# OPPORTUNITY

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JAN/FEB/MARCH 2022 • ISSUE 100

# **Economic recovery**

What businesses can learn from the disruptions of 2021

Mining for growth, sustainability and impact

New strategies are successful

The influence of the 2021 economy on potential 2022 investment factors

Exciting new developments are making goals of the Integrated Resource Plan (IRP) attainable

# Lighting up Africa

Mozweli CEO Dr Trevor Dudley shares his company's vision of bringing sustainable energy security to the continent



MoZWeli



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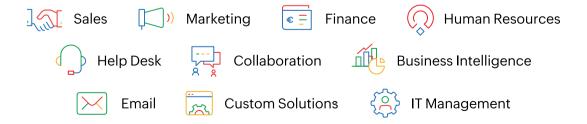
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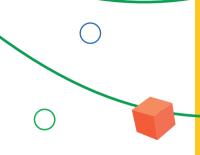
business applications across functions.

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# Breaking barriers with a unified software suite



Many businesses took their first steps towards digital transformation two years ago when restrictions were imposed due to the pandemic. Different departments signed up for software that would help automate tasks and enable business continuity. However, two years on, the integration hassles and growing departmental silos are impeding the ability of business owners to quickly make decisions, a critical capability for any business to survive in unpredictable times.

The solution is a unified software suite that can get people working together across teams from the comforts of their homes.

# **Operating System for Business**

Zoho One is an all-in-one solution, which is customisable, extendable and integratable, making it the 'Operating System for Business'. It breaks down departmental silos and helps drive smarter decision-making. It can be customized to fit the needs and goals of each business, leading to a shorter time-to-value and overall success.

Its 45+ apps range from a customer-experience platform, finance and accounting, HR management, productivity and collaboration to custom solutions, conversational business intelligence and AI. It also has mobile application management, e-commerce solutions, a learning management tool and more, to ensure businesses can be ready for an unpredictable climate and build a stronger employee experience for a distributed workforce.

# How Quicket leveraged Zoho One



Quicket, which has been a Zoho customer since 2017, achieved growth-driving benefits like improved back-office

efficiency, business process automation and lightning-quick customer support after implementing Zoho One.

The solution also enabled significant savings in Quicket's IT spending as well as increased staff productivity by cutting down time spent on administrative tasks. When the government cancelled public events in March 2020, Quicket's four support agents, while working remotely, processed over 220 000 refunds, answered 500 email cases and handled 150 calls a day for the first month of lockdown using Zoho Desk, the helpdesk solution part of the suite.

Quicket customised Zoho apps in several ways, such as telephony system integration, to automate complex sales workflows while ensuring consistent brand messaging for potential customers. They were also able to track their sales team's productivity better. With Zoho Analytics (business intelligence solution), they get insightful reports on the entire business – from financial forecasting to sales and the monitoring of customer service.

Quicket's story makes a compelling case for what businesses can achieve by efficiently leveraging technology to enable cross-functional collaboration and unified insights.

# **Focus on Privacy**

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To learn more about **Zoho One**, visit zoho.com/one.



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- **SACCI FOREWORD** A better year ahead
- **NEWS & SNIPPETS** What has been and what is to come.
- **CREATING SUSTAINABLE ENERGY SECURITY** Dr Trevor Dudley, CEO of Mozweli (Pty) Ltd, unpacks the financial and logistical benefits of deploying pebble small modular nuclear reactors, using the latest, safest technology.
- ADVANCES IN BATTERIES AND POWER STORAGE COULD CHANGE THE GAME Jan Fourie, Sub-Saharan Africa's GM of renewables giant, Scatec, explains how exciting new developments in batteries and power storage are enabling dispatchable power from renewable sources in efficient, cost-effective ways.
- THE INFLUENCE OF THE 2021 ECONOMY ON POTENTIAL 2022 INVESTMENT FACTORS George Herman, Director and Chief Investment Officer at Citadel, the specialist wealth management company, describes the current economic outlook and outlines the investment factors to be considered in 2022.
- LIMPOPO'S INVESTMENT PROPOSITION Special Economic Zones (SEZs) are central to the drive to promote investment in beneficiation, energy and manufacturing in Limpopo Province.
- MINING FOR GROWTH, SUSTAINABILITY AND IMPACT The CEO of Exxaro Resources Limited, Mxolisi Mgojo, outlined the company's strategy for diversified growth, decarbonisation, sustainability and impact management at its shareholder Capital Markets Day.
- A YEAR OF UPHEAVAL: WHAT BUSINESSES CAN LEARN FROM THE DISRUPTIONS OF 2021 James Bayhack, Director for Sub-Saharan Africa at mobile technology group CM.com, looks ahead at trends and innovations that will help businesses recover faster.
- FIVE ADVANTAGES OF AN INTERNATIONAL DEBIT CARD International travel is likely to make a comeback in 2022, even if it's only for the vaccinated. Standard Bank's Erik Olwagen outlines the benefits of having a card with one of the world's biggest currencies loaded on it.
- **KWAZULU-NATAL WELCOMES RESUMPTION OF SAA AND QATAR FLIGHTS** A welcome sign of economic recovery.











# **ABOUT THE COVER:**

Background image: Supplied by Mozweli (Pty) Ltd. Dr Dudley image: detoi Photography. www.detoiphotography.com

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# From small modular reactors to new ideas in battery technology and storage, innovators are finding new ways of powering South Africa

nergy is to the forefront again in this issue of Opportunity, with our cover story focussing on a very specific type of nuclear power.

The nuclear debate has been rolling on for decades. France loves nuclear power, Germany has chosen to do without it and Britain has recently changed its mind – and probably will again.

South Africa has nuclear power and has committed to sourcing an additional 1 850MW from nuclear by 2030, in terms of the Integrated Resource Plan (IRP). This is less than a third of the allocation for solar photovoltaic and only a fraction of the promised 14 400MW of power due to come from wind farms.

Some politicians tried to sign contracts with Russia during the presidency of Jacob Zuma but these have been stopped or overturned by court action. If nuclear is to become a major part of the energy mix, the industry will have to persuade the public and its representatives of the safety of it plants and the effectiveness of storage options. The industry has passionate supporters who believe that the science is on their side. The debate will continue.

The article by Jan Fourie of Scatec raises the fascinating possibilities that are now emerging with regard to batteries and storage in the renewable energy sector. The IRP is referenced in his piece, and there is no doubt that good batteries and reliable storage could be real game-changers in terms of South Africa (and the world) being able to move to a greener future.

Mining companies are looking to providing their own power as part of an attempt to free themselves from Eskom's unreliability but also as a way of moving towards that green tomorrow. Exxaro Resources' Mxolisi Mgojo shares his company's strategy for diversified growth, decarbonisation, sustainability and impact management.

James Bayhack of CM.com looks ahead at trends and innovations that will help businesses recover faster from the upheavals of 2021 and Citadel's Chief Investment Officer, George Herman, gives a perspective on investment prospects in 2022.

A special feature on the investment opportunities on offer in Limpopo Province examines the role of Special Economic Zones (SEZs).

Just in case travel does become a "thing" in 2022, we have included an article on why it's a good idea to put an international debit card in your wallet.

John Young, Editor

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# **PUBLISHED BY**



Global Africa Network Media (Pty) Ltd Company Registration No:

2004/004982/07

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# A better year ahead



SACCI is committed to helping businesses build back through a range of measures that include fast-tracking grant funding, improving efficiencies and reducing costs.



s we move into the New Year, there are a number of factors that appear to indicate a better year for South Africa.

For starters, on the southern tip of Africa, it was our scientists who identified the new variant and the country was punished, in ignorance, as being the catalyst for the new variant and its rapid infection rate. While this

has indeed spread rapidly like a quick-burning fire, it has almost spent itself here and the situation has become manageable. A quick look at the rest of the world suggests a very different picture. At the time of drafting this article, South Africa has 74 000 active infections for a population of 56-million people

compared to Australia with just over 1.1-million infections for a population of 24-million people. This gives some perspective to the current state of play. The impression left

is that the severity of this wave in South Africa has also been milder than in other parts of the world.

Against this background we need to pay attention to our shattered economy. While this has dramatically impacted on every one of us, the effects on the small business sector have been dire. The R500-billion safety net that was supposed to bolster small business, didn't. Many small businesses that have been around for decades, vanished.

The Chamber set up work streams to address the immediate issues and tabled a set of action recommendations both with the President's advisors and the Deputy President's office. The plan is to address the areas which have been found wanting, whether this be government agencies or institutions in the private sector, no-one is blameless, but let's not harp on the negatives.

SACCI itself has not been absolved from the damaging effects of this two-year lockdown. But the organisation adapted and took measures to limit as far as possible the revenue-stream impact by addressing the costs of its operations.

There can be no doubt that the pressures are on to get more directly involved in the small business community where we are well represented. This required a completely new approach, with the mother body taking a more visible presence in the township

SACCI stands for everything good

in our business communities

economies. A whole suite of measures are being looked at, from fast-tracking grant funding to small businesses, addressing the financial support and administrative functions, communication issues, transport network, supply depots to the business community, creating greater

efficiency and lower cost of products are all issues that form part of a pilot programme to be instituted. Indeed, we are enthusiastic to implement our plans with key stakeholders in 2022.





# We believe we can make a difference to fast-track our small businesses out of the devastation caused by the pandemic.

Overall, the organisation has taken the time to go into the townships and engage with the **c**ommunities to gauge first-hand what are the crucial issues. What's more important is that we listened to our people and are putting plans in place to make things happen for them.

Using the muscle of the mother body and the networks we have, we believe we can make a difference to fast-track our small businesses out of the devastation caused by the pandemic, the rioting and looting last year in key areas and the drop-off in demand experienced over nearly two years.

SACCI remains committed to these initiatives. As we have not had such an experience before, so we adapt our programmes based on our learning experiences as we go along and build on such experience.

In so doing, we grow the programmes outwards to areas we currently have no presence in. This way, we strengthen our role in a positive way for our business community.

SACCI stands for everything good in our business communities.







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COMPRSA is a dynamic software development company in South Africa and was founded in 1997. In 2017 we invested in a facility of our own to illustrate our commitment to continued service excellence.

We enable clients to achieve strategic objectives on time and budget through COMPRSA's consulting expertise, creativity, and broad-based experience gained through real-world project work with some of the largest and most successful companies.

We offer a blend of technological expertise, commercial best practice methodologies, and custom solutions by combining proven expertise in technology with an understanding of emerging business domains. Our team has integrity and a passion for delivering measurable cost savings, value, and innovation.

We are an experienced project management office (PMO). Our team builds, streamlines, and maintains standards for project management across organizations - for project scoping, implementation services, enterprise project management, tracking, reporting, and management solutions.

leaders through strategic planning for business process re-engineering and organizational and transformation change management. With our niche domain skills, we have had numerous successes in next-generation service delivery to our clients.

By leveraging agile teams, a start-up culture, multispeed micro-service, and cloud-based architectures, organizations rapidly see the value of our skills.

Our leadership team draws upon decades of software development, implementation and technical consulting skills, custom application development, product engineering, integration solutions with legacy systems, and executive experience.

Work readiness and tech skills development programs have been instituted through a collaborative effort between universities, training institutes, and the private sector. These are workbased learning programs related to a specific field of work, comprising both theoretical and practical training.



We offer a leadership model not only to back-fill most of the vacancies arising from attrition but to source talent to support incremental growth as well.

We recruit the best talent in the market and invest in continuous training to help develop their communications, technical, and management skills.



COMPRSA has a very active perspective on how application architectures should be created by developing component-based application development models. It is best to apply an integrated approach to this task, employing business solutions that meet the broadest spectrum of needs.

We offer software re-engineering, migration, and deployment, using optimal technologies and system planning on a wide variety of platforms. We begin with an indepth understanding of your business – your brands, corporate image, and business

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benefits.

South Africa was named as the "Offshoring Destination of the Year" at the 2016 Global Sourcing Association (GSA) awards ceremony.

We realize that the selection of an offshore destination is a crucial decision while choosing a partner. This decision impacts

the long-term success of offshore partnerships, hence, nonprice factors become very important - as cost advantage is no longer the most important objective in the partnership. COMPRSA therefor offers more value, enhanced performance, better service, and better innovation.



COMPRSA aims to be a favorite custom software solutions and services company, with a global footprint. In fact, a combination of factors such as cost-effectiveness, government support, time zone, and cultural similarities has helped COMPRSA project itself as an established offshore partner.



# News & snippets

Industry insights from the past quarter

# MINERAL PROCESSING GURU AIMS FOR SOCIAL DEVELOPMENT

Mineral Processing Guru (MPG) specialises in coal-mining business solutions but offers a wide range of services across the mining industry. The company strives to provide customised service to help clients achieve their objectives.

Entrepreneur and mining specialist Rendani Nthangeni wants to see social development within the communities in which MPG operates. To that end, various strategies have been carried out which include opportunities at Technical and Vocational Education and Training (TVET) colleges for practical, in-service training with the company, where students gain real, hands-on experience in plant maintenance and operation. When it comes to employment opportunities, MPG will consider the community in which it operates and aims to contribute responsibly across the board to those communities. Another method whereby local communities will be considered first, is through affirmative procurement policies to be followed by MPG. Mineral Processing Guru is a Level 1, 100% black-owned mineral processing company which was founded in January 2017.



# SUSTAINABLE PACKAGING FOR PATTEX SILICONE CARTRIDGES



Demand for quality home-based DIY and craft solutions increased during the various Covid-19 lockdowns. The growth of two of Henkel Adhesives' most popular products. Pritt and Pattex, reflected this trend.

Henkel, which celebrated its 70th anniversary in South Africa in 2021, announced that sustainable packaging on the Pattex silicone cartridges had been rolled out as part of its focus on sustainability.

The company is proud that its Pritt product, so successful in arts and crafts and schools, has extra levels of safety. New-generation Pritt contains 97% natural ingredients (including water) while the stick now consists of up to 65% post-industrial recycled plastics. Another innovation is a polymer-based adhesive product that can be applied under water without compromising on strength.

The Pritt stick was relaunched globally in January 2021. The new-generation product provides consumers ar even more natural and high-performing solution combined with improved sustainability.

# AFRICAN ENERGY INDABA LOOKS FOR SOLUTIONS

The 14th African Energy Indaba Conference, to be held at the Cape Town International Conference Centre (CTICC) and virtually from 1-3 March, aims to find solutions to energy generation across the continent.

The three conference days cover many illuminating topics. The virtual conference and the physical exhibition at the CTICC include networking and B2B meetings.

The topics for the first two plenary panels are "Energy policy – enabling energy transition, sustainable communities and flourishing businesses" and "African off-grid potential: a new business frontier".

The third plenary panel, headlined "Funding – the moving target of investment readiness" intends to explore Africa's substantial investment needs while striving to strike a balance between the continent's low ability to repay loans, high funding and investment risk levels.

The fourth panel discussion will address the critical topic of Africa's inevitable transition to a lower-carbon future under the heading "The future of oil and gas in Africa in the energy transition".

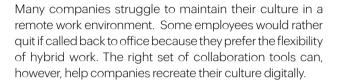


# OPPORTUNITY



# Designing digital cultures for the hybrid workforce with Zoho Workplace

A collaboration suite for the modern workplace.



