations in Katanga in late 2011 for $1.36 billion while MMG of Minmetals Group bought out Anvil Mining in February 2012 for $1.3 billion. Indian companies such as Somika and Rubamin are also running copper operations in Katanga. Finally, lurking in the mist we find TSX-listed Ivanplats and their Kipushi and Kamoa projects, which show tremendous potential in terms of reserves. Kamoa, owned by African Minerals Barbados Limited, a subsidiary of Ivanplats, is potentially the world's largest undeveloped high-grade copper discovery, having an estimated mine life of 61 years at 143,000 metric tons per year, according to its preliminary economic assessment.

In addition to their size, the DRC's copper deposits are attractive due to their high grade. The Kipoi and Kamoto mines are estimated to contain grades above 3.0%, significantly higher than the world average of 0.6%. This will be an increasingly important competitive advantage as some of the world's largest mines, including Antamina in Peru, Escondida in Chile and Grasberg in Indonesia, have experienced falling ore grades and higher extraction costs.

The Democratic Republic of Congo is one of the many reasons that Africa could become a future center of gravity for global mining. The mineral potential is outstanding, and the Katanga province offers an example of how the country can develop its resources efficiently in collaboration with foreign companies and capital. When political stability comes to the nation as a whole, a bonanza awaits miners and the world's future supply of copper and cobalt will be assured for decades. •

Guns, Dogs and Lawsuits: Miners Risk Rising Legal Challenges When Operating In Conflict Affected Areas

Mark Camilleri

The author would like to thank Haylea Campbell for her assistance.

Mining is, by its very nature, a global business. Unlike most other industries, the mining industry has little scope for choice about where to locate – it goes where the minerals are located. Today, many of the most exciting under-explored and under-developed projects are located in conflict-affected areas. While mining projects in these countries can do tremendous good for local economies, companies operating in these jurisdictions assume a great deal of risk.

Miners are particularly well versed in notions of risk and reward. Although proficient in managing traditional risks, mining companies in conflict-affected areas are also exposed to operational, security and, increasingly, legal risks. In enlisting the services of security forces, whether public or private, a mining company can find itself legally liable if these forces commit crimes. Even where legal liability is ultimately not attributed to a company, the costs and damage to a corporate reputation, and the costs associated with the loss of a social licence to operate, can be enormous.

Conflict-affected areas are not just war zones

While many would associate a conflict-affected area with a war zone, the term is much wider. For the purposes of this article, the definition given by the UN Global Compact ("Global Compact") of conflict-affected areas ("CAA") is a helpful one. According to the Global Compact, the term 'conflict-affected area' includes areas or regions which are not experiencing high levels of armed violence, but where political and social instability prevails; areas where there are serious concerns about abuses of human rights being committed; ones where violence is prevalent, including inter-state and civil wars; and 'post-conflict' societies which remain highly volatile. Violations, particularly those of the gravest nature ('gross human rights violations'), are more likely to occur in CAAs. Companies, like mining companies, which rely on security for the protection of company personnel and assets, may face allegations of involvement in crimes committed by security forces.

Positive role of mining companies to economies in conflict-affected areas

Mining companies can be a force for positive change in CAAs, where economic development is one of the main avenues to breaking out of the cycle of violence and building lasting peace. Moreover, given that CAAs are often overly reliant on foreign aid, the private sector investment made by mining companies can facilitate longer-term structural improvements to the economies of these areas.

Mining companies and violations of gross human rights violations

Despite having a positive role to play in CAAs, mining companies have been attacked by civil society for their alleged responsibility for human rights violations. The growing consensus, as expressed in the UN "Protect, Respect and Remedy" Framework, ascribes businesses with a responsibility to respect human rights. Where CAAs are concerned, this responsibility is supported by potentially significant legal consequences.

The following is a brief overview of various ways mining companies operating in CAAs can find themselves caught in a web of legal liability.

International Humanitarian Law

As the above definition states, CAAs can include situations of on-going violence. In these situations, a CAA may be a non-international armed conflict for the purposes of International Humanitarian Law ("IHL," that is, the law of armed conflict). In some circumstances, IHL can apply directly to companies. Even in situations of armed conflict, the application of International Human Rights Law continues to apply in law enforcement situations. As such, companies operating amidst armed conflicts must be well informed by experts in IHL (and human rights principles) in how to manage their business and relationships and avoid running afoul of this complex area of law.

International Criminal Law

In both CAAs and non-conflict environments, mining companies can find themselves liable for, or complicit in, breaches of International Criminal Law. Very simply, complicity occurs when a person knowingly helps another to commit a crime. In the case of mining companies in CAAs, corporate complicity has become a standard allegation where gross human rights violations are perpetrated by public or private security forces.

At present, international tribunals do not have jurisdiction over corporations (although the jurisdiction over individual directors and managers of corporations was established during the Nuremberg trials at the end of World War II). Nevertheless, many national jurisdictions (including Canada, Australia, South Africa and the United Kingdom) prohibit aiding and abetting and allow for the criminal prosecution of corporations.

Civil litigation

In addition to criminal law, companies can be held civilly liable for breaches of human rights law or complicity in respect of such breaches. The United States in particular has witnessed a number of high profile cases involving companies (many of which have been extractive companies) sued for their role in gross human rights violations outside the U.S. The high number of cases in the U.S. is largely attributed to the existence of the Alien Tort Statute (the "ATS"), an 18th century piece of U.S. legislation that allows non-Americans to sue a party under civil law for violations of the law of nations.

The ATS jurisprudence is complex and not entirely consistent, which represents a risk to companies in terms of the predictability of litigation outcome. Recent ATS rulings (including the U.S. Supreme Court ruling of Kiobel v Shell which limits the ATS to claims that "touch and concern" the U.S.) have raised questions about the future application of the ATS in the business and human rights field. Nevertheless, ATS cases have advanced the concept of corporate complicity, raising issues of business and human rights more generally.

Recently, there has been a rise in civil actions outside the U.S. for corporate breaches of human rights. In the UK, London-listed Monterrio Metals plc was charged with complicity in the torture of 33 Peruvian farmers (leading to an out-of-court settlement in 2011); and in Canada, Hudbay Minerals Inc. and Tahoe Resources Inc. are each facing civil actions over allegations of human rights violations in connection with their respective mining operations in Guatemala.

International Codes

A number of voluntary multi-stakeholder initiatives have been developed in recent years to assist companies with their responsibility to respect human rights. While companies are not legally obliged to adopt these codes, adhering to them demonstrates their commitment to respecting human rights. In addition to the Guiding Principles on Business and Human Rights (the "GPs"), mining companies can benefit from the International Council on Mining and Metals Ten Principles as well as the Voluntary Principles on Security and Human Rights (the "VPs"). Mining companies would be well advised to comply with one or more of these voluntary regimes. However, without a proper understanding, implementation and monitoring of these commitments, companies can find themselves subject to further legal liability. In particular, companies that fail to adhere to the voluntary codes of conduct that they have committed to are increasingly at risk of direct claims of negligence. In this way, these voluntary codes – or, more specifically, the failure to understand, adopt and apply them – can give rise to their own legal risks.

Managing risk

At the heart of corporate human rights codes is the need for companies to engage in human rights due diligence. While the concept of due diligence is one that is well understood by companies, the unique and evolving nature of human rights makes the concept of human rights due diligence a particularly dynamic process. Human rights due diligence is an on-going process – as opposed to a single one-off exercise – as the risk of violating human rights (or being complicit in such violations) is ever present, particularly in CAAs. Moreover, human rights due diligence requires experts with specific expertise. In CAAs, where business takes place in less stable and more uncertain operating and legal environments, on-going risk assessments on third parties (particularly public or private security companies) are particularly important to avoid complicity (or allegations of complicity) in the crimes these forces may commit. As part of its risk management strategy, companies should also make use of third party assurance providers, such as Tsamota Natural Resources, to ensure that they are correctly complying with their codes of conduct and limiting their exposure to legal liability.

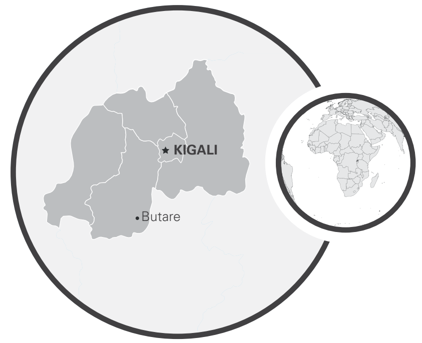
Conclusion

In conclusion, the legal risks for mining companies operating in conflict-affected areas are real and increasingly complex. Mining companies are, of course, not without resources, not least codes and third party experts who exist to manage these risks. Prudent miners, particularly those operating in conflict-affected areas, are advised to draw on these resources to uphold a legacy in CAAs that is – and remains – a positive one. •

About the Author: Mark Camilleri is General Counsel of Tsamota Limited and a member of Tsamota Natural Resources. He is a lawyer qualified in Canada and England and Wales. He was a partner in the London office of an international law firm where he practised as a mining law specialist. He holds an LL.B., MBA and LL.M. Tsamota Natural Resources offers assurance services to help mining and oil and gas companies manage legal, reputational, and financial risks associated with the contracting of private and public security forces.

Rwanda

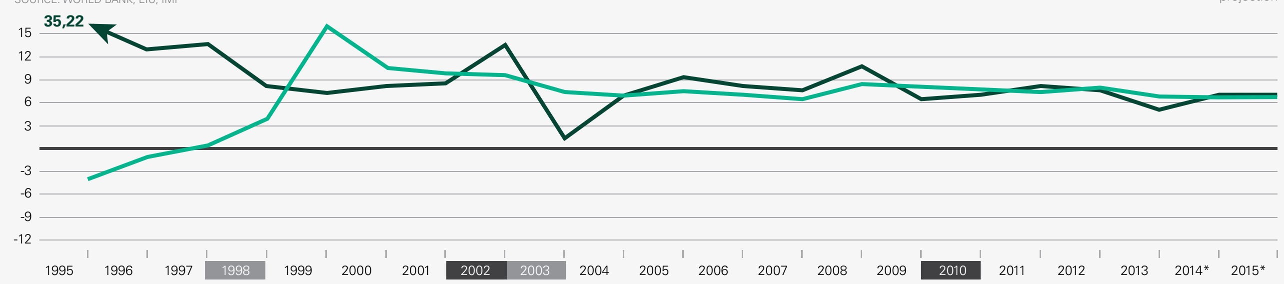
Rwanda is a former Belgian colony infamous for the ethnic violence and genocide of the 1990s. Fortunately, the country has managed to reinvent itself since then, becoming (in the eyes of many) the model of post-conflict reconstruction. It is now considered one of the easiest places to do business in Africa. Rwanda is a significant global producer of tantalum and also produced tin, niobium and small quantities of other minerals. A number of companies are exploring for gold in the country.



Population: 12,337,138 (July 2014 est)
Land Area: 26,338 sq km
Official Language(s): Kinyarwanda, French, English
Capital: Kigali
Chief of State: President Paul Kagame
Head of Government: Prime Minister Pierre Damien Habumuremyi
GDP (PPP): $16.37 billion (2013 est.)
Growth Rate: 7.5% (2013 est.)
GDP per Capita: $1,500 (2013 est.)
Economic Sector Breakdown: agriculture: 31.8%, industry: 14.8%, services: 53.3% (2013 est)
Exports: $538.3 million (2013 est.): coffee, tea, hides, tin ore
Imports: $1.937 billion (2013 est.): foodstuffs, machinery and equipment, steel, petroleum products, cement and construction material
Major Trade Partners: Kenya, Uganda, Malaysia, China, UAE

GDP GROWTH (%)

SOURCE: WORLD BANK, EIU, IMF



1998: Rwandan forces take part in the Second Congo War, which brings them into conflict with Ugandan forces.

2002: Rwandan Patriotic Front forces leave the Congo, although some Rwandan rebels remain until at least 2007.

2003: The first election since the Rwandan Civil War (1990-1993) is won by Paul Kagame and the RPF.

2010: Paul Kagame and the RPF win a second presidential election with 93% of the vote.

