

# Mining in Mozambique

*Capturing a resource blessing.*

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Cover photo: Chirodzi process plant in Tete province, courtesy of DRA.

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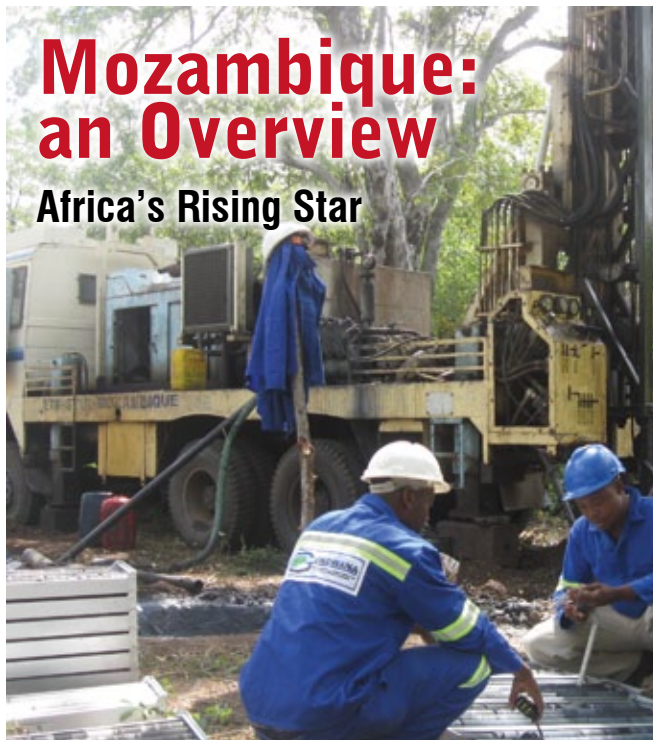
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## Mozambique: an Overview

### Africa's Rising Star



Geological technical assistants inspecting coal cores during a drilling stand-by at Moatize coal field. Photo courtesy of Gondwana.

There is a great deal about Mozambique's past that cannot be forgotten. Linguistic and architectural influences from the country's time as a Portuguese colony distinguish it from its Southern African neighbors. Wide avenues and plazas named after the likes of Mao Tse-Tung, Vladimir Lenin and Julius Nyrere recall its communist past, and dilapidated, bullet-hole-ridden buildings and crumbling infrastructure serve as a lingering reminder of the decades-long civil war that, in so many ways, destroyed Mozambique.

Yet the one thing that many do seem to forget is just how young the country is, in every sense of the word. Mozambique 'lost a generation' during the nearly 20-year civil war; almost 50% of its population today is under the age of 15, which is not much younger than the age of its post-war government. Barely 20 years out of the civil war, despite being one of the world's poorest countries, Mozambique is now one of the world's fastest growing economies. Recent offshore discoveries in the Rovuma Basin of the world's fourth largest reserves of natural gas will further fuel development.

Though the hydrocarbons sector is set to provide a major part of the country's projected 7.9% GDP growth for 2013, the Mozambican mining sector will also play an important role. In fact, impressive deposits of coal, graphite, and precious and semi-precious stones are just a few examples of the vast untapped resource wealth that Mozambique holds and that can help transform Mozambique from a fledgling economy into a true regional leader. "A lot remains to be done to make Mozambique more appealing to investors, but by and large, the risk associated with operating here is much lower than it was some years ago," said Casimiro Francisco, chairman of the Mozambique Coal Development Association (AMDCM).

### History

Prior to coming under Portuguese rule, Mozambique served as an Arab trading outpost; its strategic importance along some of today's busiest shipping routes between Europe, Africa and Asia has always



Casimiro Francisco, chairman, Mozambique Coal Development Association (AMDCM).

made it a coveted spot. Mozambique also provides crucial ocean access to its landlocked neighbors Zambia, Zimbabwe, Malawi and Swaziland.

Though officially independent since 1975, a grueling civil war between the Marxist FRELIMO and anti-communist RENAMO not only prevented the development of a healthy economic climate, but also destroyed any civil and economic infrastructure that the Portuguese had put in place. It is only after the Rome General Peace Accords in 1992 that the warring parties were able to strike a deal and transition successfully into a functioning capitalist society. As such, only in the last 20 years has Mozambique actually had the chance to create a politically stable and growth-oriented environment.

### Eliminating Uncertainty: Mozambique's Evolving Regulatory Framework

Mozambique's mining industry, perhaps more than any other in the region, has true potential to benefit the entire country. The creation of a stable regulatory environment to govern the development of the mining sector will have the trickle-down effect of ensuring a similar environment for other newly developing industries. In her role as executive director of the Association for Commerce and Industry (ACIS), Carrie Davies works towards advocating for change and improvement in the business atmosphere in Mozambique and provides a number of resources to help members across a number of sectors connect and navigate the legal framework. While she does agree that Mozambique has a bright mining future ahead of it, Davies said: "This sector is not alone in facing significant constraints to its development ... In general, these issues can be broadly categorized as 'uncertainty'—there is uncertainty in respect of infrastructure develop-

ment, changes to policy and legislation, and implementation or application of existing legislation."

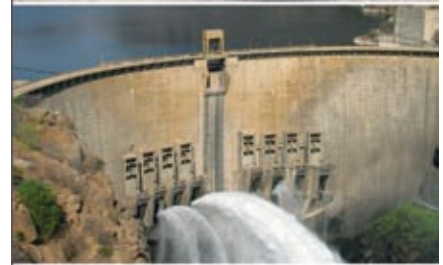
Mozambique's mining law is currently under review. At present, it dates back to 2002 and given the significant development of the sector since then, this is a move welcomed across the industry. Despite increased investment in recent years, Mozambique has dropped seven places in the World Bank's 'Ease of Doing Business' survey to 146 in 2013. Samuel Levy, managing partner at SAL & Caldeira, the best-known resources law firm in the country, believes that improvements can be made if there is greater dialogue between government and industry. To this end, SAL & Caldeira and a number of industry leaders came together to found the Chamber of Mines of Mozambique (CMM), which, as Levy says: "Is an industry-driven vehicle through which to represent the mining sector to Government and the broader society in Mozambique."

The effectiveness of the CMM will truly be tested when the revised mining code is rolled out in its entirety in the coming year.

For the government's part, Minister of Mineral Resources, Esperança Bias, has been hailed as an open and willing partner to the industry. Her ministry is harmonizing the mining law to suit both citizens who have access to licenses and the miners who have the resources to develop them. Though Mozambique is said to tick many of the key boxes including political stability, relative transparency and openness from the government, there are certain frustrations which industry leaders hope to see change in the near future.

Antonio Manhiça, CEO of state-owned mining company Empresa Moçambicana de Exploração Mineira (EMEM), said: "The mining law in Mozambique is very friendly to the ordinary citizen. A number of Mozambicans have access to various minerals including coal, gold, tantalite and iron. Many of these people are sitting on licenses without doing anything simply because of financial constraints."