Enterprise collaboration has become a critical offering. So much so that the biggest vendors in this space are now raising their prices or removing their free version. Other SaaS providers are acquiring collaboration software companies at exorbitant valuations, the cost of which is ultimately passed on to the customer.

Zoho Workplace, our collaboration suite that we have built from the ground up (powered by a platform purpose built for unified experiences), helps build a distributed workforce connected through shared knowledge and culture. Here is how:

# **Enabling asynchronous collaboration**

In a remote work setup, employees enjoy the greater control they have over their time. This means that asynchronous collaboration becomes important. We designed Zoho WorkDrive – our cloud document management app – to have Team Spaces and Organization Spaces. These are open folders for anybody to join, view and download files and documents from. The presence of our built-in office apps makes this experience even better. Engagement Insights in Zoho Writer shows the author what stage

other collaborators are on the document, easing up the asynchronous workflow.

# **Bringing people together**

Imagine a scenario where you could just share a support email with relevant people or teams, create a chat channel with them with just a click, discuss the issue over text or audio/video call and send the resolution to the sender. Zoho Mail's Streams feature enables this inter-team and intra-team collaboration.

With Zoho Cliq, our communication tool, one can create public and private channels. In team channels, one can welcome newcomers, post updates about their work and brainstorm ideas. Employees can create their own channels to bond over shared interests such as forming a book club. This way, people who may not have met each other in a physical office space get acquainted with each other.

### **Transparency begets trust**

CEOs and senior leaders can use the in-built TownHall space in Zoho Workplace to communicate decisions, talk to employees directly and hold anonymous Q&A sessions. The leadership gets the opportunity to gather feedback from employees and allay any fears, while employees can express their concerns. This open and transparent communication helps break barriers and creates a sense of belongingness.

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Dr Trevor Dudley, CEO of Mozweli (Pty) Ltd, unpacks the financial and logistical benefits of deploying pebble small modular nuclear reactors, using the latest, safest technology.

# What is generation four technology?

The main aspect in nuclear is always safety. Generation four is the highest league where the pebble technology is classified as inherently safe. You do not need passive and active safety systems because of the fuel technology that is used.

The fuel technology has four inherent safety barriers. The pebble fuel has a low power density of 5MW/dm3, compared to PWR fuel which has a fuel density of 20MW/dm3. The pebble coefficient of reactivity is negative. This implies that the fission process requires continuous activation, and if not activated continuously, the fission process decay will decrease and die out. It has a negative reactivity coefficient and that's a big plus because if you do have a human or mechanical mishap, the plant (through the chemical fission process) goes to sleep, it shuts down by itself.

There are safety mechanisms just for that rare occasion of an accident taking place. It has been demonstrated on a live plant that when severe cases of helium coolant in the reactor are removed, if the temperature of the pebbles goes above or near to 1 600, it suffocates the chemical fission process.

The majority of over the 400 nuclear reactors in the world are pressurised water reactor types; these are classified as generation two. With them, if the fission process does get out of hand, for example as happened at Chernobyl, then you need an active safety mechanism. You insert the control rods and if things continue, you need other systems to be in place.

After Chernobyl and the Three Mile Island challenges, the nuclear industry has learnt a lot and the international nuclear regulator, the International Atomic Energy Agency (IAEA) in Vienna, has now put out new safety regulations. For example, at Fukushima when they had that tsunami, all the safety aspects were adhered to during the design of the power plants at Fukushima Daiichi, but when that tsunami came a 20m wave crashed into the nuclear power plant and knocked out the electrical system and the system which drives the pumps. So they had challenges. There we see that the active mechanisms were there as designed.

In the future design of power plants, most nuclear vendors and designers are talking about generation three-and-a-half. It's still a challenge, you can have a meltdown, but there are many safety systems. With a passive safety system like those on the pressurised water reactors, they are saying keep a swimming pool of water on top of the reactor building, so that you can release water onto the building to cool it down.

With Mozweli pebble technology generation four, you don't need all those active or passive safety systems because our safety is in the pebble technology. The fuel that we use has its own four barriers of safety and that is a big plus.

### Why is the term "pebble" used?

The fuel that we are using actually looks like tennis balls, spherical, or like a cricket ball. It's 60 millimeters in diameter but in the past, the field looked like pebbles on a riverbed. Pebble is a misnomer.

# What are the other advantages of pebble technology?

An advantage of pebble Small Modular reactors (SMRs) is that the power output is 100 megawatts, compared to the large conventional power plants, which is about 3 200MWe. You can construct, manufacture and get to market in eight years. The Chinese have done that. They started in 2010 and they commissioned in 2018. We take that parameter from the Chinese.

A normal pressurised water reactor takes 20 to 25 years in design and construction. With the PSMR your cost is reduced to US\$800-million, your manufacturing is much more convenient and you get to market as guickly as possible.

Pebble nuclear reactors also don't have to shut down for refuelling. It's an online process that allows you to keep generating power while you add and remove fuel. For example Koeberg needs to shut down for a month or two to reshuffle the fuel. We don't have that problem.

# How is The PSMR a mitigator of climate change?

When the power plant is running, for every megawatt of electricity produced there is zero carbon dioxide, zero sulphur dioxide and zero nitrous oxide. That's why we say it mitigates climate change. A fossil power plant that produces electricity using coal, fossils, oil or gas is taxed for every megawatt ton of carbon dioxide produced. Every megawatt of energy produced by nuclear power is actually a positive, which you can sell to the airways who are producing carbon dioxide.

# Does pebble technology store nuclear waste differently?

The pebbles are totally different to a conventional nuclear power plant. For pressurised water reactors, the high-density radiation is plutonium and that has to be kept in a pool of deuterium water. It has to be kept on site for a number of years until the high level of radiation is reduced and then it can be moved to a deep fault in the earth somewhere. You are taking uranium oxide out of the earth, you use it, and you put it back in the earth.

Some of the anti-nuclear people don't want you to put it back because it's radioactive. The storage of high-level nuclear waste is highly regulated. Every gram is accounted for by the IAEA.

In pebble technology, we have dry storage. We take the pebbles out of the reactor once we have used the energy, store it below the plant for 40 years and we monitor it. It's a much safer option and we are doing research on recycling those pebbles. About seven grams of uranium is used; 90% of the pebble is graphite.

# Why is the PSMR particularly relevant in the African context?

Our power plant does not depend on a large amount of water for cooling. It does not depend on the position of the power plant. Pressurised water reactors need the ocean or a river to cool down the process. We can put the power plant where the power is needed.

Take for example a mining house. We can place a Mozweli power plant of 100MWe where they are mining. The mine has a life of about 30 years which ties in with the life of the Mozweli power plant, which is 40 years.

We are saying to African countries, here's a Mozweli power plant as big as a soccer field, put it where you need the energy, 100MWe for your mines or for your people and off you go. You don't need a lot of water and long transmission lines. That makes economic sense in Africa. The PSMR is ideally suited to place your power plant where you need the power. The time of long transmission lines has expired.

# Can you create reactors smaller than 100MWe?

We market a 100MWe of nominal output power. The installed capacity is 144MWe. Four reactors are based on 25MWe each and that is your N

minus-three redundancy. If one reactor and its turbine is in outage for maintenance or servicing, your three remaining reactors will guarantee you a 100MWe nominal output power for 40 years is the principle.

The Canadians have enquired about a 25MWe plant and we said we can look into that. The only shortcoming here is that the price of a 25MWe and the price of a 100MWe is the same, US\$800-million. This is because the regulatory process



### **Biography**

Dr Trevor Dudley is the founder, owner and appointed managerial director (CEO) of Mozweli (Pty) Ltd and Programme/Project Director for all countries.

Dr Dudley is a world-renowned nuclear physicist and large-scale technical project developer with 30 years nuclear experience and 27 years pebble

technology experience. Dr Dudley has a PhD in Electrical/Nuclear Engineering from the University of Manchester/Institute of Technology [UMIST/UK] (2004); a Bachelor of Science in Engineering BSc Eng (Hons) in Power Systems/Energy/Management from the University of Cape Town (1996); a Bachelor of Science (Honours) BSc (Hons) in Applied Mathematics from the University of Witwatersrand; and a Bachelor of Science BSc in Nuclear Physics and Chemistry from the University of Botswana (1981). He is a member of the Institute of Directors in Southern Africa (IoDSA), a member of the Engineering Council of South Africa, the South African Council for Natural Scientific Professions and the American Nuclear Society. Mozweli IP belongs to all Mozwelians, as derived from first principles.

remains the same and is just as intense. In any event, we encourage a client to take a 50MWe or a Mozweli MHTR100 flagship because they are going to come back in two or three years' time saying, "We need some more power."

Will the COP28 talks have an impact on the growth of your market?

There is a lot of talk that nuclear is the way to go for climate change mitigation. Going into the future, the economies of the world must be hydrogen-based. To make bulk hydrogen, you need bulk energy and that should come from a nuclear power plant. Hydrogen produced from a nuclear power plant

is known as pink hydrogen. Hydrogen is made through Permeable Electrical Electrolysis (PEE), the latest technology. The Europeans and the British are moving to hydrogen in a big way because they believe that all future technologies will move away from fossil fuels to hydrogen. We need to be supplying hydrogen and so we have a latch-on unit onto our power plant, which can produce hydrogen if electricity is not required at that time.

Do you get a sense that a future Integrated Resource Plan (IRP) might include more nuclear capacity?

The IRP that was signed in October 2019 allocates 2 500MWe to small modular reactors. That was put in there just to see how everybody would respond. That is an underscore, because Eskom has announced that it will shut down 10 gigawatts of coal-powered stations in the next 10 years, that is 10 000MWe. They are only going to replace that with 2 500MWe, so they are basically short of 7 500MWe.

There are talks to update the IRP to a 2022 version and they are looking at bigger support for nuclear. The process to go nuclear has been extremely well supported; even the anti-nuclear people have gone quiet because the pebble technology we are presenting is so safe. It's important to understand that we have now mitigated all the questions that the anti-nuclear people have, and therefore government today feels comfortable that they can increase nuclear capacity.

The age of large nuclear power plants like Koeberg, I don't think

will happen again. South Africa needs 300 Mozweli 100MWe power plants. In the next 10 years, we will lose 10 gigawatts from coal. You need to replace that with 100 Mozweli power plants. From 2030 to 2040, you will lose another 10 gigawatts from coal and you will have to replace that with another 100 Mozweli plants, and from 2040 to 2050 you will need another 100.

The proposal that we put to government for South Africa to be

energy secure is that you actually need 300 plants, that's 30 gigawatts of power, just to be back where we were in 1976. I believe the IRP will go through changes and there will be an increase.

Renewables will never be able to produce 30 000MWe in 30 years. There's just not enough land space and the transmission lines don't have the capacity. The only way to go is nuclear because you don't need to build additional transmission lines, you put the power where you need the power.

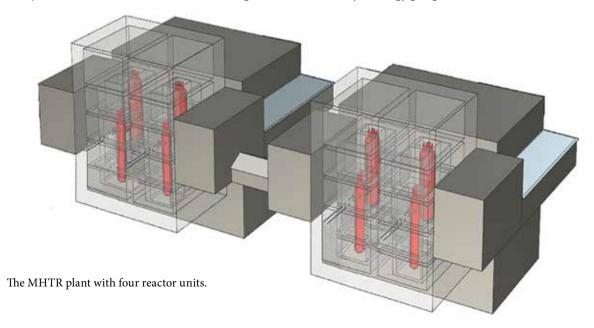
# Do you have a lobby group?

We have a public lobby group in the Eastern Cape which is very proactive and busy. As the Mozweli Group we are making progress and on the issue of affordability for the government, we agree with that. Government has made it clear that any vendor presenting a nuclear solution must also come with a financial solution.

We have spoken to financial investors who will gladly come into the country and invest and assist in the programme. That diffuses the accusations that government will not be able to afford nuclear.

The technology is sound, the proof of concept is working and the team is ready. It is a South African team and we have 26 years of experience. Why not?

Nobody will get hurt in the process, and you will have sustainable security of energy going forward.



We are saying to African countries,

here's a Mozweli power plant

as big as a soccer field, put it

where you need the power

# Pebble technology offers multifaceted solutions



# Inherently safe technology.

he Mozweli High Temperature Reactor (MHTR) is a Pebble Technology, high-temperature, helium-cooled reactor based on the evolutionary designs of the German Arbeitsgemeinschaft Versuchsreaktor (AVR), High Temperature Reactor-Modul (HTR-Modul), Thorium High Temperature Reactor (THTR) and People's Republic of China (PRC) Pebble Bed Reactors (PBRs).

Building on a new surge of innovative nuclear pebble technology, Mozweli intends to generate clean, sustainable and efficient power for Southern Africa and Africa.

The MHTR series of Nuclear Power Plants (NPPs), also referred to as Pebble Small Modular Reactors (PSMRs), are based on Pebble Technology for a High Temperature Reactor (HTR). These high-temperature, graphite-moderated, helium-cooled reactors are designed, marketed and commercialised by Mozweli Nuclear Engineering (MNE), a division of Mozweli (Pty) Ltd registered in the Republic of South Africa.

The MHTR Unit is the basic building block of any Mozweli PSMR (one-, two- or four-unit plants). Each unit has its own dedicated Power System (PS) comprising a Nuclear Steam Supply System (NSSS) and Power Conversion System (PCS).

### What is a Pebble Bed Reactor?

A Pebble Bed Reactor (PBR) is a design for a graphite-moderated, gascooled nuclear reactor. It is a type of Very High Temperature Reactor (VHTR), one of the six classes of nuclear reactors in the Generation IV initiative.

The basic design of PBRs features spherical fuel elements called pebbles. These tennis ball-sized pebbles are made of pyrolytic graphite, which act as the moderator. The pebbles contain thousands of micro-fuel particles called Tri-structural Isotropic (TRISO) particles. These TRISO fuel particles consist of a fissile material (such as Uranium-235 (235U)) surrounded by a ceramic layer coating of silicon carbide for structural integrity and fission product containment. In the PBR, thousands of pebbles are amassed to create a reactor core.

NUCLEAR POWER PLANT
(MHTR25 NPP)

MV/HV Yard

Plant SSB

Power Module 1

Indiana
India

Mozweli MHTR NPP Configurations

They are cooled by a gas, such as helium, nitrogen or carbon dioxide, which does not react chemically with the fuel elements.

### How do PSMRs work?

- Nuclear power plants generate heat through nuclear fission. The process begins in the reactor core. Fissionable atoms are split apart by neutrons, releasing energy and producing heat and more neutrons as they separate into smaller atoms. The process repeats again and again through a fully-controlled chain reaction.
- Control rods made of neutron-absorbing materials regulate the amount of heat generated.
- The reactor coolant absorbs the radiant heat and circulates through a steam generator.
- 4. High-temperature steam drives a steam turbine which is connected to an electric generator. Electricity is generated when it is rotated.
- 5. The used steam is condensed to water and recycled back to the steam generator to produce high-temperature steam again.