STATUS OF THE MINING CODE

UNDER REVIEW

Corporate Income Tax	30%
Mineral Royalties	4-6%
State Participation	-

MINE PRODUCTION

SOURCE: BRITISH GEOLOGICAL SURVEY

as of 2012
in mt unless otherwise stated

Columbite-tantalite	900
Tin	3,500
Gold**	<100
Tungsten	1,105

**in carats ***in kilograms

BUSINESS ENVIRONMENT RANKING

SOURCE: WORLD BANK, IFC, HERITAGE INSTITUTE, WEF

Name (out of)	2012	2013	2014
Doing Business Rank (189)	45	54	32
Index of Economic Freedom (177)	59	63	65
Global Competetiviness Report (148)	70	63	66

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

SOURCE: TRANSPARENCY INTERNATIONAL

RANK 2013 **49**
RANK 2014 **55**

INFLATION

SOURCE: WORLD BANK

2012 **6.3%**
2013 **4.2%**

MINING SECTOR CONTRIBUTION TO GDP

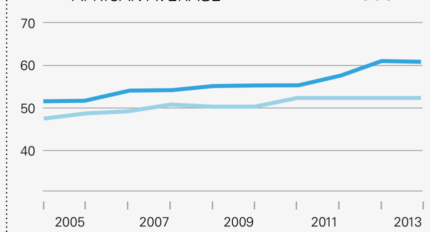
SOURCE: AFRICAN ECONOMIC OUTLOOK

2008 **1.2%**
2013 **2.1%**

These values do not include artisanal mining. Though the mining sector remains small, it is one of Rwanda's most important generators of foreign revenues and has shown significant growth since 2011.

IBRAHIM INDEX OF AFRICAN GOVERNANCE

SOURCE: MO IBRAHIM FOUNDATION

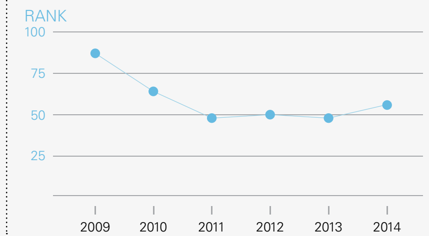


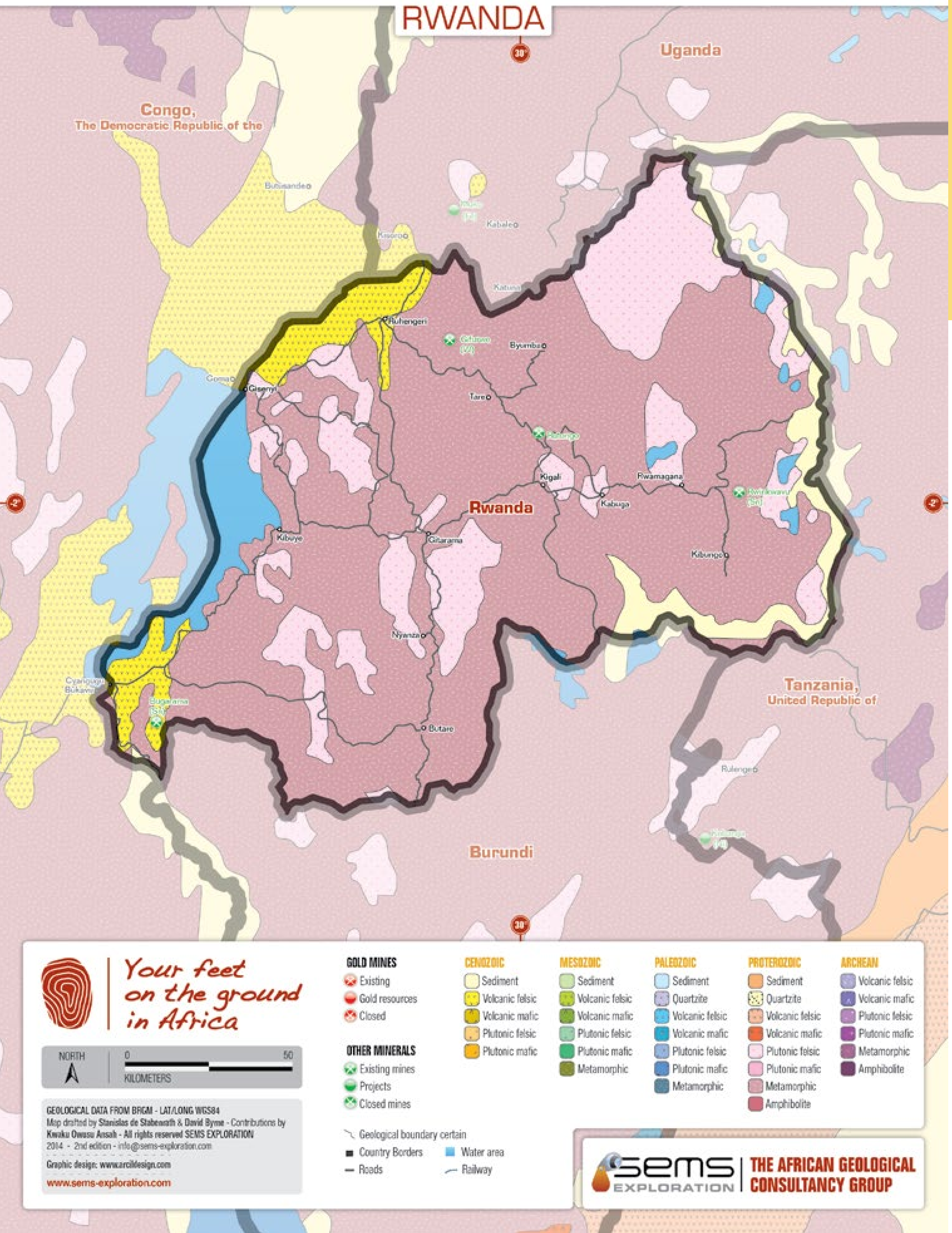
INFRASTRUCTURE INDICATORS

SOURCE: UIC, IEA, CIA WORLD FACTBOOK

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

SOURCE: TRANSPARENCY INTERNATIONAL





Honorable Evode Imena

Minister of State in Charge of Mining
Rwandan Ministry of Natural Resources

The position of the Minister of State in Charge of Mining was created in February 2013 to prioritize the sector as a key contributor to the development of the national economy. What milestones have you achieved during this time?
We have drafted a new mining law, which was approved by Parliament in February 2014. The new law is aimed at attracting serious investors, increasing efficiency, and improving value to boost revenues from Rwanda's minerals. In order to implement this legislation, the Ministry is putting new, easy to use regulations in place that allow users to access to information technology.
For instance, we have created an online mining cadaster. This online tool is accessible for people sitting in Sydney, Buenos Aires, or Toronto to retrieve the mining portal of Rwanda and see the opportunities available, the requirements for each area, and updated preliminary geological information. The Ministry seeks to use information technology to modernize how it manage mining titles and use information technology in everything we do. For most people, Rwanda is about gorillas or genocide. Very few know about its mining opportunities. The modern mining cadaster will help us communicate to the international community.

Rwanda is largely underlain by the Kibaran Orogeny rock system. One of the first steps to increase investment and productivity is to provide information on the country's geological composition. What has been done so far?
In 2013, the Rwandan government invested €2 million to delineate and quantify the mineral resources in four Prospective Target Areas (PTAs). From the results, we identified 11 new areas within the four PTAs. This year the government is again investing almost €1.5 million to explore further these newly identified areas as well as an additional three PTAs. Ultimately, we will focus on seven PTAs and are finalizing contracts with two different consultancies that specialize in geological exploration to assess the quantity and type of mineralization. We will conduct the classic geochemical and geophysical mineral exploration in the three remaining PTAs.
Within 12 months, we will release preliminary results and by the end of 2015 we will present detailed reports to serious investors. This data will highlight the mineral potential beyond tin, tantalum and tungsten and include rare earth elements, copper, zinc, cobalt, silver, gold, precious stones, beryllium and lithium. To make these minerals attractive for larger investors, we are looking at merging projects. For instance, there are companies looking at gold in southwest Rwanda that are willing to bring in a pilot plant to start processing the materials.

Rwanda boasts arguably one of Africa's best models for engaging with artisanal and small-scale miners. There are now proposed amendments to the regulations for the artisanal sector. Could you explain these?
The artisanal sector occupies more than 50% of the current mining industry. What is not artisanal is semi-industrial. Our vision is to move from artisanal to organized, small-scale mining. The first regulation is related to occupational health and safety to reduce fatal activities. Surprisingly, our fatality statistics in artisanal mining are small compared to other countries, but it is still a problem. Small steps such as ventilation, toilets near the mine site, a place where ladies and gentlemen can change their clothes, protective equipment, first aid kits on site must be taken. Secondly, we are also asking miners to insure that all their workers with health assistance.
Rwanda has a long-term vision for the mining industry. We do not see the sector as a business for only five to 10 years. Without proper statistics this will not be possible, so we are focused on helping our smaller miners accurately report their resources in terms of reserves and investments. To do this, we are investing $2 million to train the local population and in many cases bringing in expatriates to help with mine management and skills transfer. Part of this investment is to develop Rwandan standards for estimating and reporting. If miners have 5,000 metric tons of tin resources, we want to know if this is based on a standardized reporting system that is similar to the standards used in South Africa and Australia.

Do you have a final message?
Rwanda is open for investors. Although in its infancy, Rwanda has good prospects, and the Ministry is committed to providing the most up to date data. We aspire for the next Indaba to have passports describing each area with an estimate of the money and work needed to operate there. The Ministry is open to meeting with potential investors at Indaba and by February 2015, we will have four to five projects ready. We understand investors' concerns and are ready to improve our systems to make it suitable for the industry. The government does not have a mine, so its role is to support the industry. •

Rwanda

Bordered by Uganda and the Democratic Republic of Congo to the north, Tanzania to the east, and Burundi to the south, Rwanda is fast becoming the most attractive business environment not only in East Africa but across the continent. The 2014 Word Bank Doing Business Report ranked Rwanda as the second easiest country in which do to business in Africa, after Mauritius and surpassing South Africa. In a global context, Rwanda now ranks 32nd out of 189 countries: boosted by radical reforms, it is the most improved economy since 2005.

Pivotal in this success was the establishment of the Rwanda Development Board (RDB), created to fast-track economic development in Rwanda by enabling private sector growth. As a one-stop shop for all inves-tors, reporting directly to the President, the RDB has streamlined systems, processes and created incentives to promote investment in the sector. Our vision 2020 stipulates what needs to be done for Rwanda to achieve this objective.

"As a result of this program, we received our first sovereign credit rating three years ago. Fitch Ratings has affirmed Rwanda's long-term foreign and local currency Issuer Default Ratings (IDR) as 'B', with a positive outlook and because of that we can go to the market and raise money. Very recently, we launched our first 10-year bond to the international markets – with a very strong debut per-formance. Investors are paying attention to us."

- Clare Akamanzi,
Chief Operating Officer,
Rwanda Development Board.

Recently, at the African Development Bank (AfDB) annual meeting held in Kigali (May 2014), Dr. Donald Kaberuka, AfDB president said "Rwanda was chosen to host this event because of its track record as a champion of Africa's need for home grown solutions." Inspired by the unprecedented growth seen in Sin-gapore, President Kagame's 20-year rule has emulated its Southeast Asian peer: improved governance, fos-tered economic reform and business development.

However, ambitious goals to achieve the Second Economic Development and Poverty Reduction Strategy (EDPRS II) by 2018 – the home stretch to Rwanda's 2020 vision - are premised on private sector investment to drive growth. This aggressive medium-term strategy to ensure that the country achieves middle-income status by 2020 has earmarked the mining sector as a major pillar to the country's economic development and a focal point for international investment.

Export figures

Currently, the mining industry is the second largest foreign exchange earner, after tourism reaching $226 million in exports in 2013 with an aim to reach over $400 million by 2017. The sector has been growing at a rate of more than 10% year on year since 1999. Mining's contribution to GDP has historical been low, hov-ering below 2%, but this is expected to increase to more than 5% between 2017 and 2018. However, sur-passing 2013's figures will be unlikely due to low metal prices ($80/lb) and reluctance from downstream buyers to accept African material, despite increased production. The latter applies especially to tungsten and even from countries, such as Rwanda, which are not affected by conflict, driven by fear of conflict min-erals despite the country's initiatives to implement a tracing and tagging system, the ITRI Tin Supply Chain Initiative (iTSCi), to track all minerals and ensure that none are moved from conflict zones into Rwanda, processed or resold. Even small-scale mining companies and cooperatives have adhered to the system. Kamugwera Vestine, chief executive officer of Codemibu Mining Cooperative, a tungsten producer in the Nyarugenge district, Kigali Province has been working with international buyers. "They help to build our capabilities and skills to successfully manage the labor and environmental challenges of the business….as well as establish mechanisms and systems in place to track minerals from the mine of origin throughout the supply chain," explains Vestine, who has seen a decline in revenues, despite increased production as a re-sult of the current stigma's attached to Africa's tungsten.

New Legislation

To achieve long-term mining targets, a new mining law that was released earlier this year in June 2014 aimed at enhancing investment into the mining sector. The key change is the provision of new types of li-censes. The new law takes into account the size of mineral deposit and the scale of investment, replacing the previous tenure of only five years for artisanal or 30 years for larger scale operations. Jean Malic Kali-ma, president of the Rwanda Mining Association and regional director for Wolfram Mining and Processing has lobbied for this transition. "We are in favor of flexible timeframes for the issuance of mining licenses to enable small-scale miners to secure longer tenures which will help increase their access to funding and ul-timately profitability. The current mining licenses were rigid, for five or 30 years only."