The main challenge, suggested Manhiça, is educating Mozambicans on the benefits of developing their land and the amount of work required. "Development of our industry has occurred so rapidly because it has been controlled by market demand rather than by efforts from the government," said Manhiça, hinting at the disconnect between the amount of attention and investment Mozambique's mining sector has received and the attention paid to developing its mining code and infrastructure.



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A number of the industry's leaders suggest that Mozambique may just need to stop and catch its breath as it races to be at the forefront of the African energy and minerals markets. Indeed, allowing time so that the institutional framework and infrastructure can be developed may favor developing the country's resource wealth.

Most industry leaders agree that environment and labor regulations in the country are quite well managed. "The pattern of neglect in developing countries toward the environment and labor has not been replicated in Mozambique. At times the processes for acquiring environmental licenses can be unnecessarily cumbersome ... individual activities are licensed separately," said Roland Davies, manager of Moz Environmental, a local offshoot of a South African waste management firm Interwaste.

John Hatton, deputy managing director of local environmental consulting firm Impacto, believes that the Environmental Impact Assessment (EIA) process is very clear in terms of requirements and approval times and that the Ministry for the Coordination of Environmental Affairs is fair in its demands for compliance. "A good balance has been struck for the process of combining preservation, sustainability and development in this case," said Hatton.

The only weakness Hatton sees is in the ability to audit and ensure compliance of requirements laid out within EIAs.

Other areas of regulation are less appreciated, as seems to be the case with safety standards. Mozambican communication solutions provider Eneida's CEO Venancio Matusse believes that the lack of a standard set of rules governing safe operating procedures for mining companies and their support services is hindering the development of local businesses.

Eneida attempts to tackle this hurdle by spending as much time on-site with clients as possible to address their communications needs. The monitoring of unmanned vehicles during mine-blasting and constant surveillance for gas leaks can help prevent dangerous or potentially catastrophic situations, both a part of Eneida's service offering. Even with its ability to integrate communications solutions with existing structures, the varying safety standards make the job significantly more complicated.

"With each multinational bringing in its own set of safety rules, a standard across the industry does not exist as it does in many places. This adds to the time it takes to qualify for operations in each mine," said Matusse.



Ismael Faquir, country managing partner, Ernst & Young.

Publicly-traded companies especially have a responsibility to shareholders to maintain certain practices, and though more established mining jurisdictions such as Canada or Australia have guidelines that have helped shape those practices, achieving compliance with these can be difficult in Mozambique.

The tax structure governing the industry can also be problematic, even with competitive royalty rates ranging from 3% for coal to 10% for gold. Ernst & Young country managing partner Ismael Faquir said: "The current tax structure could be better ... 10 years ago there were better tax incentives for mining, and oil and gas projects in Mozambique, albeit with poor infrastructure."

The current corporate tax rates are 32% and late refunding of VAT and CIT taxes are unhelpful. Faquir added: "Under pressure from international donors, the government's tax incentive for mining and oil and gas projects has drastically reduced; today, a decision to enter project sectors in Mozambique based on tax incentives alone would not be a viable proposition."

While Faquir would like to see changes to the tax structure, he is in support of the recent public-private partnership (PPP) mega-projects law allowing the

## Evolution of the Legal Framework for Mining in Mozambique

by By Samuel Levy, managing partner, SAL & Caldeira Advogados, Lda.

The legal framework for Mozambique is evolving. Three major sets of changes deserve attention.

First, the **Mining Law**. Mozambique's current mining law dates from 2002 and is under review by Parliament. Highlights of the amended bill include the shortening of exploration licenses to eight years rather than 10, requiring concession holders to start production within 48 months of being granted their concessions, and requiring prior authorization of the Minister for all indirect transfers of shares in mining companies that result in a change of control. Additionally, coal bed methane (CBM) will be separately regulated, under the Petroleum Law and foreign providers of goods and services to the mining industry will be obliged to have Mozambican partners.

Second, the **Mega-projects Law** (Law no 15/2011 of 10 August) obliges mining investors (among others) to make available between 5% and 20% of the equity of the project company to the Mozambican public via the Mozambican stock exchange, on market terms. The provisions of the law are meant to take effect gradually over five years.

Lastly, the **Tax Law**. New laws in 2012 precluded the offset of exploration losses made on one license against income realized on another—even if the two licenses are held by the same legal person. And although, in 2012, large classes of expenditures in the prospecting phase were deemed no longer subject to VAT, proposals are on the table both to reverse that rule and to make accumulated VAT non-recoverable until the start of commercial sales, and then only as deductible costs. Tax policy is, unfortunately, driving up the cost of exploration in Mozambique.



Samuel Levy, managing partner, SAL & Caldeira Advogados, Lda.



Mario Deus, lead mining engineer, Gondwana.

government to share the cost-burden of infrastructure projects with private companies, which many hope will speed up infrastructural development and increase Mozambique's attractiveness as an investment destination. This will require large-scale ventures and business concessions to ensure a 5%-20% participation of Mozambicans in the share capital of projects occurring in the country. Apart from this, as Faquir says, there is no local equity ownership or partnership requirement, which many find to be unfair.

Local consulting firm Gondwana's lead mining engineer, Mario Deus, agrees that

the business environment in Mozambique has become less competitive from a tax perspective. "The mining sector in Mozambique is already quite regulated. By providing better conditions we may be able to achieve greater investment, but the industry also needs to remain competitive in terms of tax policy," said Deus, echoing the common sentiment that current tax rates may be too high.

It is not only foreign investors that are not happy. On the other side of the spectrum, ordinary Mozambicans also feel badly done by. Inaete Merali, CEO of Moza Banco, said: "Historically, in mining there have been cases where the government has failed to secure taxes from the sale of companies, which is wrong, as a country must benefit from the generating value of a company when the asset is sold."

The most obvious case of this occurred when Riversdale Mining was sold to Australia's Rio Tinto for \$4 billion in an off-shore deal that saw Mozambique lose out on major potential gains.

An amendment to Mozambique's corporate income tax regime at the end of 2012 introduced a 32% capital gains tax on the sales of Mozambican assets held by non-resident entities, regardless of the period for which they were held.

Deloitte partner, Grant Sboros, believes that there are already too many incentives: "It may already be on its way to being too attractive."

Sboros considers that the world's focus is now sufficiently on Mozambique and that it can tighten some of its tax laws and investment incentives to better profit from cash inflows. Though it has not given a set timeline for the introduction of a revised mining code, the government has stated that neither royalties nor taxes will change; instead, the focus will be on addressing local content concerns, reducing exploration time from its current allowance of 10 years and streamlining the various licensing processes required for mining operations.

With bureaucracy being one of the chief complaints across the sector, though the revised mining code will not focus on changes to the fiscal regime, this is still seen as largely positive by industry participants.