# Four reasons why Pebble Bed Reactors are better than conventional reactors.

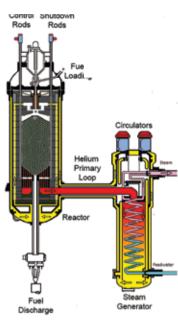
Safety by design: By encapsulating fuel in ceramic coated particles, radioactive fission products are prevented from escaping, even at very high temperatures. Combined with other safety features, this rules out a large-scale release of radioactive material in all accident scenarios.

Safety by temperature: PBRs have a very large negative temperature coefficient. Fission reactions stop, by physics alone, when the

temperature in the reactor exceeds a certain level.

Safety and efficiency in fuelling: PBRs can be continuously fuelled. Conventional reactors must be shut down to refuel. In PBRs there is a continuous fuelling process. Power generation continues without interruption.

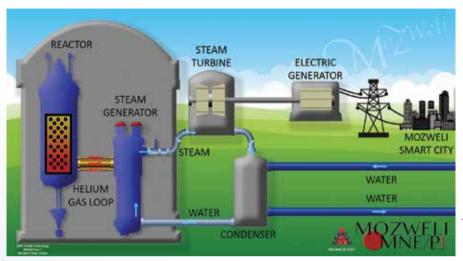
Higher generation efficiency, and safety: PBRs are designed to operate at high temperatures, with a correspondingly higher efficiency of electricity generation and potential to generate process heat for industrial use. PBRs use helium—an inert gas—as a coolant, preventing unwanted chemical reactions and further enhancing the safety of the system.



# Mozweli Nuclear Engineering

# MOZWELI MNE/PI

# Lighting up Africa.



ozweli Nuclear Engineering (MNE) is a power plant design company, established in 2010. The company is led by Chief Executive Officer, Dr Trevor Dudley (Pr Eng), and his team of power system experts. They are highly experienced in the following disciplines, essential to produce a nuclear power plant: Nuclear science, Mechanical, Electrical and Simulation Engineering.

Building on a new surge of innovative nuclear pebble technology, Mozweli intends to generate clean, sustainable and efficient power for Southern Africa and Africa.

# Clean, low-cost electricity is attainable

The Mozweli project has the potential to become the biggest project on Earth, by "Lighting up Africa". South Africa has the opportunity to become the nuclear gateway to Africa, with Mozweli providing power plants to Africa.

Energy-related investment pledges for the Mozweli project from investors outside South Africa amount to billions.

Mozweli (Pty) Ltd has engaged with 47 African countries and received Letters of Interest (LOI) and invitations from many countries for potential deployment.

The project involves establishing a nuclear fuel production facility and building 25 nuclear power plants in South Africa. This is in line with the South African energy plan (Integrated Resource Plan - IRP2019), which recommends that 2 500MWe for Small Modular Reactor (SMR) plants provides the ideal platform for investment in a pebble fuel plant.

These power plants will supply the population with clean, low-cost electricity. Additional benefits include job creation; reliable, affordable electricity; industrialisation; mining applications; climate change mitigation and availability of process steam for waste management and desalination purposes and export opportunities.

The nominal power output of the Mozweli MHTR100 power plant is 100MWe and has an installed capacity of 144MWe.

There is no release of impermissible quantities of fission products and no possibility of a meltdown. A proof of concept plant is operational.

# Mozweli VISION Light up Africa

### Multiple benefits

Tests done in Germany, Japan, China, South Africa and the USA have confirmed the safety of the pebble fuel type spheres. Progressive, inherently safe nuclear technology is used

to produce the fuel spheres. There is also no release of impermissible quantities of fission products.

The benefits of building and commissioning MHTR100 power plants include:

- Low-cost operations.
- · Clean, reliable and low-cost electricity.
- · Job creation and skills development.
- Economic stimulation.
- · Fuel security and independence.
- · Industrial and mining applications.
- · Climate change mitigation.
- · Insignificant nuclear waste, and
- Long-term investment returns.

### Services

- Cradle-to-grave services along the whole industrial chain.
- Current focus on reactor design, reactor component manufacturing, construction on the site, site licensing, regulatory licensing and operation and maintenance of the power plant.
- Successful record in decommissioning an enrichment plant.
   Mozweli has the experience to decommission a plant.
- Three senior members of the Mozweli team have more than 100 years of nuclear technology experience between them.

# **Contact details**

Mozweli (Pty) Ltd | Mozweli Nuclear Engineering (MNE)

Address: Mozweli House, CENTURION, South Africa 0157

Email: info@mozweli.com

Website: http://www.mozweli.co.za

Cell: +27 82 702 6885

# A dedicated and professional team

Piet de Villiers is the Mozweli (Pty) Ltd Executive Engineering Manager. Mr de Villiers ensures that the nuclear power plant design is in accordance with the international (IAEA) regulatory requirements for licensing and registration. Mr de Villiers has exposure and experience in all technical and nuclear aspects of a nuclear power plant. Mr de Villiers and his team have completed the first pebble simulator design and implementation (hardware, software and simulation models) in the world, having more than 40 years of engineering experience. Included in that is 20 years of exposure to nuclear pebble technology.



**Sharon Candasamy** is the Human Resources Executive and Deputy CEO of Mozweli (Pty) Ltd. She ensures that all programmes, projects and persons are correctly recruited, trained and developed through the life of the nuclear programme. Ms Candasamy has over 10 years of nuclear pebble technology human capacity training and development and 15 years' experience in the engineering field, including recruitment, salary negotiations, employee relations, training and development, labour relations and HR administration.



Gerrit Prinsloo is the Mozweli (Pty) Ltd Senior Lead - Chief of Projects. Project implementation will be initiated, executed and completed by Mr Prinsloo. His function is to take care of all Mozweli country programmes, project managers, consultants and engagements with governments and government officials on the nuclear programme. Mr Prinsloo reports directly to the Mozweli CEO. He has been directly involved in all aspects of nuclear business, including 22 years in nuclear, 20 years in power generation and 50 years in big projects.



Manie Mountany is the Mozweli (Pty) Ltd Senior Lead – Corporate Affairs. His function is to take care of all Mozweli country business and consultants, engaging with governments and government officials. Mr Mountany reports directly to the Mozweli CEO. He is up to date on all matters with respect to all business development and stakeholder management and has been present in all meetings with the governments and consultants. Manie has been directly involved in all aspects of nuclear business for 45 years, inclusive of 17 years with pebble technology.







n 2020, South Africans experienced the most intensive load-shedding to date. These crippling power cuts, which amounted to a staggering 856 hours, almost 10% of available hours, cost the economy billions of rands.

Poor performance at several power stations, including Kusile and Tutuka, resulted in a rapid depletion of Eskom's emergency generation reserves.

Furthermore, South Africa's overall capacity to produce energy has plummeted by nearly 10% over the past decade and there are predictions of a shortfall of up to 6 000 megawatts over the next five years.

To address this, government's progressive stance towards renewables, as outlined in the 2019 Integrated Resource Plan (IRP), commits to a shift away from coal towards renewables, with a planned 25% of all power being drawn from renewables by 2030.

Jan Fourie, Sub-Saharan Africa's GM of renewables giant, Scatec, believes that the urgency for cleaner power generation has been a catalyst for the rise in the uptake of renewables and the advances in battery storage technology.

"Renewables in SA are now more cost-effective and guicker to establish than ever before and with no shortage of state support, have engendered a fertile and attractive investment landscape. Solar and wind already provide twice as much power to the national grid as nuclear power, and we can now expect swift progress towards the target of 25% of South Africa's total energy supply to come from renewables by 2030, as stipulated in the Department of Mineral Resources and Energy (DMRE)'s Integrated Resource Plan (IRP)," says Fourie.

A Risk Mitigation Independent Power Producer Procurement Programme (RMIPPPP) has been announced to find new sources of



power in a short period of time. Fourie explains that because power generation needs to be balanced with demand within the grid in real time, the RMIPPPP insists that all new energy produced must be fully dispatchable, at the request of grid operators, to meet market needs when and where they may arise.

# **Batteries and storage advances**

"While renewable energy has not been dispatchable until now, exciting new developments in batteries and power storage have now enabled dispatchable power from renewable sources in efficient, cost-effective ways," he says.

Because power from renewable sources like photovoltaic (solar panels) and wind turbines is intermittent by nature, renewable power plants tend to oversize their operations in order to create an excess in supply. This ensures that they can always meet

Integrated Resource Plan (IRP) 2019 Procurement of generation capacity until 2030	
Coal	1 500MW
Nuclear	1 850MW
Hydro-electricity	2 500MW
Storage	2 088MW
Gas/diesel	3 000MW
Other distributed generation, co-generation, biomass and landfill technologies	4 000MW
Solar photovoltaic	6 000MW
Wind	14 400MW

having to apply for a licence to 100MW. Many mining companies and companies in sectors which produce a lot of biomass such as sugar and timber, welcomed the announcement.



generation supply quotas even during prolonged periods of low wind or solar radiation.

Efficient storage technology is essential to absorbing this excess and ensuring a constant output of dispatchable power. Such considerations are especially crucial for the RMIPPPP bid-winning projects, as the plan stipulates that the power generated must be available at full capacity from 05h30 to 21h00 daily.

Fourie explains that Scatec's own RMIPPPP bid-winning scheme to supply 150MW via three massive solar arrays in the Northern Cape is a good example of this.

The ambitious renewables-only project will see around one-million individual solar panels set across a 10km-wide site and will be colocated with advanced storage facilities utilising lithium ion (Li-ion) battery technology. Li-ion batteries are comparatively small (only hydrogen and helium-based ones are smaller), which allows such facilities to achieve a favourable ratio of charge and voltage storage relative to volume and space requirements.

"Factor in the recent widespread surge in industrialisation of these technologies and the constantly decreasing prices due to the effects of economies of scale, and we have a recipe for fully feasible renewable energy, that is cost-competitive with traditional energy sources for the first time in South Africa."

Fourie believes that governments and corporates alike are pivoting their efforts towards cutting-edge combinations of renewables and battery storage tech, and how best to procure these for the benefit of people and environments.

"In South Africa this will result in an appreciable closing of the energy gap – currently a significant threat to our economic stability – as well as a big step towards our commitment to global climate goals like the UN's Paris Agreement, whose imperatives urge us to reduce carbon emissions, curb global warming, and promote a cleaner, greener Earth," concludes Fourie.

### ABOUT SCATEC



# **WE ARE COMMITTED** TO RESPONSIBLY SOURCE **COMMODITIES THAT** ADVANCE EVERYDAY LIFE. As one of the world's largest diversified producer and marketer of commodities that play an essential role in modern life, and with more than 40 years of being a major contributor to the South African economy, we bring about long-term growth and opportunity for our stakeholders. By partnering with our host communities near our operations, we are able to bring progress to many. This is our Purpose. When we fulfil it, we advance everyday life. PROGRESS. TOGETHER.



teinmüller Africa, a specialist in the engineering and fabrication of high-pressure components, offers exclusive induction bending solutions to the South African market. Its Cojafex PB 850 induction bending machine is one of only two induction bending machines on the African continent, enabling paper and pulp, power, petrochemical and mining plants to source custom bends locally, as well as large radius, multiple or complex bends – all with quick turnaround times.

Induction bending is the process whereby a straight pipe is precision-bent by a specially-engineered machine. The front of the pipe protrudes through an induction coil and is clamped into position. The induction coil is heated to a specified temperature and then the arm of the machine moves in a predetermined radius, pushing the pipe through the coil. "This is programmed into the machine upfront and is an automated process," explains Lee Chapman, Divisional Manager – Piping, Steinmüller Africa. The automation and machine control renders a precise and top-quality pipe bend. "Our Cojafex machine is capable of bending pipes between 48.3OD and 850OD with a wall thickness up to 100mm. It can create bends up to 180 degrees," adds Chapman.

Induction bending is ideal "when standard size bends are not available and custom or large radius bends are required," states Chapman. Since it can create complex (multiple) bends without the need for welding, induction bending guarantees pipe-system integrity and a reduced maintenance requirement, making it especially well-suited to high pressure (HP) piping, steam piping and industrial piping systems. This also means it delivers a relatively low cost of ownership. In addition, if multiple bends are done at once then there is a cost saving during the erection and ongoing maintenance phases of a plant's operation.

The benefit of partnering with Steinmüller is that it offers complementary services in addition to induction bending. "There is no need to move the component between different suppliers as we are able to do all the necessary bending, welding and heat treatment in-house," says Chapman. Using its Schlager gas furnace, Steinmüller conducts post bend heat treatment (PBHT), which ensures the pipe's mechanical properties are restored following the bending process. In addition, Steinmüller specialises in various welding processes, enabling custom welding onto pipes.

A commitment to safety and quality, backed by international expertise, has made Steinmüller Africa the fabricator of choice for some of South Africa's largest power, paper and petrochemical companies. "Steinmüller has been carrying out induction bending for over 10 years at its facility in Pretoria and has a number of qualified bending procedures to both EN and ASME standards for safety and quality. Our in-house quality management system ensures that our products meet all the necessary international standards," adds Chapman.

Steinmüller Africa is a Bilfinger Power Africa company and is a BBBEE Level 1 company. For almost six decades, Steinmüller has provided comprehensive solutions for steam generating plants, from design through to commissioning and afterservice maintenance.

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**Email:** lee.chapman@bilfinger.com **Website:** www.steinmuller.bilfinger.com



# WE MAKE OWER

Steinmüller Africa (Pty) Ltd. is one of the enterprises in Bilfinger Power Africa (Pty) Ltd., the South African subsidiary of German based Bilfinger. Our presence in the local market, spanning 53 years, is testimony to our unrivalled expertise in the steam generation industry. Services offered range from the design and manufacturing to the construction and maintenance of boiler pressure parts. At our South African based manufacturing facilities, we also specialise in fabrication of highpressure feedwater heaters, pressure vessels, pipe supports and compensators. On-site maintenance crews provide support to the power generation and petrochemical sectors.

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# Engineering design services

- Boiler pressure parts
- Commissioning, field and testing services
- Bellows
- Headers
- Induction bending of HP/HT piping
- Heat treatment (workshop and in situ)
- HP Heaters
- Piping technology
- Pipe supports
- Plant erection services
- Explosive welding



Visit our stand at the African Utility Week Expo







lobal economic cycles, commodity prices and interest rates have favourably impacted the South African economy, despite some negative repercussions resulting from the pandemic. A spurt in domestic consumer demand and a restrained inflation increase are other contributing factors resulting in a record year for the country from a macro-economic perspective.

The events of 2021 will have an influence on the potential for investment in 2022.

# Global inflation is on the radar

The global demand for commodities works in favour of the rand, also increasing export earnings, while oil imports plummeted during lockdown. Global inflation, however, should be kept top of mind as it appears global growth has peaked and will likely start to decline while the energy crisis in Europe and global supply-chain bottlenecks are already promoting global inflation. In addition, global trade is decelerating and global monetary policy will consequently lead to higher interest rates.

# Economic growth targets unlikely to be achieved

Says Herman, "Taking population growth and productivity growth into consideration, South Africa should be able to achieve a real economic growth of 2.5%, but there are certain factors working against this target which are likely to result in the economic growth in 2022 being less than half of that attained in 2021. Realistically, we can expect an average real growth of about 1.5%, as has been the case over the past decade."