The Ministry of State in Charge of Mining is focused on several other key areas: collect and improve the availability of geological data, move from an export orientated industry to a production and processing sec-tor, and introduce technology both at an administrative and operational level.

Little is known about the geological potential that may or may not exist in Rwanda. To date, Rwanda has been associated almost exclusively with the three Ts: tin, tantalum and tungsten. Rwanda is largely under-lain by a series of rock types commonly referred to as the Kibaran system, which extends through northern Tanzania through southwestern Uganda, Rwanda, Burundi, the eastern part of Democratic Republic of Congo, Zambia and Angola. This rock system contains numerous granite-related ore deposits, which are rich in minerals ores like cassiterite, niobo-tantalite, wolframite, beryllium, spodumene, amblygonite and gold.

To understand the geological composition of the country, the government invested more than €2 million to assess the mineral potential in four Prospective Target Areas (PTAs). The data identified 11 new interesting areas within the four PTAs. This year the government will again invest $2 million to explore further these newly identified areas through geological exploration, geochemical and geophysical surveys to identify and assess the quantity and type of mineralization within those areas. Indications reveal there is potential in copper, cobalt, zinc, phosphorous and semi-precious stones. Complete geological data is expected to be available by the end of 2015 and will be accessible through an online system for investors. The availability of geological data should encourage further foreign investment in a sector that is currently largely made up of artisanal mining, producing far below capacity due to lack of knowledge, skills, and technology. The gov-ernment and industry are working with small-scale and artisanal miners to upgrade existing sites and foster awareness around safety and environment.

However, lack of financial capacity remains a critical constraint and these small artisanal miners are in

IMAGE: Habatu and H&B Mining

con-stant lookout for potential joint ventures or partnerships with foreign investors. The Rwanda Mining Asso-ciation has also been involved in the classification of artisanal miners and small-scale miners to enable a formal mining industry. "Small artisanal miners are contributing more than 50% of the total mineral pro-duction per year in Rwanda and we need to empower them to increase this. We have seen a lot of im-provement in this regard and many small scale miners are moving towards a more formal and in some cas-es semi-mechanized way of mining," adds Malic.

Gaju Placide, managing director of Somicar and recently appointed as the chairman of the Rwanda Mining Northern Province Association (RMNPA) assists cooperatives in the region with the transition to more for-mal mining operations. "We are responsible for promoting a professional mining industry for Rwandans and to maximize the economic potential of Rwanda's mining sector in the northern province." In order to achieve these results "the RMNPA has plans to work with companies to build capacity on their mines through various training sessions with a strong focus on safety. We are currently building a deep mining training course center."

Somicar located in Gakenke District in the Northern province has put steps in place to enhance mechaniza-tion at the tantalite and cassiterite producing mine. "We are focused on improving mining methods and the use of equipment to increase production, modern mining and minimize manual labor and environmental impact," reinforces Placide.

In parallel with the development of the sector, efforts are being made to put in place international best practices related to green mining, part of the EDPRS II strategy. Even small-scale miners and cooperatives including Habatu Mining Company and H&B Mining Company, tantalum producers in the Rwamagana dis-trict have spearheaded the development of environmentally sustainable practices. Hakizima Jean Bosco, owner and managing director of Habatu Mining Company and H&B Mining Company explains, "the H&B mining operations are close to a lake, so we have had to make provisions which has meant inventing new technologies for us to use in order to create a good model for environmental protection." Having been in operation since 2008, the company is already semi-mechanized and has received assistance from Mineral Supply Africa (MSA) a trading company dealing in Procurement, Processing & Exporting of minerals. MSA trades with local miners, mining cooperatives and mining companies as well as financially support miners in order to increase the mining production of Rwanda.

"We like to work in jurisdictions with good governance and a reasonable amount of transparency...being responsible investors, we need to look at jurisdictions that are stable with low risk; Rwanda is one of the best....they are managing very well the resources that they have and Rwanda will need a lot of help to ex-pand the industry. The Minister is very committed to growing the mining industry and investors need to take a serious look.

- Ben Smit, Director, Director Pella Resources Limited and Managing Director of Pella Rwanda Resources Ltd."

Rwanda is well positioned to take advantage of the mineral wealth from its regional rich neighbors. It is strategically located as the gateway between East and Central Africa, with plans underway to fast-track re-gional integration in the East African Community. The Standard Gauge Railway (SGR) project set to run from Mombasa to Kigali through Uganda and will reduce the cost of doing business by decreasing the cost of transport. Although Rwanda's mineral ores are 100% exported as raw mineral concentrates, current predic-tions indicate there will be plenty of capacity for processing plants to serve the region. Plans are already underway by private sector players to build processing plants and revive smelters with a regional focus in mind. Processing plants to smelt cassiterite into tin, refine wolframite and tantalite into tungsten and tan-talum are needed. Phoenix Metal Ltd is currently upgrading a tin smelter expected which is expected to come online this year, with the aim to be the first conflict-free certified smelter in Africa.

Pella Rwanda Resources Ltd, another newcomer to the market signed a $22 million deal with the Rwandan government to undertake mining operations in Rwamagana District in the Eastern Province with the intent to build a processing plant in the later part of this five-year agreement. "As an African-focused company, Pella Resources made a conscious decision to get involved in tin as we did a couple of years ago with rare earths in Burundi as well as bauxite in Guinea. We believe that over the next few years, tin will be a very attractive market…At the moment there is a lot of conflict in the DRC where the other big tin deposits are located. Therefore we specifically targeted Rwanda, given that the country is already a significant contribu-tor to the tin production in Africa," explains Ben Smit, Director Pella Resources Limited and Managing Di-rector of Pella Rwanda Resources Limited. We will be constructing commercial scale facilities to process to a concentrate level and we will sell the concentrate to the smelters. Our plans are to add about 25 percent to the total tin production of Rwanda…we would like to add 100 to 120 tons cassiterite per month to their production by the beginning of 2015 and grow from there."

Although the geological potential remains to be seen, Rwanda undoubtedly boasts one of the most attrac-tive business climate in the region for small to large investors, the political stability and transparency known to plague Africa's continental growth are absent in the land of a thousand hills. As the private sector investment slowly increases and the artisanal mining industry adopts sustainable technical methodologies, the mining industry will continue on its state of transition from a trading to a productive and processing industry. Together, the Ministry of State in Charge of mining and the Rwanda Development Board have fos-tered an unrivaled investment environment. If Africa's Asian tiger can systematically address the gaps in geological data, skills development and processing capacity, Rwanda will be one step closer to the dynamic global hub for business, investment and innovation that it endeavors to become. •

IMAGE: Habatu and H&B Mining

Ghana
Guinea
Mali
Morocco

West And North Africa

IMAGE: Shutterstock

West Africa

With arguably more untapped mineral wealth than any other region on the continent, West Africa was well poised for significant investment and growth in its respective mining sectors and broader economies in 2014. It was not going to be an easy task under the best circumstances. The global drop in commodity prices negatively affected the region's most prominent minerals including iron ore, which had begun to excite more interest than gold, the mineral for which the region was previously renowned. In addition, significantly underdeveloped infrastructure, lack of reliable geological data and a robust legislative framework were all working against these jurisdictions. However, the devastating impact came from the worst Ebola outbreak in history. Beyond the horrific human cost of the tragedy, the outbreak has bankrupted and halted many of the major mining projects, especially in Guinea, Sierra Leone and Liberia, the countries most affected by the disease. Liberia and Sierra Leone were just beginning to gain a foothold and develop their nation, while attracting international investment after years of civil war and dictatorship.

Three countries from West Africa made it to our top ten this year, including Ghana, Mali, and Guinea. Ghana indisputably made it into our top ten mining destinations. By now the fact that Ghana is West Africa's most mature and developed mining jurisdiction should not be news to any serious, informed mining stakeholder. Today, the extractive industries of gold and oil, alongside cocoa production, account for the bulk of the country's exports and foreign exchange. Furthermore, with 30,000 direct employees, the mining sector was the source of 27% of the government's internally generated revenue in 2012; roughly 95% of that amount can be traced back to gold. Africa's second largest gold producer and West Africa's trademark mining jurisdiction can attribute its success to stable democratic governance, sound legal and regulatory framework and developed infrastructure, despite its current energy crisis.

The second country to make it into our top ten is Mali, which is the third largest gold producer in Africa and home to substantial deposits of iron, phosphate, marble, granite. Like Ghana, Mali is a country where gold is king, accounting for more than 70% of the country's exports. In fact, its roughly 1.8 million oz produced in 2013 placed it just behind Ghana. However, the similarities between the two countries stop there. Mali is landlocked, francophone, and has had a functioning mining industry for only 20 years. Mali's mining market has been vastly more dynamic than Ghana's over the past 10 years, growing 540% on aggregate. Moreover, since 1992, big gold mining names such as Randgold and IAMGOLD were actually born in Mali. Today, the country has nine operating mines, seven open-pit and two underground. Of course, Mali has not achieved mining perfection yet: recent unionized strikes at mines such as Yatela and Sadiola have done the sector no favors. Furthermore, adequate power supply remains a key issue in a country where the few active hydropower plants are not able to cope with an ever-increasing demand and a tainted perception from the coup d'etat, even though it is far removed from the area. However, the government has introduced an attractive mining code and incentives to stimulate mining activities following the last coup. The target is to double gold output by 2018.

Guinea was also rated among the top ten investment destinations, albeit the most underdeveloped of the top choices. Guinea does not fall short on mineral potential. It boasts one third of the world's bauxite resources, as well as the world's largest undeveloped iron project at Simandou, which contains more than 2 billion metric tons (mt) of high-grade ore. The mistakes of the past weigh heavily on the shoulders of Condé's administration and great efforts have been made recently to mend the wrongs of previous administrations. Since 2010, the country has adopted a new mining code and a comprehensive mining contract review policy with such players as Guinea Alumina Corporation (GAC), a Mubadala/DUBAL joint venture, and Alliance Mining Commodities (AMC) Bauxite. However, Rio Tinto PLC has stopped work on a $20 billion iron-ore mine deep in territory hard hit by the virus. While it is unlikely we will see a bounce back in 2015, there is a certainly a long-term view for Guinea and for its iron-ore, when the country regains its footing we should expect big things. All eyes are on Guinea as discussions around taxes and state ownership continue.

The West and Central African countries such as Ghana, Gabon, Republic of Congo, Cameroon, Liberia, Guinea, Cote d'Ivoire and Sierra Leone contain some of the world's largest, untapped, high-grade iron ore and gold deposits. There is a phenomenal rush of mining interest in this region, and we eagerly await what will come next.

North Africa

Despite the region's focus on oil and gas, it is impossible to ignore North Africa's potential influence on the mineral output of the continent moving forward. However, since the start of the Arab Spring at the end of 2010, political instability has plagued the region and investors have remained cautious. Although none of the countries in North Africa is represented among the top ten, we have elected Morocco as the up and coming mining investment destination in the region and an important jurisdiction to watch.

Morocco's democratic tendencies and soft monarchy have made the country a safer harbor for regional investment, as they have shifted money from Libya and Egypt. In recent years, mining in Morocco has flourished: accounting for as much as 35% of the country's foreign trade and 6% of the country's GDP. Around 75% of global phosphate reserves are located in Morocco and 85% North Africa. The majority of the area's mined phosphates are used in the production of fertilizer. More recently, the country has seen several foreign resource exploration companies enter into the market. Morocco's efforts to attract mining investment including the drafting of a new mining code and investments to upgrade the nation's infrastructure and as a result of this stability have placed it on our radar.

Two important mentions in the region are Mauritania and Egypt. Mauritania's iron ore potential is undeniable and significant investments have also been made in gold and copper. The National Industrial and Mining Mauritanian Company (SNIM), has become one of the ten largest iron ore producers in the world and the second largest employer in the country after the state. However, dealing with the national company has been anything but easy. SNIM recently opened up to foreign investors after two long years of negotiations with Glencore. Furthermore, an amendment in 2012 to the 2008 mining code has not instilled a sense or transparency amongst investors and hesitations around a sound legal framework governing the sector still remain.

