AHK
Deutsche Industrie- und Handelskammer für das südliche Afrika
Southern African-German Chamber of Commerce and Industry

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Southern African - German MINING Magazine

THE FUTURE *of mining*

Key trends shaping the mining industry across Southern Africa

In Conversation
With the Industry Experts

February 2026

Contents

Message from **the Editor**

"Mining has shaped Southern Africa's past and it will define its future."

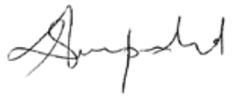
As global demand accelerates for the minerals that underpin the energy transition and the world's most advanced industries, Southern Africa stands at a pivotal moment. The mining sector is being called upon not only to deliver growth, but to lead with innovation, responsibility, and lasting impact.

This first Mining Magazine of the Southern African - German Chamber of Commerce and Industry (AHK Southern Africa) is a celebration of the companies and partnerships that are making a meaningful contribution across the region. It showcases our members who are investing in Southern Africa, introducing innovative technologies, developing local skills, and building long-term partnerships based on trust and shared value.

German–Southern African collaboration in mining brings together highly complementary strengths. German engineering and technological expertise combine with Southern Africa's geological potential and operational experience. At a time when the sector is under increasing pressure to improve efficiency, reduce environmental impact, and secure responsible supply chains, these partnerships are more important than ever.

The Southern African - German Chamber of Commerce and Industry supports this collaboration by creating platforms for engagement and ongoing dialogue with key stakeholders across the region. The Competence Centre for Mining & Mineral Resources is supported and funded by the Federal Ministry for Economic Affairs and Energy (BMWE) and our mandate is aligned with Germany's Raw Materials Strategy. With a focus on Southern Africa, our work includes creating market transparency through the collection, evaluation, and communication of information, as well as serving as a cooperation platform through its mining working group. This is complemented by services such as business partner searches, delegations, market studies, development cooperation projects, and the promotion of German technologies through targeted events, activities, and joint initiatives.

This magazine captures both what is already being achieved and the far greater potential that lies ahead when collaboration sits at the heart of the mining sector. We are proud to launch this first edition and to embark on this journey with our members and partners, working together to shape a mining industry in Southern Africa that is innovative, responsible, and resilient for generations to come.



Ms Selleen Sewpershad

Head of Competence Centre for Mining & Mineral Resources

Southern African - German Chamber of Commerce and Industry

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Botschaft
der Bundesrepublik Deutschland
Pretoria

Message from the German Ambassador

Grußwort by Andreas Peschke, Ambassador of the Federal Republic of Germany to South Africa, Lesotho and Eswatini.

"The world is changing at an extraordinary pace."

The global transition towards climate neutrality and growing geopolitical uncertainties are fundamentally reshaping the importance of critical raw materials and their supply chains. This development presents a major opportunity for Africa. Germany and Europe will continue to have a demand and hence provide an opportunity for sustainably mined and processed critical raw materials that is diversified throughout the world. Southern Africa, with its exceptional resource endowment, is therefore a natural and indispensable partner. Strengthening cooperation between suppliers and off-takers across the entire value chain is not only necessary, but mutually beneficial. Only through closer and more strategic collaboration can the full potential of this partnership be realised.

We are not starting from zero. Germany and Europe have been trusted partners of Southern Africa in the mining sector for many decades. Germany brings a long-standing mining tradition, excellent academic and research institutions, and globally competitive companies across the mining and mining-technology value chain to this partnership. The German Federal Government, together with its European partners, is firmly committed to further strengthening this cooperation through an enabling political framework, investments and a strong base of companies. This includes concrete instruments such as Export Credit Guarantees, the German Raw Materials Fund and supporting new projects to create the right enabling frameworks for critical raw materials, battery value chains and green hydrogen. These initiatives promote sustainable investment, strengthen local beneficiation, and support long-term industrial development in partner countries across Southern Africa. Expanding local processing, refining and beneficiation capacities is a shared priority and is essential to create jobs across Southern Africa. Strengthening these capabilities is therefore not only an economic objective, but also a key contribution to inclusive growth and long-term stability.

This cooperation is further reinforced by Europe's climate ambitions. The transition to climate neutrality and the successful implementation of the energy transition depends fundamentally on critical raw materials. With the EU Critical Raw Materials Act, the European Union has established a strategic framework to diversify supply chains, strengthen international partnerships and promote responsible sourcing. Moreover, the Clean Trade and Investment Partnership, launched by Europe and South Africa in November 2025 with a strong focus on raw materials, underlines our shared ambition to deepen cooperation while advancing sustainability, resilience and climate objectives.

Against this backdrop, I particularly welcome the launch of the Southern African – German Mining Magazine by the AHK Southern Africa. By providing a new platform for information, dialogue and exchange, the AHK Southern Africa makes a valuable contribution to bringing stakeholders closer together.

I wish the magazine and its publisher, the AHK Southern Africa - Competence Centre for Mining and Mineral Resources, every success and a lasting impact.

The German Mining *& Resources Network*

The German Mining & Resources Network supports the German industry in global raw materials markets, focusing on raw materials supply, mining technology and recycling. The network is coordinated by the German Chamber of Commerce and Industry (DIHK) and main network partners are the German Raw Materials Agency (DERA) and Germany Trade and Invest (GTAI). The Federal Ministry for Economic Affairs and Energy (BMWE) supports the network.

It assists companies through local contacts, market information, and a wide range of events, thereby offering on the ground support in developing or expanding business in these markets.

The network consists of eight international Competence Centres for Mining and Mineral Resources located at the respective bilateral German Chambers (AHKs) in Australia, Brazil, Canada, Chile, China, Western Africa, Peru and Southern Africa, as well as its partners at the AHK Norway, AHK Argentina, AHK Central Asia and the German-Mongolian Business Association (DMUV).

"We highly value our close cooperation with the Competence Centre for Mining and Mineral Resources in Southern Africa, a longstanding member of this network, in promoting German investment and economic activity in the region. The Competence Centre has established a remarkable network, maintains a comprehensive understanding of regional opportunities and challenges, and supports German companies in addressing them."

Tim Schmidt, Project Coordinator, German Mining & Resources Network

DIHK German Chamber of Commerce and Industry

German Mining and Resources Network

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01

Across Southern Africa

Country Spotlights

Spotlight
South Africa

From local legacy to global synergy:

*The evolving **Nordbak** story in **South Africa***

For more than four decades, Nordbak, a specialist provider of maintenance, repair and overhaul (MRO) solutions with a strong foothold in mining, infrastructure, and industrial segments has been a quiet force behind the resilience of Southern Africa's mining and heavy-industrial sectors. Long before conversations about efficiency, uptime, and sustainability became boardroom priorities, Nordbak was already solving these challenges on the ground often in the region's toughest and most remote environments. Its locally developed maintenance technologies earned a reputation for reliability and for many engineers, the brand became synonymous with "products made to survive Africa."

Nordbak products providing maintenance, repair & overhaul solutions

What set Nordbak apart in its early years was not only the quality of its epoxy grout, crusher backing compounds, and protective coatings, but a willingness to listen. Instead of importing generic solutions, the company designed products specifically for abrasive, high-impact, and high-temperature conditions common across African mining operations. One of Nordbak's earliest success stories came from a Northern Cape iron ore mine that struggled with chronic crusher downtime. A custom-formulated backing compound, introduced by Nordbak's technical team, extended liner life and cut changeout time by 40%, a partnership that would shape the company's reputation for decades.

This deep understanding of local realities continues to guide Nordbak's innovation. Recent projects include a Limpopo operation facing repeated mill discharge chute failures. By applying a ceramic-reinforced wearing compound, Nordbak helped double the wear life and halve maintenance intervals. These solutions are underpinned by application teams who support mines directly with training, service, and practical experience that cannot be replicated from afar.

In 2025, this local legacy entered a new chapter with Nordbak's acquisition by global multinational, Henkel. Far from diluting its identity, the merger is amplifying it. Henkel brings global R&D strength, advanced formulation tools, and a network of technical specialists while Nordbak offers decades of trust, proven products, and an intimate understanding of African industry. It is a meeting of shared values: quality, innovation, and true customer partnership.

The collaboration is already unlocking new possibilities, low-emission products, recyclable packaging, and energy-efficient curing technologies are guiding the sustainability roadmap. The combined entity aims to build both industrial capability and community skills.

Nordbak's journey mirrors South Africa's own industrial story rooted in grit, strengthened by innovation, and propelled by global collaboration. Now, supported by Henkel's scale and vision, the brand stands ready for its next chapter: one where local excellence finds global momentum, and where the future of mining becomes safer, smarter, and more sustainable.

Henkel acquiring Nordbak ZA

Arash Radgoudarzi, Henkel South Africa President and Mark Beyl, General Manager Nordbak South Africa

Bosch's Power Tools Division Powers Angola's Industrial Renaissance with First Refinery in 50 Years of Independence

Spotlight *Angola*

LUANDA, Angola — For fifty years, it was a national ambition. Today, in Cabinda, it is a reality. Angola's first new refinery since its independence is more than just steel and concrete; it is a symbol of progress, and Bosch was there from the ground up.

Building a modern refinery is a monumental task. It is a world of high-grade steel and reinforced concrete, where every cut, every hole, and every weld has to be perfect. The construction crews faced this challenge head-on, armed with Bosch tools designed for the toughest conditions.

On this landmark project, Bosch tools were essential in delivering precision and performance across complex tasks.

- **Angle grinders** — GWS 9-115, GWS 24-180, GWS 24-230, and GWS 30-230 PB, equipped with cutting and grinding discs, were used for cutting and shaping metal components, preparing surfaces for welding by removing rust and mill scale, grinding and smoothing welds, and cleaning and de-burring components.
- **Drills and hammers** — **GSB 18V-90 C**, **GBH 2-28 F**, and **GSH 500** — enabled site-specific tasks including installation, repairs, maintenance, and creating holes in concrete structures.
- **Circular saw** — **GKS 235 Turbo** — delivered precise and powerful cutting of the Shell and tube heat exchangers critical to the refinery's operations.

The success of this project was amplified by Bosch's direct collaboration with product specialists, offering expert guidance and support at every stage. Comprehensive warranty coverage, after-sales service, on-site technical assistance, product demonstrations, and hands-on training ensured teams could operate with maximum efficiency, safety, and confidence.

Bosch is proud to fuel Angola's industrial growth, providing innovative solutions and world-class support that transform ambition into reality.

BOSCH

HEAVY DUTY

CORDLESS FREEDOM WITH CORDED PERFORMANCE

GBH 18V-45 C Professional

GBH 18V-45 C Professional

cordless freedom with corded performance -
heavy duty all-rounder for concrete drilling and chiselling

HEAVY DUTY

WHY THIS

01 **Cordless freedom with corded performance thanks to BITURBO brushless technology**

02 **Lighter than comparable corded products thanks to a highly optimised drive train - even with ProCore18V 12.0Ah**

03 **KickBack Control for reduced hazard of sudden tool reactions and Soft Start EPC & ASC for a comfortable and precise work process**

APPLICATIONS

TARGET USERS : Construction | Installation | Building Constructors | HVAC | Installation service providers

Corded Performance BITURBO
High performance brushless motor and powerful ProCORE18V batteries

Lightweight
Lighter than the corded version even with ProCORE18V 12.0Ah (!)

Hazard Reduction
Kickback Control reduces the hazard of sudden tool reactions in binding conditions thanks to automatic shut-down of the tool

Improved Visability
Focused LED working light with afterglow

Lightwork Chiselling
Lock-on button for continuous operation in chisel mode

Speed Control
Signal Switch for variable rotation speeds

Soft Start ASC & EPC
Slow ramp up for comfortable and precise work in chiselling and drilling mode

Working Mode Choice & Bluetooth Connectivity
Powerful, precise and soft work modes selectable via HMI & personalisation via the app

GBH 18V-45 C Professional	Unit	Specifications
Voltage	V	18
Single impact energy	J	12.5
Impact rate drilling	bpm	2,720
Impact rate chiselling	bpm	2,760
Drilling diameter	mm	12 - 45
Rated Tool Speed	rpm	0 - 305
Weight with 12.0Ah battery	kg	9.3

02

Innovation Unleashed

Smart Technologies Improving Safety & Efficiency

Early fire detection

focusing on the ***prevention of fires***

Detecting the Heat Before the Fire:
Advancing Mine Safety Through Early Fire Detection and Automated Response