This does not bode well for employment, since the formal sector has already lost 1.5-million jobs in the wake of the pandemic and further pressure on employment could increase the risk of both social and political unrest.

# Policy certainty is key

Policy certainty is a critical necessity for South Africa, particularly with regards to strategic issues where policy needs to be divorced from political influencers and based solely on economic realities. "Ideally, South Africa requires a significant overhaul of the current inflexible labour laws; realistic strategies for alternative versus carbon-based energy; stable and

reliable energy supplies; and an end to the uncertainty surrounding land ownership with a definitive spectrum auction," says Herman.

### Investments, risk markets and equities

"In the investment arena, global inflation remains in the spotlight. If central banks resort to tighter monetary policy because of inflation, rates might need to be increased earlier or faster than currently anticipated and consequently risk markets will experience a risk-free rate shock," says Herman. It is uncertain whether quantitative easing can be removed from the system without causing a collapse in global growth or asset valuations. Central bank balance sheets have reached unprecedented levels and need to be capped and reduced.

"Equities have reached new heights thanks to a surge in earnings and equity valuations have therefore been re-rated lower. This is good news for the central bank reflationary strategy, though further earnings growth is needed to prevent risk-reversals.

President Ramaphosa welcomes an investor to the Atlantis

Special Economic Zone, wind turbine tower manufacturer,

GRI Towers. Credit: GRI

"The pandemic significantly hindered any solid investment or new business opportunities, including property-related investments. Investors have therefore tended to stick to listed markets, also preferring well-structured, long-term investment solutions," notes Herman.

# Looking ahead

"In terms of the rand's prospects for 2022, we can expect marked fluctuations related to the prices of specific commodities. Industrial metals are considered a driving factor of global growth and South Africa as a commodity-exporting country is subject to global growth dynamics. Strength in base metals will lead to a stronger rand that is relatively unaffected by the macro-fundamentals of either the country or the economy. However, any deceleration of global growth will lead to concomitant weakness of the rand as demand for commodities declines," concludes Herman.

### **SA Investment Conference**

The fourth South Africa Investment Conference will be held in March 2022. Postponed from 2021 because of a variety of events such as local government elections and COP26, the conference will again seek to market the country as a investable destination.

Over R650-billion of investment commitments have been made at these conferences, as leaders from business, government and the investment community forged relationships and explored ways to reignite growth in South Africa.

In 2020, nearly R120-billion of investment commitments flowed into new projects or expansion of existing projects. A major topic in 2021 will be growing African integration through the African Continental Free Trade Area. AfCTA allows for African countries to work together in a trade tariff-free environment, making Africa a dynamic force in the international arena.



# **ABOUT CITADEL**

# DE BEERS GROUP AIMS FOR CARBON NEUTRALITY De Beers Group's commitments to Building Forever are part of its blueprint for creating a positive and sustainable impact that will endure beyond the discovery of its last diamond. Kirsten Hund, Head of Carbon Neutrality, explains the commitment to be carbon neutral at all De Beers' operations by 2030 through the "Reduce, Replace, Recover" Strategy.

# What do the three pillars of your strategy represent: reduce, replace and recover?

These three pillars are fundamental to our carbon neutral by 2030 strategy. The first one, "Reduce", is about increasing energy efficiency. What can we do to operate in the most efficient, innovative and sustainable way possible so that we use a limited amount of energy and really bring down our emissions?

"Replace" is the biggest chunk of our work. It is about replacing fossil-based energy and fossil-based fuels with renewable alternatives. Our mines in Southern Africa are all connected to the grid and the grid power comes mostly from coal. Concretely, our objective is therefore to firstly replace fossil fuels with green alternative fuels like green hydrogen, to power our trucks and vessels, and electrify where we can. Secondly, in partnership with Anglo American, we are creating renewable energy sources and replacing nearly all fossil-fuelled electricity by developing dedicated wind and solar power plants. Southern Africa has massive potential for solar and wind power, so we are working to leverage that.

The last Pillar, Recover or remove, is about how we can remove those remaining, hard-to-abate carbon emissions that we cannot get rid of by 2030 from the atmosphere by investing in and developing nature-based climate solutions. One of the advantages of a mining company is that we control so much land. By developing nature-based solutions around for example regenerative agriculture, we can enhance the capacity of that land to sequester carbon, while also improving biodiversity and creating sustainable jobs.

# Why are you choosing carbon-neutral solutions rather than simply buying carbon credits?

We have committed to be carbon neutral by 2030. Our primary focus, and responsibility as a global citizen, is to bring our own carbon footprint down. It's about increasing efficiency and replacing fossil-based energy and fossil fuels. That is really the key

focus. Between now and 2030, because of the state of technology and where we are, there are going to be some remaining emissions that we are going to need offset because we cannot completely get rid of them. Our objective is to do what we can to address that in-house, and develop our own carbon removal projects; nature-based climate solutions like soil and mineral carbonation, regenerative agriculture and/ or reforestation?

We are exploring different options of what can we do within the countries and the landscapes where we operate. So instead of, for example, conserving forests in Costa Rica we try to have an additional positive impact where we are mining. The aim is to take an integrated approach, so that, through the offset projects that we develop, we also strengthen our other Building Forever Pillars: we create jobs, we help create local economic development and we contribute to strengthening biodiversity, leaving a lasting positive legacy.

# Being part of Anglo American helps you in terms of scale. How are you leveraging this?

We are working very closely with Anglo American on developing renewable energy solutions for our mines. While renewable energy resources are plentiful in Southern Africa, there is limited infrastructure to harness it. As a result, Anglo American is developing a regional renewable energy ecosystem. This plan, currently a work in progress, provides an integrated approach to building out renewables across countries in which we operate in Southern Africa, also supporting the development of green hydrogen, and overall being a catalyser for green economic growth where it is most needed.

The plan draws on the huge natural renewable potential of Southern Africa and involves the construction of on-site photovoltaics at several of our operations and off-site wind farms. The ultimate goal is a regional renewable energy ecosystem which will not only meet the full demand of Anglo American's operations in the region, but will also support the resilience of the local electricity supply systems by providing additional

# DE BEERS GROUP



generated capacity and contribute to the wider decarbonisation of the energy supplies in Southern Africa.

# Will green hydrogen play a role in your operations?

Yes, it will. We plan to collaborate closely with Anglo American to generate hydrogen from electrolysis on our mine sites, using renewable energy sources. At Anglo American's Mogalakwena PGMs mine in South Africa, the world's largest hydrogen-powered mine haul truck is expected to be piloted in 2022. For this, Anglo is building a 3.5MW electrolyser to produce hydrogen on site for use in fuelling the hydrogen-powered fuel cell electric haul truck. We subsequently expect to roll out this technology across Anglo's other operations around the world, including the De Beers open-pit mines, in the years to come.

For technical and safety reasons, in underground mining the solution will be much more in looking to electrification of the vehicles and trucks used.

# What steps are you taking in terms of your joint venture partners and the businesses further down the value chain?

We have committed to be fully carbon neutral by 2020 (for our Scope 1 and 2 emissions), both upstream and downstream, so from mine to jewellery store. Our joint venture partners in Botswana and Namibia have also committed to be carbon neutral by 2030. So we work very closely with them and our carbon neutral strategy of reduce, replace, recover, has also been adopted by them. Each mine needs its own strategy because the situation is different in every case, with respect to the land, the opportunities and the regulatory framework but we work as a team.

# Are renewable projects happening already?

Yes, we have a number of different projects in the pipeline. These do not happen overnight, as the infrastructure needs to be developed from scratch. For example, in partnership with Anglo, we are doing the preparatory work for a 60MW solar plant at Venetia Diamond Mine in Limpopo. We have done the scoping report and we are in the process of developing the environmental impact assessments.

At Oranjemund at the Namdeb operations in Namibia, there is very high potential for wind energy. We are currently looking at assessing how much and where and how to structure it. We haven't put a shovel in the ground yet because we need to do all the preparatory work first.

We have a lot of smaller rooftop solar projects. We have already commissioned two solar PV plants in Surat in India, one at Maidenhead near London in the UK and one at the De Beers Marine premises at Paarden Eiland in South Africa, as well as at our Diamond Trading Offices in Botswana. Those are small scale, but you have to start with small things.

# Is that what is meant by the "modular approach" towards achieving your goal of carbon neutrality?

To an extent yes. It also means we need to get going and start with the lower-hanging fruit first, to show that it can be done. We know solar energy works, we know wind energy works, we know it's cheaper than grid-based power so let's get going with that. Other carbon-reduction possibilities are developing as we speak. A much broader use of green hydrogen or the issue of cheap, large-scale energy storage – we are looking at all of those sorts of solutions but technology development is really moving fast so we're also following it as we go. 2030 is around the corner. We can't wait until we have the perfect plan; we need to start reducing our carbon emissions now and remain flexible and keep innovating as we go.

Miners like to plan well in advance and have a very structured engineering approach, which is good, but this very ambitious target requires a bit of risk-taking; we need to be brave.

# Who are you working with?

We cannot do this alone. Very close collaboration with a wide range of stakeholders is essential, starting with our partner governments and communities. But in addition, we also work with a range of research institutes and civil society organisations, such as Fauna and Flora International. With FFI, for example, we work on identifying potential for nature-based climate solutions in South Africa and Namibia. In addition, we are also exploring options for collaboration on green innovation

with the universities in Botswana, Namibia and South Africa on topics like fuel replacement. We want to do more work with research institutes, knowledge institutes and organisations in the Southern African region because this is such a new and growing area of work.

It's really important that the skills and the knowledge are being developed locally, as it also offers such massive opportunities to contribute to a truly just and sustainable energy transition.



# Biography

Kirsten Hund, a Dutch national, has been Head of Carbon Neutrality with De Beers since October 2020. Her responsibility is to work with the different parts of the company to get De Beers to carbon neutrality across its operations by 2030. Kirsten joined from the World Bank, where she was a Senior Mining Specialist in the Energy and Extractives Global Practice. Before that, she worked in several roles for development and conservation NGOs, including WWF and Action Aid in the Netherlands and Africa on all aspects of sustainable and climate-smart mining development. She is currently based in The Hague but is planning to move to Johannesburg. She holds an MA in International Relations and International Humanitarian Assistance.



impopo is on a path to promoting jobs and economic progress through industrial parks and Special Economic Zones (SEZs) where manufacturers and businesses are brought together to create an ecosystem that generates both employment and growth.

The Provincial Government of Limpopo has been encouraging investment in the province through a series of targeted conferences. The northern site of the Musina-Makhado Special Economic Zone (MMSEZ) has already been the subject of several investment promotion initiatives and these have been successful in attracting investors to the zone.

The provincial government approved a further three focussed efforts to be presented by the Department of Economic Development, Tourism and Environment (LEDET). These are:

- Limpopo Mining Indaba. To strengthen the role of mines in the provincial economy, the role of mining in host communities and to promote social cohesion. Mines such as Glencore's Magareng chrome mine (pictured) are examples of the facilities around which other developments are being planned.
- Limpopo Tourism Lekgotla. To create a platform to discuss recovery plans in the sector in the context of the Covid-19 pandemic, with the intention of laying a solid foundation for the Provincial Investment Conference.

 A virtual Provincial Investment Conference. In line with the SA Investment Conference hosted by President Cyril Ramaphosa, November 2020. To mobilise investments to expedite industrialisation in the province, reposition Limpopo favourably and take advantage of the Fourth Industrial Revolution to change the economic landscape of the province.

Economic planning within the province takes place within the framework of the Limpopo Development Plan. Key elements of the Limpopo Development Plan are: industrialisation (beneficiation of mining and agricultural products and produce); mining (local suppliers, improved training and access to sector for entrepreneurs); infrastructure development; agro-processing; SMME promotion; and ICT and the knowledge economy (establish a WAN footprint).

Mining is currently the most important part of the provincial economy. Platinum mining developments on the eastern limb of the Bushveld Complex have increased this effect but although global commodity prices have been good in recent months, they can be uncertain over an extended period. One of the goals of the LDP is to see more beneficiation from the mining sector, which will support the goal of further industrialising the province's

economy. Related to this is an emphasis on the manufacturing that needs to grow.

# **Special Economic Zones**

Two Special Economic Zones (SEZs) at Musina and Tubatse are intended to boost manufacturing. Specific manufacturing value chains are identified for each area, based on the base mineral being mined. The LDP notes that it is also important for planners to "promote diversification and multi-skilling of the workforce, in order to mitigate the risks of shocks associated with commodity price dips and mine closures."

The Musina-Makhado Special Economic Zone in the north of the province is forging ahead. The planning phase of the Northern site of the Musina-Makhado Special Economic Zone has been completed and the provincial government has allocated R200-million to support the implementation phase. This allocation supports the installation of electricity, short-term water supply and basic security infrastructure.

One of the most significant investment pledges received is from the Chinese enterprise, Shaanxi CEI Investment Holdings, which has made a commitment of \$5-billion for a vanadium and titanium smelter project.

An Environmental Impact Assessment (EIA) is currently underway for the Southern site, where a range of projects are planned, including a smart city, agro-processing, timber beneficiation, an SMME incubation centre and Musina Dam.

A total area of 7 262ha has been designated for the SEZ, which is located 40km south of Musina and the border with Zimbabwe and 50km north of Makhado.

A revised business plan for an SEZ at Fetakgomo-Tubatse in the eastern part of the province has been submitted to national government. The key element of this proposed SEZ is mineral beneficiation and the servicing of the mining industry.

The area boasts one of the highest concentrations of rich mineral resources in the world and is a global leader of platinum group metals and chrome resources, hosting over 40 mining operations which also includes vanadium, iron ore and selected battery minerals.

The priority industries in the FTSEZ will enhance local manufacturing capacity and contribute to a low-carbon green economy which will offer socio-economic opportunities while at

the same time addressing climate-change issues and enhancing energy security.

The FTSEZ is being developed in a partnership between the Department of Industry, Trade and Competition (dtic), the Limpopo Provincial Government, Sekhukhune District Municipality and the Fetakgomo-Tubatse Municipality.

The revitalisation of industrial parks throughout the province is underway. The parks at Seshego, Nkowankowa and Thohoyandou have recorded good occupancy rates with the clustering together of related businesses making supply-chain management and logistics easier for small enterprises. The focus is on the agroprocessing, manufacturing, storage and recycling sectors.

# **Impact Catalyst**

Another way of promoting the investment goal of creating growth and jobs is through a combined effort by the private sector, research institutions and government to ensure that major investments make a sustained impact on communities in which they occur. Limpopo is one of the three provinces in which the Impact Catalyst project is being executed.

The goals of the Impact Catalyst are ambitious: no less than a reimagining of Corporate Social Investment in a way which brings business and society together.

Impact Catalyst wants to bring the knowledge, expertise, networks and scale of the private sector to bear on health, education, how people earn a living, enterprise and social development. The approach is described on the initiative's website, "A collective impact model is used to drive long-term initiatives that enables a shared vision, linked programmes, a common understanding of the challenges, co-investment of resources as well as public, private and social alignment."

