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Issue 04 | Volume.07

October - December 2025

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Ordient Tradings / Ordient (Pty) Ltd

SADC Mining & Construction is a comprehensive online platform dedicated to the mining and construction industries in the Southern African Development Community (SADC) region. It serves as a valuable resource hub for industry professionals, offering news updates, project insights, market trends, and business opportunities relevant to mining and construction sectors across SADC countries. Whether you're seeking industry news, project developments, or networking opportunities, SADC Mining & Construction provides essential information to keep stakeholders informed and connected within this dynamic sector.



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UNLOCK ANGOLA'S MINING FUTURE WITH THE LEADERS WHO ARE SHAPING IT

At #AIMC2025, local and global mining stakeholders, investors, and policymakers will converge in Luanda to explore how Angola is redefining the future of mining through transparent governance, progressive fiscal reforms, and sustainable growth strategies.

Keynote Highlight:

His Excellency **Diamantino Pedro Azevedo**, Minister of Mineral Resources, Oil and Gas (MIREMPET), will deliver the keynote address, setting the tone for Angola's mining ambitions.

Core Discussion:

"Above Ground Risk, Fiscal Terms, Governance & Regulation" — A critical conversation on how Angola is aligning with global standards to attract high-value investment.

What you'll gain:

- ➔ **Identify & Mitigate Investment Risks** – Strategies to navigate Angola's evolving mining market.
- ➔ **Navigate the Regulatory Landscape** – Insights into the latest reforms to stay compliant while seizing opportunities.
- ➔ **ESG in Action** – How Angola integrates sustainability into mining, with real-world case studies.

This is where strategy meets opportunity. Connect with operators, investors, and government leaders, and be part of the dialogue shaping Africa's next big mining hub.

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MOZAMBIQUE: 1,858 MINING LICENSES ISSUED IN FIRST HALF OF 2025

The Mozambican government issued 1,858 mining licenses in the first half of the year and raised 301.3 million meticaïs (\$3.9 million) from tax debt recovery in the mining sector, it was announced today. In a statement, the Ministry of Mineral Resources and Energy announced that during the first half of the year, “the mining sector made significant progress by issuing 1,858 mining licenses, addressing 69% of the pending applications from 2024, thereby reducing backlog in the licensing system and restoring confidence in the process.”

The same document reports that, in coordination with the Mozambican Tax Authority (AT), 301.3 million meticaïs (\$3.9

million) was recovered through tax debt collection.

A further 223.4 million meticaïs (\$2.9 million) in enforceable bonds were identified, which will be reverted to the State to support the rehabilitation and closure of abandoned mines,” the document adds.

In late March, the Mozambican government admitted imposing rules on the use of mineral and energy resources, indicating that they should benefit the country, and expressed interest in “freeing up” areas considered “idle” for their exploitation.

“At this point, there is no doubt for any Mozambican that Mozambique possesses

world-class resources and that the time has come to also impose rules on their use, so that there is greater benefit for the country, for Mozambicans, and their communities,” said the Minister of Mineral Resources and Energy, Estêvão Pale, at the time.

On July 14, the Minister stated that the country is developing “robust, inclusive, and representative” legal instruments for the extractive sector, thereby generating more financial resources.

Mozambique had around 3,000 exploitation licenses in the areas of mineral and energy resources, according to March data released by the government.

ZAMBIA MINISTRY OF MINES ISSUES 1,498 ARTISANAL MINING LICENCES NATIONWIDE

The Ministry of Mines and Minerals Development has announced the issuance of 1,498 artisanal and small-scale mining licences across Zambia since 2023, a move aimed at formalising the sector and unlocking its economic potential.

The figures were disclosed by the Minister of Mines and Minerals Development, Paul Kabuswe, in a ministerial statement delivered to Parliament this afternoon.

Mr. Kabuswe informed the Parliament House that the bulk of the national licences, 1,201, were for gold mining, while the remaining 297 were for non-gold commodities such as manganese and copper.

“I wish to inform this House that, since 2023 up to 8th August, 2025, a total of 1,498 artisanal and small-scale licences have been issued countrywide,” the Minister stated, highlighting the Ministry’s active role in regulating the sector.

The Minister also pointed to Serenje District as a case study of regional mineral diversity, noting that 76 of the licences were granted there for a variety of minerals including copper, gold, manganese, and limestone.

While characterising the licensing drive as

“encouraging,” Mr Kabuswe outlined significant challenges facing the sector.

These include limited access to geological information, finance, markets, modern equipment, and technical skills, alongside persistent concerns over occupational health and environmental safety.