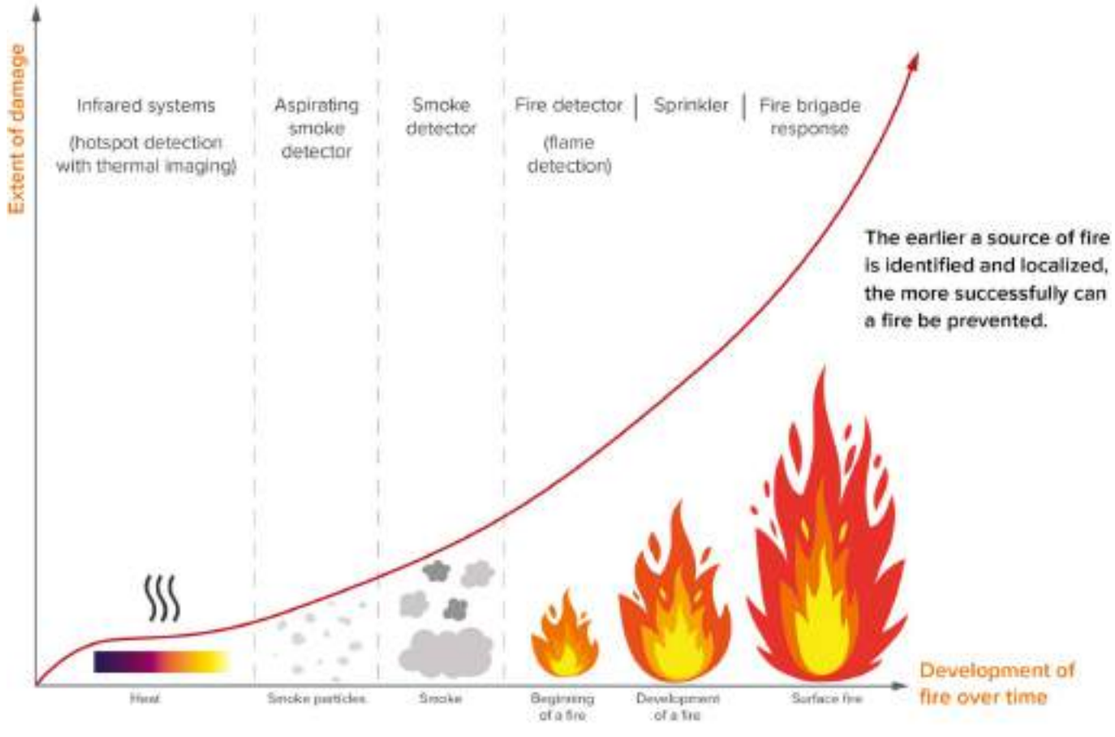
By FireDos GmbH and DoseTech Fire (Southern Africa)

Mining operations are inherently high-risk environments. Heavy machinery, conveyor systems, diesel-powered vehicles, foundries, slag runoff areas, complex electrical installations and transformers, bulk fuel and oil storage, tyre stores and solvent extraction facilities, all present potential ignition sources. When combined with combustible dust, flammable fluids, or confined spaces, a small spark can escalate rapidly into a major incident. For this reason, early fire detection and automated extinguishing solutions are becoming a cornerstone of modern mine safety strategies—not only to respond quickly to fires, but to prevent them from developing in the first place.

The Challenge: Fire Risks Hidden in Plain Sight

Fire hazards in mining are often concealed. Hot surfaces on haul trucks, conveyor bearings running hot, overheating in electrical substations, or friction build-up on crushers may all precede a fire long before visible smoke or flame appears. Traditional detection methods such as smoke or flame sensors often react too late, once the fire has already taken hold.

This is where infrared (IR) early fire detection technology offers a crucial advantage. It detects and identifies abnormal heat build-up before ignition occurs—transforming fire safety from a reactive to a preventive approach. By monitoring heat signatures rather than waiting for smoke or flames, IR systems identify hotspots in their formation phase—detecting potential ignition points within minutes.



Smart Surveillance for Harsh Environments

FireDos, a German specialist in proportioning systems and firefighting monitors, has partnered with DoseTech, its official distributor for Southern Africa, to deliver cutting-edge automated fire detection and suppression systems tailored to the mining industry.

At the heart of this technology is the combination of intelligent infrared cameras, such as the Orglmeister PYROsmart® Pro, or DIAS PYROVIEW FDS and FireDos remote control firefighting monitors. These systems continuously scan critical areas—such as conveyor transfer points, solvent extraction fuel storage areas, or mobile maintenance bays—using thermal imaging to detect abnormal heat development.

When a hotspot is detected, smart software analyses its characteristics, distinguishing between harmless heat sources like engines or exhaust pipes and genuine fire threats. Once confirmed, the FireDos monitor—remotely operated and precisely aimed and controlled—automatically directs a targeted stream of water or water and foam premix onto the exact location.

This precise, rapid, automated approach minimises water usage, prevents collateral damage, and eliminates the delay between detection and response. The result is faster suppression, reduced downtime, and enhanced safety for personnel and assets, but most importantly, the prevention of fire through early, intelligent intervention.

Tailored Solutions for Mining Operations

Every mine presents unique challenges. Open-pit operations face risks from mobile equipment and fuel bays, while underground mines must manage confined environments where smoke and heat can spread rapidly. Processing plants, conveyor systems, and bulk material storage areas all require different strategies for detection and suppression.

Mining is an environment where seconds matter. FireDos systems are designed to react in real time—identifying and neutralizing fire threats before they become fires, effectively preventing ignition rather than merely responding to it. When integrated with intelligent infrared detection, the result is a truly proactive fire protection strategy.

By integrating FireDos monitors with IR-based early warning systems, mining operators can implement a multi-layered defence: detecting heat, verifying threats, and extinguishing fires automatically—long before the situation demands manual intervention.

German Innovation, Southern African Expertise

In Southern Africa, DoseTech provides engineering support, system integration, and after-sales service, ensuring that FireDos technology is adapted to the demanding conditions of regional mining operations.

“FireDos brings proven German innovation to the mining industry,” states DoseTech Managing Director Mike Feldon. “Our role is to ensure that this technology performs optimally under local conditions—whether in dusty open pits, remote haul roads, or high-temperature processing plants. Together, we’re helping mines protect their people, productivity, and reputation.”

This partnership exemplifies the spirit of German–Southern African collaboration, where advanced engineering meets local expertise to create safer, more resilient mining operations.

The Payoff: Safety, Sustainability, and Operational Continuity

Beyond safety, early fire detection and targeted automated extinguishing deliver measurable business benefits. Reduced system downtime, minimized water and foam consumption, and prevention of costly damage to critical assets all contribute to a lower total cost of operation.

Preventing fires before they occur allows mines to avoid costly interruptions, protect workers, and maintain continuous operations with minimal risk exposure. In an industry increasingly focused on sustainability and ESG performance, proactive fire protection also supports environmental responsibility by reducing emissions, water waste, and unplanned disruptions.

A Smarter Way Forward

Fire in mining operations will always be a risk—but with intelligent early detection and automated suppression, it doesn’t have to become a disaster. By combining FireDos precision engineering with DoseTech regional expertise, the mining industry in Southern Africa can take a decisive step toward safer, more sustainable operations.

About FireDos

FireDos GmbH (Germany) specializes in foam proportioning systems and fire monitors for firefighting applications. Their innovative, flow-optimized designs and automated solutions set global standards in precision fire suppression.

About DoseTech

DoseTech (South Africa) is the exclusive regional partner of FireDos, providing engineering, commissioning, and service support for advanced firefighting technologies throughout Southern Africa. Contact Mike Feldon; **086 111 1544** or **083 251 9346**, mgf@dosetech.co.za, www.dosetech.co.za

Seismic monitoring

an established technology to ***enhance safety*** *in* ***underground mines***

Boost Mine Safety with Seismic Monitoring by K-UTEC

Mining operations in South Africa and neighbouring countries face some of the most challenging geological conditions in the world. Deep-level mining, seismic activity, and the constant pressure to ensure worker safety demand innovative technologies and reliable data. K-UTEC's Seismic Monitoring solutions provide mining companies with the tools to better understand underground dynamics, reduce risk, and create safer working environments.

Understanding the Earth Beneath

Seismic events — both natural and induced by mining activities — can have a significant impact on underground stability. Even small tremors may signal stress redistributions within rock formations that could lead to hazardous conditions. K-UTEC's Seismic Monitoring system continuously records and analyses these ground vibrations, delivering accurate and real-time insights into the structural integrity of mine workings. By capturing, processing, and interpreting seismic signals, our technology allows operators to identify early warning signs of rockbursts, collapses, or ground movement. This data empowers mine engineers to take proactive measures, protecting both personnel and infrastructure.

Advanced Technology for Harsh Environments

Designed for the demanding conditions of deep and surface mines, K-UTEC's seismic sensors are robust, reliable, and precise. Each sensor network is custom-configured to the geological and operational specifics of the mine site. Through real-time data transmission and cloud-based analytics, operators can access seismic data remotely via secure dashboards — anytime, anywhere. Our system integrates advanced algorithms and AI-based analysis to automatically detect anomalies and issue alerts when seismic thresholds are exceeded. This ensures immediate awareness and fast response times, allowing mining teams to make informed safety decisions on the spot. We also offer fibre optic sensors (DAS).

Figure: Seismic sensor in an underground mine

Applications and Benefits

K-UTEC's Seismic Monitoring solutions are mainly used for medium-deep and deep underground mines. The objective is to monitor rock mass behavior at extreme depths to predict and mitigate rockbursts. Our systems are modular and scalable — ideal for both permanent installations and temporary projects requiring focused monitoring.

Safety, Compliance, and Confidence

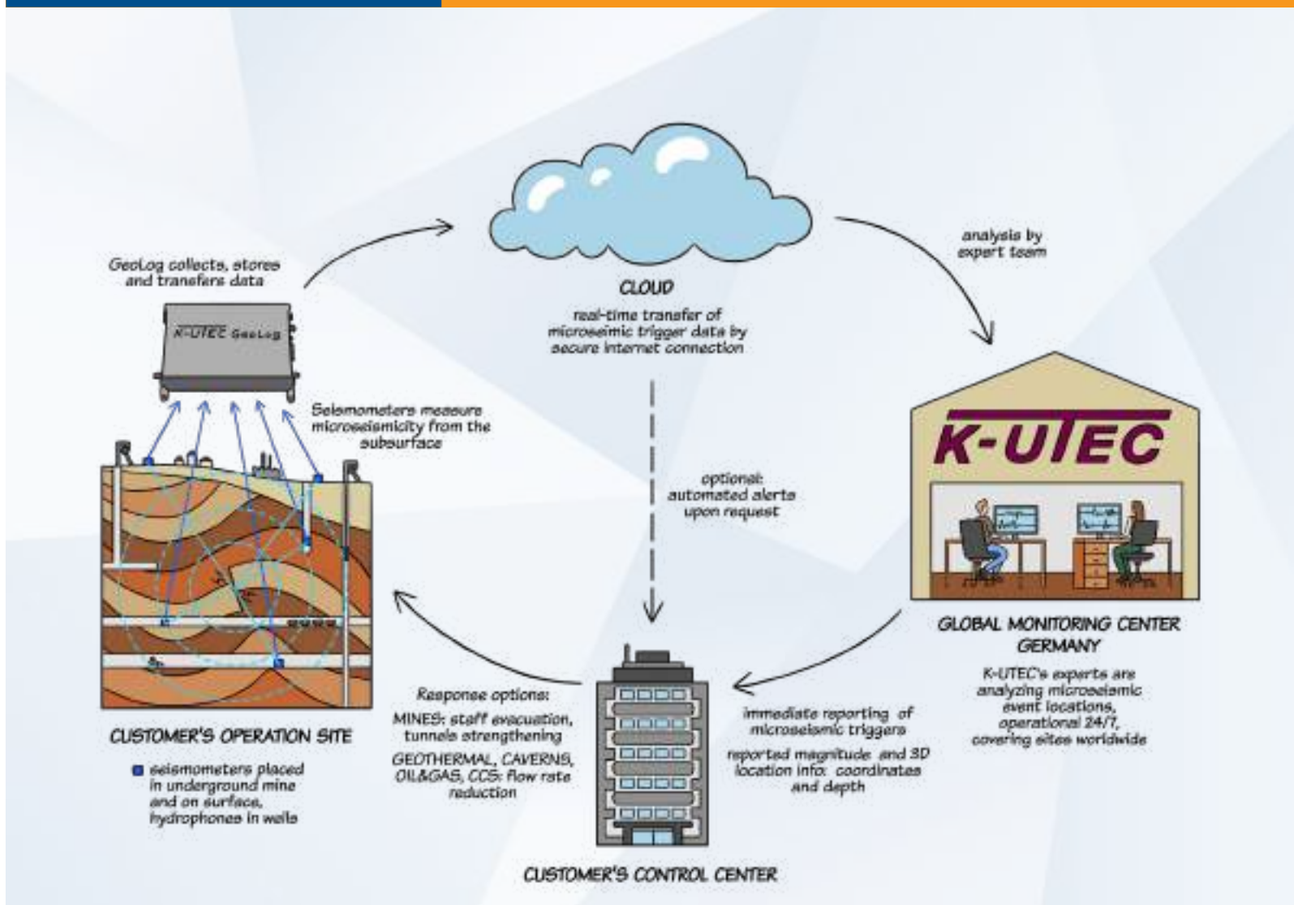
By combining precision instrumentation with expert interpretation, K-UTEC helps southern African mining companies meet strict safety and environmental regulations. Our clients benefit from:

- Continuous 24/7 seismic surveillance
- Automated alerts and customized reporting
- Proven data accuracy and reliability
- Full technical support from local partners and K-UTEC. We are always near to you.

A Partner in Safe and Sustainable Mining

At K-UTEC, we believe that technological innovation is the key to a safer, smarter, and more sustainable mining industry. Our Seismic Monitoring solutions not only enhance operational safety but also improve efficiency and long-term asset protection. Every vibration tells a story — and with K-UTEC, you can listen, understand, and act with confidence.