As a result of the lack of mineral exploration, Egypt holds significant potential for further large-scale discoveries. Today, several foreign investors have a presence including Alexander Nubia International and Centamin. The United Kingdom has repeated its commitment to helping Egyptians rebuild their country and called economic revival the key to Egypt's security and democracy. However, the political landscape and reality in Egypt has changed dramatically, and time is needed rebuild the country and its reputation. •

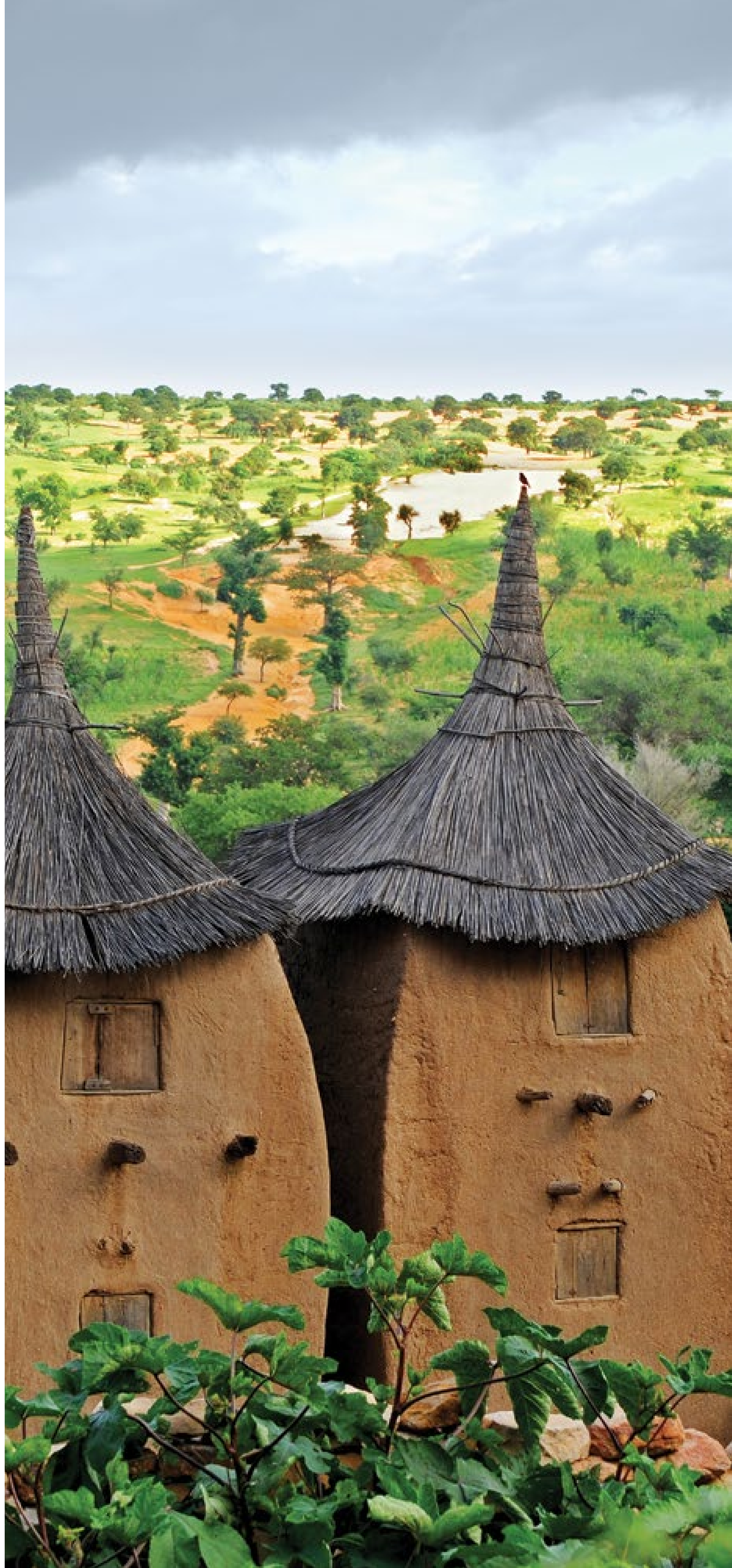
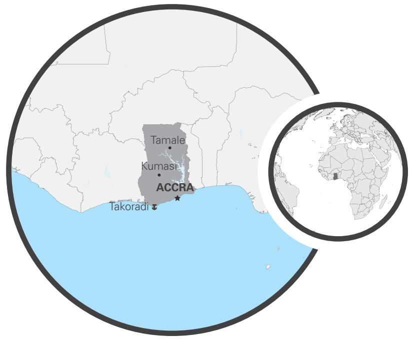


IMAGE: Quick Shot - Shutterstock

Ghana

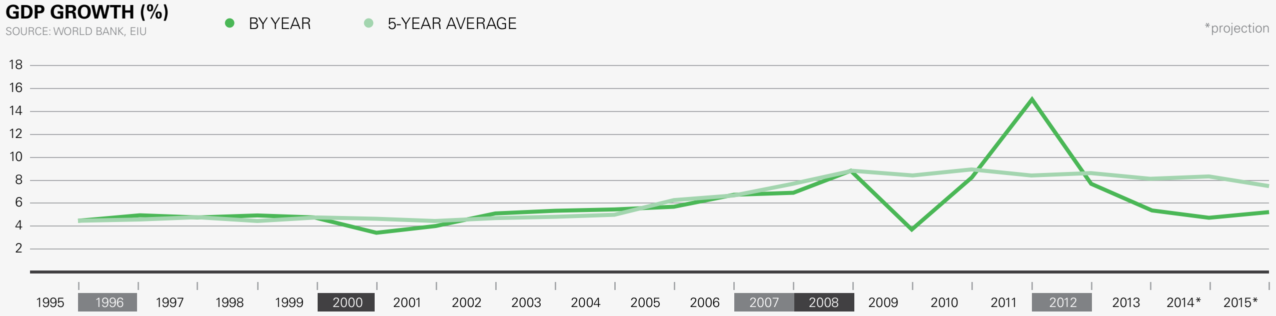
Ghana, a former British colony, is seen by many as the success story of West Africa. Multiparty democracy has been functioning well since John Rawlings reintroduced it to the country in 1992. Sensible macroeconomic policies combined with an oil and gas boom has seen the country enjoy consistently strong economic growth for the past 30 years. In the mining industry, Ghana is a globally significant producer of gold and diamonds (by volume), and also produces bauxite, manganese, and silver.



Population: 25,758,108
Land Area: 238,533 sq km
Official Language(s): English
Capital: Accra
Chief of State: President John Dramani Mahama
Head of Government: President John Dramani Mahama
GDP (PPP): $90.41 billion (2013 est)
Growth Rate: 7.9% (2013 est)
GDP per Capita: $3,500 (2013 est)
Economic Sector Breakdown: agriculture: 21.5%, industry: 28.7%, services: 49.8% (2013 est)
Exports: $13.37 billion (2013): oil, gold, cocoa, timber, tuna, bauxite, aluminum, manganese ore, diamonds, horticultural products
Imports: $18.49 billion (2013): capital equipment, petroleum, foodstuffs
Major Trade Partners: China, France, United States, Italy, Nigeria, Netherlands

GDP GROWTH (%)

SOURCE: WORLD BANK, EIU



1996: Jerry Rawlings is reelected president with 57% of the vote in an election described as free and fair by observers.

2000: John Atta-Mills, vice president of Rawlings, is defeated by John Kufuor in the presidential elections.

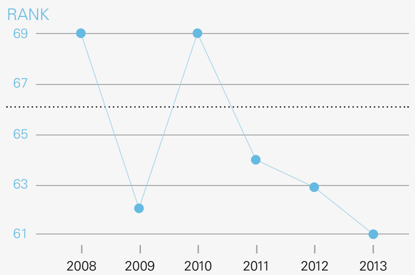
2007: Kufuor, again running with the New Patriotic Party, wins a second term in presidential elections.

2008: A major offshore oil discovery is announced by Tullow Oil, promising an economic boom for Ghana.

2012: John Atta Mills of the National Democratic Congress wins a close election to become president.

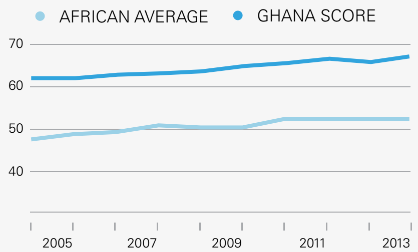
TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

SOURCE: TRANSPARENCY INTERNATIONAL



IBRAHIM INDEX OF AFRICAN GOVERNANCE

SOURCE: MO IBRAHIM FOUNDATION



BUSINESS ENVIRONMENT RANKING

SOURCE: WORLD BANK, IFC, HERITAGE INSTITUTE, WEF

Name (out of)	2012	2013	2014
Doing Business Rank (189)	63	62	67
Index of Economic Freedom (177)	84	77	66
Global Competetiveness Report (148)	114	103	114

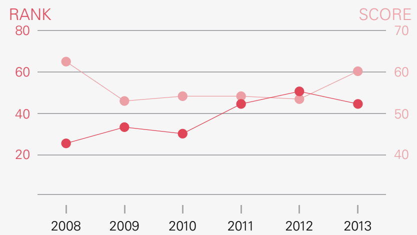
STATUS OF THE MINING CODE

APPROVED 2006

Corporate Income Tax	35%
Mineral Royalties	5%
State Participation	1%

FRASER INSTITUTE ANNUAL SURVEY OF MINING COMPANIES

SOURCE: FRASER INSTITUTE



MINE PRODUCTION

SOURCE: BRITISH GEOLOGICAL SURVEY

as of 2012
in mt unless otherwise stated

Aluminium	38.000
Bauxite	752.711
Diamond**	215.188
Gold***	98.489
Manganese	1.490.634
Salt	150.000
Silver***	3.900
Crude Steel	25.000

**in carats ***in kilograms

INFRASTRUCTURE INDICATORS

SOURCE: UIC, IEA, CIA WORLD FACTBOOK

	GHANA	AFRICA	WORLD
Railway - km/10,000 km2	40	29	77
Roads - km/1,000 km2	459	79	262
Electricity - kWh/capita (gross production + imports - exports - losses)	455	603	3076

1% 25 50 75 100

INFLATION

SOURCE: WORLD BANK

2011	8.7%
2012	9.2%
2013	11.6%

Benjamin Aryee

CEO
Minerals Commission Ghana

The year 2013 saw a downturn in global gold markets. How badly was Ghana impacted?
Mining, and particularly gold mining, has always been extremely important for Ghana. Consequently, whatever happens to gold has a clear and direct impact on the Ghanaian mining industry and the national economy. The gold price decline decreased production by about 15% in 2013. Furthermore, Ghanaian national revenue suffered and unemployment increased, as several mining companies reduced the number of their employees: it is estimated that, in 2013, between 2,500 and 4,000 people lost their jobs in the nation's mining sector. Unfortunately, we are expecting these negative trends to continue in 2014: the problem is that the mining companies' reactions to fluctuations in the international market are not constant. During the downturn, the private sector tends to shut down rapidly and drastically. During the upturn, the time to restart investing is much longer. There is no sudden reaction, because people want to see if the positive market conditions are sustainable. The downturn also caused a severe reduction of exploration work. These factors combined to show us that, unfortunately, there will not be any dramatic increase of mining activities over the next two to three years, as the industry will still be recovering from the 2013 gold shock.

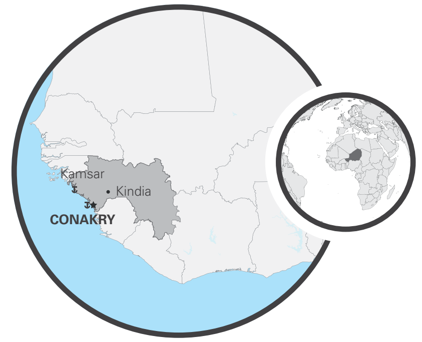
Why did the PMMC construct a gold refinery and what other strategies will strengthen Ghana's mining sector?
The reasons behind constructing a gold refinery in Ghana go deeper than simply producing refined gold: it also established linkages between the gold industry and other economic sectors. We mine bauxite but import alumina: having refineries would lead to the formation of integrated industries, which would diversify our economic scope, while creating more employment to offset the gold sector's jobs cuts. By further integrating mining into the economy and encouraging auxiliary activities, we are growing more resilient against global market trends.
Ghana still has tremendous undeveloped potential: for example, we have proven limestone reserves in the north that are not being utilized. Furthermore, we have an untapped solar salt market, which could serve multiple purposes. First, solar salt could be interfaced very easily with a variety of industries, especially with the oil and gas one. Second, the current West-African regional supply of salt is currently being imported from Brazil and Australia, so we could easily tap into that channel, providing a cheaper, local product. Third, we are looking at a renewable resource, which, if managed properly, would be a major economic activity generator.

Could you provide us with some key updated statistics regarding Ghana's mining sector?
It is estimated that 30,000 people are employed by the mining industry in Ghana. In 2012, the whole mining sector contributed 27% of all internally generated government revenues, but that figure will end up being considerably lower for 2013. The production decline of 15%, alongside the gold price decrease of about 20% has significantly impacted governmental revenues. In 2013, Ghana's gold production equated to roughly 4.0 million ounces, as opposed to the 4.3 million ounces of 2012. Meanwhile, diamond production has been steadily decreasing, in the absence of an industrial player on the market: from one million carats in 2005, it went down to a low of 215,000 carats in 2012; nonetheless, GCDGL is making considerable progress and its operations should considerably increase Ghana's diamond output. Bauxite has been swinging up and down, with recent values at around 600,000 metric tons (mt) annually; finally, manganese production has consistently hovered around 1.5-million mt per year. However, gold remains the quintessential actor of Ghana's industry, accounting for about 95% of the sector's revenues.