The regulatory environment must ensure that uncertainty does not become a replacement for instability if Mozambique is to recognize its potential as one of Africa's leading mining jurisdictions, and the streamlining and standardizing of processes aims to do just that.

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## Interview with Esperança Bias, Minister for Mineral Resources.



**What, in your view, makes Mozambique an attractive destination for foreign investment?**

Mozambique is a peaceful country and offers good legal framework, a transparent and competitive fiscal regime including fiscal benefits for the mining and petroleum operations. Its geographic location and access to world markets makes the country the gateway to Southern Africa.

**The Mozambican government has been praised by players across the industry as being transparent and open to discussion. As the legislation governing the sector evolves, could you please discuss some of the proposed changes we can expect to see in the mining code?**

Mozambique is open for investment. The past few years have seen significant investment in coal, heavy mineral sands, gold, marble, industrial minerals and hydrocarbons. Our goal is for all of these resources to benefit the country in a 'win-win' situation for both investors and the surrounding communities. Mozambique is already a very different place to what it was 20 years ago, and we are continuously working on improving the transparency of the system further.

To this end, we are currently working on revising the mining code to fill some gaps in the current laws. The key issues we are addressing are local content and participation in the industry and the reduction of exploration time from its current allowance of ten years. Many of the big companies operating in Mozambique have their own laws that govern operations to an equally stringent standard with respect to the community

and environment, but we are also working on putting laws into place that will help guide smaller businesses in establishing operations here keeping these issues in mind. Mozambique is an ideal operating space for juniors and smaller companies with more focused portfolios, and we would like to foster this potential.

**Despite Mozambique having immense mineral wealth, access to power, water and transport are significant issues facing the country's development today; what sort of public/private partnership initiatives can we expect to see coming from the 'Coal Master plan' to help tackle these issues?**

We are designing coal and gas master plans that we will use as instruments to govern the manner in which we conduct the industry to extract maximum benefit for Mozambique. Our job is to see that Mozambicans benefit from the use of their natural resources; we are working on putting legislation in place to ensure that revenues given to the treasury are then distributed throughout the country.

**One of the best ways to ensure Mozambique benefits from its own resources is to utilize them as much as possible within the country; what plans are being put in place to develop downstream industries?**

A policy and respective strategy are being developed in the sector which will lead to the necessary updates in the law in order to encourage and attract investment in the downstream industries developed in the country, in particular for those using mineral resources as raw material. Many other initiatives are already in place, specifically strategies for promotion of small and medium enterprises for adding value in the country.

**What is the legacy you hope to create from your time as Minister of Mineral Resources?**

I would like to create a stable and attractive environment for investors in the mining sector, but also to make sure that we can strike a balance which will benefit the Mozambican people not only today, but for the up and coming generations.

# Mozambique's Assets

## Impressive deposits to fuel record-breaking growth.



Tenge/Ruoni iron ore deposit with drill traces, 550 million mt underlying a footprint of just 2.5 km<sup>2</sup>. Photo courtesy of Baobab Resources.

Mozambique has been on the global radar for its natural gas reserves and the fourth largest untapped reserves of coal in the world. Beyond these assets, however, lie a great deal of other potential mineral reserves. Throughout its history, Mozambique has already been a significant producer of aluminum, beryllium and tantalum, with the Mozal aluminum smelter opening its doors in 2000 as the country's biggest private-sector project until then. Today, with

a number of deposits that mining majors would overlook, Mozambique provides an ideal operating space for juniors seeking out potential projects.

### Beyond Coal: Expanding Mozambique's Portfolio

With major global mining houses like Brazil's Vale, Anglo-Australian Rio Tinto and India's Jindal investing billions of dollars into Mozambique's coal infrastructure, the

country's greater mineral portfolio has been overshadowed. With less infrastructural requirements than coal producers—which rely on Mozambique's sub-par railway network to transport coal from pit to port—a number of juniors producing precious and semiprecious stones and metals are finding an ideal space in which to operate.

ASX-listed Triton Minerals, a graphite-prospecting junior, surveyed over 50 potential projects before settling on its Balama

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and Ancuabe graphite deposits in the Cabo Delgado province. Discussing Triton's selection process, managing director Brad Boyle said: "We look at the cost of labor, the stability of government and associated sovereign risks, the cost of capital to get a project up and going, and the production and recovery costs from start to finish. This project and Mozambique ticked a lot of these boxes."

Both the Ancuabe and Balama deposits are ideally located near power, road and air transport facilities and the port of Pemba.

Located just next to Triton's deposit, Syrah Resources is another Australian-based junior currently in possession of the world's largest graphite deposits by a long shot; its inferred resource for Balama West project is 564 million mt, significantly higher than all other deposits of graphite in the world combined. Echoing Boyle's thoughts, Syrah chairman Tom Eadie said: "Syrah Resources finds Mozambique a better and lower-cost place to work than others we have considered."

The vanadium resource at Balama also now exceeds that of Xstrata's Rhovan resource in South Africa, currently the world's largest. Eadie expects Syrah to be amongst the lowest cost producers of graphite globally. If all goes according to plan, within 10

years' time Syrah could be supplying close to 50% of the world's 1.5 million mt/y demand for natural graphite.

Though both Triton's Boyle and Eadie are optimistic about the future of their projects, Eadie does admit to some difficulties in operating in Mozambique: "We have not managed to locate all the trained people we need; it is not clear where we will find geologists and engineers. The country has a short mining history, and mostly in coal, which is not totally applicable to what we want to do."

Baobab Resources, another ASX-listed junior, has its sights set on becoming the world's largest pig-iron producer. Baobab's managing director, Ben James, feels that Mozambique's limited mining history creates a steep learning curve for both government and industry. Following the successful completion of a scoping study in 2011, James said: "Brazil is the world's largest pig-iron producer and its cost of production is \$280/mt to \$290/mt ... Baobab's estimated cost of production at its Tete property will be around \$225/mt, presenting a fantastic opportunity to compete globally. Infrastructural progress permitting, the cost of operating in Mozambique means that any output over 2.5 million mt/y would allow James to achieve his goal of making Baobab



Ben James, managing director, Baobab.

the world's largest producer of pig-iron. The project, which is split 85%-15% between Baobab Resources and the International Finance Corporation (IFC) respectively, has reserves estimated at 727 million mt (510 inferred and 217 indicated).

Cherie Leeden, consulting exploration manager for Metals of Africa, yet another Perth-based exploration project contiguous with Baobab's Changara project, feels that Mozambique's geology presents some of the most exciting opportunities around outside of the popular coal space. "The vast majority of explorers come here for coal, and in our opinion many metals have been over-

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Roger Dixon, CEO, SRK.

looked. Mozambique is about 30 years behind its neighbors in exploration but holds enormous potential ... we look forward to investigating more untested surface geochemical and geophysical anomalies," said Leeden.