Figure: K-UTEC's 24/7 alerting chain with optional real-time monitoring



Get in touch with us, ask for our detailed brochure, and be surprised how competitive we are

K-UTEC, www.k-utec.com, EurGeol Thomas Schicht, Thomas.Schicht@k-utec.de, Tel. +49-3632 610-187

Mining compressed *air systems*

Compressed Air Flow Monitoring in the Mining Industry

Compressed air is a critical utility in modern mining operations, powering drilling equipment, pneumatic tools, ventilation controls, dewatering pumps, and various automated systems. Despite its importance, compressed air is often one of the most expensive and inefficient energy sources on a mine site. Studies across heavy-industry operations routinely show that 20–50% of compressed air is wasted through leaks, poor regulation, and misuse. Effective compressed air flow monitoring has therefore become an essential strategy for improving safety, productivity, and energy efficiency in mining environments.

At its core, compressed air flow monitoring involves measuring the volume, pressure, and velocity of air as it moves through a mine's distribution network. Flow meters, such as thermal mass, differential pressure, vortex, or ultrasonic devices—are installed at strategic points to provide real-time data. These instruments help maintenance teams detect leaks, track equipment consumption, and evaluate whether compressors are operating within optimal parameters.

While the advantages are clear, successful implementation requires proper planning. Mines must select flow meters compatible with harsh conditions—dust, moisture, vibration, and temperature extremes. Accurate baseline measurements are essential, as is training staff to interpret data effectively. Integrating flow monitoring with leak detection programs and compressor optimization strategies yields the strongest results.

CS INSTRUMENTS has designed **2 types** of flow meters directly targeting the challenges in a mine, with harsh environments and often untreated, wet air.

The robust **VA 550 thermal mass flow meter** and the robust **VD 550 differential pressure flow meter**.

Figure 1 VA 550

Figure 2 VD 550

One of the most significant benefits of flow monitoring is energy cost reduction. Compressed air generation is notoriously energy-intensive; inefficiencies in a single compressor can cost millions of Rands annually. By continuously analysing flow data, mines can identify abnormal usage patterns that indicate leaks or faulty valves. Early detection prevents compressors from working harder than necessary, extending equipment life and reducing electricity demand. Optimizing air usage through monitoring can lead to energy savings of 15–30%, a substantial figure in high-consumption mining operations.

Flow monitoring also enhances operational reliability. In underground environments, consistent airflow is essential for controlling dust, powering refuge chambers, and ensuring that safety-critical pneumatic systems operate without interruption. Flow sensors provide alerts when pressure drops or air supply is restricted, allowing technicians to respond before production halts or safety hazards emerge. For mines relying heavily on automation—such as remote drilling rigs or ore-handling systems—stable compressed air performance is directly tied to equipment uptime.

Another advantage is improved reporting and regulatory compliance. Increasingly, mines are expected to demonstrate efficient energy use and reduced carbon emissions. Compressed air monitoring systems typically include software platforms that visualize consumption trends and generate performance reports. These insights help management set reduction targets, justify capital upgrades such as variable-speed compressors, and support sustainability initiatives.

Modern technologies are strengthening the value of flow monitoring. Modbus-enabled sensors, for example, allow compressed air data to be integrated with mine-wide control systems for

predictive maintenance. Machine-learning algorithms can analyse patterns to forecast component failures or recommend load balancing across compressors. Wireless monitoring has also become more feasible in rugged underground environments, reducing installation complexity and improving network coverage.

In an industry where small inefficiencies can translate into major costs, compressed air flow monitoring has become a cornerstone of responsible, efficient mining operations. By combining advanced sensing, data analytics, and proactive maintenance, mines can enhance safety, cut energy waste, and support long-term sustainability, with CS INSTRUMENTS flow meters!

Innomotics: Harnessing Technology and Expertise

for Safer, Smarter ***Mining in Africa***

Mining in Africa is at a crossroads. The industry faces mounting pressure to deliver higher productivity while meeting stringent sustainability and safety standards. Achieving these goals requires more than incremental improvements—it demands a fundamental shift in how technology and expertise are applied. Innomotics is leading this transformation by combining advanced electrical, automation, and digital technologies with deep industry knowledge to create mining operations that are efficient, safe, and future-ready.

The Role of Modern Electrical and Automation Technologies

Electrical and automation systems form the backbone of modern mining. High-efficiency motors and drives, integrated with electrical, control, and instrumentation (EC&I) solutions, enable operators to optimise processes across the entire value chain—from extraction to processing and transport. These technologies not only reduce energy consumption but also improve reliability and uptime, which are critical in remote and harsh environments.

This concept is exemplified by Innomotics solutions in the grinding market, where a combination of high-efficiency drives and motors, application-specific mill control automation and the Inspire IQ cloud-based digital monitoring system result in maximum production over the life of the mill system.

Digitalisation as a Catalyst for Change

Digital applications are increasingly bridging the gap between people and technology, empowering operations and maintenance teams to achieve more with less. Tools such as IoT and AI, when applied in a targeted and structured manner, allow operators to collect and analyse operational data, transforming raw information into actionable insights. This enables predictive maintenance, real-time monitoring, and anomaly detection—capabilities that significantly reduce downtime and enhance productivity.

A practical example is the use of Innomotics DigiMine Digital Twin technology, which allows operators to simulate and optimise material flows before investing in physical infrastructure. At global mining sites, this approach has helped identify bottlenecks early, reduce energy use, and improve overall efficiency. These innovations illustrate how digital intelligence complements traditional engineering to deliver smarter, safer mining.

Safety Through Innovation: The Integrate Shield System

Safety remains non-negotiable in mining, and technology provides many levers to improve this key metric. Autonomous mining systems remove humans from hazardous work areas, collision avoidance technologies facilitate safe interactions between people and vehicles, and intelligent control system design puts the right information in the hands of decision-makers at the right time to avoid incidents.

Technology can also guide organizational and individual behaviour towards safer practices. Innomotics' Integrate Shield (IS) system digitalises the entire safe work approval process, from planning and permitting to Lockout/Tagout including intelligent locking devices. By embedding safety into the operational fabric, supported by strict cybersecurity and digital verification controls, IS enables efficient maintenance operations without compromising worker well-being.

Expertise and Skills: The Human Factor

Technology alone cannot deliver transformation. It must be paired with industry expertise and skilled professionals who understand the complexities of mining operations. Organisations need to adopt a people-centric approach to technological innovation to capitalize on, rather than replace, the institutional knowledge of employees and suppliers. Innomotics combines global engineering excellence with strong local presence across Sub-Saharan Africa, ensuring that solutions are tailored to regional needs and supported by proactive services—from maintenance and modernisation to digital optimisation.

"The real value comes from integrating digital insights with proven motor and drive technologies. By doing this, operators can make smarter, data-driven decisions every day—driving efficiency, productivity, and operational excellence." **— Tim Walwyn, Head of Systems and Solutions and High Voltage Motors for the region.**

Looking Ahead

The convergence of electrical, automation, and digital technologies with human expertise marks a new era for mining in Africa. By embracing this integrated approach, mining companies can achieve the triple imperative of productivity, safety, and sustainability.

Innomotics is proud to be at the forefront of this transformation, helping shape a future where mining is not only profitable but also responsible and resilient.

TOMRA Mining launches CONTAIN™

Deep learning classification for ***inclusion-type ore sorting***

CONTAIN™ represents the next breakthrough in AI-powered ore sorting from TOMRA Mining – a deep learning solution purpose-built to classify complex inclusion-type ores with unprecedented accuracy. By analyzing X-Ray imagery in real time, it identifies visual patterns that traditional sorting systems miss, giving operators precise control to optimize sorting to their specific needs.

TOMRA Mining has unveiled CONTAIN™, a proprietary deep learning technology designed to enhance the recovery of inclusion-type ores that are difficult to detect using traditional sorting methods. Engineered for seamless integration with TOMRA Mining's ecosystem, CONTAIN™ represents the latest evolution in the company's AI-driven sorting platform.

Developed entirely in-house by TOMRA's software engineers and mining experts, CONTAIN™ uses convolutional neural networks to perform real-time analysis of X-ray imagery, visually classifying rocks based on the probability of subsurface ore mineral inclusions. These include complex mineralizations such as in tungsten, nickel and tin ores – materials that traditionally result in high misclassification or excessive product loss.

"Our system was trained on tens of thousands of ore samples and designed from the ground up for sorting inclusion-type ores," says Stefan Jürgensen, Software Team Lead at TOMRA Mining. "With CONTAIN, operators can dynamically adjust the grade-recovery threshold via a touchscreen interface, enabling precise control over yield and product specifications."

Built on years of AI sorting innovation

TOMRA has been a pioneer in applying artificial intelligence to the field of sensor-based sorting for decades. The company first implemented AI-driving image processing in 1993 and later expanded its capabilities with machine learning in X-Ray Transmission (XRT) and Near-Infrared (NIR) sorting. In 2018, TOMRA established a dedicated deep learning team, accelerating the development of industrial-grade AI sorting platforms.

This early and substantial investment culminated in the launch of OBTAIN™, which introduced single-particle precision to high-throughput ore sorting. Now, CONTAIN™ builds upon this foundation with targeted classification of inclusion-type ores – pushing the boundaries of automated sorting decision-making.

Transforming pattern recognition into operational value

Unlike traditional optical sorting systems, which often have limitations in detecting low-grade or inclusion-type ores, CONTAIN™ introduces a fundamentally different approach to classification. By analyzing the structure of each rock using advanced deep learning algorithms, the system identifies subtle mineralogical patterns that indicate the presence of valuable metals such as tungsten, nickel or tin. Each rock is assigned a probability score based on its likelihood of containing mineralization below the surface, enabling precise, data-driven sorting decisions. This capability allows mining operations to adapt their strategies in real time – whether the goal is to maximize concentrate grade, minimize valuable material loss, or align with processing cost constraints.

CONTAIN™ is built for industrial-scale performance. Because it does not rely on specific throughput or spacing on the belt, the system maintains pinpoint accuracy even in dense, fast-paced input streams. This makes CONTAIN™ especially effective in high-volume processing plants where consistency, speed and recovery rates are critical to profitability.

Sorting performance across ore grades

CONTAIN™ has been engineered to handle a wide spectrum of ore grades – from high-value deposits to low-grade, inclusion-rich rocks that have historically been difficult to process efficiently. Conventional sorting systems can be configured to detect some low-grade material, but they tend to let large volumes of gangue enter the product stream, diluting output and eroding profitability. By contrast, CONTAIN™ uses deep learning to classify mineralizations with exceptional accuracy, enabling precise sorting thresholds that make the recovery of low-grade ores economically viable.

"Existing technologies can be configured to detect low-grade material in such ores, but this results in a high quantity of waste rocks being sorted into the product stream, diluting the product beyond economic viability. CONTAIN is exceptionally accurate in evaluating the value of a rock, making sorting thresholds for such relatively low-grade ores economically viable," explains Stefan Jürgensen, Software Team Lead at TOMRA Mining.

To date, the system has been trained on tens of thousands of ore samples and is particularly effective in classifying ores containing tungsten, nickel and tin – all of which feature distinct inclusion patterns visible on X-ray scans. In addition, TOMRA is actively testing CONTAIN™ on gold, chromite, and is exploring expanded applications in iron and copper. While still in the early stages, initial results indicate promising possibilities for expanding applications across a broader range of ore types.

Proven success at Wolfram Bergbau

Field trials at Wolfram Bergbau in Mittersill, Austria, confirmed the transformative potential of CONTAIN™. Integrated alongside TOMRA's latest COM XRT and OBTAIN™ technologies, the system delivered immediate performance gains. The operation rapidly increased total plant throughput by eight percent, achieved a 33% reduction in ore mineral losses, and recorded its lowest-ever tails grade. The visual impact of the improvements was so striking within the first minutes of operation that the team immediately requested a second installation.

What truly set CONTAIN™ apart was its ability to identify tungsten-bearing inclusions that would otherwise go undetected — particularly those embedded deep within host rock. Traditional sorting systems often fail to distinguish such subtle mineralization, resulting in either excessive gangue or compromised concentrate quality. With CONTAIN™, operators were able to fine-tune the balance between grade and recovery in real time, producing consistent, high-spec output with a higher tails rejection volume and reduced ore mineral losses. The downstream effect was a more stable, efficient operation and a notable drop in overall production costs.

"We were absolutely overwhelmed by what CONTAIN™ could do. It picked up mineral inclusions we didn't think were detectable, and did it with incredible precision even at larger grain sizes up to 65mm. It immediately changed the way we think about sorting and processing. This isn't just an upgrade – it's a completely new level of performance," says David Comtesse, Production Manager, Wolfram Bergbau- und Hütten AG.

Seamless integration with TOMRA technology

CONTAIN™ was designed to complement and enhance TOMRA's sensor-based sorting ecosystem, working in concert with COM XRT and OBTAIN™ to deliver a comprehensive, multi-layered approach to ore processing. While each technology plays a distinct role – from density-based separation to particle detection and deep learning classification – they share a unified interface and operational synergy.

This integration gives mining operations the ability to fine-tune performance across the entire sorting line, with data-driven control and real-time responsiveness. Whether the focus is on maximizing recovery from complex ores or achieving tighter product specifications, the combination of TOMRA's technologies provides unmatched flexibility and precision in inclusion-type ore sorting. It also simplifies system scalability, allowing plants to evolve their capabilities without overhauling existing infrastructure, protecting both performance and long-term investment.