The founders are Anglo American, the CSIR, Exxaro, World Vision South Africa and Zutari, an engineering consultancy. **S**everal feasibility studies and pilot programmes are underway in Limpopo, as part of the Impact Catalyst's efforts to stimulate economic development in the region. These include integrated game farming, agriculture, agroprocessing and biofuels, waste recycling and community health.

With mining playing the role of a foundational sector in the Limpopo economy, the Impact Catalyst is part of an attempt to help communities build up other sectors of the economy to take advantage of the opportunities related to mining.



(Exxaro Resources CEO), Andile Sanggu (Executive head, Anglo American South Africa) and Dr Thulani Dlamini, CSIR CEO. Credit: Anglo American.

# **Fetakgomo-Tubatse Special Economic Zone**



# Prime location in minerals-rich area will boost green energy and bolster manufacturing.



he Fetakgomo-Tubatse Special Economic Zone (FTSEZ) is being developed in the mineral-rich Sekhukhune District of Limpopo Province. It offers an attractive investment proposition for companies in green technology, renewable energy, mineral beneficiation, manufacturing related to green technologies and mineral value chains, and mining supplies and logistics.

### Vision

Fetakgomo-Tubatse SEZ to be a globally recognised Centre of Excellence for green energy technology and mineral beneficiation.

### Objective

The main objective is to develop a low-carbon green economy which will offer promising opportunities not only to fight climate change, but to enhance energy security and develop local industries. The strategic aim of the SEZ is to develop a supply of green primary energy to local manufacturers of both upstream and downstream activities of the platinum group metals (PGMs) and chrome value chains.

# Location

The proposed Fetakgomo-Tubatse SEZ (FTSEZ) is located in the south-east of the Limpopo Province of South Africa. It is hosted by the Fetakgomo-Tubatse Municipality in Sekhukhune District and is located within the Bushveld Igneous Complex (Eastern Limb), which hosts the well-known Merensky Reef in the Limpopo Province.

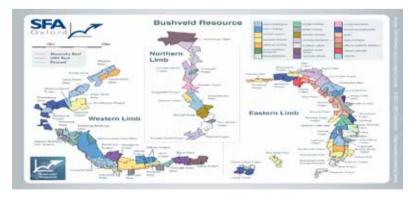
The area boasts one of the highest concentrations of rich mineral resources in the world and is a global leader of platinum group metals and chrome resources, hosting over 40 mining operations which also includes vanadium, iron ore and selected battery minerals. The FTSEZ is projected to be a catalyst for economic growth, industrialisation and mineral beneficiation by localising the various links of the value chain, both upstream and downstream.

The demand for the mining inputs supplies from the region's mines has created an opportunity for large-scale industrialisation for both the manufacturing of mining inputs and the beneficiation of mining outputs. The aim is to support a broader-based industrialisation growth path, balanced regional industrial growth and development of more competitive and productive regional economies with strong upstream and downstream links in strategic value chains especially in PGMs.

The proposed FTSEZ forms part of the South African Government's SEZ Programme which is aiming to enhance the country's manufacturing and export capabilities and to attract foreign direct investment. Anchored in the Limpopo Development Plan (LDP), the FTSEZ is positioned and designed to be a top investment destination for companies seeking to be at the forefront of pushing the green energy "Just Transition" frontier outward, towards communities, towards local and international firms and markets seeking to build low-carbon economies.

The priority industries in the FTSEZ will enhance local manufacturing capacity and contribute to a low-carbon green economy which will offer socio-economic opportunities (for jobs and small businesses), not only to fight climate change, but to enhance energy security and develop local industries over the next five to 10 years.

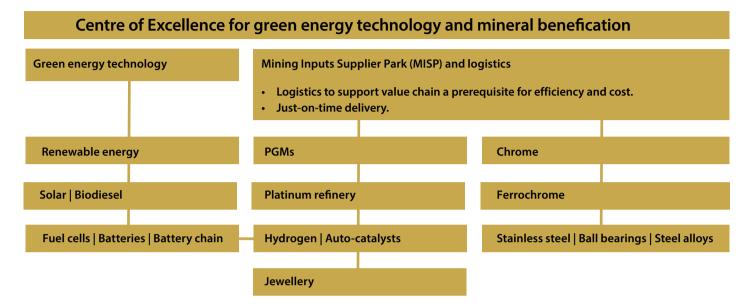
The FTSEZ is being developed in a quadripartite partnership between the Department of Trade, Industry and Competition (dtic), the Limpopo Provincial Government, Sekhukhune District Municipality and Fetakgomo-Tubatse Municipality.



SFA/Oxford: Bushveld resource

# Sekhukhune regional industrial hub mapping





# Limpopo's Special Economic Zones to drive industrialisation

MEC for Economic Development, Environment and Tourism Thabo Mokone invites investors to be part of an exciting journey to creating a green energy supply to bolster localised manufacturing.



he Provincial Government of Limpopo invites investors to partner with us in developing a low-carbon green economy while at the same time enhancing energy security and developing local industries.

Special Economic Zones (SEZs) are the key tools within our Economic Reconstruction plans to ensure that we create sustainable job opportunities for all. This applies to both the Fetakgomo-Tubatse SEZ as well as the Musina Makhado SEZ.

# True development is about people

When South Africa achieved democracy nearly three decades ago, who would have dreamed of a Special Economic Zone in the Steelpoort area. But today, a Special Economic Zone is our new reality.

The proposed FTSEZ is gearing up to become a centre of excellence for green energy manufacturing, agro-processing and mineral beneficiation. The SEZ is positioned to be a

game-changer in shaping and adding momentum to the industrialisation growth path as espoused in the socio-economic recovery plan of the Limpopo Province.

It is strategically located in the industrial hub of Steelpoort between two huge mining establishments, the Samancor smelter and the Lion ferrochrome smelter, which are strategic landmarks for the establishment of the SEZ.

The Fetakgomo-Tubatse SEZ will not only play the role of a consumer of hydrogen in the Special Economic Zone but will strive to become a producer of hydrogen and other clean energy technologies.

In Limpopo we see the Hydrogen Economy as a potential game-changer to reindustrialise the provincial economy. For the Fetakgomo-Tubatse SEZ, the Hydrogen Valley platform has the potential to drive the demand for mining inputs supplies, thereby creating an opportunity for large-scale industrialisation for both the manufacturing of mining inputs and the beneficiation of mining outputs.

The efforts which we have put into Fetakgomo-Tubatse SEZ have so far led to us acquiring:

- · 1 220ha of land.
- · An EIA process is currently underway.
- · The application for a Record of Decision (RoD) process has commenced.
- The SEZ Master Plan (Development Framework) and layout is complete with full infrastructure designs and costs in readiness for infrastructure roll-out.
- 16 companies have shown a keen interest in the SEZ by signing letters of intent (combined investment value of approximately R38-billion).
- Four companies have shown a readiness to locate inside the SEZ by 2022. A due diligence process is underway. We envisage creating 8 000 jobs in the short term and 20 000 jobs in 10 years. The main objective of this SEZ is to develop a low-carbon green economy which will offer promising opportunities not only to fight climate change, but to enhance energy security and develop local industries.

The strategic aim of the SEZ is to develop a green primary energy supply for localised manufacturing of both upstream and downstream activities of the platinum group metals and chrome value chains.

Our passion in ensuring operational Special Economic Zones within local municipalities as well as working with various private partners is a clear indication that we are committed to "Building better communities together".

# Why business locate in the FTSEZ

# Outstanding incentives and world-class facilities.

etakgomo-Tubatse SEZ provides a secure business environment and is designing a world-class manufacturing and logistics platform that will be positioned to support transportation efficiencies through road, rail and heliport connectivity to ports and border posts.

As part of the SEZ Master Plan, the environmental impact assessment (EIA) is expected to be ready for 2022.

A number of infrastructure new builds and upgrades are underway, including: security and site clearance; state-of-the-art top infrastructure; water provision; reliable road and rail network; extension of rail link to the SEZ industries and to the Musina-Makhado SEZ (Beit Bridge); electricity substation designs underway for substation; upgrading of roads and building of a new steel bridge; engineering works for piping water from the De Hoop Dam to the SEZ site.

# **Identified Cluster Opportunities**

Agro-processing
Development of ICT infrastructure
Mineral Beneficiation

- · Chrome, platinum group metals, iron ore and magnetite
- Development of platinum refinery

### Green Energy

- · Production of solar and biomass energy
- Hydrogen energy from fuel cells as part of the South African Hydrogen Valley led by the Department of Science and Innovation



### Manufacturino

- Production and refurbishment of batteries
- Auto-catalysts
- Green energy automotive components and electric vehicles (manufacture and assembly)
- Trucking components
- · Mining machinery, equipment and components

# Why businesses locate to the FTSEZ

- Enabling infrastructure and warehouses
- · Close proximity to mining operations
- Carbon credits
- · Reduced carbon tax
- Reliable and low-carbon green energy
- Global leadership in production of chrome and huge resources of platinum group metals
- · Land and security

### **Generic SEZ incentives**

- · Vat and customer relief
- Employment tax incentives
- · Building allowance
- Reduced corporate income tax (15% corporate tax)
- 12i tax allowance and incentives
- One Stop Shop Facility

# Distances to key points

- Port of Maputo (Mozambique) 380km
- Port of Richards Bay 600km
- Musina Beit Bridge Border Post 400km



ROOTED IN THE FUTURE

# Water, roads and rail: infrastructure projects are underway

he Fetakgomo-Tubatse Special Economic Zone received from the Limpopo Department of Economic Development, Environment and Tourism an allocation of R35-million (FY 2021/22) which was earmarked for the following activities and projects: District Skills Audit, environmental impact assessments (EIAs), township establishment (land rezoning), engineering designs and costing for the perimeter fence, site clearance, Eskom cost estimation and acceptance of quote, engineering designs for an Eskom switching station, water allocations (assessment of demand per industry), an Implementation Readiness Study and engineering designs. The whole R35-million is committed to the enlisted projects.

## Existing and current projects in the District

Project	Value	Responsible institution	Status
Steelpoort Wastewater Treatment Works	R70-million	DBSA/Sekhukhune District Municipality	Existing WTW on private land. Construction at Steelpoort.
Steelpoort Water Treatment Works	R65-million	DBSA	Complete.
Ga-Malekana Water Treatment Works upgrade	R121-million	Sekhukhune District Municipality	Technical report approved; planning stage.
R37 and R555 main roads	R2-billion	SANRAL	Underway.
Steelpoort railway siding	Not given	Transnet	Initiation phase.
Regional External Master Plan	R1.6-million	Sekhukhune District Municipality	Initiation phase.
Steel Bridge upgrade	R70-million	Roads Agency Limpopo and mining companies	Initiation phase.
SEZ human settlement scoping report	Not given	CoGHSTA/HDA	Underway.

# The Tubatse Hydrogen Valley and Mineral Beneficiation Journey



#### **Construction Phases of FTSEZ**

The Fetakgomo-Tubatse SEZ will cover a total area of 1 220ha of land. Phase 1 consists of 316ha which is reserved mainly for a mix of light and heavy industrial use and other hydrogen energy related uses, while Phases 2 and 3 will be developed in line with market demands and will include:

- · Renewable energy
- Heavy industry
- · Additional light industry space
- · Mixed use and residential

More than six tenants have already committed to setting up operations for Phase 1 implementation in chrome-related beneficiation, hydrogen energy components assembly, electric vehicles, solar energy and pharmaceuticals.

#### FTSEZ Implementation Approach

Phase 1: West of R555: Integrate the 36ha Mining Integrated Supply Park (MISP), set up top infrastructure, fence and clear 280ha site.

Anchor Investments: Input manufacturing suppliers and green vehicle components cluster.

Phase 2. East of R555: Clear site and fence the 980ha site and provide bulk services and begin housing development.

Anchor investments: Renewable energy companies, smelter and refinery and chrome products.

Phase 3: Design and build a logistics hub for export markets. Just-on-time delivery and efficiencies. Anchor investments: Logistics Hub Station with a strong 4IR platform.

## Deputy Minister meets with private sector and assesses progress

National government's robust industrialisation agenda is reflected in the SEZ programme.

The Deputy Minister of Trade, Industry and Competition, Mr Fikile Majola, conducted an oversight visit to the proposed Fetakgomo-Tubatse Special Economic Zone in Steelpoort, Limpopo, in October 2021.

Deputy Minister Majola was joined by the MEC for Economic Development, Environment and Tourism in Limpopo, Mr Thabo Mokone, MEC for Finance in Limpopo, Mr Seaparo Sekwati, the Executive Mayor of Sekhukhune District Municipality, Councillor Stanley Ramaila, and the Acting Mayor of Fetakgomo-Tubatse Local Municipality, Councillor Hlatsoayo.

The purpose of the oversight visit was to assess progress registered in the implementation of the proposed Special Economic Zone (SEZ) project and to meet with potential private sector partners. According to Mr Majola, the visit was part of a consultative process on the SEZ Programme. Information on the new approach in the implementation of the programme was also shared.

"This new approach encourages collaborative engagements through which the implementation of the SEZ Programme is aligned with national,



provincial and local objectives, as well as planning strategies to maximise synergies and promote cooperation. This will result in provinces and municipalities benefiting from strong National Government support in areas of limited capacity," said Mr Majola.

He added that the South African Government was seeking to transform the economy into a globally competitive economy, built on the full potential of all citizens and regions.

"To achieve this, the government is driving a robust industrialisation agenda supported by Spatial Industrial Development Programmes such as the SEZ Programme. Our department is driving the SEZ Programme as one of the strategic interventions to catalyse economic and industrial development in the country," he added.

#### Solly Kgopong, Executive Manager



Solly Kgopong is the Executive Manager of the Fetakgomo- Tubatse SEZ. Before joining the Department for Economic Development, Environment and Tourism, he was General Manager of Absa Bank. His work experience started as Business Analyst at Trade and Investment Limpopo until he became Executive Manager Strategic and Economic Planning.

During this period, Solly was a part-time lecturer at the University of Limpopo. A USA-Mandela Scholar Alumni, Solly holds a MSc in Economics degree from the Ohio State University. He was recently seconded to Head the Fetakgomo-Tubatse SEZ Project Management Unit by the Provincial Government.

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#### **Bunjiwe Gwebu, Project Executive**



Bunjiwe Gwebu is the Project Executive for the Fetakgomo-Tubatse Special Economic Zone, having joined the Limpopo Economic Development Agency in 2014 when the Special Economic Zones programme was being rolled out nationally. She is an Economic Development Specialist who holds a Master's in Development Studies from the University of KwaZulu-Natal. She has held positions

at executive and senior management levels in government and nongovernmental institutions such as eThekwini Municipality, Slum Dwellers International, uTshani Fund and the Housing Development Agency where she was responsible for strategy, programme planning and management, implementation and monitoring and evaluation.

Contact details: Tel: 076 521 5077 | Email: Bunjiwe.Gwebu@lieda.co.za

# Mining for growth, sustainability and impact

The CEO of Exxaro Resources Limited, Mxolisi Mgojo, outlined the company's strategy for diversified growth, decarbonisation, sustainability and impact management at its shareholder Capital Markets Day.



limate change has become the focal point not only of our business but of society and the global community. The world is under pressure to transition faster and that presents new opportunities. This dynamic environment affirms our approach of maximising the value of our coal assets through the early-value coal strategy, thus minimising stranded coal assets while building a low-carbon and resilient business.