CHINA, ZAMBIA, AND TANZANIA SIGN \$1.4B DEAL TO MODERNIZE TAZARA RAILWAY

China, Zambia, and Tanzania Agree \$1.4 Billion Deal to Upgrade Tazara Railway for Copper Transport. China, Zambia, and Tanzania have signed a \$1.4 billion agreement to modernize the aging Tanzania–Zambia Railway Authority (Tazara) line — a vital transport link for moving copper and other resources out of southern Africa. The deal was officially announced by the Zambian government on Monday.

A Historic Railway in Need of Renewal

Built in the 1970s with Chinese financing and engineering under the leadership of Mao Zedong, the 1,860-kilometre (1,160-mile) Tazara line has long served as a critical trade artery for Zambia and Tanzania. However, decades of wear and underinvestment have reduced the railway to a fraction of its original capacity.

Terms of the Agreement

Under the deal, the China Civil Engineering

Construction Corporation (CCECC) will take on a 30-year concession to rehabilitate and operate the railway:

First three years: Reconstruction, track upgrades, safety improvements, and restoration of the line. Following 27 years: Full operational management, including procurement and maintenance of rolling stock.

The investment will fund:

- 32 new locomotives
- 762 wagons and passenger coaches
- Modern maintenance workshops
- Upgraded signalling and communications systems
- Staff training programs
- Strategic Importance

Beijing had signed a preliminary accord to revive Tazara last year, despite competing transport initiatives backed by Washington and the European Union, notably the Lobito Corridor in Angola.

Once upgraded, Tazara will offer a crucial alternative route for landlocked copper producers in Zambia and the Democratic Republic of Congo. The railway will bypass congestion at South Africa's ports and border crossings, easing the transport of copper to international markets.

Tazara's revival will also place it in direct competition with the Lobito Corridor, which links the same copper-rich region to an Atlantic outlet on Africa's west coast.

Regional Impact

The modernization of Tazara is expected to significantly boost trade efficiency, strengthen economic integration between Zambia and Tanzania, and enhance regional infrastructure development.

For Zambia — one of the world's largest copper producers — the upgraded railway could be a game-changer in expanding export capacity and reducing logistical bottlenecks.



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SERVICING THE CONVEYOR CLEANING BLADE

The need for conveyor belt cleaning is well established. Excessive fugitive material can reduce component and belt life by as much as 30%. A multiple belt cleaner system accounts for less than 5% of overall belt wear, providing a significant benefit.

Effective monitoring and maintenance are crucial to conveyor safety. The buildup of carryback from inadequate belt cleaning can elevate the likelihood of workers accidentally getting injured by a moving belt during cleaning.

It may sound simple, but tuning a belt cleaning system to operate safely and effectively requires a significant amount of knowledge and skill. Some manufacturers offer factory-trained personnel and replacement parts to provide expert maintenance for optimal performance and longer component life.

Safe Service

Regardless of the application, experts recommend two or more cleaners per discharge (primary, secondary, tertiary). In addition to providing better cleaning with multiple cleaners, redundancy can extend the service window. However, the blade composition must match the needs of the application.

A trained service technician understands the hazards associated with maintaining belt cleaners. Maintenance includes tensioner adjustments, removing buildup on the blade,



cleaning spillage under the system, and replacing the worn blade. With only a few exceptions, all cleaner maintenance must be conducted following lockout, tagout, blockout, and testout (LO/TO/BO/TO) procedures.

Reputable manufacturers design their cleaners and tensioners to achieve optimal cleaning performance relative to blade wear. It may seem counterintuitive, but if the cleaner isn't performing well, increasing cleaning pressure can actually exacerbate the problem. Maintenance personnel must understand these phenomena and know how and when to adjust each style of cleaner, adjusting blade materials and cleaning pressures for different

seasons or ROM (run of mine) conditions. One primary cleaner design called Cleanscape® requires only initial tensioning and virtually no maintenance after installation. It features a matrix of tungsten carbide scrapers installed diagonally to create a 3-dimensional curve around the head pulley and typically provides up to 4 times the service life of urethane cleaners.

Inspection and Monitoring

Monitoring systems can track component wear and notify the service technician and/or operations personnel via Wi-Fi or cellular service about upcoming service needs. The technology will also send an alert through a mobile app and computer dashboard in the event of any adverse conditions. This relieves staff from having to physically inspect multiple systems on a regular basis, freeing them to perform other essential tasks.

Conclusion

It is crucial to choose a supplier with trained and experienced service technicians who understand the equipment and safety procedures and can respond quickly to customer needs. Automated monitoring equipment alleviates some of the issues with blade wear and provides data and alerts when blades require servicing. Proactive maintenance reduces labor costs and enhances safety. Considering a managed service program can boost productivity and lower the cost of operation.