TOMRA Mining

TOMRA Mining designs and manufactures sorting technologies for the global mineral processing and mining industries. The company's solutions aim to transform how natural resources are processed to maximize recovery and minimize our ecological footprint.

As the global market leader in sensor-based ore sorting, TOMRA Mining is responsible for developing and engineering intelligent technology to deliver resource efficiency and reshape the industry for the better.

Follow TOMRA Mining on Facebook @TOMRA.Sorting.Mining, X @TOMRAMining, LinkedIn at TOMRA Mining and on YouTube at TOMRA Mining.

TOMRA Mining is a part of TOMRA Group. TOMRA was founded on an innovation in 1972 that began with the design, manufacturing and sale of reverse vending machines (RVMs) for automated collection of used beverage containers.

Today, TOMRA is leading the resource revolution to transform how the planet's resources are obtained, used and reused to enable a world without waste. The company's business divisions are TOMRA Food, TOMRA Recycling and TOMRA Collection.

With approximately 105,000 installations in over 100 markets worldwide, TOMRA reported total revenues of EUR 1,348 million and EBITA of EUR 176 million in 2024. The Group employs 5,000 globally and is publicly listed on the Oslo Stock Exchange. The company headquarters are in Asker, Norway.

For further information about TOMRA, visit www.tomra.com

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Real-Time Visibility, Real-World Safety

Transforming Underground Mining with ***Schauenburg's RTWL System***

As mining operations reach deeper and become more automated, worker safety remains the defining priority. These demanding environments call for instant response, situational awareness, and proactive hazard control. For over 50 years, Schauenburg Systems has been a trusted technology partner to Africa's mining industry — leading innovation that saves lives.

Their latest advancement, the Real-Time Workforce Locator (RTWL), represents a major step forward in how mines protect, monitor, and manage personnel underground.

Designed for Critical Environments

The RTWL is a near real-time safety and location management platform that monitors the movement of people and assets underground. Each RTWL tag transmits digital "blinks" every few seconds, updating the control room interface within 30 seconds.

With up to 1 meter accuracy, the system provides pinpoint location data. This is critical where visibility, radio clarity or access may be limited. Each RTWL tag is ruggedised, offering long battery life and IP-rated protection against dust and moisture.

Anchors installed throughout the mine create blanket coverage with ranges of up to 150 m Line-of-Sight (LoS), ensuring seamless scalability as operations expand, providing critical response when seconds matter.

"Every movement underground tells a story. RTWL helps us see those stories in real time so we can act faster, protect better, and bring everyone home safely."
— Gawie Croeser, Head of Intelligent Vehicle Solutions, Schauenburg Systems

Critical Response, When Seconds Matter

In an emergency, every second counts.

If a worker activates a distress alert through their Cap Lamp or stand-alone RTWL tag, RTWL instantly displays their precise location in the control room. Rescue teams can respond with confidence, eliminating the delays of manual searches or radio triangulation.

This capability has proven vital during:

- Fall-of-ground events
- Gas or fire incidents
- Seismic activity
- Medical emergencies underground

Turning Data Into Safety Intelligence

Beyond live tracking, RTWL transforms operational data into actionable insights.

Traffic heat maps identify areas where people and machinery frequently converge, reducing man–machine interaction risks. Historical trail analytics clarify movement patterns and delays, supporting process optimisation and investigations.

Geo-fenced zones automatically monitor hazardous or restricted areas, triggering alerts upon breach. Visitor detection and shaft clearance tools reinforce accountability on every shift.

"RTWL is not just about knowing where your workforce is; it's about understanding how the mine moves as a living system. When you can see interaction, flow, congestion and behaviour, you can prevent incidents before they happen."
— Gawie Croeser, Head of Intelligent Vehicle Solutions, Schauenburg Systems.

Together, these features position RTWL as a strategic decision-support platform, enabling mines to enhance both safety leadership and operational efficiency.

A Future-Ready Digital Layer for Mining

Delivered as a Software-as-a-Service (SaaS) platform, RTWL ensures clients continuously benefit from updates, feature enhancements, and analytical add-ons without major infrastructure changes. Its scalable model supports digitalisation, ESG commitments, and future automation initiatives, aligning with the next generation of data-driven, intelligent mining.

Advancing the Industry, Protecting Its People

At the core of Schauenburg's mission lies a simple belief: Every miner deserves to return home safely.

"Our role is to enable safer, smarter and more sustainable mining environments, not only through technology, but through responsibility. RTWL strengthens our commitment to human-centred innovation and elevates safety from compliance requirement to a cultural standard."
— Martin Marais, Managing Director, Schauenburg Systems.

The Real-Time Workforce Locator transforms that commitment into reality every minute of every shift.

By combining technology, insight, and care, Schauenburg Systems continues to empower mines to protect their people, optimise performance, and shape a safer, more connected future for mining.

Innovation that Saves

REAL-TIME MISSING WORKFORCE LOCATOR

KNOW WHERE THEY ARE, WHEN IT MATTERS

Key Features

- *Ensuring Emergency Preparedness with live monitoring*
- *Integral part of Schauenburg's Collision Prevention System*
- *High Accuracy – Real Time*

Department of Mineral Resources and Energy gazetted March 28 2025 under 16.7. of MHSA stresses the necessity of a Missing Person Locator System.

Schauenburg Systems can provide the technological solution.

SCHAUENBURG Systems

A company of the SCHAUENBURG International Group

www.schauenburg.co.za

03

Mining with Purpose

Sustainability in Motion

TerraCharge

*Driving the **Electric Future** of **Underground Mobility***

The mining sector is undergoing a profound transformation. Zero-emission targets, rising fuel costs, and increasingly strict safety regulations are changing the way mines operate. At **Jakob Mining Vehicles (JMV)**, we believe that electric mobility is not only a cleaner solution – it's a smarter one.

Introducing **TerraCharge** – a fully electric, underground-ready **battery electric vehicle (BEV), developed** specifically for the mining industry. Comparable in size to a **Toyota Hilux or Ford Ranger**, TerraCharge is compact enough for underground operations, yet powerful and rugged for surface work.

Unlike road vehicles retrofitted for mining, TerraCharge was developed from the ground up to meet the harsh demands of daily mining use – safely, efficiently, and emission-free.

Proudly **manufactured in Sweden**, TerraCharge follows in the footsteps of trusted Swedish brands like **Epiroc** and **Sandvik** – names that mines around the world already rely on.

Its **battery system uses proven lithium-ion technology**, engineered together with **established suppliers to the mining industry**, ensuring reliable range, fast charging via CCS, and robust performance in extreme environments.

Cleaner. Smarter. Safer.

With zero fuel costs, no tailpipe emissions, and reduced maintenance needs, TerraCharge offers a compelling total cost of ownership (TCO) advantage. In underground settings, it also eliminates the need for expensive ventilation typically required by diesel vehicles.

The vehicle's open system architecture allows full access to all operational data and diagnostics, enabling predictive maintenance and seamless integration with third-party collision avoidance and proximity detection systems – essential for meeting African mining safety standards.

Fully ROPS and FOPS certified, TerraCharge is built to deliver safe, compliant performance in even the toughest underground conditions.

Built for Mining – Not for Roads

Every year, mining companies purchase over 25,000 light utility vehicles, many of which are not built for mine use. These vehicles break down frequently, cannot integrate with safety systems, and increase operational risk.

At JMV, this market isn't a side business – it's our core. With over 15 years' experience supplying vehicles to mine sites, we've built TerraCharge to answer real-world mining challenges:

- Rugged drivetrain made for mining, not city streets
- Fast CCS charging for shift flexibility
- Straightforward maintenance, long service life
- Built where sustainability matters most – in the mine

Leading the Just Transition

As mines across Africa accelerate their just transition, solutions like TerraCharge will play a vital role. Not just reducing emissions, but improving working conditions, enhancing safety, and delivering long-term cost efficiency.

"At JMV, we're proud to be part of this change – from day one."

JAKOB MINING
VEHICLES
ELECTRIC MOBILITY FOR MINING

MINING-JAKOB.DE

DAIMLER TRUCK
Southern Africa

Daimler Truck Southern Africa hosting its biggest event of 2025

DTSA hosted its flagship event, The Daimler Truck Experience, from 8–12 September 2025 at the Gerotek Testing Facility in Pretoria, themed “For All Who Keep Africa Moving.”

The event gave customers and industry stakeholders an immersive look into the future of transport, showcasing cutting-edge technology, product innovation, and tailored value chain solutions.

Highlights included electric truck demos with the eActros and eCanter, ride-and-handling sessions with Mercedes-Benz and FUSO models, and live safety feature demonstrations on the **Mercedes-Benz Actros 2652LS/33 RE.**

A major reveal was the launch of **Allison Automatic Transmission** on the FUSO FJ range, enhancing performance and meeting evolving industry needs.

DTSA also showcased its integrated support ecosystem: Daimler Truck Financial Services, Daimler Truck Rental, real-time fleet insights via the Telematics Dashboard, and 24/7 roadside assistance. Digital tools like the Daimler Truck Parts Portal and TruckStore Warranty further elevate customer convenience and long-term value.

“Our customers are at the heart of everything we do,”

says Olaf Petersen, Vice President of Sales and Marketing at Daimler Truck Southern Africa. **“The Daimler Truck Experience is more than just an event – it’s a powerful platform that allowed us to connect directly with our customers and other industry stakeholders, giving them a first-hand look at how our latest innovations and product advancements can drive real value for their businesses.”**

Visit us dtsa.daimlertruck.com

*Image is for illustration purposes only

ACTROS 4058S/39.

Carrying the mining industry Piece by massive piece.

The Actros 4058S/39:
Engineered for the extraordinary.

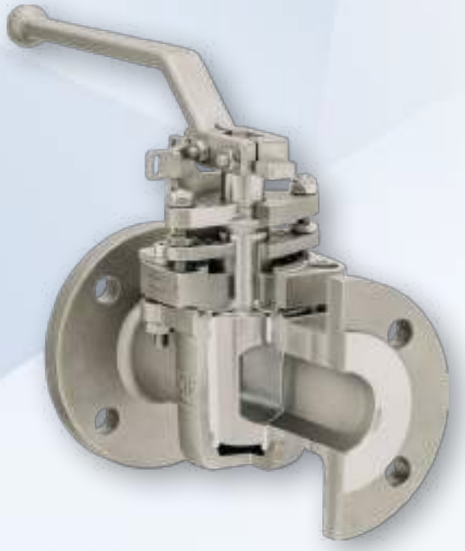
With a gross combination capacity of 180 tonnes this powerhouse handles oversized and abnormal loads with absolute confidence. Delivering unmatched pulling power across long-haul routes, the Actros redefines heavy-duty performance.

Actros 4058S/39 – Power. Precision. Perfection.

Mercedes-Benz
Trucks you can trust.

Hydrogen-Ready Valves

*for the **Energy Transition***



*By: **Jerome Tyambetyu** (Area Sales Consultant, Western Cape)*

Hydrogen is shaping the future of clean energy, and safe handling of this small, high-diffusion molecule requires components designed for absolute sealing integrity.

At AZ Armaturen, we have adapted our proven cavity-free plug valve technology for hydrogen service - ensuring reliable isolation, low fugitive emissions and long lifecycle performance in hydrogen production, storage and distribution systems.

Why Our Plug Valve Works for Hydrogen

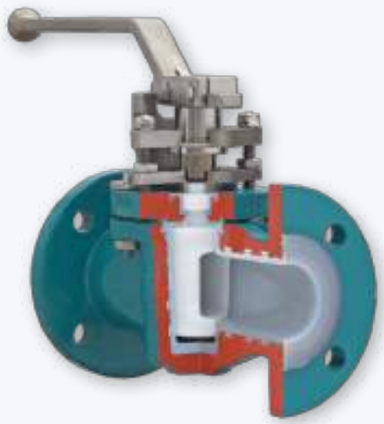
Hydrogen systems demand:

- Zero dead-space to avoid trapped gas pockets
- High integrity seals to limit permeation and emissions
- Robust actuation for frequent cycling

Our cavity-free design, soft-seated sealing system, and low-emission FSN-EF packing arrangement directly address these challenges. The result is tight bi-directional sealing from low to high pressures, with operating reliability proven across the chemical, energy and gas-handling sectors.

Recent Successes

- ISO 15848-1 Low Fugitive Emission Certification
- Our FSN-EF emission-reduction sealing achieved the highest leakage-class rating PN40/Class 300– now increasingly specified in hydrogen EPC projects.
- Global Project Adoption
- AZ Armaturen valves are being specified into hydrogen pilot plants and electrolyser platforms in Europe and Southern Africa.
- Strong Local Support: With manufacturing and service locations worldwide, we ensure availability of spares, local technical support, short delivery routes and exceptional after sales service including a repairs service.



AZ ARMATUREN
free of cavities & maintenance

Ready for the Green Economy

As hydrogen infrastructure scales, component reliability and emissions control will be essential to safety and sustainability. AZ Armaturen continues to collaborate with project developers, research partners and system integrators to further refine materials, coatings and documentation packages tailored to the Hydrogen Sector.