Metals of Africa's Rio Mazoe base metals project comprises eight exploration licenses that are considered highly prospective for zinc, lead and silver. Still in its early stages of exploration, the geology of the project has been compared to that at Broken Hill in Australia, the country's oldest mining town and home of mining giant BHP Billiton. Broken Hill is said to have one of the world's largest silver-lead-zinc deposits, and Leeden believes Rio Mazoe's comparable potential could lead the way to significantly expanding Mozambique's mineral portfolio.

Gemfields, an AIM-listed outfit which prides itself on being the world's leading supplier of ethically-produced emeralds from Zambia, recently acquired what it claims is the world's largest deposit of rubies at its Montupuez project, also in Mozambique's Cabo Delgado province.

Further inland along the Save River near the Mozambique's border with Zimbabwe, Botswana Diamonds has partnered with Mozambican company Morminas in an option agreement for three license blocks. Botswana Diamonds chairperson John Teeling has identified an objective of exploring for potential alluvial and eluvial deposits, and said: "The experience and knowledge gained in Zimbabwe will be valuable in identifying diamond prospects in the Save region."

The Odzi-Mutare-Manica Greenstone Belt (OMM), which stretches 160km from Zimbabwe into Mozambique, was home to a number of gold mining operations prior to the civil war. Acquiring the Manica gold project, ASX-listed Auroch Minerals hopes to revive this forgotten area once again.

Mining executive Jim Porter said of the project's geology: "The nature of these classical greenstone gold belts are well documented, with many of the current large gold deposits throughout the world now found in greenstone hosted geological structures."

These and other projects suggest that the country has a significant mining history ahead of it.

### **African Coal Powerhouse**

With growing energy demand both within Mozambique and around the region, Mozambique's coal reserves are a hot commodity. "The coal industry in South Africa is going to face some serious challenges in which Mozambique will play a part," said SRK CEO Roger Dixon.

Mozambique's first overseas exports of coal in 2012 in 20 years signaled a reawakening of the country's coal mining sector. With the world's fourth largest untapped reserves of coal estimated at two billion mt and multi-billion dollar investments from a number of global mining powerhouses, only Mozambique's infrastructural deficiencies are holding it back from becoming the leading coal producer in Africa.


In 2004, Brazil's Vale became the first international mining major to be granted a concession in Mozambique, with its mine at Moatize officially opening in mid-2011. The initial \$1.7 billion investment by Vale surpassed that of Mozal to become the largest single investment in Mozambique's history thus far. Since then, Vale has made significant further investments in developing railway links between Tete and Mozambique's ports of Nacala and Beira. Key amongst these investments is an agreement to develop the Nacala Corridor which, passing through Malawi, is the shortest and most direct route between Tete and the coast. In total, Vale has invested close to \$6 billion in Moatize, railways and deep-water port infrastructure in partnership with Ports and Railways of Mozambique (CFM). On Vale's further planned investments into Mozambique, company CEO Ricardo Saad said: "Our investment in the Port of Nacala is to facilitate our coal exports. However, we know that once the infrastructure is there the door will be open to other investments...if you consider the gas that Mozambique has been discovering, the possibility to build other projects around the Port of Nacala becomes very high when both coal and gas are present."

Coal and infrastructure investment will go hand in hand until output can be successfully and efficiently moved from pit to port.

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Abreu Muhimua, managing director, DRA.

The first quarter of 2013 saw Vale forced to suspend operations due to heavy rains shutting down the Sena railway line between Tete and Beira, as well as announcing delayed plans for the phase II expansions of its Moatize mine. Phase I currently has a capacity of approximately 11 million mt/y of coal, of which 70% is coking coal and the remaining 30% is thermal. Phase II will double this output along with Vale's coal handling processing plant. Discussing this delay, mining consultant and engineer DRA's managing director for Mozambique, Abreu Muhimua, said: "Diamond-style mining cannot be adopted for coal: diamonds

can be continuously mined, stock-piled, and sold when the market is right; coal is different. What is mined one day must be sold the following day. Any coal mining company in Tete is restricted on transporting its coal to the international market due to the country's poor infrastructure. This has resulted in coal mining companies re-assessing their strategy for forward production in line with infrastructure development."

What was initially seen as a surprise move, was eventually recognized as a sound strategic decision to avoid any major setbacks further down the line. In order to avoid having the world's largest stockpiles of coal instead of one of its largest resources, such reevaluations are absolutely necessary.

Despite Rio Tinto's \$14 billion write-down in its assets globally—\$3 billion of which came from its Mozambican coal operations—the Anglo-Australian miner remains committed to its operations in the country, though not before a widespread re-evaluation of the challenges the industry presents and the strategy with which they are approached. "We have Rio Tinto's commitment that there will not be any changes to announced plans for their Mozambique coal business," said Minister Bias in her address at this year's annual Investing in

African Mining Indaba. Continued funding for prospecting and research suggests that Rio is not wavering in its commitment to the country. Rio Tinto stated infrastructure issues and over-ambitious resource estimates as the main factors in the January write-down. Its initial plans to barge coal down the Zambezi River to Mozambique's coast were not approved by the government citing environmental concerns, a move which was met with widespread relief by the wider community despite Worley Parson's claiming that their plan to transport the raw material would have minimal environmental impact. The denial of permission for barging means that Rio Tinto will join the likes of Vale and India's Jindal in investing in the country's railway networks.

While Rio Tinto and Vale continue to make headlines, a number of other interesting coal projects are also underway. Indian steel giant Jindal's project in the Tete Basin has a life expectancy of 40+ years with a yearly output of 10 million mt/y, though increased infrastructure could see this boosted to 20 million mt/y. Manoj Gupta, Jindal Mozambique's country director, believes the benefits to being both the producer and end-user of the coal mined in Mozambique—namely allowing

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Drill operator. Photo courtesy of Agua Terra.

for consistent demand—will, to an extent, protect Jindal from changes in the global coal market. “We have yet to achieve the worldwide bench-line cost for coal transportation, but when the new railway line, new port and new technology are introduced, Mozambique’s coal will be very competitive,” said Gupta.

Jindal’s investments in railway and port infrastructure are aimed at helping it meet the bench-line cost for coal transportation, a feat which Gupta believes is attainable despite much concern surrounding delayed railway improvements.

Ncondezi Coal Co., an AIM-listed junior exploring for coal in the Tete province, is taking a different approach to its project in Mozambique. Although the initial goal was to export coal from Ncondezi’s mine, a series of feasibility studies lead the company to explore a new path. David Eshmade, country manager for Ncondezi, said: “With both feasibility studies now complete, Ncondezi Coal sees as the best way forward the construction of a 300 mW power station, the capacity of which could rise to 1,800 mW over a 10-year period. Our export potential still exists, but we will only pursue it in the distant future once the infrastructure problems are resolved.”