What would be your final message?
Mining is a long-term investment, and it cannot simply be shut down. As a mining investment destination, Ghana has been tried and tested, while constantly proving itself in terms of governance and commitment to the industry. The authorities are aware of the sector's importance and determined to partner with private players to ensure a win-win situation. Recent times have brought change, but change is an integral part of evolution. •

Guinea

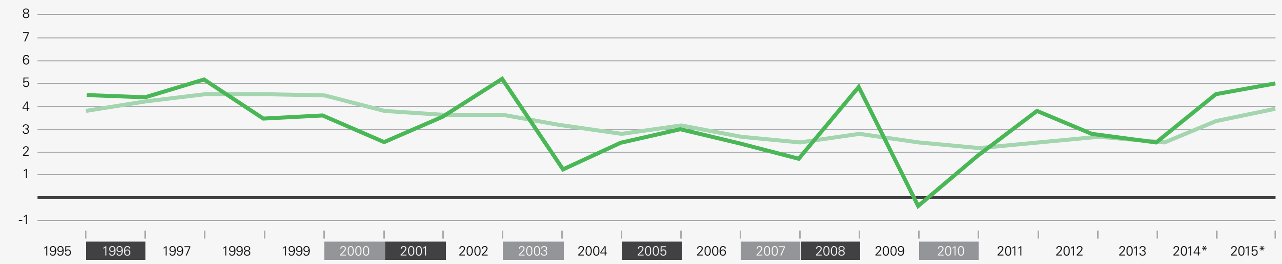
The former French colony of Guinea was ruled for three decades after independence by president Touré. After his death president Conté took power, who died in 2008. Since then Guinea's political system has consisted of coups, one successful election in 2010, attempted assassination, and widespread protests in 2013. The mineral industry accounts for over 25% of Guinea's economy: the country is a globally significant producer of bauxite and diamonds, and also has gold, iron ore, manganese, nickel, and uranium potential.



Population: 11,474,383 (July 2014 est)
Land Area: 245,857 sq km
Official Language(s): French
Capital: Conakry
Chief of State: President Alpha Conde
Head of Government: Prime Minister Mohamed Said Fofana
GDP (PPP): $12.56 billion (2013 est)
Growth Rate: 2.9% (2013 est)
GDP per Capita: $1,100 (2013 est)
Economic Sector Breakdown: agriculture: 22.9%, industry: 46.5%, services: 30.5% (2013 est)
Exports: $1.31 billion (2013 est): bauxite, alumina, gold, diamonds, coffee, fish, agricultural products
Imports: $2.384 billion (2013 est): petroleum products, metals, machinery, transport equipment, textiles, grain and other foodstuffs
Major Trade Partners: Chile, China, Spain, Netherlands, India

GDP GROWTH (%)

SOURCE: WORLD BANK, EIU



A quarter of Guinea's armed forces mutiny over low pay and set the presidential palace on fire.

Rebels begin incursions in Guinea's border regions, in action that will eventually cause massive displacement.

Constitutional amendments lengthen presidential term limits, leading to criticisms of president Lansana Conte.

President Conte wins a third presidential term, although elections are boycotted by the opposition.

Alpha Conde, head of the main opposition Guinean People's Rally, returns from exile.

Massive strikes and violent protests occur, leading to Conte sacking several government figures.

Conte dies and the military siezes power, installing Captain Moussa Dadis Camara as president.

Alpha Conde is declared the winner of presidential elections overseen by the military junta.

STATUS OF THE MINING CODE

APPROVED (2013)

Corporate Income Tax	30%
Mineral Royalties	2-10%
State Participation	15%

*free interest - possible revisions would give the state the right to purchase an additional 20%

ALL-IN SUSTAINING COSTS ($/OZ AU)

SOURCE: BANRO CORPORATION Q3 2013 FINANCIAL STATEMENT

1036

AISC is based on the World Gold Council's guidance note of June 2013 and is a metric including all costs related to production plus costs related to sustaining production. Country values represent the average from those companies who make this information available, and is taken from Q3 results.

INFLATION

SOURCE: WORLD BANK

2012	15.2%
2013	11.9%

MINE PRODUCTION

SOURCE: BRITISH GEOLOGICAL SURVEY

as of 2012
in mt unless otherwise stated

Bauxite	17,400,000
Alumina	245,000
Diamond**	266,800
Gold***	14,723
Salt	15,000

**in carats ***in kilograms

MINING SECTOR CONTRIBUTION TO GDP

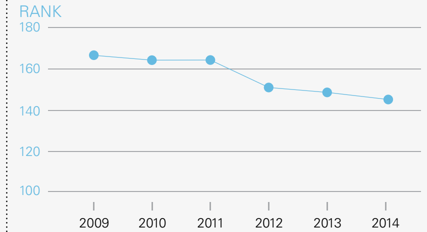
SOURCE: AFRICAN ECONOMIC OUTLOOK

2008	24.3%
2013	21.6%

These values do not include artisanal mining. Revenue Watch places mining's contribution to GDP at around 20%.

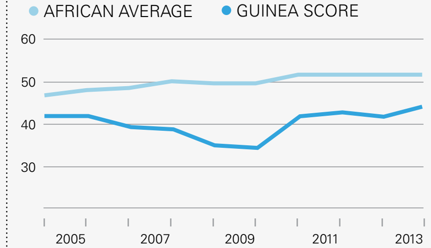
TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

SOURCE: TRANSPARENCY INTERNATIONAL



IBRAHIM INDEX OF AFRICAN GOVERNANCE

SOURCE: MO IBRAHIM FOUNDATION



INFRASTRUCTURE INDICATORS

SOURCE: UIC, IEA, CIA WORLD FACTBOOK

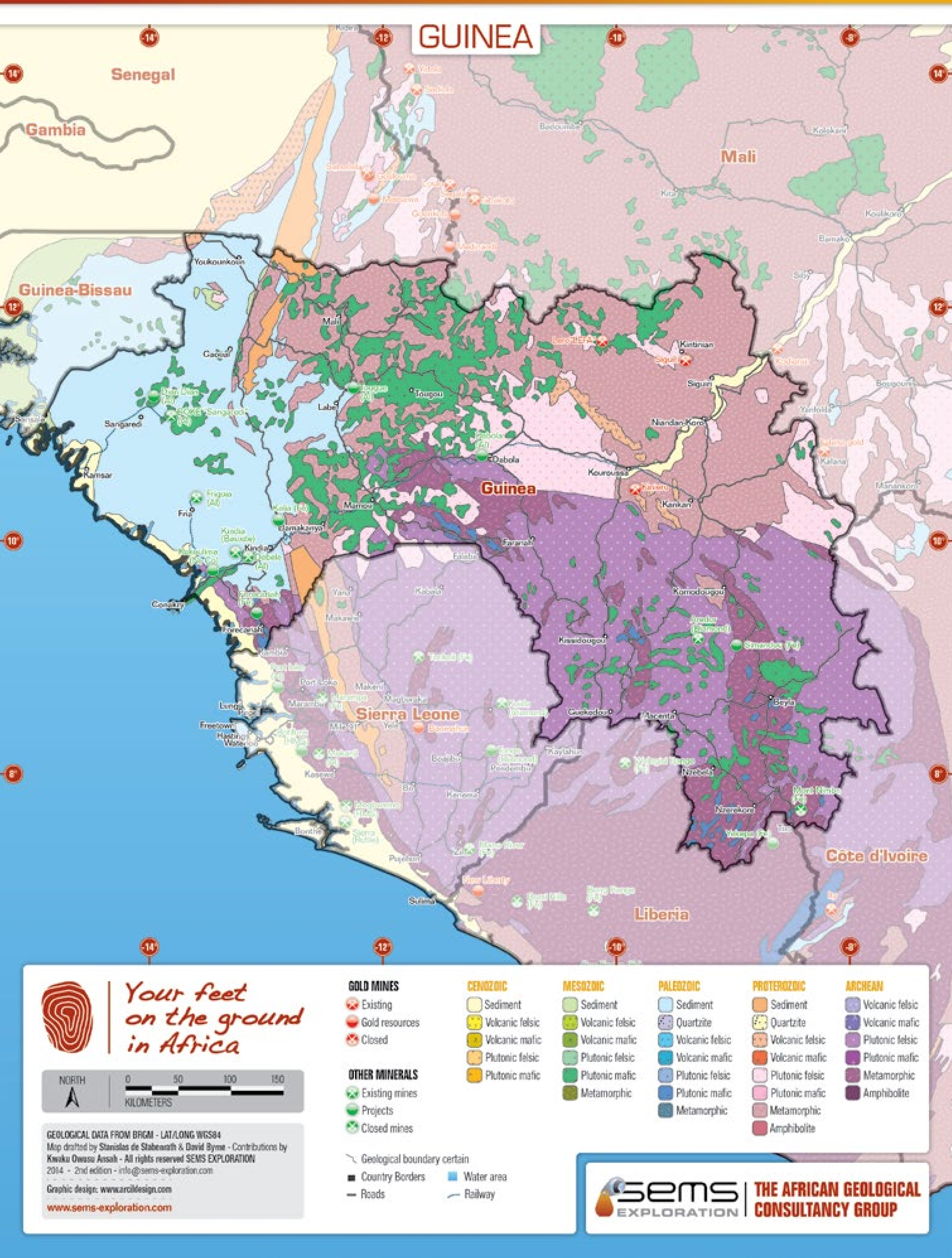
	GUINEA	AFRICA	WORLD
Railway - km/10,000 km2	48	29	77
Roads - km/1,000 km2	180	79	262
Electricity - kWh/capita (gross production + imports - exports - losses)	84	603	3076

% 25 50 75 100

BUSINESS ENVIRONMENT RANKING

SOURCE: WORLD BANK, IFC, HERITAGE INSTITUTE, WEF

Name (out of)	2012	2013	2014
Doing Business Rank (189)	179	179	175
Index of Economic Freedom (177)	141	137	133
Global Competetiviness Report (148)	-	141	147



His Excellency, Kerfalla Yansané

Minister of Mines
Guinea

You came into office in January 2014. In what state did you find the Ministry and Guinea's mining industry?
Based on recent internal assessments, we have concluded that we need to improve the management of the Ministry of Mines and, more generally speaking, of Guinea's mining sector. We are trying to send a better image to all key stakeholders, as the mining sector should be a pillar of the country's economy. We found that people were demoralized about the state of the industry. We are trying to provide new energy to our staff, and, implicitly, to the sector's companies.

In April 2013, Guinea revised its Mining Code. What were the main changes?
The revision of the Mining Code was based on three key pillars: stability, transparency, and win-win relationships between the government and the private sector. There was a stringent need to ensure the transparency of our interaction with companies, so we made it mandatory to publish all contracts online, creating a level-playing field for everyone. Moreover, we are looking to create a functional relationship with the civil society, and to explain what we are doing and that we are committed to the EITI procedures. We want to send out a positive signal to mining companies – we will create an investor-friendly environment, allowing them to make profits, but, in the same time, we require their help in developing our economy. Guinea faces global competition from countries, such as Indonesia and Australia, to export iron ore and bauxite reserves to the main end-market, China. We are drafting a tax system to help companies in Guinea compete better.

The ability to involve national SMEs into large-scale mining activities is essential for the development of the economy. What are the local content policies and how are you building local capacity?
We are presently organizing specialized local content workshops in partnership with the IFC – we want to ensure that the mining activities also bring benefit to local SMEs. However, we first need to augment local capacity, as we do not wish to force miners to have contracts with unprofessional companies. The Ministry of Mines is collaborating with the Ministry of Vocational Training to increase the number of programs that can help develop the skills needed to work in the mining sector. There are jobs that cannot be filled by Guinea's local labor market but certain mining works should be allocated to indigenous businesses because that is the only way in which the national mining service sector can develop. We are putting in place incentives to collaborate with Guinean companies.

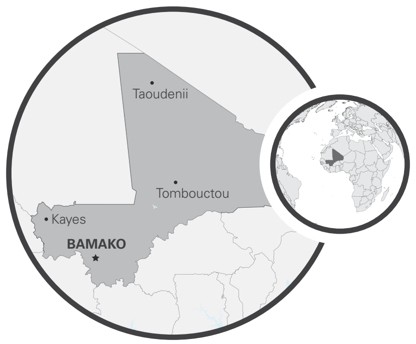
What is being done to improve the power supply situation?
Energy is an issue, but Guinea is the water tower of West Africa. We have more than 150 sites that are suitable for hydro dams and are currently building the Kaleta hydropower station in collaboration with our Chinese partners. The project should be completed by mid-2015, thus offering more supply options for mining companies. We also have plans for two other major sites, which, once completed, will provide energy domestically and to neighboring countries.