04

Partners in Progress

Collaboration that Drives Change

Working Group **Mining**

Supporting Transformation and Collaboration in the SADC Mining Sector

Real progress in mining does not happen in isolation. It happens when industry, government, academia, and technology providers come together around shared challenges and opportunities. This is the foundation on which the Working Group Mining was established.

Facilitated by the **Competence Centre for Mining & Mineral Resources**, the Working Group Mining brings together stakeholders from across the Southern African mining ecosystem, including members of the Southern African – German Chamber of Commerce and Industry, mining industry organisations, universities, and government representatives. The platform serves as a trusted space where expertise meets opportunity - aligning decision-makers and practitioners to shape a more sustainable and resilient mining sector in the SADC region.

At its core, the Working Group Mining is about connection and clarity. By improving market transparency and encouraging open communication, the group enables collaboration that goes beyond dialogue and translates into practical outcomes. It also plays a key role in supporting the positioning of German mining technologies and expertise in Southern Africa, ensuring that innovation is matched with local priorities and regional realities.

To address the complexity of the mining value chain, the Working Group operates through four focused subcommittees, each tackling critical themes shaping the future of the industry:

- Fourth Industrial Revolution (4IR)
- Legal and Compliance
- Raw Materials and Mineral Processing
- Skills Development and Research & Development

These subcommittees meet regularly, tracking industry developments, sharing insights, and driving targeted initiatives that respond to both current challenges and long-term transformation goals.

Through this collaborative approach, the Working Group Mining continues to demonstrate how structured engagement and shared expertise can drive meaningful change, strengthening partnerships and contributing to the evolution of a modern, competitive, and sustainable mining industry across Southern Africa.

Newly appointed Heads of Subcommittees – From left to right, Thululela Pupuma (Working Group Secretariat), Methembeni Moyo (Legal and Compliance), Volker Knoth (Raw Materials), Leigh McMaster (Former Chairperson), Selleen Sewpershad (Working Group Secretariat), Ettiene Pretorius (Skills Development) and Nivasha Singh (4IR)

Newly appointed Chairperson and Deputy Chairperson – From left to right, Methembeni Moyo (Legal and Compliance), Selleen Sewpershad (Working Group Secretariat), Nivasha Singh (4IR), André Lourens (Chairperson), Lindy Mkhize (Deputy Chairperson), Volker Knoth (Raw Materials), and Thululela Pupuma (Working Group Secretariat)

WORKING GROUP MINING

AHK Deutsche Industrie- und Handelskammer für das südliche Afrika
Southern African-German Chamber of Commerce and Industry

Supported by: Federal Ministry for Economic Affairs and Energy on the basis of a decision by the German Bundestag

LET'S STAY IN TOUCH

The Working Group Mining will continue to prioritise transparent communication, market development, and active Southern African – German cooperation.

UCT's LEAD *Programme*

Leaders for a Sustainable Future in Africa's Extractives Sector

Africa's mineral resource potential offers enormous opportunities for sustainable development. The LEAD Programme empowers Africa's next generation of leaders in the extractives sector to turn this vision into reality.

Extractives as Key for Sustainable Development

In December 2024, the African Union introduced the Green Minerals Strategy, which aims to strategically use the mineral wealth of the African continent for sustainable development. This requires not only better integration of the raw materials sector into national development strategies, but also stronger governance and leadership in this sector.

This is where the Leaders in Extractives and African Development (LEAD) programme at the University of Cape Town (UCT) comes in. The two-week training programme aims to equip early career professionals and emerging leaders under 40 years old with the skills required to assume leadership roles in the long term. Participants represent industry, government and civil society from the African extractives sector, and their participation enables them to initiate and actively shape sustainable development processes in their home countries and across the African continent.

Building knowledge and networks that shape the future

In recent years, the LEAD programme has become very popular across Africa, which is demonstrated by the increasing number of applications. This year, almost 400 applications were submitted, from which 20 candidates were selected for the 2026 cohort.

The programme takes place over two intensive weeks: the first week consists of practical training and educational sessions at the UCT's Department of Chemical Engineering. Through lectures, interactive workshops, and discussions with experts from academia, business, government, and civil society, the programme prepares participants to tackle the key challenges of resource governance.

© UCT, Participants oft previous LEAD programme

In the second week, participants attend the Mining Indaba in Cape Town, the largest raw materials conference on the African continent. Participants gain important insights into global trends and strategic discussions, engage in conversations with company representatives, government officials and organisations, and establish valuable networks with decision-makers on an international level. The combination of theoretical knowledge, practical exchange, and high-level networking makes the LEAD programme a valuable opportunity for young professionals in the mining sector.

© UCT, Participants attending educational session

More about Sector Programme 'Extractives and Development':
www.rue.bmz.de

Contact: Rosalie Seppelt, rohstoffe@giz.de

More about the LEAD programme:
www.ebe.uct.ac.za/minerals-to-metals/education/lead-programme

Commitment to sustainable impact

As in previous years, the GIZ Sector Programme 'Extractives and Development' and the BGR Sector Programme 'Extractives and Development', both funded by the Federal Ministry for Economic Cooperation and Development (BMZ), will support four participants in the LEAD programme in 2026. Through this funding, the Sector Programmes aim to empower young leaders to take responsibility for shaping a sustainable extractives sector in Africa.

Fifty percent of the 2026 cohort represents the private sector. The remaining cohort members represent NGOs (25 per cent) and the public sector (25 per cent). The cohort is made up of 50 per cent women and represents 17 African countries. At Mining Indaba, taking place from 9 to 12 February 2026 in Cape Town, conference attendees will have the opportunity to meet the 2026 cohort and connect with the next generation of mining leaders.

Businesses

*through the **Partners in Transformation network***

We enable German and local companies to collaborate successfully and sustainably.

We sat down with Bernhard Rohkemper, Head of SAGCC's Competence Centre Sourcing, to learn how they forge B2B connections between Germany and South Africa.

Bernhard, you lead the Competence Centre Sourcing and serve as the regional contact for the German Partners in Transformation network. In simple terms, what's your core mission?

We bring German and Southern African companies together to build strong, future-ready supply chains. On one side, German and European firms are actively looking for reliable local partners. On the other, South African businesses want better market access to Europe. When both sides commit to long-term collaboration, everyone wins.

Why is this collaboration becoming increasingly important?

Companies are under pressure to reduce risk, strengthen resilience, and ensure that their supply chains meet sustainability and compliance standards. Local partnerships help them achieve exactly that - while supporting economic growth in the region.

Where do the Partners in Transformation come into play here?

Through Partners in Transformation, which bundles a host of support structures offered by the German government, companies can tap into funding, technical expertise, and partnership programmes that advance socio-ecological transformation. This includes support on ESG, responsible sourcing, and human-rights due diligence in raw-material supply chains.

What kind of support can South African companies access through this network?

There are several high-impact options such as:

- **developPPP** supports projects on sustainability, certification, and workforce development, jointly funded by companies and the German government.
- **developPPP Ventures** offers non-dilutive capital for high-growth local start-ups.
- The **Lab of Tomorrow** is a design-thinking platform where South African and German companies co-create new business models, from circular mining solutions to innovative recycling and logistics concepts.

So companies receive both market access and technical support?

Exactly. Through the Competence Centre Sourcing, firms can connect with industry partners in Germany and locally while also accessing knowledge, coaching, and international expertise that strengthens their global competitiveness.

Do you collaborate with other teams within AHK Southern Africa?

Very closely. We work hand-in-hand with the Competence Centres for Mining, Industry, and Skills Development. This integrated approach means companies get a full suite of services from market insights to technical training.

And for German companies, are there funding incentives available?

Yes. Many of our services can be co-financed through BAFA consulting vouchers, which cover up to 85% of the costs. This makes it easier for companies to explore opportunities, engage local partners, and invest in sustainable value-chain development.

Contact

Bernhard Rohkemper leads the Competence Centre Sourcing at the Southern African–German Chamber of Commerce and Industry and serves as the regional contact for the Partners in Transformation network in Johannesburg.

brohkemper@germanchamber.co.za

About the Competence Centre Sourcing

The Competence Centre Sourcing helps German and European companies identify reliable suppliers across Southern Africa and build long-term B2B partnerships. The team provides market intelligence, sector insights, and targeted matchmaking to connect regional producers with customers in Germany and Europe, strengthening competitiveness and supporting sustainable industrial development.

About Partners in Transformation

Partners in Transformation is an initiative of the German Federal Ministry for Economic Cooperation and Development. The network brings together seven development cooperation programmes that support German and local companies in driving sustainable business growth in emerging markets. It provides guidance, funding opportunities, and technical expertise for projects that strengthen resilient and responsible value chains.

Mining Finance

*and the Role of **KfW IPEX-Bank** as a Strategic Partner for **Raw Materials Projects***

Introduction

As mining becomes even more important in today's evolving landscape of energy transition and electric vehicle manufacturing, project developers not only require geological expertise and operational efficiency, but also specialised financial structuring, long term funding commitment and a high standard of environmental, social and governance (ESG) performance.

In this regard, KfW IPEX-Bank – a subsidiary of the German state-owned promotional bank KfW, and a leading project finance provider with extensive experience in arranging and structuring various medium-sized and large-scale transactions globally – has emerged as a strong partner of choice in mining and processing projects for a variety of minerals, e.g. copper, iron ore and critical raw materials (CRMs) such as nickel, cobalt, lithium, graphite and rare earths for battery EV and renewable energy growth.

This article therefore outlines KfW IPEX-Bank's financing approach, its mining sector engagement, and explores important considerations and conditions for mining and metal producers, while also reflecting on the broader implications for the security of both raw material supplies and the future viability of the industry.

About KfW IPEX-Bank

KfW IPEX-Bank is a wholly owned subsidiary of KfW Group (KfW) with an international AA+/Aa2 rating. The bank has been in the market for over 75 years providing project, corporate and trade/export finance to international clients across the globe. KfW IPEX-Bank has a loan portfolio of approximately EUR 85.4bn and new commitments in 2024 of EUR 23.9bn (both as of 31 December 2024).

Mission & mandate

The bank's mission includes:

- Supporting the internationalisation and competitiveness of German and European exporters
- Focusing on export industry, infrastructure, environmental/climate protection and securing the supply of raw materials

Global reach & local presence

Headquartered in Frankfurt, Germany, KfW IPEX-Bank maintains a global network with representative offices in major international cities including Johannesburg (covering Sub-Saharan Africa).

Sector expertise

When it comes to mining and processing of minerals such as copper, iron ore and CRMs such as nickel, cobalt, lithium, graphite and rare earths for battery EV/renewable energy growth, KfW IPEX-Bank offers the following:

- More than 50 years of outstanding track record in the mining industry
- Experienced team in metals and mining combined with inhouse technical expertise
- Financing solutions from mining to end-use applications (incl. recycling)
- Market leader in ECA/UFK transactions: more deals closed than any other financial institution
- Compliance with highest environmental and social standards (i.e. EP IV)

Selected mining / raw-materials transaction

The bank continues to support investments and related equipment exports for metal producers and traders with a strong focus on the transformation and decarbonisation of metals production. The selected transaction below illustrates how KfW IPEX-Bank engages in the mining and minerals sector.

Epanko Graphite Project (graphite, Tanzania)

The bank is mandated to arrange a senior debt facility (up to USD 105 million for a graphite project in Tanzania, backed in principle by Germany's UFK guarantee scheme).

Key points:

- Graphite is a battery-anode material — again tying to clean-energy/battery supply chains.
- The bank's involvement is conditional on satisfactory due-diligence and German off-take support (signifying that raw-materials-supply logic is embedded).
- The project will also support local beneficiation and value addition, which is important to KfW IPEX - Bank. The project is also required to demonstrate high ESG standards, in line with the Equator Principles, reflecting the linkage between mining finance and ESG.

Implications for Mining Finance

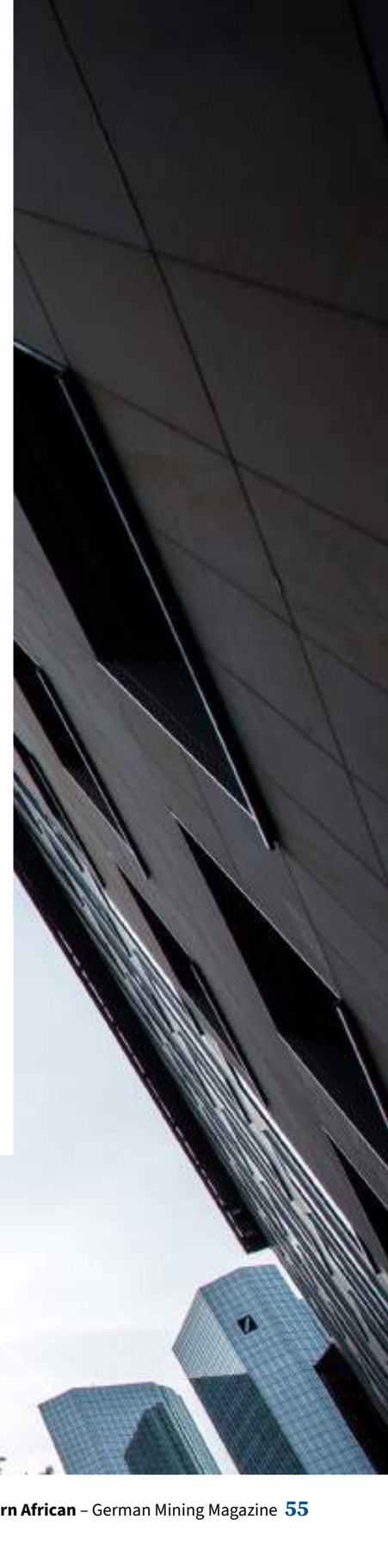
Given the bank's financing approach, developers and lending partners should bear the following in mind when engaging with KfW IPEX-Bank for financing support:

Financing criteria

- We actively engage with projects close to final DFS
- For junior mining projects (whether greenfield or brownfield), we require a high or entire credit cover from an ECA based on equipment/services deliveries or import schemes (see the next point)
- We will most likely require at least a portion of fixed priced contracts (~30-50%, details to be decided during the DD phase with the financial model).
- For a project finance transaction, we usually require a total senior debt ~100 million EUR as a starting value (and an equity ratio of 40-50%).