Indeed, though the likes of Jindal, Vale and Rio Tinto are examining the most efficient ways to get their coal out of Mozambique, Eshmade rightly points out: “Having one of the world’s great coal basins surrounded by countries in need of power provides great opportunities for our company.”

Ncondezi is currently working with Standard Bank to secure its funding through a variety of means, including three levels of local shareholders, before proceeding with the next phase of its project.

While majors like Vale, Rio Tinto and even Jindal have the resources to invest in significant infrastructure undertakings, juniors such as London-based Beacon Hill

Resources (BHR), which owns and operates Minas Moatize Limitada in Tete, are forced to take a more measured approach to their operations. “Firstly we had to align saleable production to Sena rail capacity and since we applied for 500,000 mt from CFM, that became the benchmark saleable tonnage produced,” said managing director Rowan Karstel.

Having received the requested railway allocation late in the first quarter of 2013, BHR is poised to move ahead with a realistic export target in sight. Further to this, BHR has opted to build their wash plant in phases to spread the risk and manage their cash flow moving forward; this had the added benefit of increasing mine life from 10 to 16 years. Having thoroughly revised the logistical challenges associated with mining in Tete, Karstel believes that investors understand the Tete Basin’s position as one of only a few opportunities to mine coking coal left. “In Sub-Saharan Africa, there are three major coal blocks to invest in; namely the Waterberg, Botswana and Tete Province in Mozambique. Out of all of them, Tete has the highest economic value. The challenge in the short to medium term will be to improve the infrastructure capacity to the Tete basin,” said Karstel.

Created in 2009 to manage the government’s involvement in the mining sector, state-owned mining company EMEM is unique among such public entities in its mandate to find its own funding.

“EMEM’s reception amongst private investors has been very good...when the government negotiates a contract with a private company they always include Mozambican participation, which carries a percentage of equity in the company to EMEM. We decide strategically which projects to be involved in; we do not force companies to hand a share to the government or to the state” said CEO Manhiça.

With an automatic stake (percentage determined on a case-by-case basis) in all projects licensed across the country, rather than being seen as a wearisome government watchman, Manhiça believes: “Partnering with us will provide the benefit of having insight into business and cultural nuances in Mozambique.”

Additionally, EMEM brings years of knowledge of the government’s inner workings which, given the linguistic barriers and complicated procedures often cited in obtaining licenses and setting up businesses in Mozambique, makes EMEM a strategic partner.



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Gondwana Empreendimentos e Consultorias, Limitada, a Mozambican consultant and services provider, started operating in Maputo in 2001 and opened an office in Tete in 2005, the latter mostly, but not only, dedicated to the coal industry. With vast accumulated experience of the country, the company offers services that go from desk studies, selection of commodity targets, support in acquisition and management of prospecting and mining licenses, technical due diligences, mapping, execution of geochemical field programs, elaboration and supervision of drilling programs, resources estimation and management of projects.

In partnership, the company is associated with a laboratory in Tete which serves the coal and minerals industry and a specialist environmental and hydrogeological consultancy.

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# The Infrastructure Challenge

## Connecting Mozambique's Pits to its Ports



CFM central station. Photo courtesy of Tora Holding.

Located on some of the world's busiest shipping lanes, Mozambique is by no means remote; it is simply underdeveloped. Urgent investments are thus being aimed at bringing its rail, road and port infrastructure to a state whereby it is able to handle the demand of the mining industry. Rafael Benke, global head of corporate affairs at Vale, has said that the Nacala Corridor and Sena rail line are "just the tip of the iceberg" in terms of

infrastructural investments and developments in the country.

In order to meet Mozambique's projected goals of exporting 100 million mt/y of coal, the industry waits on CFM, whose chairman Rosario Mualeia said that, despite some delays, the upgrade of the Sena line was back on track. There is a sense of skepticism across the industry as to if the \$12 billion in required upgrades and expansions, as outlined by Mualeia, will

be completed on time. Until the railway is able to meet demand, Mozambique's celebrated potential cannot be realized. Given CFM's financial limitations, its partnerships with the likes of Jindal and Vale ensure it has a 20% stake in all ongoing projects while the bulk of the funds can come from the deeper pockets of the private sector.

Though the iconic CFM central station in Maputo celebrated its centenary

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in 2010, the country's railway lines were decimated during the civil war. Today, Mozambique has three railway lines connecting the inner parts of the country to its three main ports. The Beira Railroad, which includes the strategic Sena line, is the oldest of the three and connects Zimbabwe to Beira port by way of Moatize. The Maputo line links South Africa, Swaziland and Zimbabwe to Mozambique's southernmost port near at the nation's capital, and the Nacala line, the newest one, connects the Nacala Development Corridor, stretching from Malawi's eastern border to the port of Nacala.

Recent negotiations between Malawi and Mozambique have led to an agreement allowing the Nacala Corridor to link with Malawi's railway system through to Tete, creating the most direct route from pit to port. With heavy investment from the likes of Vale, this is still a project in the pipeline. Currently the Sena line, with its limited capacity of 2 million mt/y is the only complete railway link from Mozambique's northwestern mining hub to its coast. The upgrades to which Mualeia refers will bring its capacity up to 6 million mt/y by the end of 2013, which are still insufficient to match demand. At the mercy of seasonal weather patterns and



The B50D is the flagship of Bell's comprehensive Articulated Dump Truck (ADT) range. Photo courtesy of Bell.

limited capacity, coal mines in Tete are left to rely on Mozambique's roads. As a result, over usage from the industry has left the roads in sub standard condition.

Newly-merged Royal Haskoning DHV's business development manager Kevin Botes feels that inter-industry cooperation is not where it should be. "You cannot have 12 separate rail lines, each for a different mine; this makes no sense. These mines may only operate for 25 years, so a railway is a major short-period investment," said Botes. "It would be better to have two decent rail lines, to Nacala and Beira, and perhaps a new port built somewhere else.

Until rail and road networks are up to par, a network of companies attempt to fill in the gap in services and logistics. Martin Potgieter, operations director at Mozambican company Executive Logistics, said: "During the last year there has been a definite move towards a more considered approach that allows for logistical shortcomings when developing a mining project in Mozambique."

With a wider understanding of the need to re-evaluate an overly-ambitious approach to mining in the country, Potgieter is one of several logistics operators who are glad to see this more considered approach from the industry. Potgieter added that the investment focus in the country has shifted more to logistics while mining projects are being reviewed and slowed down for the time being.

Given Mozambique's limited infrastructure and still-developing market, the importation of equipment and export of core samples for evaluation is a major and often difficult task. Facilitating the import and export needs of the industry is another niche market within the logistics arena, which can be quite tedious given customs and border regulations at the various entry points to Mozambique. Karen de Almeida, general manager for global supply

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Vazal was established in 2005 with its roots in the Kapenta fishing industry on Lake Cahora Bassa. Vazal is now effectively undertaking these two divisions at its core: Commercial Kapenta Fishing and Logistics. The logistics division covers dome house construction and remote site management, including supply of fresh vegetables and fruit to catering companies, for the support of the mining industry.