What factors make Guinea an attractive mining destination?
The quality and quantity of Guinea's resources is indubitable. We have almost one third of the world's bauxite deposits and possess the largest undeveloped iron ore project, Simandou. Additionally, as more power supply comes online, we will be able to develop a variety of activities linked to the mining sector, exporting raw materials and processed ores. We have political stability and a respected and visionary administration, all of which make Guinea a very interesting investment destination.

Guinea's recent mining history has had its share of controversies. What is the Condé administration doing to restore investor confidence and what does the future look like?
When I came into office as the Minister of Economy and Finance, inflation was at 23% to 25%, and the fiscal deficit over 10%. Three years later, inflation dropped below 10%, and the fiscal deficit below 3%. This macro-stability is very important, along with the country's political stability and regulatory framework (new Mining Code). Last year, we signed a contract with Chinese investors for more than \$6 billion; in parallel, we signed a bauxite/alumina contract with an Abu-Dhabi consortium for \$5 billion. Our undeveloped Simandou project is worth approximately \$25 billion. The government is working hard to complete the mining contract reviews with the likes of Rio Tinto by the end of 2014. 2015 will be an extremely productive year for Guinea. We hope that the mining sector will contribute more to the country's economic and political stability and that it will provide domestic industrial diversification. •

Mali

Mali is a country of outstanding history: it is the site of the legendary Timbuktu, a centre of Islamic learning. Successful elections in 2002 marked a period of political and social stability for the country, however in 2012 Tuareg rebels briefly took control of northern Mali. Mali's mining industry produced gold as a principal commodity, and also phosphate and semiprecious stones. Vast undeveloped resources include bauxite, chromium, copper, gypsum, iron ore, lead, lithium, manganese, nickel, niobium, silver, titanium, uranium, and others.



Population: 16,455,903 (July 2014 est.)
Land Area: 1,240,192 sq km
Language(s): French
Capital: Bamako
Chief of State: President Ibrahim Boubacar Keita
Head of Government: Prime Minister Moussa Mara
GDP (PPP): $18.9 billion (2013 est)
Growth Rate: 4.8% (2013 est)
GDP per Capita: $1,100 (2013 est)
Economic Sector Breakdown: agriculture: 38.5%, industry: 24.4%, services: 37.1% (2013 est)
Exports: $2.577 billion (2013): cotton, gold, livestock
Imports: $2.895 billion (2013): petroleum, machinery and equipment, construction materials, foodstuffs, textiles
Major Trade Partners: China, France, Malaysia, Senegal, Cote d'Ivoire, India

GDP GROWTH (%)

SOURCE: WORLD BANK, EIU

Peace agreement with Tuareg tribes leads to return of thousands of refugees.

Former President Moussa Traore sentenced to death on corruption charges, but has his sentence commuted to life imprisonment by President Konare.

Konare appoints former International Monetary Fund official Mande Sidibe prime minister.

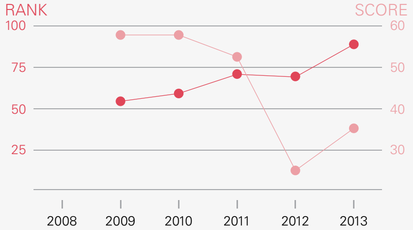
Amadou Toumani Toure elected president by landslide. Poll is marred by allegations of fraud.

The ruling coalition, Alliance for Democracy and Progress (ADP), strengthens its hold on parliament in elections.

Military officers depose President Toure ahead of the April presidential elections, accusing him of failing to deal effectively with the Tuareg rebellion. African Union suspends Mali.

FRASER INSTITUTE ANNUAL SURVEY OF MINING COMPANIES

SOURCE: FRASER INSTITUTE



MINE PRODUCTION

SOURCE: BRITISH GEOLOGICAL SURVEY

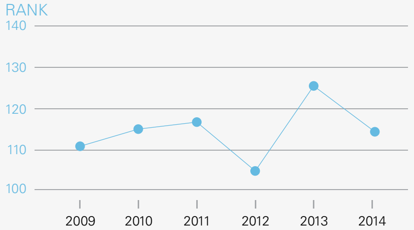
as of 2012
in mt unless otherwise stated

Gold**	50,272
Salt	6,000

**in kilograms

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

SOURCE: TRANSPARENCY INTERNATIONAL



FOREIGN DIRECT INVESTMENT

SOURCE: UNCTAD

*inflows, $ million

2011	556
2012	397
2013	410

MINING SECTOR CONTRIBUTION TO GDP

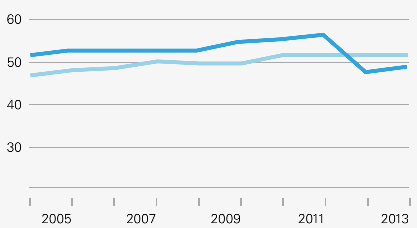
SOURCE: AFRICAN ECONOMIC OUTLOOK

2008	6.8%
2013	7.2%

These values do not include artisanal mining. Revenue Watch places mining's contribution to GDP at around 20%.

IBRAHIM INDEX OF AFRICAN GOVERNANCE

SOURCE: MO IBRAHIM FOUNDATION



INFRASTRUCTURE INDICATORS

SOURCE: UIC, IEA, CIA WORLD FACTBOOK

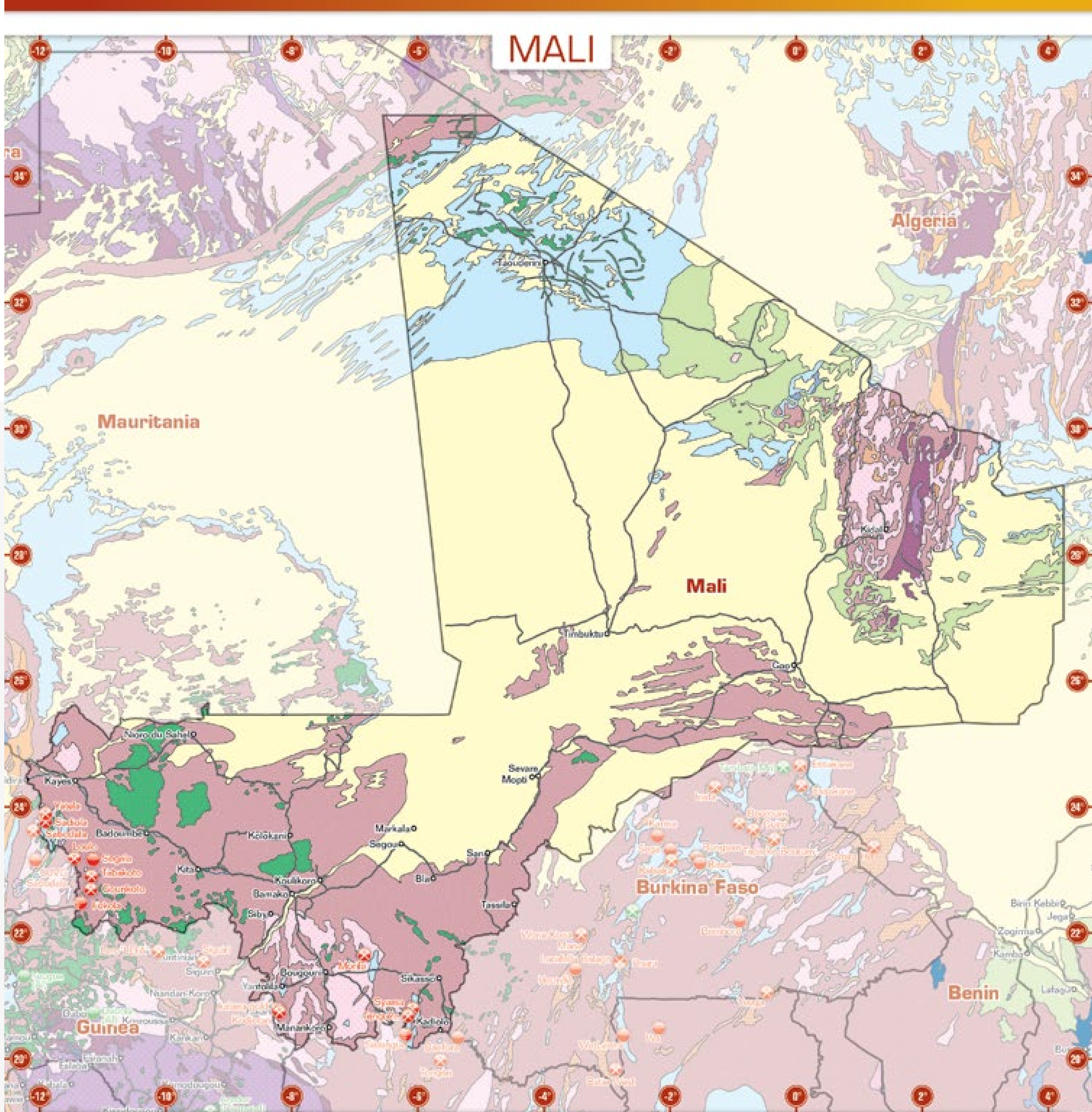
	MALI	AFRICA	WORLD
Railway - km/10,000 km2	5	29	77
Roads - km/1,000 km2	18	79	262
Electricity - kWh/capita (gross production + imports - exports - losses)	158	603	3076

0% 25 50 75 100

INFLATION

SOURCE: WORLD BANK

2012	5.4%
2013	-0.6%



Abdoulaye Pona

President
Chamber of Mines, Mali

In a time frame of little over 20 years, Mali has become an African gold powerhouse, and the continent's third largest producer of the ore. Could you tell us more about how this performance was achieved?
In order to understand Mali's mining present, one has to look at the industry's historical evolution. Since gaining independence, Mali has seen three different regimes. The First Republic, which lasted between 1960 and 1968, had a purely socialist character; the country's riches belonged to the people, not the individual, and no mining code was elaborated. In 1968, the regime was overturned by a coup d'etat, which gave birth to Mali's Second Republic. The military regime adopted a slightly more liberal approach, but, in essence, maintained its strong socialist background. Mali strengthened its ties with the USSR, and intensive exploration work was undertaken, but only two concessions were considered for development and only one, Kalana, became a state-owned mine, operated in collaboration with Russian help. Still, Mali's mineral potential remained far from properly developed. Finally, in 1991, after another coup d'etat, the country's Third Republic emerged, and Mali switched to a true liberal economy. In 1992, Mali's first mining code was promulgated. (The mining code has been amended twice since, in 1999, and in 2012 – mining companies are given the option of choosing the version that suits them best). Subsequently, international mining giants such as BHP Billiton, Goldfields, and Anglo started coming to Mali. Shortly after, in the mid-1990s, the first private sector mine was inaugurated, at Syama, Sadiola, Yatela, Morila, and Loulo followed. Today, Mali has ten operating gold mines (out of which eight are open-pit, and two underground) and has became Africa's third largest gold producer. Moreover, along the way, the country served as a home-base and cradle for international gold powerhouses such as IAMGOLD and Randgold.

Mali is overwhelmingly gold-reliant. What are the country's options to diversify and what measures are needed to develop other resources?
Although it is dependent on gold, Mali has good potential for developing other minerals. However, this boils down to the country's energy deficiencies: gold mining is not as energy-intensive as, for example, bauxite mining, where the transformation of bauxite to alumina requires temperatures of up to 1,800 degrees Celsius. Mali does have phosphate, bauxite, manganese, nickel, and even rare earths, but it does not have the necessary energetic infrastructure to handle their development. A solution would be the development of nuclear power plants, since we already have good uranium deposits, but this plan would attract considerable international pressure. Another obstacle is water supply, as we cannot risk contaminating the Niger River. Our hydropower potential provides a decent option, but, ultimately, it cannot support new large developing sectors by itself.