Strategic linkage to supply chains

KfW IPEX-Bank's mandate puts emphasis on securing raw materials for the German/European industry (Europe in this case refers to the geographical area and includes the UK and Turkey) and support for exports from Europe i.e. equipment sourced out of Europe.



Environmental, Social & Governance (ESG) requirements

ESG topics have become critical to mining finance, and all financing as a matter of fact.

This means that:

- Projects must satisfy rigorous environmental and social performance standards
- For developers: early preparation of ESG management, robust stakeholder and community engagement planning is essential.

Focus: Africa – Opportunities & Challenges

It is the bank's view that there has never been a better time for resource development and partnerships in Africa. Given the continent's huge mining resource endowments, especially in the CRM space, Africa has a great opportunity to create wealth for its people by creating strong partnerships that will ensure that mining contributes to local beneficiation and economic development.

Opportunities

- Raw-materials supply chains for Europe increasingly look to Africa. The bank sees Sub-Saharan Africa as an important market.
- Projects with offtake linkages to the European industry (or German exporters) will attract the bank's support.
- CRMs are an increasing focus for Germany and Europe, with several project development support initiatives such as Germany's Raw Materials Fund (Rohstofffonds) and the EU Critical Minerals Act aimed at advancing CRM projects and offtake into Europe.

Challenges / Developer Considerations

- Execution risk remains high in many African jurisdictions (logistics, infrastructure, regulatory changes, community issues).
- Currency and commodity-price volatility can impact debt service capacity.
- ESG standards remain challenging.
- Slow offtake agreements with linkages to European supply chains.
- Small project size.

Conclusion

As the demand for minerals tied to battery metals, e-mobility, renewable energy infrastructure and critical raw materials intensifies, partners like KfW IPEX-Bank remain critical to successful mining projects globally, and, more importantly, in Sub-Saharan Africa.

Ayodeji Olaifa is a Senior Business Development Officer and Vice President at KfW IPEX-Bank.

Source: Photon-Photos, iStock

05

People Behind the Progress

Skills, Stories & Social Impact

Beyond the Tick-Box

Rewiring ESD for Real Impact in Mining

South Africa has poured more than R150 billion into Enterprise & Supplier Development (ESD) over the past five years. Yet too much of that spend still rewards activity over impact: cash grants rushed out at year-end, "soft" loans that quietly convert to grants, bite-sized workshops that don't change how a business sells, delivers, or manages cash, and procurement wins counted at the first PO rather than in repeatable revenue and supplier retention.

Aurik's position is simple: don't call it empowerment if it doesn't empower. In mining, where community expectations, compliance pressures and operational risk intersect, ESD has to do the hard things well: Build capability inside SMEs and connect them to sustained market demand. Since 2013, Aurik has partnered with 139 corporates across 10 sectors and all nine provinces, channelling R700 million+ in development support to 1,400+ SMEs.

Our programmes focus on the commercial muscle that keeps firms in the game: systems that run, sales that convert, reliable delivery, margin-protecting pricing, and a diversified client base.

What's broken; and fixable

- Grants: Late budgeting drives quick cash dumps with little traceability. Tie every Rand to a business asset or skill (equipment, training, digitisation), pay verified suppliers directly, and verify deployment, not just disbursement.
- Loans & equity: Interest-free, unsecured "forever-alive" loans erode repayment discipline and data on fundability. Professionalise origination and collections (NCR standards), list defaulters before write-offs, and bring back equity via FSCA-registered intermediary vehicles that hold stakes off corporate balance sheets—ideal for SMEs with volatile cashflows.
- BDS quality: Talk-shops don't build firms. Shift to multi-month, action-learning that embeds sales engines, OTIF delivery, and financial controls—then track turnover growth, profitability, client mix, productivity, cash-flow security and fundability.
- Procurement reality: Vendor listings aren't market access. Measure contract value, repeat spend, and supplier retention with ESD beneficiaries. In mining specifically, align ESD to procurement where buying decisions, data and accountability live; manage intimidation risks proactively or access dies at the gate.

Why this matters in mining

Mining operations depend on resilient local supplier ecosystems to protect uptime and social licence. The Mining Charter and SLPs already create a planning backbone; what's missing is measuring what matters and funding what lasts. When ESD spend builds digital capability, production reliability and financial discipline, then tracks the R-value of contracts and retention over time, mines get safer, supply chains get more reliable and communities get real, compounding economic participation.

Aurik's edge is the "how." We design, deliver and track ESD that funds assets, not activity; builds credit histories, not bad habits; and widens supply chains on merit. That's empowerment that actually empowers—and it's exactly what mining needs now.

Proof of progress

Across our mining clients specifically, Aurik's impact data* shows the fundamentals moving in the right direction:

SOCIAL IMPACTS:

- Contribution to Fiscus **R218million**
- Contribution to GDP **R1.195billion**

SME IMPACTS

- Increased Turnover **>704%**
- Increased Profits **>96%**
- Number of Current Customers **>125%**
- Increased Operational Volumes **>142%**
- Improved Business Processes **>8%**

**Drawn from 695 SMEs on 128 programmes, supported by 27 mining industry sponsors*

AURIK Enterprise Development

Website: www.aurikesd.co.za
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Engineering Local Excellence

*Building **South African Skills** for a Sustainable Future*

Engineering Local Excellence: Building South African Skills for a Sustainable Future

By Edward Mei, Managing Director – Mei Projects and Management (Pty) Ltd

In the heart of Lephalale, where South Africa's mining and energy industries converge, a quiet transformation is taking shape. It's a story of growth, resilience, and purpose one that shows how local enterprises are engineering excellence not only in infrastructure but in people.

Founded in 2018, Mei Projects and Management (Pty) Ltd is a 100 percent black-owned multidisciplinary engineering company that has steadily built a reputation for reliability, innovation, and human-centred progress. With a team skilled in mechanical installations, maintenance, and fabrication, Mei Projects executes complex industrial projects — from chute replacements and diesel-depot upgrades to HDPE piping installations and renewable-energy infrastructure such as the 77.4 MWp solar plant in Lephalale.

Welding operations underway — symbolising the precision and skill that define Mei Projects' work ethos.

Engineering Capability with Purpose

At a time when the Limpopo Investment Conference has pledged over R170 billion toward manufacturing, infrastructure, and industrialisation, the province's growth depends on companies that can turn plans into progress. Through its Lephalale workshop and a growing mechanical workforce, Mei Projects is helping bridge the gap between provincial investment commitments and on-the-ground execution capacity.

"Our vision is to be part of the generation that builds South Africa's industrial base," says Managing Director Edward Mei. "We want to show that small businesses can maintain, manufacture, and install critical equipment right here in our own communities."

Inside the Lephalale Workshop — a hub for mechanical innovation and fabrication excellence.

Developing People Through Projects

For Mei Projects, sustainable engineering begins with empowered people. Participation in the Exxaro GIBS Contractor Development Programme has strengthened the company's leadership and governance systems, ensuring that transformation is woven into its operations.

Each project combines seasoned artisans and young technicians who gain hands-on experience during mechanical installations and shutdowns. These opportunities create more than technical outputs — they build skills, confidence, and hope within communities that have long stood at the periphery of industrial growth.

This approach turns the principles of Mining Charter III into daily reality: transformation in action, not policy on paper.

Community engagement and youth involvement through local empowerment programmes.

Collaboration for a Global Future

As a proud member of the Southern African–German Chamber of Commerce and Industry (AHK), Mei Projects is exploring partnerships with German OEMs and technology leaders in automation, renewable energy, and industrial systems. These collaborations aim to blend German precision with South African execution — a partnership that aligns perfectly with Limpopo's investment strategy and South Africa's vision for inclusive, sustainable industrial growth.

A Workshop That Builds More Than Components

Developed in partnership with GSI Automation, Mei Projects' Lephalale workshop is more than a fabrication facility it's a centre of innovation and training. Here, welders, fitters, and technicians manufacture, refurbish, and assemble mechanical components, providing quick turnaround for clients while nurturing essential skills.

Each locally produced component represents one less import, one more retained job, and another step toward Limpopo's re-industrialisation and localisation goals. It's proof that small enterprises can play a big role in South Africa's manufacturing revival.

Precision welding and flange assembly — showcasing the company's attention to quality and detail.

A Vision Grounded in People, Powered by Purpose

From its base in Lephalale to project sites across the country, Mei Projects and Management continues to prove that transformation is not an event — it is a daily practice. Through skill, service, and collaboration, the company is helping shape a mining and energy future built on local capability and global standards.

Quality, Integrity, and Safety

Behind every successful project lies structure and discipline. Mei Projects operates under a Quality Management System aligned with ISO 9001:2015 and ISO 3834, ensuring every weld, joint, and inspection meets international standards.

Its in-house Non-Destructive Testing (NDT) and welding coordination functions guarantee the reliability and safety of every installation — demonstrating that world-class quality can be engineered locally.

Structural installation in progress — delivering large-scale engineering with local expertise.

MEI PROJECTS & MANAGEMENT PTY (LTD)

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Lephalale, Limpopo – South Africa

Human Capital

*as the **New Competitive Edge** in Mining*

By Beaver Recruitment International

Across the mining landscape of Southern Africa, the challenges of modernization, sustainability, and digital transformation are reshaping what it takes to stay competitive. Mines are operating at greater depths, with tighter margins and rising expectations for safety and efficiency. Yet amid all this change, one truth stands firm: the sector's greatest asset isn't its machinery or technology — it's its people.

While automation and AI are transforming mine operations, innovation still depends on human capability — engineers, geologists and project managers who can bridge cultures, communicate across borders and adapt to complex regulatory environments.

Talent is becoming the new ore: scarce, valuable and essential to extract wisely.

At Beaver Recruitment, we've seen how the right people can unlock momentum in cross-border projects. When a German-backed exploration firm expanded into Limpopo, they faced a familiar challenge — finding a mechanical engineer fluent in both German and English, experienced in shaft sinking, and knowledgeable about South African mining regulations.

Within three weeks, we connected them with a bilingual candidate from Gauteng who had worked in Bavaria. His ability to align German project leads with local contractors resolved a critical equipment delay and streamlined communication across teams. The client later described his contribution as "instrumental in bridging technical misunderstandings."

Stories like this underscore that human capital is not a side note to mining innovation — it's the core driver. Beyond recruitment, success requires navigating visa systems, regulatory frameworks, and cultural nuances to ensure that skilled professionals can integrate seamlessly and contribute from day one.

As global mining continues to evolve, fluency, adaptability and readiness are becoming as vital as technical precision. At Beaver Recruitment, our mission is simple: to connect exceptional people to transformative opportunities — ensuring that progress in mining continues to be powered by human ingenuity.