As part of its expansion project, Vazal is now adding Hydro Armor thrusters to its portfolio. These rudder propellers are used on fishing, working and passenger river and maritime (sea faring) boats.

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Bell is the only OEM to provide tailor-made products for niche markets such as the B25DN above. Photo courtesy of Bell.



RC drilling at Tenge/Ruoni. Photo courtesy of Baobab Resources.

chain and logistics provider UTI's Maputo offices, commends the long-overdue installation of the Janela Unica Electronica (JUE)—single electronic window—at Mozambique's ports.

As Beira and Nacala ports see expanding capacity to meet rising demand, Maputo is becoming an increasingly popular alternative to Durban. As such, inefficiency is no longer an option. Prior to the installation of the JUE, all customs paperwork was completed manually. Speaking of issues arising since its inauguration, de Almeida also said: "Still, if they have a snag with that program with something that they had not thought of

prior, the process of getting that rectified is quite cumbersome."

Though the installation of the JUE is a step in the right direction, in order to further improve customs and border processes, its could be issued to the various clearing and forwarding companies in addition to the clearing agents. "Arguably, this would improve clearance times for clients, making Mozambique a more attractive destination for imports," said Rayno van Niekerk, general director of logistics provider Röhlig-Grindrod's Maputo office. While van Niekerk has seen efficiency and infrastructure improve over the past cou-

ple of years, he does feel that some changes remain to be made. Overall, however, van Niekerk agrees with UTI's de Almeida, who added, "However, the end target of what they want is realistic, and they are getting there."

Seasonal flooding around the country can also be a problem. "It is not the government's fault when things like the recent floods occur and wipe out roads, but the problem is that the recovery time is too long; if the roads are out for too long, then the recovery stops," de Almeida said.

CLM Transport, another Mozambican company providing transportation services around the region, is trying to work around the logistical issues presented by cross-border dealings by forming alliances with similar companies in Zimbabwe and South Africa. Service exchange agreements between companies mean that Mozambican fleets arriving in South Africa can park in local transporters' yards and avail of fuelling and load-forcing agreements, while CLM provides the same service in return, in Mozambique. "The first two trips through Mozambique for a foreign transporter are a daunting experience," said managing director Brendan McConnell, "the language barrier is a big issue, and the permit requirements and legalities of height, width and axle-weight of loads are unique to Mozambique within the SADC region."

Mozambique and its neighbors Zimbabwe and Malawi would do well to follow South Africa's initiative in trying to streamline customs requirements in the southern African region.

Within Mozambique, the mining hub of Tete, which has grown from a town of less than 50,000 inhabitants 30 years ago to one of more than 300,000 today, is tucked away in the northwest corner of the country. This is both logistically challenging and beneficial given its distance from the ports of Beira and Nacala, but proximity to the

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Discharge of pipes from vessel to truck in the Port of Maputo. Photo courtesy of UTi.



Stuart Conrad Grant, founder, Vazal.

Malawian and Zimbabwean borders. One of the associated challenges is running the campsites established by miners and service providers in the area. Camp management and logistics company Vazal, a Tete-based operation, provides fresh produce to camps between Tete and the Cahora Bassa Dam. The company came into being after founder Stuart Grant spent a great deal of time in the area and was asked by Vale to help build and manage their camp across the dam. Since then, Grant has identified the opportunity to grow his business: "Tete did not offer much support in the way of supplies, which lead to the adding of other

logistical services and vertically integrating the company."

Grant's vertical integration strategy is one that many service and logistics companies in the Tete area are employing in trying to capture as much of the market as possible. Vazal will be looking to add aviation support to its offering in the near future.

Tete's growth has spurred the parallel growth of a healthy construction and contracting industry. While companies such as Eqstra, WBHO and Stefanutti Stocks provide services for both infrastructure and mine sites as they do in their native

South Africa, smaller companies have been able to flourish alongside them. Tayanna Moçambique, a sister company of RJ Davis in Zimbabwe, has made investments of \$8.5 million in earthmoving equipment over the last 24 months and grown their staff by 15% in 2012, sending them to Maputo and Zimbabwe for training. "Tayanna has created a niche market for itself," said contracts manager Matt Davis. "We can provide a more flexible service that bigger companies are not able to do. While many of them are our competition, we also often work together when companies like Grinaker—who have won the contract for the railway and look to subcontract parts of their work to us."

Though the infrastructure challenge in Mozambique is one seen in countless developing countries across the globe, it is as much a part of the discussion surrounding the growth of the mining industry as are the mines themselves. Where Mozambique may have the potential to become a leading producer of coking coal globally, it also holds the potential for the world's largest stockpiles of coal if rail and road solutions are not rolled out in a timely manner to supply the rapidly growing demand for transport from in and around Tete to Mozambique's ports.

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## Skills and Services Development in Tandem in Tete

SRK undertaking a site visit for baseline environmental studies in Nacala, Mozambique. Photo courtesy of SRK.

If Mozambique provides the ideal operating environment for junior mining companies, then it also provides a similar environment for the service companies that support the mining sector. While the major mining companies often come in with a greater in-house technical capacity, both the junior market and the significant investments required in infrastructure provide equally significant growth opportunities for peripheral services. Mozambique's youthful population presents a problem and potential solution in this regard; given the 'lost generation' from the country's civil war, there is a distinct lack of skilled professionals. At the same time, there is an entire new generation ready to be educated and to take a hold of what the industry has to offer.

In the short term however, labor shortages are a bottleneck. South African equipment provider Bell is attempting to expand in Mozambique, offering technical assis-

tance for its wide range of mining and construction equipment. Managing director Mozambique John Ferguson said: "The lack of a suitably trained and educated workforce has its own set of challenges and structured importation of skills needs to be focused on to allow for growth to take place."

Companies have no choice but to import trained professionals from elsewhere, but Mozambique's local content laws are very strict on the matter. "Securing skilled staff is a challenge but can be overcome short-term by introducing expatriates. Governmental immigration restrictions on expatriates should be relaxed until trained nationals are available," said Atlas Copco country manager, Bill Jenkins.

DRA and Minopex managing director Abreu Muhimua has identified training Mozambicans as a priority for the next five to ten years, but said: "We do not have the financial capacity to train personnel every day... but the government's restriction on expatriate numbers necessitates having to train Mozambicans in order to have a comprehensive skilled workforce."

Having seen the need for both plant design and engineering services and for management outsourcing, DRA founded Minopex in 1996 to offer outsourcing services for plant operations. Recently DRA has been busy in Mozambique designing a 4,000 mt/h coal processing plant for Vale's Moatize second phase expansion project while Minopex is also fulfilling contracts to run Jindal's Chirodzi plant and Rio Tinto's Benga plant. Muhimua, himself a South African, hopes to see the two sister com-



John Ferguson, managing director, Bell.



panies managed and run by Mozambicans in the near future. Training opportunities at South Africa's numerous mines are being organized to this end.