How was Mali impacted by last year's gold market downturn and how does the country's mining future look?
Mali has several features that allow it to keep expanding its mining activities. First of all, the abundance of gold in the country is unquestionable: the Birimian rocks are a geological formation that spreads across 600,000 square kilometers. Moreover, we are blessed to have both oxide and sulfide deposits – what that means is that we have good near-surface resources, as well as good underground ones. Because it is a new industry, which has many young mines that are open-pit, Mali is able to keep its production costs low. Ghana, for example, has been mined for more than a century. Its mines are deep and underground, and, in turn, that means high production costs that can surpass $1,000 per gram (g). Mali, on the other hand, still has plenty of operations that are running opex of around $700/g. At a price of $1,300/g, we are still a viable solution whereas Ghana is not. Hence, Mali's production did not slow in 2013, registering 45 metric tons of gold, and two or three new projects should be launched in 2014. Considering our upward trend (13 projects total in development) and Ghana's downturn, we could become Africa's second largest gold producer in the future. •

The Role of SEMS Exploration Ground Geophysics in Developing an Exploration Target Model in West Africa

Harry van den Berg (geophysicist)

With decreasing profit margins and dwindling sources of external funding, mining and mineral exploration companies should now be even more selective than before about where and how they invest their money. Often a mining company's first attempt to improve efficiency is to reduce its exploration budget.
Where recent (post 2000), high quality regional airborne magnetic and radiometric data are available, a follow-up "detailed" airborne mag-spec survey may not always significantly add to the geological or geophysical evidence for conceptualised targets. Furthermore, regional airborne surveys are likely to cover a larger area than is required by the company which may result in the delineation of too many targets, based on a possibly underdeveloped geological model, for the exploration team to reliably assess.
In the real world we are faced with uncertain favourable or unfavourable a-priori characteristics for target models so geological guidance is required to help direct exploration and to optimise a geophysics program. Thus, initial (regional) target models are grounded in and validated by geo-logical experience from earlier exploration successes in similar settings.
Geological mapping, artisanal mining and soil/auger geochemistry are used to develop a greenfield exploration target model. In combination with geological mapping, regional geophysics and its derivatives usually provide sufficient evidence for a structural analysis through the mapping of magnetic (and radiometric) lineaments and their classification into faults / shear zones and fold axes. From this information target zones and / or shallow drilling programs may be refined; for example, the potential for gold mineralisation is often associated with interpreted thrust faults and fracturing along strike slip faults or related dilatational transverse structures. Fault zones may also appear as magnetic lows caused by magnetite destruction. These are all features that may be identified using regional geophysical data and quantified through profile analysis and modelling of discreet anomalies.
Enhancement of the exploration target model usually requires ground truthing and the assessment of additional parameters such as a target's electrical properties. Electric properties are usually obtained through airborne electro-magnetic surveys or ground electric resistivity and induced polarization (IP) surveys. For ground surveys, specifications such as line spacing, electrode / sampling interval, and depth of investigation are largely determined by economic constraints and physical characteristics of the sought-for deposit such as its size, shape and depth.
In the search for Au targets the most common line spacing for ground IP surveys in West Africa vary between 100 meters (m) to 200 m. However, SEMS has observed there is a considerable variance in the selection of electrode spacing, measurement protocol and interpretative products used by exploration companies. A comparison between time domain AEM and ground electric surveys has shown that inversion results to depths of 120 m for conductivity/resistivity correspond quite well if one ignores averaging due to differences in sample spacing and the effect of conductor dip which may

result in an apparent horizontal shift of anomaly.

In the same comparison neither method was able to show any correlation between known Au mineralisation and anomalous signal decay (Tau for AEM & IP for ground electric). Results for both methods were spatially incoherent indicating that disseminated sulphides, that may be associated with Au mineralisation, are not homogeneously present in large enough quantities to be detected. It is worth mentioning that another useful product from conductivity inversion is the determination of a bedrock profile / depth of weathering that is often used to indicate a change in lithology.


Geophysical technician at IP measuring station for 800m electrode spread


Geophysical Technician and geologist on a combined VLF & ground magnetic survey in northern Cote d'Ivoire

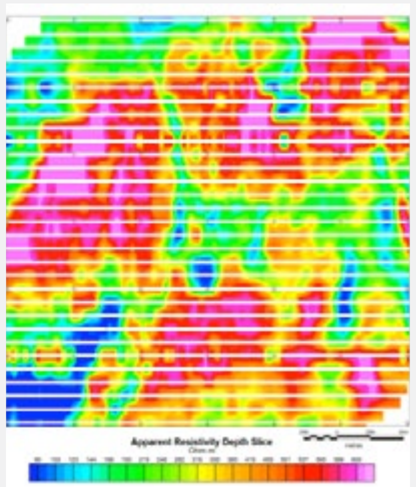
Based on these observations the development of target models from AEM/ground electric surveys is limited to 'feature picks' associated with stronger conductors and magnetic lineaments that are believed to represent locations with more Au mineralisation potential. However, it is possible to optimise this type of conductivity survey, to achieve greater returns on investment, by increasing data point density and using a single array protocol that also allows inversion of conductivity and IP data.

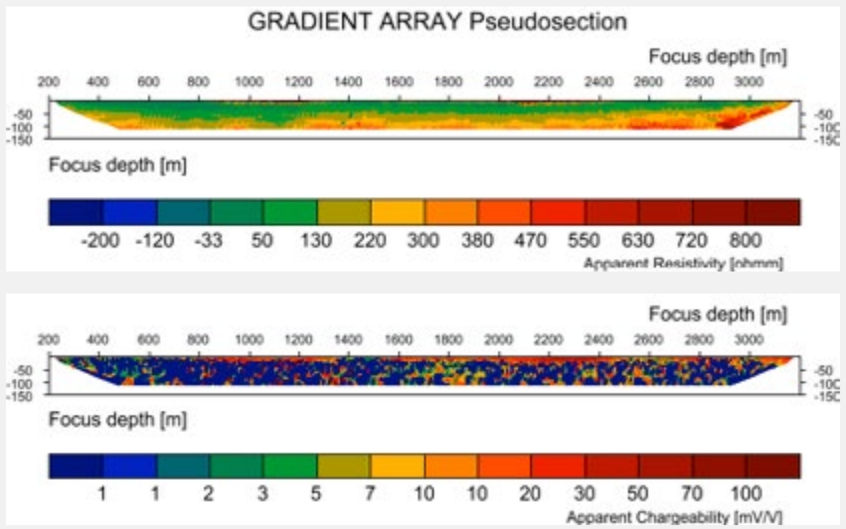
The state of the art ABEM Terrameter units deployed by SEMS utilise 10 m electrode spacing in a gradient array mode that allows full 2D or 3D inversion of conductivity and induced polarization records and produces images to depths of 120 m. These results have been achieved by SEMS on IP surveys recently completed in West Africa where the improved resolution has identified narrow (<5 m), possibly mineralised, faults and fractures within granitic intrusions under thick (30 m to 50 m) saprolite. Such results are not achievable with the conventional 25 m to 50 m electrode spacing dipole-dipole surveys that are commonly deployed by companies exploring for gold in West Africa. The dipole-dipole surveys also take longer to complete and are more expensive than the SEMS ABEM solution.

Better defined target models allow Exploration Geologists to focus on their highest priority targets with confidence. Improved target selection at an early stage also allows a company to relinquish ground with confidence. This in turn leads to a more efficient use of the company's exploration budget and thereby gives investors an improved chance of success.

At SEMS our mission is to apply the best available geophysical technology to give the highest resolution results and identify prioritised targets at no additional cost to the client. We also field a GEONICS VLF transmitter with the GEMSYS ground VLF system that consists of two coils mounted on a backpack all linked to the main console of Proton, Overhauser, or Potassium continuous recording magnetometer units. •

Should you wish to know more about the geophysical capabilities of SEMS you may contact harry.vandenberg@sems-exploration.com
www.sems-exploration.com

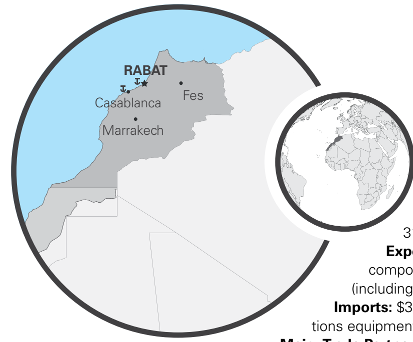

An apparent resistivity depth slice shows the resolving power of the 10m electrode spacing



Pseudo sections created from gradient array data

Morocco

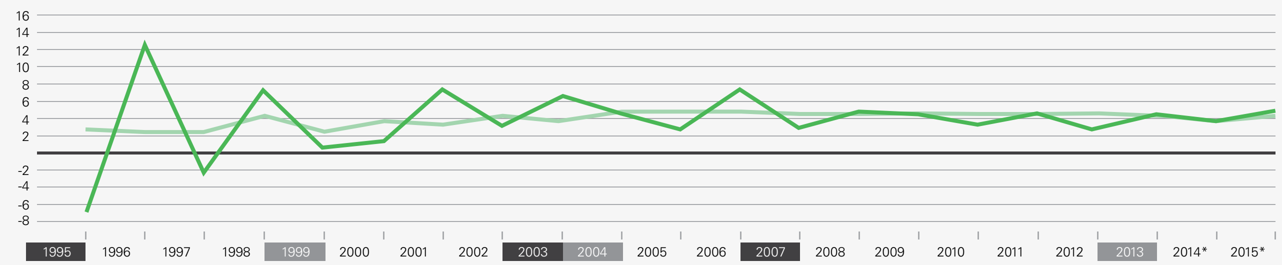
Morocco is home to an incredible diversity of cultural and historical influences. Politically, it was arguably the least affected by the "Arab Spring" protests: promises of reforms seemed to maintain political stability, although there are complaints that these promises have not been delivered on. The mining industry is long established with favourable investment terms, is a globally significant producer of phosphate, barite, cobalt and flourspar, and also produces a range of other minerals.



Population: 32,987,206 (July 2014 est)
Land Area: 446,550 sq km
Language(s): Arabic (official), Berber languages (Tamazight (official), Tachelhit, Tarifit), French (often the language of business, government, and diplomacy)
Capital: Rabat
Chief of State: King Mohammed VI
Head of Government: Prime Minister Abdelillah Benkirane
GDP (PPP): $180 billion (2013 est)
Growth Rate: 5.1% (2013 est)
GDP per Capita: $5,500 (2013 est)
Economic Sector Breakdown: agriculture: 15.1%, industry: 31.7%, services: 53.2% (2013 est)
Exports: $16.78 billion (2013): clothing and textiles, electric components, inorganic chemicals, transistors, crude minerals, fertilizers (including phosphates), petroleum products, citrus fruits, vegetables, fish
Imports: $38.66 billion (2013): crude petroleum, textile fabric, telecommunications equipment, wheat, gas and electricity, transistors, plastics
Major Trade Partners: France, Spain, China, Brazil, United States, India, Saudi Arabia

GDP GROWTH (%)

SOURCE: WORLD BANK, EIU



1995: Spain and Morocco agreed to build a channel tunnel under the Strait of Gibraltar. The plan was for 3 tunnels at a cost of $4 bil.

1999: King Hassan II dies at age 70. His son, Crown Prince Sidi Mohammed, takes throne as Mohammed VI.

2003: More than 40 people killed when suicide bombers attack several sites in Casablanca, including a Spanish restaurant and Jewish community center.

2004: Free trade agreement with the US comes into effect. It follows Washington's designation of Morocco as a major non-Nato ally.

2007: Parliamentary elections held, with the conservative Istiqlal party, a member of the ruling coalition, winning the most votes.

2013: King appoints new government following a power-sharing deal forged by Prime Minister Abdelila Benkirane.

MINE PRODUCTION

SOURCE: BRITISH GEOLOGICAL SURVEY

as of 2012
in mt unless otherwise stated

Cobalt	1,314
Barytes	1,000,000
Bentonite	100,000
Fuller's Earth	100,000
Copper	18,500
Gold**	520
Feldspar	45,000
Fluorspar	78,000
Gypsum	600,000
Iron Ore	100,000
Crude Steel	539,000
Lead	31,000
Manganese Ore	45,400
Nickel	47
Phosphate Rock	27,000,000
Salt	720,000
Silver	230,200
Talc	500
Pyrophyllite	4,600
Zinc	4,.000

**in kilograms

FOREIGN DIRECT INVESTMENT

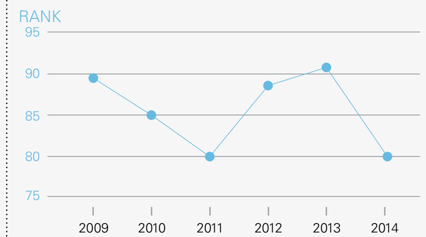
SOURCE: UNCTAD

*inflows, $ million

2011 **2568**
2012 **2728**
2013 **3358**

TRANSPARENCY INTERNATIONAL CORRUPTION PERCEPTIONS INDEX

SOURCE: TRANSPARENCY INTERNATIONAL



MINING SECTOR CONTRIBUTION TO GDP

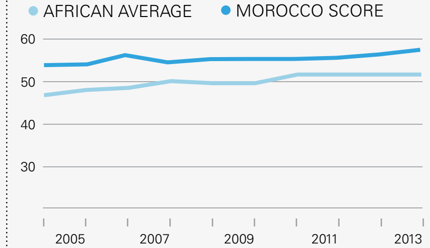
SOURCE: AFRICAN ECONOMIC OUTLOOK

2008 **7.3%**
2013 **5.3%**

These values do not include artisanal mining. Revenue Watch places mining's contribution to GDP at around 20%.