The strategy presented to shareholders is anchored on measurable and multi-stakeholder value creation. It is a direct response to climate change within the context of being a key player in South Africa's economy and energy value chain while continuing to deliver value over the long term through sustainable growth and strategic impact management. Core forces shaping the strategies are energy transition, climate change and the Just Transition in a shift to a low-carbon future. At the core of the strategy is managing the embedded risk of carbon by diversifying earnings away from carbonbased commodities while also reducing the company's carbon footprint. With a proven ability to outperform value-creation targets, the company is implementing this from a position of strength. In addition, a key consideration is developing alternative economic opportunities that will support the livelihoods of communities who are depending on our coal operations.

Dr Nombasa Tsengwa, CEO Designate and MD for Minerals, reflected, "Exxaro embarked on its journey of transformation over a decade ago, gaining a head start in renewable energy through a joint venture in the renewable energy business, Cennergi. This provided a platform for growth and evolution from coal-dominated operations to a diversified minerals producer focusing on manganese, bauxite and copper, as well as a renewable energy business. Our transition to a low-carbon future places us on a pathway that will have a positive impact on our stakeholders and society at large."

The approach is to responsibly manage and maximise the value of the coal business while actively minimising the value at risk from stranded assets. It is economically feasible to optimise our coal reserves and manage the value extraction in a way that provides a stable transition for workers and communities while providing the company with capital to reposition the business for a resilient and sustainable future. Exxaro will remain accountable to its stakeholders in order to ensure financial value creation and to empower people to sustain enduring economic activity.

The "Sustainable Impact strategy" will ensure that communities dependent on coal are adequately empowered and are able to transition as well. The future portfolio will consist of renewable energy and minerals, with a focus on wind and solar power, bauxite, copper and manganese.

Part of the growth strategy and its associated objectives is predicated on aligning to the Task Force on Climate-related Financial Disclosures (TCFD) guidelines adopted in 2020 and aimed at improving the reporting of climate-related financial information. Ultimately, this transparency could improve investment opportunities and further strengthen investor relationships.

Roland Tatnall, MD of Energy, said, "It's important to note that Exxaro is no stranger to clean energy and has been a player in the sector for the past 10 years through its investment in Cennergi, which is the second-largest independent power producer in South Africa. The company currently has nine operating assets, 11 assets under management and three generators under development as plans to grow the existing business continue."

Exxaro's history with clean energy affirms that management has been cognisant of the increasing anti-coal sentiments and perceived risks across the investor landscape together with the pressure for decarbonisation and resource efficiency. This adds impetus for the company to build a resilient and carbon-neutral portfolio aligned with a Just Transition.

Financial Director Riaan Koppeschaar commented, "We have a strong balance sheet and cash-generative coal operations at the core of our business. We are one of the most efficient and lowcost coal producers in the world. However, we have a long-term vision and need to adapt to the dynamics of a low-carbon future. Exxaro will utilise its mining skills to supply minerals that power a cleaner world while providing shareholders with superior returns from the combination of the minerals business representing 50% of expected coal EBITDA within 10 years and the predictable cash generation of the renewable energy business. Our improved governance process, reinforced from the past learnings, will be a key foundation for our success."

He added that within 10 years, 70% of earnings should be noncoal earnings in order to actively reduce the company's emissions



by at least 46%. In doing so, the company would have spread its commodity and financial risk.

Mgojo concluded, "We've outlined a clear strategy for low-carbon growth, having established a track record of operational excellence, achieving our targets and applying key lessons learnt from our past. Our strategy is anchored on measurable and multi-stakeholder value creation. Going forward we will use innovation and organisational intelligence, plus best-in-class partnerships, to respond to the urgency for adaptation to building a climate-resilient business and communities, as well as contributing to South Africa's decarbonisation progress."



#### African Energy Indaba

# Sharing knowledge, skills and experience



The Chief Corporate Social Responsibility Officer of Glencore Alloys, Conroy van der Westhuizen, shares insights into the company's core values.



#### What is the extent of Glencore Alloys' operations in South Africa?

Glencore Alloys has mining and smelting operations in South Africa. Mining takes place along the Bushveld Igneous Complex just outside Burgersfort and Steelpoort with three chrome mining operations, Magareng, Thorncliff and Helena.

Around Rustenburg we have the Kroondal chrome ore mine. The Waterval mine is in care and maintenance at this stage. In terms of the smelting operations, we have one of the world's biggest ferrochrome smelters just outside Steelpoort in Limpopo. The Lydenburg smelter is in care and maintenance and we have three smelters around Rustenburg, Boshoek, Rustenburg and Wonderkop.

Glencore also has the Rhovan vanadium mine and smelter operation just outside Brits in the North West. We have a carbon division in Witbank where we produce electrode paste for use in ferrochrome smelters.

#### Is Glencore looking to generate power?

Glencore Group is one of the companies leading the advance towards a greener economy and the decarbonisation. In South Africa we are investigating initiatives in solar power.

#### What is ferrochrome used for?

Ferrochrome is predominantly used in the stainless steel industry. Almost 80% of the world's chrome ore is found in South Africa and South Africa used to be the world's biggest producer of ferrochrome. Ferrochrome is an ingredient that you add into steel and it provides the characteristic of making steel stainless rust resistant. Stainless steel is used in a number of alloys, especially for high-tensile strength steel in the aviation or medical industry. Depending on the grade

of steel, you add ferrochrome and some nickel to provide the stainless steel characteristics.

#### What proportion do you export and use domestically?

At this stage there is only one stainless steel manufacturing operation in South Africa. I would say 95% of ferrochrome produced in South Africa is exported to the stainless steel producers around the world but mainly to China. South Africa could make a huge investment in job creation since we've got iron ore reserves in the Northern Cape and we can produce steel in South Africa.

We have on a number of occasions said that South Africa is actually exporting jobs to competing countries while we have the lion's share of ferrochrome ore in the soil in South Africa.

#### How many employees do you have in South Africa?

At this stage, 12 000 employees and about 8 000 contracting employees.

#### What are the objectives of the Glencore Alloys enterprise development programme?

We are passionate about creating local entrepreneurs. One of our core values is responsibility and another is entrepreneurship. Where we operate, we also share knowledge, skills and experience so that local emerging enterprises can partner with other service providers.

Most of our operations are in rural communities. We encourage our suppliers to partner with local entrepreneurs to impart that knowledge, skills and business acumen. We have also constructed four new business incubation hubs in the areas where we operate so that local entrepreneurs can attend classes which are provided by a service provider and by the Gordon Institute of Business Science (GIBS).

We don't just invite local entrepreneurs to provide a product or service, we build their capacity and experience and we afford them the opportunity to understand the industry in which they are operating, including safety issues.

Entrepreneurship is a core Glencore value and we encourage that creative spirit among our local communities, where they can then also apply an entrepreneurial skill to provide a product or service. This is what we do in terms of supplier development.

In terms of enterprise development, we partner with local entrepreneurs who are not necessarily going to provide a product or service to our operations but we assist them financially or with equipment to, for instance, invest in recycling initiatives. We have recently assisted a young person outside Burgersfort who is quite skilled in doing leather products, we've got ladies who are doing

personal protective equipment (PPP) and we have a number of farming initiatives.

We are also focusing on farming initiatives. We realised that, addressing one of the key challenges in South Africa, food security, we need to shift our focus to self-sustainability.

We are also now moving towards aquaculture. Around our Rustenburg and Steelpoort operations in the coming year we would like to establish a number of aquaculture farming initiatives.

#### What other initiatives does Glencore support?

When President Ramaphosa presented his national strategic plan on gender-based violence, Glencore was one of the first companies that heeded that call. We are supporting the Thuthuzela Care Centres around our operations and are constructing a new Thuthuzela Care Centre at the Dilokong Hospital outside Burgersfort.

#### How many business incubation hubs do you have?

There were four hubs, at Rustenburg, Steelpoort, Bethanie (at Rhovan, the vanadium operation) and at the Lydenburg smelter, but with the smelter being placed under care and maintenance we had to close that hub.

#### Why have you partnered with Regoapele Capital at the hubs?

Regoapele Capital provides local business incubation for entrepreneurs which is in keeping with our aim of promoting local business. It's entirely logical to support enterprise development by getting a small business to run the enterprise development programme.

This service entails taking local entrepreneurs through understanding business, including establishing if they really have the personal make-up of a business person. Secondly, there is a skills assessment and a number of modules are presented: business plan, tax registration, letter of good standing, how to access capital or how to apply for loans and how to pay them back. Also, through our business incubation initiatives, we give tips on how to access some of the grant funding or enterprise and supplier development funding that we make available. It is an all-encompassing business and that's why we like the name "incubation" because you incubate an emerging enterprise that has not been around before.



Many emerging enterprises fail because they haven't the necessary skill set to conduct a business. First of all, this must be done with integrity which is aligned to the values that we uphold, to do so safely and to look after your employees first of all, and not just be a profit driven. Ultimately they must provide a good quality service at the right cost and uphold the human rights and the labour laws of South Africa.

#### Are you playing a role in the development of Fekatgomo Tubatse Special Economic Zone (FT SEZ)?

In 2009 our intention was to partner with a number of mining peers in the Steelpoort area to establish a world-class mining supply park. This would afford companies coming from outside an opportunity to have good infrastructure. Once they established themselves, they would then partner with local entrepreneurs to ensure that a local skills base is established and expanded over time.

Our partners did not see the inception through so in 2010 Glencore went ahead and invested around R100-million to build the mining supply park. We said we would like to see local entrepreneurs partnering with suppliers to set up shop there. The park has grown to the extent that now the Limpopo Provincial Government is envisioning the establishment of an SEZ, and the mining supply park will be an anchor component.

We've met with the Limpopo Economic Development Agency (LEDA), the Office of the Premier as well as with the Department of Trade, Industry and Competition (DTIC) and we've had visits from two deputy ministers and the Department of Mineral Resources and Energy (DMRE) with the launch of the zone.

At this stage we are at the forefront, as a private sector institution, of driving economic investment in the Limpopo province. What we have done already is leading towards the future that we are now seeing.



#### **Biography**

# We Show The Future, So You Can Solve It



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Model complex open-pit mines with ease. The Micromine Alastri suite of products is used by some of the largest mines in the world to create mine extraction plans, dumping sequences, and shipping schedules quickly and accurately.



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Take a proactive approach to your operations health with connected mine control that brings your equipment, personnel, locations and material data together. Stay in control and on-course with interoperable technology that helps empower everyday decisions.



## Flexible mine optimisation, planning and scheduling tools

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#### micromine spry

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Spend time dealing with results instead of waiting for them with schedule and haulage simulations that run in seconds. Simulate the behaviour and interaction of dozens of mining processes, hundreds of pieces of equipment and millions of records without sacrificing precision or accuracy.



## Expert and diverse consulting services

We're not just experts in our own software. Micromine Precision Consulting offers a diverse range of services including mine planning, resource estimation, mine feasibility, equipment selection, cost estimation and due diligence consulting services.



ereka Afrika Mining (Pty) Ltd, a proudly South African, 100% black-owned, top opencast mining contractor, established in 2011 initially trading as TyGA, has now rebranded to Bereka Afrika Resources (Pty) Ltd.

The aim is to develop and grow Bereka Afrika Resources to be the best hard- and soft-rock mining company, both in South Africa and internationally, with a commitment to zero tolerance on safety.

The company strives to continuously enhance its performance by delivering professional and quality services to its clients, combined with low production costs.

#### **SERVICES**

Bereka Afrika Resources renders the following services:

- · Opencast mining (including mine rehabilitation)
- · Drilling and blasting
- · Load and haul
- · Crushing and screening
- · Establishment of decline shafts
- · Bulk earthworks

Associate with 21st-century mining leaders to impact future generations.

#### MISSION

To build sustainable and long-term partnerships with clients based on ethical and fair business dealings and to promote a corporate culture which is non-sectarian, non-political and socially and environmental responsible. In addition, to enhance and maintain a profitable mining company, while ensuring sustainable financial returns to its stakeholders.

#### **KEY PILLARS**

The corporate philosophy of Bereka Afrika Resources is built upon four key pillars. Firstly, the company strives to maintain a high-quality service and sustain a long-term relationship with its valued clients. Secondly, the company places the value of safety above all else, ensuring its employees have a safe working environment, while at the same time motivating them to achieve higher productivity. Thirdly, the company firmly believes in mutual



#### Bereka Afrika Resources Pty Ltd

Strategic Consulting, Advisory, Project Management





respect and working together as a team to achieve its goals. Finally, the company honours the commitments it has made to its clients, and, as a team, it is proud, enthusiastic and dedicated in everything it does.

The company's robust business strategy ensures that it is wellpositioned in the opencast mining industry. It is centred on the principles of:

- Zero tolerance on safety
- Professional and quality service par excellence
- Employees being the most valuable assets
- Exceptional performance combined with low production costs.

#### Short- to medium-term plan

Acquire different types of prospecting mining permits across strategic minerals, then raise the bar in terms of return on investments (ROI).

#### Long-term plan

Pursue growth and development in response to various clients and their needs, build capacity to meet and surpass client expectations. Be a beacon of hope for previously disadvantaged individuals and historically disadvantaged communities.

#### **Contact details**

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ineral Processing Guru (Pty) Ltd, better known as MPG, is a Level 1, 100% black-owned mineral processing company specialising in, but not limited to, coal-mining business solutions.

Founded in January 2017, MPG was established during the grim days of the mining industry regression with a vision to deliver low-cost services and efficient mineral processing and mining support solutions.

Also with a vision to provide low-cost efficient, optimal and superior coal-processing solutions. MPG strives to be the leader in the coal processing and mineral processing business in South Africa and beyond.

MPG offers a range of value adding services that are tailor-made for our clients to support them in meeting their short and long-term objectives. At MPG we believe in being innovative and practise and promote continual business improvement. This process increases efficiency and improves quality. Our team provides solutions required in maximising the inherent value of your coal products.

The MPG facility is accredited and it uses the same standard of quality-control procedures that exist throughout the world. We have capacity, expertise, equipment, and skill to deliver high-quality services, with good turnaround times. Service are operational twenty-four hours, seven days a week

#### Mission

- To be committed to providing uncompromisable professional, and quality results in the best turn-around time.
- To employ best practices benefiting both our clients and employees.
- To employ practices that are environment friendly.
- To adhere to international testing standards, quality checks and measurements.

To create value for our clients through cutting-edge technology and a highly skilled and motivated workforce.

#### Vision

- To become an internationally recognised and an acclaimed mining value chain support company.
- To be one of the leading companies to offer the best operation and maintenance services in mineral processing plants, mining and plant hire. Provide low-cost, efficient, optimal and superior mining solutions.

#### **Company values**

- Excellence in customer service
- Pioneering technology
- · High integrity levels
- · Social responsibility
- Team-work
- Integrity
- Accountability
- Customer relation management
- Quality service

#### Social development strategy

In pursuing our mission, we have put forward the following strategy regarding social development within the community:

- We will present opportunities to FET colleges to do practical in-service training with us where students will gain experience in plant maintenance and operations.
- We will consider the community in which we operate with regards to employment and contribute responsibly to the community in which we operate.
- Through affirmative procurement policies, our local community will be considered first.