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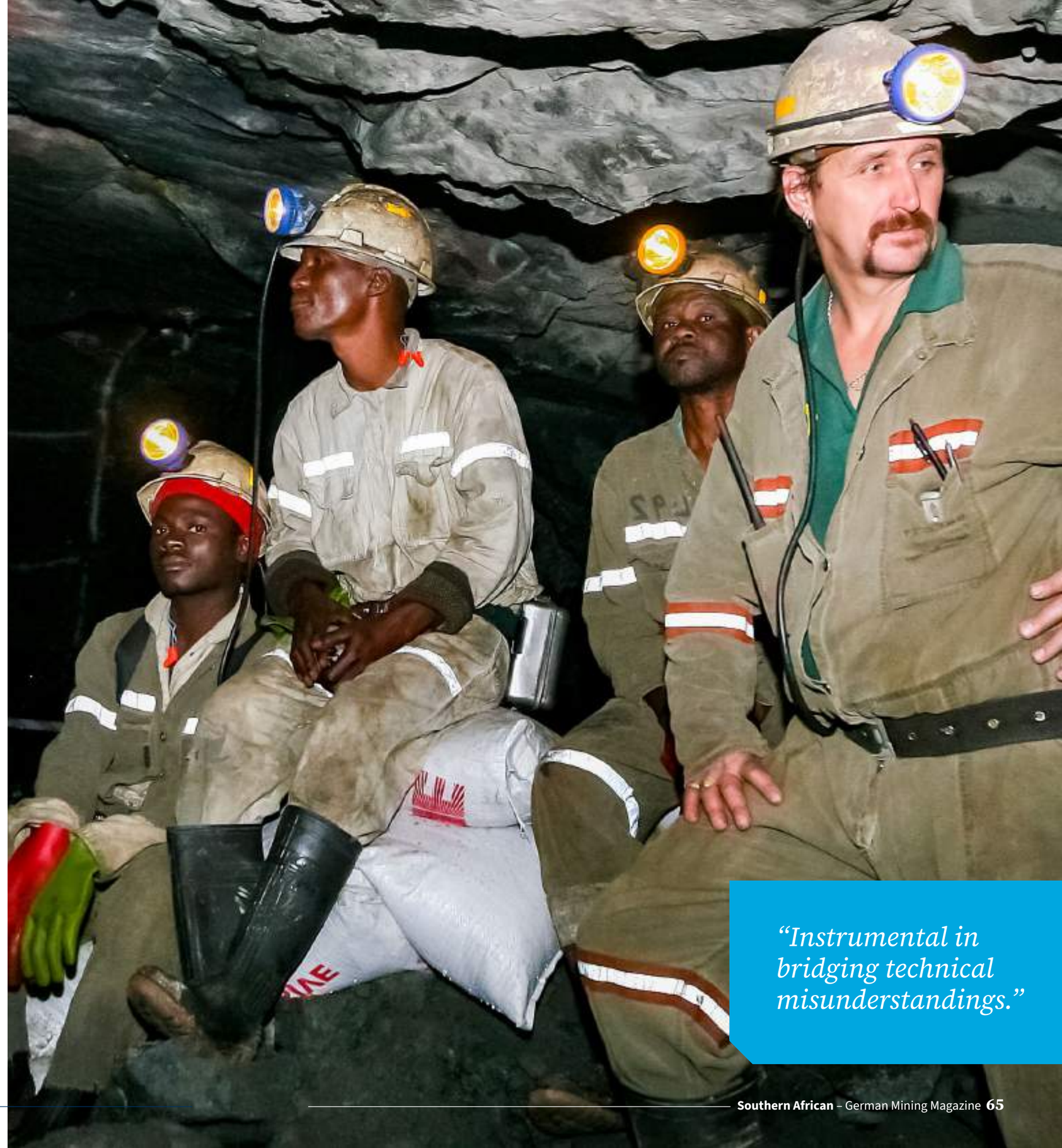

"Instrumental in bridging technical misunderstandings."

Driving shared value

*through **purpose-led social impact** at BASF Chemetall South Africa*

Driving shared value through purpose-led social impact at BASF Chemetall South Africa

At Chemetall, our commitment to sustainability is anchored in a clear belief: responsible business must leave a positive, lasting footprint on the communities we serve. Under our CSR & ESG framework, particularly the Social & Community Development pillar, we strive to ensure that our operations contribute to meaningful human impact, community upliftment, and inclusive economic participation. Over the past year, this commitment has materialised through two flagship initiatives: our ongoing partnership with the Aruka Foundation in Boksburg and the launch of our first company canteen, operated by a 100% black-owned enterprise.

Strengthening community resilience through the Aruka Foundation

Our partnership with the Aruka Foundation, a shelter supporting vulnerable families and individuals, demonstrates how targeted social investment can drive real systemic change. Rather than adopting a transactional approach, Chemetall has built a long-term, collaborative relationship with the foundation based on trust, responsiveness, and shared values.

Throughout the year, we have supported Aruka through food, clothing, household essentials, and furniture donations, resources that directly improve the organisation's ability to provide safety, stability, and dignity to its residents. We also implemented the BASF Kids Lab initiative at their community church and school, creating an engaging learning environment that fosters creativity, scientific curiosity, and emotional wellbeing for children.

Beyond material contributions, our continued engagement ensures that the foundation receives support where it is most needed. This integrated approach combining resources, skills transfer, employee involvement, and active participation reflect Chemetall's core belief: investing in community resilience, not just community relief.

Driving inclusive economic growth through local enterprise development

A second milestone in our journey has been the successful establishment of our first-ever Chemetall canteen. After a rigorous evaluation process, we partnered with a fully black-owned local catering company, an enterprise that now delivers long-term economic value for both the business and the surrounding community.

This initiative aligns with our commitment to Enterprise & Supplier Development (ESD), providing real, sustainable business opportunities to SMMEs while strengthening local employment. We supported the caterer through key compliance processes, ensuring the business was not only ready to serve Chemetall but also positioned for broader market growth.

Today, the canteen provides nutritious meals valued at over R80 for just R30 per plate, an offering intentionally designed to support the wellbeing of our employees, especially those working extended shifts. Each meal includes a balanced combination of starch, protein, and vegetables, ensuring affordability without compromising quality.

"This initiative demonstrates what values we're standing for: supporting local businesses, looking after our people, and building a workplace where everyone feels valued and supported." **— Jens Mueller, Managing Director**

A purposeful year marked by progress and shared impact

These two initiatives have nurtured the relationships and social connections that make our business stronger. They reflect Chemetall's belief that such initiatives are not merely compliance exercises, they represent a commitment to shared value, transformation, and community empowerment.

As we move forward, we remain dedicated to deepening these partnerships, advancing inclusive growth, and ensuring that everyone connected to Chemetall, both inside and outside our walls benefits from the work we do.

Yours in surface treatment.

Innovative Surface Treatment Solutions for Mining Industry Sub-Saharan Africa

Global technology. Local expertise. Proven mining performance.

About Chemetall

Chemetall, the global surface treatment business of BASF Coatings, is a world-leading supplier of applied surface treatment solutions. With over 130 years of innovation, Chemetall combines advanced chemistry, strong R&D expertise, and deep process knowledge to help industries improve performance, efficiency, and sustainability. The company partners closely with customers to deliver tailored, process-centric and environmentally responsible technologies backed by global capabilities and local support.

Solutions for the Mining Industry

Chemetall provides mining operations with cutting-edge technologies tailored for both surface and underground cleaning. Our solutions not only enhance equipment longevity but also minimize operational impact. With our high-performance, heavy-duty cleaners, you can expect shorter cleaning times and lower product consumption.

Why Partner with Chemetall:

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- Dedicated in-field technical specialists
- ISO-certified laboratory
- Responsible Care accreditation
- Strong customer network and trusted distributor partners

Mining Industry Product Range:

Cleaning & De-scaling

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- Water based non-flammable solvent degreaser
- Powder based degreaser
- Non-corrosive concrete/remover
- Non-flammable electrical solvent degreaser

- De-rusting
- Non-Destructive Testing
- Corrosion Protection
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BASF We create chemistry | Chemetall expect more

Accelerating Mining talent development

*across **Africa** with **Festo Learning Experience***

Mining companies across Africa are at the forefront of advancing automation, digitalisation, and local workforce development, pushing the industry into a new era of efficiency and innovation. To meet this challenge, it is imperative to equip engineers with the skills needed for cutting-edge, high-tech operations. With a legacy of innovation in industrial automation, technical education, and workforce development, Festo has become a key partner in supporting this transition.

One of Festo's key customers, a leading producer of cobalt and copper, operates a complex site that combines open-pit mining, hydrometallurgical processing, and electro-winning operations. These processes demand high levels of technical competence across electrical, mechanical, instrumentation, automation, and process disciplines. To support long-term localisation and develop the next generation of engineers, the customer launched a structured graduate programme aimed at closing the gap between university theory and real plant conditions. With increasing digitalisation and automation on-site, they sought a platform that could standardise training, objectively measure competence, accelerate readiness, and support large cohorts without compromising quality. This led to the adoption of Festo Learning Experience (Festo LX) as the programme's digital backbone.

The core challenge: Talent pipeline gaps in automated mining

The customer faced a growing challenge within its talent pipeline. Graduates arrived with strong academic knowledge but lacked the practical competence, troubleshooting confidence, and analytical habits needed to succeed in a fully automated mining environment. Traditional classroom instruction proved insufficient, and trainers struggled to maintain consistent outcomes across diverse groups. Key challenges included inconsistent onboarding quality, limited practical exposure to real process behaviours such as pressure drops, pump faults, sensor failures, control

logic, and instrumentation loops, and the absence of objective competence measurement, making it challenging to identify high-potential candidates or those needing additional support.

Trainers also spent significant time reteaching foundational concepts such as pneumatics, hydraulics, electrical control, and safety interlocks, reducing their ability to focus on advanced, mine-specific topics. Compounding the challenge, the mine faced pressure to localise skills quickly, requiring graduates capable of stepping into field roles within months rather than years. As digitalisation and remote monitoring became central to operations, the gap between sophisticated equipment and workforce readiness widened. The organisation needed a scalable system that could deliver consistent, measurable, and adaptive learning while allowing trainers to focus on hands-on coaching. Festo LX provided the solution. Festo LX is a purpose-built digital platform offering pre-built modules, competence tracking, rich analytics, and seamless integration of theory with practical tasks on Festo workstation equipment. Festo LX develops the same understanding of pneumatic behaviour, control logic, diagnostics, and system thinking that graduates will later encounter in Festo automation technologies, which are already supporting processes across the mine's plant, creating a clear continuity between learning and real operational systems.

Festo LX re-engineers graduate development

The customer selected Festo LX as the foundation of its graduate programme, integrating it into a blended model combining digital learning, hands-on practice, and structured evaluation. The rollout focused on three core components.

The first was Personalised Learning Paths, ensuring each graduate followed a tailored programme aligned to their discipline. Festo LX dynamically adjusts module difficulty based on learner performance, challenging advanced participants while providing targeted reinforcement for those who need it, ensuring all graduates achieve success.

The second component, Digital-to-Physical Integration, directly links LX modules to hands-on sessions on Festo training equipment, including pneumatics benches, hydraulic rigs,

PLC stations, and instrumentation workstations. Graduates study core concepts digitally before entering practical sessions, resulting in a more precise understanding, reduced teaching time, and significantly improved workshop efficiency.

The final component, Competence Analytics, provides trainers and HR with detailed insights into completion rates, assessment scores, troubleshooting performance, engagement levels, topic-specific strengths, and areas requiring intervention. This data enables the leadership team to identify top-performing graduates early, plan job placements more effectively, and measure readiness with objective metrics. To further align learning with operational realities, actual plant scenarios were integrated into LX. For example, a recurring pump cavitation incident was converted into a digital lesson, allowing graduates to grasp root-cause principles before encountering them in the field. By connecting operational experience with digital learning, the programme ensures training remains closely aligned with evolving plant needs.

Accelerating workforce readiness: Measurable impact for mining performance

Although still in early rollout, the programme is already delivering measurable benefits. Learner engagement has increased through the use of interactive digital content, trainers spend 25–30% less time reteaching foundational concepts, and assessment accuracy has improved through objective scoring. Graduates are demonstrating faster comprehension of plant process logic during shadowing sessions, while supervisors report improved readiness in the field, reflecting the programme's effectiveness in preparing engineers for operational roles.

Designed for Africa's Mining environment

The customer required a solution that could operate reliably in a remote mining environment while delivering a modern digital experience. With internet connectivity prioritised for operational systems, the platform needed to be efficient, lightweight, and accessible on standard devices. It also had to support blended learning, combining digital theory with practical sessions, while maintaining consistent learning quality across large cohorts. Festo LX met these needs with precise competence tracking, multilingual access for French-speaking trainees, and a scalable structure capable of evolving alongside new technologies and training requirements.

As African mining operations rapidly embrace advanced automation and cultivate local talent, Festo emerges as the essential partner to guide this evolution. With decades of unparalleled expertise in global industrial automation, technical education, and workforce development, Festo has consistently demonstrated its capability in African mining initiatives. By delivering cutting-edge automation solutions, top-tier technical training, and adaptable digital education, Festo empowers leaders to meet the future with confidence. For those seeking a dependable and forward-thinking supplier that truly understands the unique challenges of Africa's mining sector, Festo stands as the ideal choice.

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06

In Conversation

With the Industry Experts

BDO

AUDIT • ADVISORY • TAX

Platinum's Resurgence

The Metal Powering South Africa's Future

Q | Why is platinum emerging as the cornerstone of South Africa's mining future?

Servaas Kranhold: As gold once defined our mining legacy, platinum now represents the future. Alongside manganese and iron ore, it forms the new foundation of South Africa's mining economy. This marks a shift from nostalgia toward positioning ourselves for the industrial and energy transitions shaping the global landscape.

Q | What is driving renewed optimism in the platinum-group metals (PGMs) sector?

Marcus Stelloh: The sentiment following the Joburg Mining Indaba was notably upbeat. Despite some market volatility, platinum prices have shown resilience and are rising alongside palladium and rhodium. Global demand for critical minerals is intensifying, and platinum's role in clean energy and advanced manufacturing keeps it relevant and strategically important.

Q | How is platinum connected to the evolution of green technologies and mobility?

Siyabonga Mthembu: Platinum's role in technology is irreplaceable. Hydrogen engines, hybrid vehicles, and industrial sensors all depend on it. Even as fully electric vehicles gain traction, their adoption outside China remains limited due to cost and production challenges. This creates space for hybrid and hydrogen technologies and platinum sits at the very centre of that bridge between today's and tomorrow's transport systems.

Q | What role does South Africa's hydrogen economy play in this transformation?