As AguaTerra's operations in Mozambique have grown from one rig to 33 since 2001, the drilling contractor has had to increase its investment in training alongside its fleet. In addition to its standard on-the-job training and assessment, international drilling manager, Kevin Thompson highlighted plans to add complete training facilities to the company's Tete camp. "It is not something that can happen overnight, but we are working on it," said Thompson.

An alternative to bringing expatriates in to Mozambique is sending Mozambicans out. Aurecon grants a number of yearly bursaries to local students to study at South African universities, as does construction firm WBHO. Though costly, the idea of fostering knowledge transfer by placing trainees in situ in Africa's leading mining destination is one that is gaining ground for its long-term benefits. Several companies are also in talks with Mozambican Universidade Eduardo Mondlane to form training partnerships and graduate schemes to supply mine sites with the necessary work force, though these are still in their early stages.

Governmental requirements on local versus expatriate employees differ by company size, but most across the industry agree that they need to be relaxed. Suggestions to implement an increased quota at the commencement of operations in Mozambique, to be decreased as time goes by are still awaiting response. Most mining executives however agree that the Ministry is very proactive, receptive and responsive to discussions surrounding the industry and its regulations, and their peers hope this will be the case in this regard as well.

South African construction conglomerate Stefanutti Stocks has identified Mozambique as one of its main growth areas as it expands outside of South Africa and has established training schools in the country to this end. Like most other companies, Stefanutti Stocks will be importing certain specialized know-how in its initial growth phases, but director of contracts Luis Gaspar feels that the local content requirements are actually beneficial to incoming companies as well as Mozambicans. "Mozambique is a big market for us, and we do not want to be seen as just another outsider coming in; we want to be seen as a Mozambican company," said Gaspar.

In the rush by companies to acquire as much business as possible in Mozambique's mining and infrastructure booms, this could



BMG service team at Leeuwpan Colliery. Photo courtesy of BMG.

play an integral role in a company's ability to connect with locals and build successful foundations for future growth.

In the meantime, there is still no shortage of services available in-country, with significant investments in training from service providers matching those in investment from miners.

### Tete: Southeast Africa's New Mining Hub?

As the nation's capital and financial center, Maputo often serves as the first point of contact for companies establishing themselves in Mozambique, and becomes their corporate base. With much of Mozambique's mineral potential lying further north, however, Tete has become the operational hub for mining companies and service providers. This falls in line with a recent government initiative to foster growth in Mozambique's central and northern provinces in order to rectify developmental imbalances between the wealthier south and poorer north. Tete's growth over the past thirty years from a truck stop town between Zimbabwe, Malawi and Mozambique's coast into a bustling center for mining is impressive.

In the initial years of Mozambique's earlier mining boom, the majority of service companies operated on a fly-in, fly-out basis. As companies gear up for a second, more sustained growth period, they are also beginning to look at establishing more permanent operations. Global equipment provider Atlas Copco established a sales and administration presence in Maputo in April 2012, followed by a sales branch office in Tete not long after. SRK is also looking to consolidate its footprint in Mozambique and involvement in infrastructure and coal projects with the establishment of a country office in 2013. Aurecon has been one of the main service providers in Tete for some time now, but is looking to create a design support hub for the Southern African region

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**MINING IN MOZAMBIQUE**

based out of the country as well. Aurecon joins DRA in transitioning its design capabilities to Mozambique.

Parts provider BMG has also expanded its presence from Maputo to Tete with this in mind. Speaking on the growing strategic importance of Tete as a mining hub, branch manager Manuel Teles said: "There is no real advantage to importing directly from South Africa or elsewhere ... many companies feel it is easier to continue agreements they have directly with suppliers because parts may be cheaper that way, but they underestimate the costs of bringing these parts across the border and up to Tete."

Strategic timing is also involved with BMG's decision to expand northwards. General manager Mark Lubbe added: "Most mines are only now coming out of their warranty periods for the OEMs they entered Mozambique with, and the next stage—of taking over out-of-warranty servicing and parts provision—is the real opportunity for us."

Hoping to capitalize on the equipment maintenance and upkeep business that comes with expired warranties from OEMs, parts provider BMG has also expanded its presence from Maputo to Tete with this in mind. Speaking on the growing strategic importance of Tete as a mining hub, branch manager Manuel Teles said: "There is no



The GALEO brand will be employed for Komatsu's full lineup of advanced construction and mining equipment. Photo courtesy of Trak Auto.

real advantage to importing directly from South Africa or elsewhere ... many companies feel it is easier to continue agreements they have directly with suppliers because parts may be cheaper that way, but they underestimate the costs of bringing these parts across the border and up to Tete."

Komatsu, Dynapac and John Deere supplier Trak Auto has also established a Tete facility. Though managing director Rob Hayworth feels a more measured expansion into Tete is required, he does see the same significant growth opportunities as OEM parts come out of their warranty periods. Speaking on the wider development of Tete

as a whole, Hayworth said: "Though Tete is experiencing a bit of a lull at the moment, we expect it to keep growing every year as mining activity picks up, warranties expire, and in the construction area as Tete continues to be built up."

Mozambican household name and 3M agent Norco has created its own brand of safety apparel which has seen increasing demand since the company established a warehouse in Tete. Director Mark Norton said: "Norco wants to grow in the mining sector to grab the largest possible market share ... our expansion plans include the construction of a 1,200 m<sup>2</sup> factory in Tete, and we hope to expand our own brand." Norco is able to supplement its services with access to 3M South Africa's consultants and advisors, but being a 100% Mozambican company, is working on expanding its presence in Tete in the face of increased competition.

While both Tete and Mozambique are growing in importance as a hub for service companies in Southern Africa, there is also a growing presence of advisory companies helping newcomers navigate the country's often confusing and bureaucratic business atmosphere. ProIntel, founded by Tete veteran Frank von Habsburg, was created "to fill the gap in the market for the things that nobody wants to do, such as customs, licensing, and work permits."

There is a growing realization that in order for Mozambique to truly harness a second mining boom, it needs to become more self-reliant in terms of service provisions. A common belief that South Africa's more advanced mining sector and history make its proximity to Mozambique a bonus needs to be replaced with a view to creating a similar mining culture in Mozambique. If, as Deloitte's Grant Sboros says, Mozambique has a good 100-150 years of mining in its future, the foundations for its support system must be laid now.



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The company was established in 2003 following the appointment as the sole distributor for John Deere agricultural equipment in Mozambique. In 2006 sole distributorship for the Komatsu range of equipment including earth moving, mining and forestry lines was successfully secured. These two major brands are sold and supported by outlets in Maputo, Beira, Pemba as well as sub branches in Chimoio, Lichinga and Tete.

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# Big Bucks

## Mobilizing Domestic and International Capital in Mozambique.



DRA have designed projects throughout Africa, including Mozambique. Photo courtesy of DRA.