IBRAHIM INDEX OF AFRICAN GOVERNANCE

SOURCE: MO IBRAHIM FOUNDATION



INFRASTRUCTURE INDICATORS

SOURCE: UIC, IEA, CIA WORLD FACTBOOK

MOROCCO AFRICA WORLD

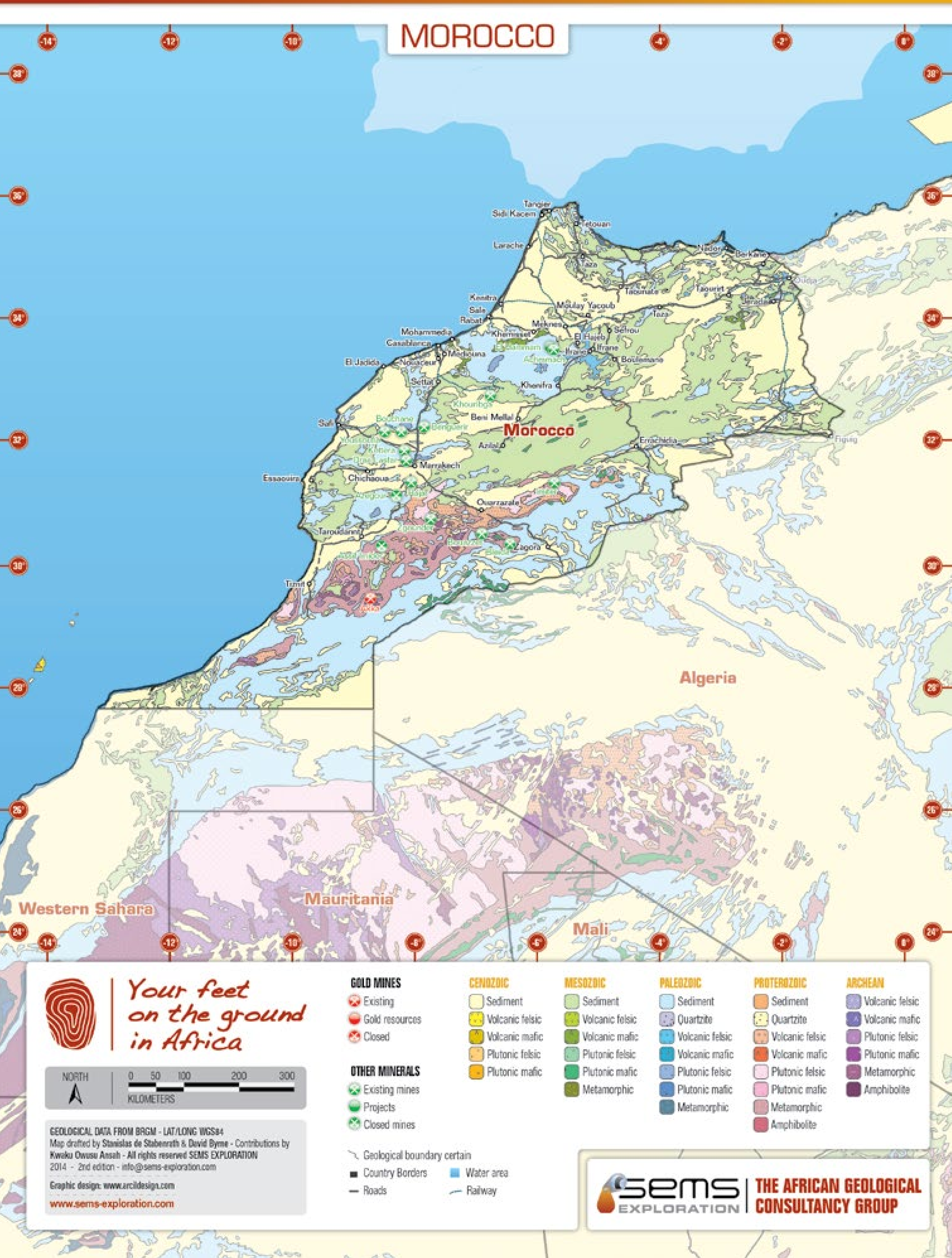
	Morocco	Africa	World
Railway - km/10,000 km2	46	29	77
Roads - km/1,000 km2	130	79	262
Electricity - kWh/capita (gross production + imports - exports - losses)	767	603	3076

% 25 50 75 100

INFLATION

SOURCE: WORLD BANK

2012 **1.3%**
2013 **1.9%**



Amina Benkhadra

Director General
ONHYM

ONHYM is the governmental body charged with overseeing the development of Morocco's mineral and hydrocarbon industries. Could you please provide us with an overview of your organization's history?

The National Office of Hydrocarbons and Mines (ONHYM) was established on 17 August 2005 by the merger of the Bureau of Research and Mining Participations (BRPM) and the National Office for Research and Petroleum Explorations (ONAREP). Since its establishment, in 1928 for the BRPM and in 1981 for the ONAREP, these two organizations have been pioneers in Morocco and have benefited from a high reputation among international operators. ONHYM seeks to build upon the work of these two organizations, bringing with it new momentum and a new strategy in line with government guidelines. This involves cultivating expertise in research and developing partnerships to produce the country's natural resources, both in minerals and hydrocarbons.

How successful has ONHYM been in accomplishing its goals?

ONHYM has become recognized for its competence and its technical knowledge in particular. This is evident in our exploration partners in oil and gas, which include Chevron and BP, and mining, such as Newmont. ONHYM has crafted the platform upon which the future of our country's natural resource sector will be built.

What challenges remain to develop Morocco's mining industry?

Morocco has a very long history of mining activity dating to the 12th and 13th centuries. Consequently, we have focused on building on known deposits and on exploring areas near the subsurface. Since the 1990s, ONHYM has focused on conducting deep geological surveying and exploration, which has produced success at the Hajar deposit and Akka gold mine.

At present, ONHYM has 32 projects under exploration for development. What strategy has ONHYM used to develop this portfolio of projects?

ONHYM has focused on developing a diversified portfolio, offering projects in base metals, precious metals, and industrial minerals. The risk heavy nature of mining necessitates this strategy. Although base metals and precious metals are often a sure bet regardless of economic conditions, industrial metals require a connection with an end user. Rare earths, in spite of their importance to the global economy, are more difficult to develop. While Europe cannot continue to depend on China, which has a monopoly on the supply of rare earths, the technology required to develop rare earths is not readily available. The development of labs will play an important role in determining the feasibility of Morocco's rare earths.

As the former Minister of Energy and Mines, you played an important role in the development of a new resource strategy for Morocco. If the bill is approved in Parliament, what changes will we see in Morocco's mining industry?

Our overarching goal in developing a new strategy for Morocco's mining industry was to encourage investment and facilitate exploration. If approved, three important structural changes will be introduced. First, we have expanded the definition of mines. More businesses will now qualify as mines and fewer will be categorized as quarries. The governance of quarries falls under a separate code and administration. Second, we have introduced a larger exploration area: previously exploration activities were confined to an area of four square kilometers. Companies will be given two years to explore their areas, with an option to renew their leases. Permitting will be conducted thereafter. Third, under the new code, minimum capital expenditure requirements will be enforced on permits, which will ensure that exploration is carried out.

How will Morocco's mining industry develop over the next ten years?

I hope that the treatment of artisanal mining in Morocco (CADETAF) is revised, as there is the possibility for large discoveries of lead and zinc in Morocco's artisanal mining region. I would also like to see several mines result from ONHYM's current work. Mining has an important role to play in our economic development. Mines result in jobs, build infrastructure, and construct schools. International companies should come to Morocco and assist us in our work, accelerating exploration and aiding us in making discoveries. •

Morocco

Positioned on the precipice of the Arab world, Morocco stands apart from its neighbors in the Maghreb for the maturity of its mining industry. Mining in Morocco dates back to biblical times, having built kingdoms both past and present. Today, through the activities of Société Nationale d'Investissement, the Moroccan royal family's holding company, and Managem, its subsidiary that controls the lion's share of the country's 90 mining companies, mining in Morocco has flourished. In recent years, mining has accounted for as much as 35% of the country's foreign trade and 6% of the country's GDP

The mining sector in Morocco is now poised to expand and attract higher levels of international investment, as a result of changes in the political fabric of the region and ministerial-level initiatives. Though the State will likely continue to drive growth within the sector, the profile of the industry's participants has already begun to shift. Foreign investors could broaden the country's resource base and play a large role in developing what is, perhaps, one of Africa's most highly prospective and underdeveloped mineral jurisdictions.

In modern times, Morocco's mining industry has concentrated on several strategic commodities, the most notable of which is phosphate. Morocco holds, by some estimates, 75% of the world's phosphate reserves – and with it, the key to the world's future food bank. A scarce commodity, phosphate is a key ingredient in fertilizer. Other strategic commodities produced by the country include barite, fluorspar and cobalt. According to the most recent report on the sector by the United States Geological Survey (USGS), Morocco contributes 6%, 2%, and 2%, respectively, of total global output of these commodities. Other mineral products produced within the country include antimony, lead, nickel and silver. By 2015, the USGS projects that Moroccan production across these commodities will stand at 500 metric tons (mt), 600 mt, 300 mt, and 500 mt, respectively. Of these commodities, silver is projected to experience the most rapid growth, increasing more than twofold since 2012.

Silver exploration in Morocco highlights the two factors underscoring the attractiveness of the country as an investment destination: the quality of known deposits and, comparatively, the limited work that has been done in resource exploration. Though resource exploration remains nascent within Morocco when compared to other emerging markets that have similar mining industries, such as Peru, the country holds several world-class deposits, including the Imiter deposit, Africa's largest silver mine and the crown jewel of Managem's mining empire. With an annual production capacity of 7.7 million ounces (oz), Imiter, and the lucre offered by the country's next discovery, has sparked international interest.

Several foreign resource exploration companies, including Maya Gold & Silver, have recently entered into the industry. Soon, Maya will reopen the historic Zgounder mine, seeking to produce an estimated 85,000 oz/month and finance other exploration projects in Morocco. Precious metals explorer Aterian Resources has also entered the country, citing the unchartered nature of the country and its geological potential Just 30% of the country has been mapped in detail with airborne geophysics.

Increased interest in Morocco's minerals has occurred within the context of North Africa's shifting political environment. "The Arab Spring," notes Dr. Mike Mlynarczyk, principal of Redstone Exploration Services, "has certainly played a role in shaping the perceived attractiveness of Morocco." Other North African nations, such as Libya or Egypt, were once intriguing for resource exploration, but the Arab Spring has caused investors to question the political stability of these countries. Morocco's democratic tendencies and soft monarchy have made the country a safer harbor for regional investment.

Several ministerial initiatives have bolstered investors' confidence. Morocco's Minister of Energy, Mining, Water and Environment, Minister Amara, has announced that the Ministry has begun to draft a new mining code, aimed at eliminating bureaucracy and attracting capital. Currently awaiting approval by Morocco's parliament, Amara's revised natural resource strategy would ease access to land. Those jurisdictions that fall within Morocco's artisanal mining region will be forced to meet minimum capital expenditure requirements or forego land. "These requirements would play an important role in encouraging exploration," notes Dr. Mlynarczyk.

These efforts will be supported by the initiatives of the Ministry of Equipment and Transportation. Seeking to establish Morocco as a center for logistics in the Mediterranean, Morocco's Ministry of Equipment and Transportation, under the direction of Minister Aziz Rabbah, has enacted several programs to fortify and expand Morocco's existing infrastructure. For maritime infrastructure, this includes the construction of six port-hubs within the next 15 years: an investment of $7 billion. There are also several run-of-the-mill public works projects focused on expanding Morocco's motorways and rail systems that have been proposed. Perhaps most ambitiously, Minister Rabbah plans to reform the country's logistic networks, significantly reducing the cost of logistical services within Morocco by offering incentives for new players to enter the market.

As the Moroccan economy opens, the foreign investor is positioned to benefit. Historically, a paucity of project finance options has limited exploration. This has been observed in the gap that exists between Morocco's artisanal miners and larger enterprises, such as Managem. Many of Morocco's small mines fail to mature into larger enterprises because they are unable to attract the attention of Managem, or outside investors, and lack the requisite cash flow to finance the expansion internally.

Morocco's new foreign investors have observed this gap and are positioning themselves to fill it. Today, ONHYM, the state agency charged with the development of the country's national resources, has partnered with mining companies ranging in origin from Canada to Malaysia. The prospective nature of Moroccan geology has drawn even the likes of Newmont to the country. Of course, these companies will not become the driving force behind the growth of the country's mining industry – this position will be reserved for the state – but the developments that have spurred these companies to invest in Morocco are significant and indicate that Morocco's mining industry has entered into a new phase marked by higher levels of foreign participation and more robust growth. •

MACIG 2015

Travel, Index & Credits

IMAGE: Marzia Franceschini

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