Servaas Kranhold: It's one of the biggest opportunities for our platinum sector. The planned R106 billion hydrogen plant in Nelson Mandela Bay demonstrates the country's potential to supply and process PGMs essential to clean energy systems. Hydrogen gives South Africa a once-in-a-generation chance to link mining, manufacturing, and renewable power into one integrated value chain , creating jobs, skills, and long-term economic value.

Q | How are global policies influencing the platinum market?

Marcus Stelloh: We're seeing geopolitical factors reshape the PGM landscape. The World Platinum Investment Council's support for tariffs on Russian palladium imports, for example, reflects a shift toward securing trusted mineral sources. South Africa is well positioned as a reliable, Western-aligned supplier at a time when sustainability and trust are key in international trade.

South Africa's Critical Minerals Strategy, launched in 2025, identifies PGMs as "high-criticality" minerals essential to industrial and energy transitions. However, the strategy currently lacks strong fiscal incentives, such as tax holidays, royalty reliefs or differentiated frameworks, to stimulate new exploration or encourage beneficiation.

There is growing policy gap between South Africa's strategic ambitions and the current level of fiscal support for critical minerals. Mining companies may increasingly advocate for targeted tax incentives to support local beneficiation, hydrogen-linked manufacturing and broader green-industry development.

Q | Can platinum position South Africa as a leader in green manufacturing and energy?

Servaas Kranhold: Absolutely. If we align policy, infrastructure, and investment, we can move from being a raw mineral exporter to a green technology hub. That's where the real transformation happens, when mining supports a wider industrial base linked to renewable energy and manufacturing.

Q | What challenges must be overcome to realise platinum's full potential?

Siyabonga Mthembu: The challenge is execution, turning potential into performance. We need collaboration between government and the private sector, strong infrastructure, and policy consistency. The minerals are here, but we must build the systems to extract long-term industrial growth from them.

Q | What tax and transfer pricing challenges should mining companies consider as platinum powers South Africa's green transition?

Marcus Stelloh: As mining companies expand into hydrogen production, renewable energy integration, and potentially downstream beneficiation, the tax landscape becomes significantly more complex. SARS is intensifying scrutiny on transfer pricing, especially around intercompany mineral sales, marketing hubs, and financing arrangements. Recent court rulings on mineral royalties and new customs valuation rules mean that historical calculations may need to be revisited. At the same time, opportunities exist, such as the 125% renewable energy tax deduction and the emerging Advance Pricing Agreement framework, that can offer certainty and savings if structured correctly. Mining leaders should be proactive: aligning their tax and TP strategies with operational realities, documenting value creation across the supply chain, and preparing for increased audit activity. This is where specialist support becomes essential, not just for compliance, but for unlocking strategic value in a rapidly evolving regulatory environment.

Q | In summary, what does platinum's resurgence mean for South Africa's future?

Marcus Stelloh: It means reinvention. The convergence of green energy, technology, and global trade realignment places platinum at the centre of South Africa's economic renewal.

Servaas Kranhold: Platinum's next chapter could define the nation's industrial identity for decades to come.

Siyabonga Mthembu: It's not just about mining metal; it's about powering a sustainable future.

Siyabonga Mthembu

Marcus Stelloh

Servaas Kranhold

Political Influence

*on the mining sector - **Mozambique***

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Assertive but Not Radical: Mozambique's Mining Politics

Despite louder contract negotiations under President Daniel Chapo, in office since January 2025, Mozambique is not drifting toward resource nationalism. The sharper tone reflects an urgent need to shore up revenue amid mounting macroeconomic pressure. That same pressure makes a dramatic overhaul of the sector unlikely.

Q | What's happened with recent contract reviews?

Throughout 2025, Chapo followed through on his campaign promise to scrutinise agreements he considers lopsided in favour of investors. His administration's tougher stance in renegotiations with Australian miner South32 over the Mozal aluminium smelter and Irish miner Kenmare Resources' licence renewal for the Moma titanium mine drew broader attention and prompted speculation about policy shifts.

But these were contracts already up for review, which is not the same as interference through retroactive rewrites, forced equity transfers or creeping expropriation. And when you look closely at what Chapo was pushing for, the government appears far more reasonable than some commentary suggests.

Q | What was behind South32's power-pricing dispute?

The Chapo administration has argued it can no longer continue subsidising electricity for the smelter, an arrangement dating back to the early 1990s. South32 has said that without preferential pricing it will be forced to shut the operation by March 2026.

Well-placed industry sources indicate frustration within the company over what it considers government's readiness to jeopardise a long-standing agreement and local employment. But context matters.

In the 1990s, Mozambique lacked reliable domestic generation and depended on Eskom to power major industrial projects. To secure an anchor investor for a capital-intensive operation, the government offered an extraordinarily low tariff that only made sense under those conditions. That reality has shifted as domestic generation has improved and the Cahora Bassa hydropower scheme, one of southern Africa's largest, has been rehabilitated.

Q | What is the government asking of Kenmare Resources?

During licence-renewal talks, the government highlighted that Kenmare's one percent royalty is too low and suggested raising it to three percent. This remains below the five to seven percent applied in more mature mining jurisdictions, including South Africa and Brazil, and is far from anything that could be considered punitive. The Chapo administration's posture is assertive, not radical.

Q | So no radical shifts – but what does this mean for mining policy?

Investors should expect firmer enforcement of existing terms, more scrutiny of legacy arrangements and a gradual push for slightly higher fiscal returns. But there is no indication that a sweeping policy shift will follow, even if the mining law is eventually updated.

Q | Could the government eventually push harder?

There is always a risk that, as popular pressure rises, the government looks for quick wins through contract interference. But current macroeconomic constraints make a cautious approach far more likely.

The government needs predictable revenue from existing industries, and mining can offer this. The sector is already established, but revenue management has been weak and several older contracts contain unfavourable terms. Tightening these up would benefit the state without upending the operating environment.

The Chapo administration is also trying to reset its relationship with the IMF to regain access to financing. A turn toward resource nationalism would undermine that effort.

Ultimately, Chapo has little incentive to provoke internal backlash or destabilise a relatively small but strategically important sector, particularly as onshore LNG, widely touted as a game-changer capable of moving Mozambique toward middle-income status, remains long delayed.

Q | What should investors actually worry about?

First, the way in which overlapping commercial and political interests complicate the investment environment. Companies must take extra caution to understand not only who is involved in a concession, even tangentially, but also that individual's proximity to the centre of power. This has implications for due diligence, long-term security of investment and potential reputational exposure.

For example, the ban on artisanal gold mining in September 2025 was presented as an effort to curb smuggling in gold-producing zones. In reality, political rivalries were the motivator. Gold sites have long been contested by powerful elites seeking to capture rents, and interventions like the 2025 ban often reflect these internal power struggles rather than policy coherence. The ban is a reminder that formal policy in Mozambique often reflects patronage networks and competing interests. This creates pockets of unpredictability across the board, although the effect is far more pronounced in gold concessions than elsewhere in the sector.

Second, community protests remain a recurring threat. Mining operations have historically faced opposition over resettlement, land access, compensation and job creation. This risk has intensified since the violence that followed the October 2024 elections, as communities increasingly bypass the state and direct demands at companies. Even short-lived protests often delay operations for weeks at a time.

Finally, security risk will remain elevated in the north of the country owing to ongoing insurgent activity. Cabo Delgado province is the most impacted, but the neighbouring Niassa and Nampula provinces are steadily facing increasing levels of related violence.

South Africa's mining *next chapter*

GTAI GERMANY TRADE & INVEST

Jenny Tala *(Director Southern Africa at Germany Trade & Invest)*

Q | What's the state of play going into 2026?

Mining remains a strategic pillar of South Africa's economy and contributes approximately 6.5 percent to the country's gross domestic product. Output has been mixed across commodities: platinum group metals and coal experienced volatile volumes, while iron ore and manganese benefited from logistics stabilization and firmer prices during parts of 2025. Policy momentum is building around critical minerals, local beneficiation, and infrastructure reform, even as input costs and permitting delays continue to pose challenges.

Q | What are the key opportunity areas and drivers shaping the mining sector?

There are three main areas of opportunity. First, efficiency and decarbonization, including electrification of operations, advanced process control, water stewardship, mine-site renewable energy solutions, and storage technologies. The industry is scaling embedded generation and power wheeling as rules and market structures become more liberalized. Second, critical minerals value chains, which require equipment for processing, hydrometallurgical systems, battery precursor technologies, and recycling solutions. The government's Critical Minerals and Metals Strategy prioritizes geoscience, local value addition, and skills development. Third, logistics modernization, as rail and port upgrades open third-party access and enable long-term corridor agreements, creating demand for rolling stock, condition monitoring systems, and terminal automation.

Q | What opportunities does the new EU–South Africa cooperation create?

The recently signed Clean Trade and Investment Partnership (CTIP) and the Memorandum of Understanding on sustainable mineral and metal value chains establish a strategic framework for collaboration in clean technologies, critical raw materials, and industrial development in South Africa. For European companies, this opens access to projects in renewable energy, green hydrogen, battery and e-mobility solutions, and infrastructure modernization. These agreements aim to strengthen local value creation while ensuring the EU's supply security for critical minerals. This creates opportunities for technology and equipment suppliers to contribute expertise in mining, energy integration, and decarbonization.

Q | What role does Germany play in South Africa's mining sector?

Germany is a key supplier of mining machinery and equipment to South Africa, providing high-quality solutions for crushing and grinding systems, conveyor technology, ventilation and pumping systems, and specialized vehicles for underground mining. There is also strong demand for German expertise in automation, digital monitoring, and energy-efficient technologies - capabilities that align perfectly with South Africa's drive for modernization and sustainability in mining operations.

Beyond equipment supply, Germany is deeply engaged in broader cooperation initiatives that support South Africa's energy transition and industrial development. Through the Just Energy Transition Partnership (JETP) and related programs, German institutions contribute to decarbonization strategies and infrastructure upgrades. An upcoming example is the EU co-financed project "Promoting Green Hydrogen and Battery Production in South Africa," led by the German development cooperation GIZ, which aims to build local industrial capacity for battery and green hydrogen production. This initiative, scheduled to start in 2026 under the EU's Global Gateway strategy, prioritizes midstream and downstream projects such as battery assembly and recycling.

Together, these partnerships demonstrate that Germany's role extends well beyond machinery supply - it is a strategic partner in shaping the future of mining, energy, and advanced manufacturing in South Africa.

Q | Which regulatory files matter most in 2026?

One of the most significant milestones is the introduction of South Africa's new digital cadastral system for mineral rights. This system replaces the previous paper-based and widely criticized process, which was known for delays and lack of transparency. The new platform provides a geospatial, map-based interface that displays all exploration and mining rights clearly, allowing investors to see available areas and track applications in real time. For international companies, this means greater certainty, reduced bureaucracy, and improved planning for long-term investments. However, as of early 2026, the cadastral system is still in its phased rollout and has not yet been fully implemented nationwide.

Alongside this, the long-awaited Critical Minerals and Metals Strategy, released in 2025, sets out six execution pillars: exploration, localization, research and development including skills development, infrastructure and energy, financing instruments, and regulatory harmonization. Among other reforms, these measures are expected to unlock new project pipelines and strengthen South Africa's position as a global supplier of strategic minerals.

Q | What risks should companies factor into contracts?

Companies need to account for several risks, including potential delays in permitting timelines if the Mineral Resources Development Bill introduces stricter consent requirements, grid constraints that create queueing and curtailment risks for renewable projects, and security challenges such as crime and illegal mining, which increase insurance and protection costs. Additionally, there is the risk that policy implementation capacity may lag, meaning strategies do not always translate into bankable projects. These risks can be managed effectively through strong local partnerships, rigorous compliance measures, and staged delivery models.

Q | Logistics constrained growth in recent years. What's changing?

Transnet's reform agenda is moving from concept to execution. It allows third-party rail access licenses, corridor partnerships with mining companies, and multilateral loans for infrastructure upgrades. Coal and manganese corridors showed measurable throughput improvements in 2025, although from depressed levels. Sustained gains will depend on fleet availability, signaling upgrades, and governance continuity.

Q | Where should the focus be in the next commodity cycle, and what technologies will differentiate?

Critical minerals such as manganese, copper, vanadium, and battery materials are gaining strategic importance, while PGMs and gold remain cyclical but systemically relevant. Coal continues to underpin domestic power generation, though export competitiveness depends on rail performance. Allocation should prioritize midstream value capture and corridor reliability rather than short-term price cycles. At the same time, technology will be a key differentiator: digital and AI-driven uptime, advanced processing methods like sensor-based ore sorting and hydrometallurgy, integrated water-energy systems, and low-carbon mobile plants using battery or hydrogen hybrid solutions are emerging as areas where innovation will shape competitiveness.

Q | Is South Africa still the gateway to Africa for mining?

Yes. Thanks to its depth in engineering services, equipment supply, finance, and regional connectivity, South Africa remains a practical base for servicing copper and battery metal corridors to the north. With AfCFTA and SADC policy dialogues on harmonization, this position will hold - provided logistics and skills execution continue to deliver.

Germany Trade and Invest (GTAI) is the international business promotion agency of the Federal Republic of Germany. GTAI supports German companies in expanding their business operations abroad, helps foreign investors setting up business in Germany and implements several internationalization and support programs on behalf of the Ministry of Economic Affairs and Energy.

07

Member & Partner Directory

Member and Partner **Directory**

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