Despite the many challenges that operating in Mozambique presents, financing is rarely one of them. It certainly does come with its own set of limitations, but both domestic banks and global mining finance hubs Sydney and London are becoming acutely aware of the opportunities present beneath the surface in Mozambique. The recent PPP and Mega Projects laws are aimed at helping the public sector meet its financing needs and at ensuring that Mozambicans

can capitalize on their mineral wealth, respectively. While such a capital-intensive industry as mining does perhaps call for greater resources than the financial sector in one of the world's poorest and fastest-developing countries can offer, opportunities for collaboration across sectors do exist.

"Mozambique is on a tremendous growth path and offers great opportunities for banks," said Faisal Mkhize, CEO of Barclays Mozambique.

Many local banks, due to their relatively small size, cannot afford the capex required of mining projects. "Doing business from within Mozambique sometimes requires taking advantage of value chain opportunities.. In recognition of the importance of service providers to mining, we support businesses across the value chain," said Mkhize.

BCI, Mozambique's second largest commercial bank is active in the mining arena



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Faisal Mkhize, CEO, Barclays Mozambique.



Ibraimo Ibraimo, CEO, BCI.



Mia Couto, managing director, Impacto.

and is a local source of finance for SMEs. Ibraimo Ibraimo, CEO of BCI, said: “Given our capacity, this is the most effective way for us to contribute to the development of one of Mozambique’s most important sectors and to give local investors a sense of ownership of the industry.”

BCI helps local investors buy into the sector through its award-winning financing programs for SMEs and women entrepreneurs.

Size has its limitations. Inaete Merali, CEO of Moza Banco—a smaller local bank—said: “It is difficult to finance new mining, gas, or renewable energy projects; the Central Bank regulations are that only 25% of a bank’s share capital can be exposed to one group.”

To resolve this, Mozambique’s banks are working together. A number of syndicates are currently in the works; 2014 could see an increasing number of mining finance deals completed domestically through banking consortiums.

Perhaps the most significant interaction across industries comes from Standard Bank, which as part of the Standard Bank Group, is the largest investor in the African mining sector. In Mozambique the bank has secured a number of deals with mining companies to offer consulting and intermediation services, moving beyond the realm of simply providing access to funds for project development.

Mozambique’s recent megaprojects law aims to ensure, amongst other things, reasonable access to project equity to the public via the Maputo Stock Exchange, amongst other platforms, which currently only has two listed companies. As the Johannesburg Stock Exchange (JSE) becomes an increasingly important player in African mining finance, a number of finance executives and government officials hope that the exchange in Mozambique can also benefit from the influx of investment into the country. While a robust stock exchange may be a long way off, it does remain a topic of discussion as one of the most direct ways to give Mozambicans the ability to invest in and profit from the mining sector.

### Engaging Mozambique and Mozambicans

Africa—the world’s poorest continent—is nevertheless home to twelve of the twenty economies with the highest projected compounded annual growth rate (CAGR) between now and 2017, according to a study completed by the Business Insider. Although most of these have disparagingly low GDPs and standards of living, which makes such stellar growth rates significantly easier to achieve, this progress cannot be ignored, nor can it be taken for granted.

Much of the debate surrounding the development of Mozambique’s wider extractives industries and their relevant legal framework has touched upon the involvement of and benefits to wider Mozambican society. Although often compared to its colonial sister, Angola, in the post-war development of its resource wealth, Mozambique’s mining industry is still young enough in its development to learn from Angola’s distorted distribution of asset wealth. The potential to ensure a more evenly distributed growth is something that both government and industry must work to maintain.

SRK made the decision to enter Mozambique in 2013 based on its expertise in community engagement. CEO Roger Dixon said: “Currently, the benefits of projects are being exported; arguably, to date, no development within Mozambique is solely benefiting Mozambique. It is only a matter of time before Mozambicans start asking why this is happening.”

Mozambican firm Impacto also has a team of socio-economists in place to support the work of their environmental consultants, with the task of helping companies navigate the complexities of the relationships between the private sector, government agencies

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Carlos Simbine, president, Industrial Association of Mozambique (AIMO).

and local communities. New laws on resettlement state that an Environmental Impact Assessment (EIA) will not be granted without an approved Resettlement Action Plan (RAP), which requires public consultation and stakeholder engagement. "This is, on its own, a positive step," said deputy managing director Hatton, echoing the sentiments of managing director Mia Couto. Though the process of accommodating such consultations still needs some fine tuning to prevent licensing delays, the inclusion of Mozambicans in the determination of their futures and mineral assets is an obvious and absolutely vital part of avoiding resentment of the industry's development.

To prevent this, SRK is one of many firms that is committed not only to engaging Mozambicans in public consultations, but also to ensuring that they are willing participants in extracting their country's resource wealth. Recruitment firm CBE's PCA Nuno Sidonio Uinge said: "We don't want to create resentment of the opportunities foreign investment can bring, so we should be sure to provide adequate training and opportunities where possible."

There is an effort being made through a variety of associations to ensure that vocational training models are put in to place across a number of industries to educate young Mozambicans. "AIMO is one of several institutions responsible for implementing a successfully tested vocational training model with the direct participation of the private sector, government and trade unions," said Carlos Simbine, president of the Industrial Association of Mozambique (AIMO).

Providing training is not enough, however. The real opportunity to create a Mozambican mining culture is through its national education system, which is not currently tailored to serve the various developing industries in the country. "There is an increasing understanding of the oppor-



First trial pit operation in Tete. Photo courtesy of Tayanna.

tunities present in pursuing engineering degrees. If an advertisement is placed for an opening, there are increasing numbers of applicants...they are valuable in their willingness to learn and ability to be trained," said CBE's Uinge.

Moz Environmental work with local schools around its mine sites in Tete. "Sometimes spreading the message from the bottom up rather than from the top down is the most effective," said Moz Environmental's Davies. "With the majority of Mozambique's population being as young as it is, we are very hopeful that this can make a difference."

## Harnessing Mozambique's Future


Mozambique's vibrant youth can be seen forging a new history for themselves in the countless cafes, restaurants, art galleries, impromptu street side dance parties and neighborhood soccer matches that are a common site around Maputo and indeed the country. If the more conservative estimates for the development of the country's mining sector are to be believed, then by 2020, it can be a leader in the industry both regionally and globally. Even if infrastructural development rises to meet demand, the next generation must be groomed to take control of its assets.

While there are a number of issues that pose obstacles to Mozambique's development, there is no doubt that what lies beneath the country's surface holds enormous potential to feed its growth. Much like any industry in its youth, the key to realizing this potential lies in building solid legal, institutional, financial and operational foundations. The mining industry remains committed to getting the most out of Mozambique, but it is now up to the government to deliver on its promises in ensuring that this happens and that Mozambique gets the most out of its minerals.

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