Contact details

Mineral Processing Guru (MPG)

Address: Unit 3, 44 Totius Street, Middleburg 1055

Contact person: Rendani Nthangen

Tel: 071 683 6224

Website: www.mpguru.co.za and rendani@mpguru.co.za

**website:** www.mpguru.co.za





#### Specialists in

- Crushing and screening
- Mineral processing operations and mining
- Coal handling
- Mineral residue facility management
- Coal sampling and analysis
- Engineering supply
- Housekeeping and conveyor cleaning

- Removal of scrap metal
- Plant maintenance
- Plant hire
- Bias testing
- Due diligence
- Plant optimisation projects and business improvement
- Coal trading
- Mineral processing supplies



#### **Services**

#### Real-time analysis and quality management

We can design, commission, install, operate, calibrate and support on-line analysis systems. Real-time control of quality, using sorting and blending systems and services to develop capital justifications for these systems. Third party services include monitoring, sampling and testing.

#### **Inventory services**

MPF offers stockpile management services, density determination, tonnage calculation, customised quality-assurance programmes, audits and the training of in-house methods and best practice habits. There is also the auditing of processes and laboratory facilities to determine suitability, new laboratory setup costings, operating and full management of on-site and near-site general daily trained labour as well as risk labour.

#### **Technical services**

We specialise in outsourced plant operations (metallurgy) and maintenance in order to reduce our clients' costs. Our team has the expertise in crushing and screening circuits, dense-medium separation, flotation concentrators, commination circuits and leach circuits.

#### **General plant maintenance**

Platework and steel structures. Platework lining. Conveyor belts. Pump, motors and pulleys. Steel and HDPE pipes. Screens and magnetic separators. Crusher rebuilding and maintenance. Density control optimisation. Laboratory activities. Sub-contractor management. Health, safety and environmental management.

Commissioning services
Plant audit or efficiency tests and plant sampling
Sampling services
Asset management

#### Safety, health and environment

At MPG we are committed to health, safety and environment and quality service. HSEQ is integral to the way we do business. We recognise employees, business partners, suppliers and customers as stakeholders. We are committed to continual improvement in our performance.

We commit to zero harm to people, the environment and property, efficient and total customer satisfaction and improved value for our shareholders. Our management system is consistent with international and organisational standards, legislation, and other relevant requirements. We undertake to ensure that our management system is developed, documented, implemented and maintained in a manner that is both understood and effective at all levels in our business, to enable us to:

- Identify, assess, and manage risks to our employees, client's employees and the environment.
- Commit to achieving industry-leading practice and recognition.
- Meet and, where appropriate, exceed applicable legislation.
- Lead and develop our people and provide resources to achieve our targets.
- Support the fundamental human rights of employees and safeguard them from exposure to unacceptable risk.

We will seek opportunities to share our success by developing partnerships that focus on creating sustainable value for all stakeholders. We will regularly review our progress and communicate results to all stakeholders to enable a relationship based on honesty, openness, and mutual trust. We will be successful when we achieve our targets toward our goal of zero harm and are valued by the clients with whom we work.

# A year of upheaval: What businesses can learn from the disruptions of 2021

James Bayhack, Director for Sub-Saharan Africa at mobile technology group CM.com, looks ahead at trends and innovations that will help businesses recover faster.



rom lockdowns, third waves and vaccine rollouts to digital innovations, ecommerce booms and riot-related supplychain struggles, the year 2021 has been eventful – to say

For many South African businesses, 2020 set the tone for what to expect in 2021, especially in terms of digital transformation and managing operations under lockdown restrictions. However, the last few months of the year undoubtedly threw a few curveballs our way. It's fair to say that now, executive managers in almost every industry are prioritising ways to adapt and future-proof their businesses for what's sure to be an interesting year to come. At least, they should be.

With American humourist Evan Escar's words in mind - he claimed that while hindsight is good, foresight is better - what can we learn from our experiences during the last year of upheaval to better prepare for the one to come? Every setback, development or achievement presents a host of opportunities for improved insight and better understanding. And 2021 was packed with all three.

Below are what I believe have been the biggest game-changers in the last 12 months. And a few lessons on how to use these disruptions to improve business outcomes and make 2022 the most prosperous year yet.

#### Digital transformation

This became an "adapt or die" situation this year. With the pandemic showing no signs of slowing down, more businesses were forced to go online. A 2020 report by Deloitte found that while twothirds of businesses had a digital transformation strategy in place, 46% of senior leaders didn't feel confident leading an organisation in the digital economy. Often, this comes down to not fully understanding a company's technological needs or even what it means to be truly digital.

In 2021, we saw how businesses that had already embraced digital transformation were better equipped to manage the "new normal", transitioning teams and adapting to digital demands faster. Companies that struggled were the ones that had no plan in place, hadn't adopted the right technology to support their business and, understandably, had a limited budget for the transformation required.

For 2022, it's crucial that businesses align digital transformation with company goals and understand the core needs to ensure agility in the future. This covers everything from developing correct procedures and training staff to investing in technology and tools that support a decentralised work model. The digital age is upon us. Fortunately, innovations are taking place every day to make the transition to a digital environment a little less painful.

#### The hybrid workspace

A consequence of digital transformation and catalysed by the ever-present Covid-19 pandemic, one of the biggest changes to take place in 2021 was the rise of the hybrid workplace. After months of total shutdown in 2020, when teams navigated the perils of working remotely, 2021 saw a trickle of people returning to offices for a few days or hours a week. But a global survey by Statista suggests that 73% of employees want flexible, remote working options to remain post-Covid.

So, the hybrid workplace – and even the elusive "third" working space, which constitutes anywhere with a plug point and Internet connection – seems here to stay. This means the pressure is on for businesses that initially struggled to adapt to remote operations, those that battled with things like managing customer queries remotely, motivating decentralised teams and staying on top of customer service.

In 2021, we learnt how to run companies from home and, while productivity seemed to stay on track, the process wasn't without its challenges. Now, businesses must master both in-office efficiency and remote working. This means that communication has never been more important. And we should expect concepts like cybersecurity and digital wellbeing to become a major focus in the next few months as more people spend more time online. Zoom fatigue is a very real thing.

#### **Communication and innovation**

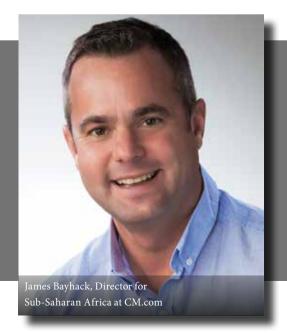
Looking back at 2021, I would say that effective communication (internally and with customers) is what sets businesses apart. Even though digital platforms and collaboration tools like Zoom and Microsoft Teams replaced the physical office, direct communication cannot be overlooked. Neither can the importance of upskilling team members with improved communication techniques and ensuring that everything from onboarding to year-end reviews is done in a way that makes every employee feel heard and valued. Good communicators will always be an asset to any organisation, whether or not you're sharing an office space.



In terms of external communication, customer experience became the focus in 2021. We learnt to speak to customers on the channels they prefer, whether on WhatsApp, social media platforms or via SMS notifications. With the global rise in mobile ecommerce, it became crucial to build responsive, easy-to-navigate websites and ensure everything from marketing campaigns to payment methods was optimised for mobile users. In the year to come, customer experience and convenience will be key drivers in business decisions.

And we can't ignore the disruptions that took place in July. During that period, when supply chains were compromised and the country was in a state of turmoil, innovative technology and communication platforms stepped up to mitigate damage. After that experience, businesses discovered the importance of operating on the cloud, investing in off-premise hardware, and always having a disaster recovery plan in place to ensure service continuity. In the most chaotic times, the right technology and communication tools can help businesses keep up with operations and meet customer demands.

Though there were unexpected challenges in 2021, the year before undoubtedly set the tone for developments and business changes to come. Now, looking ahead to 2022, it's the ideal time to extract important lessons from the last few months and devise a strategy to ensure your company is as prepared as possible for the future.  $\square$ 



#### About CM.com



A Road Signs is the leading end-to-end traffic safety solution provider that creates value for customers, people and society through its unique 360° approach. The company is BBBEE Level 4.

The SA Road Signs team has eight years of experience in the mining and civil sector. We focus on manufacturing and providing safe and efficient traffic safety products and services in compliance with respected authorities.

We work in partnership with our clients to develop optimal solutions by employing our vast experience of road projects. Our staff is committed to working with our customers, combining experience and vision to achieve maximum satisfaction and value with a true commitment to quality and safety.

Our company has sustainable and effective plans to build this business with a wide footprint across the world.

#### Corporate philosophy

SA Road Signs believes in alliances and partnerships and nurtures them to reach our customers with the right solution. SA Road Signs is your partner with excellent knowledge of:

- products that meet approved standards
- fast delivery
- turnkey service provision

#### **Product portfolio**

We offer a full line of traffic safety solutions, which includes:

- temporary traffic signs
- permanent traffic signs
- panel stack signs
- traffic cones and delineators

- mining signs (safety and informative)
- auxiliary safety products

#### WE OFFER COMPETITIVE RATES

As part of our service offering, we supply safety products to the mining and civil industry – a one-call solution.

#### Manufacturing

SA Road Signs offers a wide range of in-house manufactured items. Raw materials are locally sourced. This includes items such as: temporary traffic signs with unique frames to limit injury when signs are handled); permanent traffic signs; panel stack signs; overhead signs; route markers; danger plates; galvanised supports and mining signs.

#### **SA Road Signs supplies**

- · road studs
- epoxy kits
- · delineators and bases
- cones: 450mm up to 1.8m (monster cone) in various colours
- · New Jersey barricades
- · barricade netting
- flashing LED lights (mountable on signs, cones or barricades)

#### Clients

Some recent projects completed include permanent road signs for the Democratic Republic of the Congo, road block signs for the military of Botswana and Namibia and a big contract for SANRAL to install traffic signs in Limpopo Province.

Address: 167 Leeukuil, Percy Fyfe, Polokwane 0699

**Tel:** +27 15 004 0316

**Email:** admin@saroadsigns.co.za **Website:** www.saroadsigns.co.za





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he NWU Business School at the North-West University (NWU) is a driving force of business education in Africa. Not only has the internationally prestigious Association of MBAs (AMBA) renewed the MBA accreditation of the NWU Business School, but the school is also now officially the first school on the African continent to receive international accreditation from the Business Graduates Association (BGA).

This follows a virtual visit to the NWU Business School by panel members of the AMBA, with which the BGA is affiliated. According to Prof Jan van Romburgh, chief director of the NWU Business School, the school managed to also successfully secure another five-year international accreditation for its MBA gualification.

"Business education in general – and the role of MBAs in particular – is going through a fundamental transformation, both globally and domestically. In a fast-changing world and country, business schools must remain relevant by providing business education that critically unpacks their socio-economic environment for successful business strategies."

Prof Van Romburgh says it is a huge vote of confidence from the BGA that it has accredited the NWU Business School as the first in Africa. "The AMBA accreditation also denotes the highest standard of achievement in postgraduate business education. Only 2% of recognised business schools around the world have AMBA accreditation. We are proud to be one of them. We recognise the big changes across the continent of Africa that excellent business education must help to navigate and manage successfully."

The AMBA is the only professional membership association that connects MBA students and graduates, accredited business schools and MBA employers across the world.

#### What is accreditation?

Accreditation certifies that an institution has the capacity to fulfil a particular function within the quality assurance system. Programmes that receive this accreditation reflect changing trends and innovation in the postgraduate education sector. They foster innovation and challenges and encourage business schools to continuously perform at the highest level.

#### Why is this a big deal?

Students and graduates, business schools and employers alike all recognise the AMBA and BGA accreditation as a gold standard. The rigorous accreditation criteria and assessment process ensures that only the best programmes achieve accreditation. The accreditation bodies look at programmes that demonstrate the highest standards in teaching, learning and curriculum design; career development and employability; and student, alumni and employer interaction.

Employers looking to attract game-changing managers and future business leaders know that graduates from accredited programmes have received the best quality, most relevant management education. To recruit a graduate from an AMBA-or BGA-accredited programme is to recruit top talent. This accreditation gives our business school worldwide recognition and honour.

#### What does it mean to the MBA students?

Employers are increasingly asking for business graduates who possess a balance between hard and soft skills, innovative capabilities and a mind-set geared towards being more socially responsible. We can guarantee that our students who obtained an MBA or Postgraduate Diploma in Management will bring all these qualities and skills to the table at their workplace and make a viable contribution to their company.

"For our MBA graduates, accreditation offers the opportunity to connect with peers from the best global MBA programmes. Student and graduate membership of the AMBA means alumni can network internationally, knowing that they are connecting with individuals from equally impressive programmes."

Prof Van Romburgh says that students, through the AMBA, can enjoy career advice and support, a job portal, events, access to the latest research and thought leadership and selected offers and benefits.

"In short, it opens doors and facilitates opportunities and we are committed to making sure that each and every student receives the best possible education in order to shape executive minds in Africa."



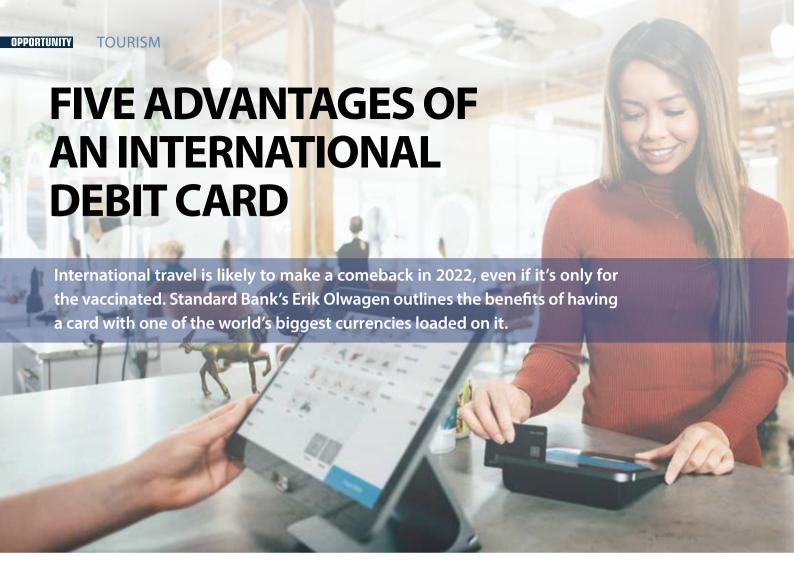


# 1St Business School in Africa to receive

# International Accreditation



Shaping Executive Minds in Africa



hile traditional debit cards are extremely useful for daily purchases and banking, they typically cannot be used outside of their country of origin. This is a big problem for ttravellers who may during their trip need to make purchases or even withdraw funds in a foreign country.

"If you are travelling overseas for business or pleasure, or buying something from abroad, you want to make purchases in the currency of that country," says Erik Olwagen, Head: SA Distribution for International Personal Banking at Standard Bank. "There are always unknown fees involved like forex spreads or admin fees when making a payment in a currency that differs to your account base currency."

Standard Bank's Optimum Account is designed to support everyday transactional banking requirements. Clients can manage finances across borders, make payments and receive money from around the world. The benefits of an Optimum Account include full service of the day-to-day banking, digital and seamless banking, and one can choose the main currency: USD, pound sterling or Australian dollar.

An analysis by Standard Bank shows that these currencies make up around 80% of all foreign transactions conducted by clients while the other 20% is made up of a mix of about 50 different currencies.

Olwagen says that "customers are increasingly realising the benefits of international debit cards not only for spending while travelling but for investment purposes, to make international transfers or online purchases that can be done easily from their mobile app or Internet banking platforms".

#### Protection against currency volatility

"Let's say you travel to Europe and make payments in euros with your South African card. If the rand happens to depreciate, you will be paying more for your purchases and it becomes easy to lose track of what things cost," Olwagen says.

Instead, clients can opt to purchase those euros ahead of time at a set exchange rate and spend in euros with their debit card. It then becomes easier to convert to the original cost of your purchase, because you know that you paid X amount for that euro, instead of trying to figure out and worrying about how much that glass of wine or sparkling water is going to cost you.

#### Managing a budget

During the planning stage of an overseas trip, there will inevitably be things that you need to pay for ahead of time like accommodation or inbound travel. In the first scenario, you may use your SA cards to make these purchases but there may be excessive fees involved that can impact your overall budget.



Movements in the exchange rate could also work against your budget. The Airbnb that you may be looking at today could go up in price in the days to follow should the rand depreciate. Rather, you can purchase \$1 000 now and deposit that into your international bank account, and use those dollars to pay for car rental, any internal flights, tours, or travel with your dollar debit card.

#### Quick and easy international transfers

There are multiple uses for the international debit card. Olwagen notes that many clients from across the continent with children who are enrolled in international schools or universities will make use of an international debit card to settle fees. Another benefit is to pay for expenses associated with running a buy-to-let investment property held abroad.

He adds that it makes sense for those who plan to emigrate to start externalising funds in the currency of the country in which they plan to reside. "So, if you are going to move to Italy, start purchasing those euros now because you're going to have to spend in euros when making a deposit on an apartment or house, or to purchase a car. You do not want to use your rands to cover those expenses."

#### Withdraw hard currency abroad

Another benefit of an international debit card is the ability to withdraw cash from any of the 1.4-million ATMs in more than 200 countries that display the Visa mark.

The card is enabled for tap and go, which is becoming an increasingly popular feature, and means you can go to a bank, tap for cash, receive it over the counter and continue with your trip. The tap functionality is not enabled in all countries and retailers, so in some instances you may still need to insert or swipe your card and input your pin depending on the amount being spent or the device being utilised. In that case, Visa Debit Card transaction fees apply.

There are some other limitations, such as the amount you can spend on any given day and cash withdrawals being limited to three per day. These limitations, which can be increased temporarily to suit your spending needs, have largely been put in place to protect the consumer from fraudulent activity.

"If your card is stolen, you can alert us immediately and we will go out of our way to have a replacement card delivered to wherever you are in the world," Olwagen says. He adds that a good way of de-risking yourself is by having more than one card stored in different places.

#### International subscriptions

As the world becomes smaller thanks to increased connectivity, South Africans can access a range of services from abroad like Amazon Prime or subscriptions to international publications like the New York Times.

Olwagen says that many people may not realise that they will be charged for those subscriptions in USD. This means that the bank will apply a foreign transaction fee that you may not be aware of. The volatility of the rand may also impact the price of that subscription and fees.

In the online gaming world, almost everything is dollar based and some clients will create a USD debit card to make those purchases. This can be a risky environment where fraudsters like to hang around, and so it might be worth creating a virtual card via Standard Bank online banking or using platforms like PayPal where your card details

Olwagen advises "to always remain vigilant and to avoid storing or writing down your pin. Rather make use of the functionality on the Standard Bank Mobile App that will display your pin for a few seconds, disappearing thereafter. And remember, the bank will never ask for your card details. If someone is asking, it is likely to be a scam".

Always protect yourself against fraud scams when using your cards. To better equip yourself against the dangers, read through descriptions of the common scams and fraud tactics which can be found at www. international standardbank.com

#### **ABOUT STANDARD BANK**

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# KwaZulu-Natal welcomes resumption of SAA and Qatar flights



A statement issued by the KwaZulu-Natal Provincial Government in January 2022 described the flights as a sign of economic recovery.

Credit: Qatar Airways

he Premier of KwaZulu-Natal, Sihle Zikalala, says the tourism sector will benefit significantly from the recent return to Durban's King Shaka International Airport of both SAA and Qatar Airways and help lift KwaZulu-Natal's economic recovery.

This follows SAA's announcement that its first scheduled flight will take off from ORTambo International to King Shaka International in March 2022. This will be the first time in almost two years since the airline exited the route. SAA said it will fly the route seven days per week at least three times a day on a return service between the two cities.

SAA's return to King Shaka Airport follows close on the heels of the resumption by Qatar Airways of flights out of Durban. Qatar, the Gulf airline headquartered in Doha, resumed flying from KwaZulu-Natal on 14 January with an initial frequency of four flights a week.

"The resumption of SAA and Qatar Airways flights between Durban and Johannesburg, Durban and Doha respectively will benefit the tourism sector which remains one of the greatest creators of employment in the economy of KwaZulu-Natal.

"Through our Economic Recovery, Reconstruction and Transformation Plan we have stated our commitment to increasing trade, tourism and beneficial collaboration with the rest of the world. Efficient and regular aviation services are necessary if we are to increase visits to our province, to grow tourism numbers and to create jobs up and down the value chain," said Premier Zikalala.

"We wish to welcome the return of Qatar Airways to Durban following its withdrawal ahead of the festive season over Covid-19 related health and safety concerns. Direct links to mid-hemisphere

hubs such as Doha in the Gulf region bring the world closer by providing easy access to the global capitals of the world. The uptick in tourism numbers which is directly related to aviation links can only mean that KwaZulu-Natal is truly on the rise, and that better things will come in 2022," added Premier Zikalala.

MEC for Economic Development, Tourism and Environmental Affairs Ravi Pillay says air transport is key to advancing economic growth of KwaZulu-Natal

"We welcome the reintroduction of SAA flights between Durban and Johannesburg. This is crucial in growing our economy and domestic capacity on the essential Gauteng and KwaZulu-Natal route. This announcement comes straight after positive tourism numbers during the festive season which were anchored on the high occupancy rate of around 80% during the Christmas week," said Pillay.

Pillay added that the provincial government had worked hard to address the negative impact on the KwaZulu-Natal economy caused by disruption in connectivity resulting from the grounding of many airlines including SAA.

"This is a fresh start, and a timely boost to our economic recovery efforts. It strengthens our argument that the Durban route is a significant cog in the revival of the aviation industry in South Africa," said Pillay.

Pillay also noted that Qatar Airways provides KwaZulu-Natal with connectivity to over 150 markets around the world. "With our vaccination programme well underway, the reintroduction of Qatar Airways allows us to revive our connectivity to strategic global markets, while rebuilding our relationships with both business and leisure travellers as well as service the demands of our airfreight market directly from Durban," concluded Pillay.

# Millat Investments is upbeat about the South African tourism sector

Hamza Farooqui, CEO of Millat Investments, outlines the strategy behind the company that has opened three hotels in as many years.



#### **Biography**

A tourism trailblazer, Hamza Farooqui, has put his years of experience in the hospitality and tourism sector to good use with this industry in South Africa benefiting from his wily yet focused entrepreneurial approach. Not letting the Covid-19 pandemic scupper any of his plans, Farooqui, the CEO of global venture capital and investment firm, Millat Investments, has been the

driving force behind the opening of three Hyatt-branded properties in Cape Town and Johannesburg. Farooqui, eats, sleeps and drinks tourism and hospitality and is focussed on creating opportunities in the sector and ensuring economic growth for all involved.

#### What is the Millat Investments model?

The model is to make investments in sectors which we understand, in sectors where we believe there are significant arbitrage values. We are historic investors in tourism and hospitality. I personally built my first hotel when I was 27 years old which was historically Hilton and now the Hyatt. We have grown that portfolio judiciously.

A lot of that growth has come during the time of Covid and we are very excited about the opportunity the sector presents. South Africa continues to be an untapped market. There has been no real innovation over the last 10 or 15 years. The only time you really saw new hotels was during the 2010 World Cup so there is a time to reinvigorate and rebuild and Millat is hoping to be at the forefront of that and, with our strategy, to build our assets.

#### Describe your relationship with Hyatt Hotels.

Our relationship with Hyatt is one of owner/operator. They operate our assets on our behalf under a management contract. We don't operate under the typical guise of management contracts, we are fairly active and hands-on. We have a great working relationship with the Hyatt teams within their various geographies and we are very grateful for their support and trust.

## With investments in three hotels in three years, it suggests you are upbeat about tourism.

We believe that these hotels are uniquely positioned and branded. Regency is an established full-service property brand in a great



location in Cape Town. Hyatt House Sandton and Rosebank are Africa's first extended-stay products yet they cater to a growing corporate and a leisure market. They are internationally branded with many amenities and they are a compelling offering to the market segment.

#### Why is tourism a good sector to stimulate jobs and growth?

Tourism is a very underappreciated and misunderstood sector. It is a sector which can create other sectors and create jobs. When you open and build a hotel there is the construction element, there is the procurement element of furniture, there is laundry and cleaning. It is a sector that encompasses so many other touchpoints and factors. And then there are the international tourists, who are a key driver of foreign exchange income. South Africa with all its natural beauty has a huge opportunity to continue doing that and more. We believe that South Africa has a significant opportunity and can continue driving and building on that.

#### How important is airlift to tourism?

South Africa needs to consider an open-skies policy; we need to invite carriers and make access easy. We need to make our airports friendly, make our ports of arrival accessible and we need to open the ecosystem of South Africa. Border security is very important, so we need to do so responsibly but we do need to welcome the people who want to be here who are the right kinds of people, not just internationally but also from within the continent.

#### What are steps that the sector could take to improve tourism?

Understanding the importance of the sector, getting policy right, getting product right and putting it in the right places. There is no better time than this to rebuild the sector and to recreate the opportunity and that is what we are doing at Millat.

#### What can government do to support and grow the sector?

Today there are still challenges for entrepreneurs to enter the sector. For black entrepreneurs it is even more difficult. Government needs to place a significant amount of resourcing and understanding and that needs to stretch to financiers and the availability of resources and capital. Government needs to take the sector seriously and more needs to be done to build a collaborative and a collective ecosystem from which the country and its people can ultimately benefit.





s humanity continues to consume the earth's resources at ever-increasing and unsustainable rates, it is vital to understand why biodiversity matters. Rapidly accelerating trends of environmental degradation and climate change threaten to undermine existing and future developmental potential and opportunity.

From the hot arid deserts of the Sahara, through the lush green rainforests of the Amazon, to the ocean depths and bright corals, our natural world is a marvel of different landscapes, materials, colours and textures, which together make up a rich tapestry of interconnecting and interdependent forces.

#### This is life, this is biodiversity.

Biodiversity found on earth today consists of many millions of distinct biological species, the product of four-billion years of evolution.

However, the word "biodiversity" is relatively new, and is thought to have first been coined as a contraction of the term "biological diversity" in 1985.

Biodiversity is the variety of life on earth. It includes all organisms, species and populations, the genetic variation among these and their complex assemblages of communities and ecosystems.

It also refers to the inter-relatedness of genes, species and ecosystems and their interactions with the environment.

Three level of biodiversity are commonly discussed – genetic, species and ecosystem diversity.

#### **HABITAT LOSS AND DESTRUCTION**

#### **ALTERATIONS IN ECOSYSTEM COMPOSITION**

#### **INVASIVE ALIEN SPECIES**

#### **OVER-EXPLOITATION**

#### **POLLUTION AND CONTAMINATION**

#### What is happening?

Fast isn't always good. Species are becoming extinct at the fastest rate known in geological history and most of these extinctions are tied to human activity. Some conservation organisations estimate species are heading towards extinction at a rate of about one every 20 minutes. One figure frequently cited is that the rapid loss of species we are seeing today is estimated to be between 1 000 and 10 000 times higher than the natural extinction rate.

Experts calculate that between 0.01 and 0.1 percent of all species will continue to become extinct each year, if we carry on with business as usual

That may not sound like very much, but consider that if there are 100-million species on Earth as some estimates suggest, then between 10,000 and 100,000 species are becoming extinct each year.

Looking at recent assessments we know that more than one third of species assessed in a major international biodiversity study in 2009 are threatened with extinction

Of the 47 677 species in the international Union for Conservation of Nature (IUCN) Red List of Threatened Species of 2009, 17 291 are deemed to be at serious risk. Under threat are:

- 21% of all known mammals
- 30% of all known amphibians
- 12% of all known birds
- 28% of reptiles
- 37% of freshwater fishes
- 70% of plants
- 35% of invertebrates

#### Why does it matter?

Biodiversity conservation provides substantial benefits to meet immediate human needs such as clean, consistent waterflows, protection from floods and storms and a stable climate.

The loss of biodiversity is dangerous and its consequences are immediate:

- Fewer opportunities for livelihoods, for better health, education, and a better life
- Fewer fish in the sea means less food for our survival
- · A lack of clean water
- · A lack of forest resources such as food, or plants for medicine
- In the long term, it also means less income for communities, which are often already among the poorest on earth

Cultural diversity and biodiversity are intimately related to each other. If we lose one, we risk losing the other.

The diversity of societies, cultures and languages that has developed throughout human history is intimately related to biodiversity and its use.

#### What are the solutions?

There are a number of initiatives aimed at enhancing sustainable development and promoting beneficial conservation of biodiversity in countries around the world. These include:

The "Green Economy Initiative" has been defined as one which will accelerate the transition to a low-carbon, resource-efficient economy able to meet multiple challenges, and deliver multiple opportunities for the 21st century.

Promoting an increase in the number, size and connectivity of protected areas, both on land and at sea.

Increasing focus on the implementation of multilateral environmental agreements related to biodiversity such as the Ramsar Convention on Wetlands and the World Heritage Convention.

Increasing "Communications, Education and Public Awareness" (CEPA) programmes related to biodiversity with an aim to relate biodiversity to people and their livelihoods.

Identifying and creating opportunities for rural enterprises based on biodiversity such as eco-tourism, bio-prospecting to benefit local communities, the environment, species and their habitats.

Encouraging development that is sustainable and based on biodiversity by drawing attention to regions that might otherwise be developed in an unsustainable way.

Providing important economic and social benefits to local communities and incentives for habitat protection.

Identification of options for sharing the benefits of conservation and sustainable use with local communities and stakeholders.

There is a recipe we can follow:

- 1. Relate biodiversity to everyone's daily needs so that the ownership for saving biodiversity is spread and everyone feels responsible for stopping loss.
- 2. Ensuring science, policy and politics play an equal role in decision-making.
- 3. Economics make a great case to argue for conservation action. But such arguments should be translated into national and local actions to realise the potential of biodiversity.
- 4. Revalue our choice and lifestyles to provide space for the species that inhabit this earth.

Have no doubt. This is relevant to us all.



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