DRC, ZIMBABWE AND NIGERIA ANNOUNCE NEW MINERAL BENEFICIATION AND VALUE-ADDITION PLANS AT AFRICAN MINING WEEK

Mining leaders from the Democratic Republic of Congo (DRC), Zimbabwe, and Nigeria have outlined ambitious strategies to accelerate mineral beneficiation and value addition at the African Mining Week Ministerial Forum.

DRC Targets Global Copper Leadership

Louis Watum Kabamba, Minister of Mines for the DRC, revealed that the country is prioritising the creation of special economic zones (SEZs) to attract investment and industrial participation. A new “one-stop shop” for fiscal processes is being developed to streamline capital inflows and technology transfer.

Kabamba also highlighted the DRC’s investment in artificial intelligence (AI) to modernise exploration and production, particularly in lithium and copper.

“In copper production, we are currently second to Chile, but we want to be first,” he said.

Zimbabwe to Commission New Base Metal Refinery

Zimbabwe’s Minister of Mines and Mining Development, Winston Chitando, announced plans to commission a new base metal refinery within two years. With the world’s second-largest platinum reserves, Zimbabwe is

positioning its mineral wealth to stimulate employment creation and local manufacturing. To drive beneficiation, the government is establishing three industrial parks in Hwange, Beitbridge, and near Harare.

“Exporting raw ore from a landlocked country does not make economic sense. We must ensure beneficiation translates into real economic value,” Chitando remarked.

Nigeria Eyes \$1 Billion Mining Economy by 2030

Nigeria is targeting the creation of a US\$1 billion mining economy by 2030, according to Yusuf Farouk Yabo, Permanent Secretary at the Ministry of Mines.

Reforms are underway to modernise the

Mining Act of 2011, ensuring alignment with private-sector investment needs. Nigeria is also investing in digitisation across the mining value chain—from exploration data to mineral traceability systems.

“We want to guarantee that Nigerian minerals can be traced from mine to market. This ensures all sources are formalised and transparent,” Yabo explained.

A Pan-African Push for Value Addition

Together, these initiatives highlight Africa’s growing determination to move beyond raw mineral exports, focusing instead on beneficiation, industrialisation, and long-term economic value creation within the continent.



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ROKBAK MAKES DEBUT AT NIGERIA MINING WEEK WITH RA40 HAULER

Rokbak will exhibit at Nigeria Mining Week for the first time this October, joining forces with its regional dealer HMD to present the RA40 articulated hauler to a rapidly expanding audience in West Africa. Held in the Nigerian capital Abuja from October 14th – 15th, the 10th edition of Nigeria Mining Week is expected to welcome over 2,000 industry professionals. Rokbak's attendance represents a significant milestone in the company's expansion into the African mining and infrastructure sectors.

"Nigeria is a key growth opportunity for us, and we're excited to introduce the RA40 to this important market," says Paul Culliford, Rokbak regional sales manager EMEA. "Our dealer in West Africa HMD has seen increasing interest in our trucks and the Mining Week event is the perfect platform to capitalise on that momentum."

This is reinforced by HMD CEO Matthew Khouri, who has previously highlighted the brand's fit for the region.

"Rokbak has an excellent reputation, and our customers know and trust the Volvo brand," Matthew says. "Rokbak haulers complement our product portfolio well, offering the thriving mining, quarrying and construction industries in West Africa a reliable and efficient ADT."

Rokbak will share a stand alongside HMD, with a 38 tonne (41.9 US-ton) capacity RA40 truck also on display in the external area of the event.

The truck's presence will give potential buyers a close-up look at how its rugged design is engineered for the region, with features including a high-performance engine retarder for control in the rainy season and a sealed cab with filtered air conditioning to effectively protect operators from heat and dust.

Rokbak invites all attendees to Nigeria Mining Week to visit the stand and discover how its robust haulers are powering productivity and reliability across the toughest mining environments in Africa.

An exciting, dynamic market

Rokbak's partnership with HMD in West Africa has already proven fruitful, with a recent order



of articulated haulers, including units for both Nigeria and Ghana, where there is a growing demand to support infrastructure development and resource extraction.

"Nigeria has huge population growth and natural resources, making it a prime candidate for infrastructure expansion," says Paul. "We're working closely with HMD to build a lasting and influential presence here."

The construction market in Africa is currently estimated at \$58.42 billion and is expected to reach \$74.81 billion by 2029.

West Africa's construction industry is, in particular, experiencing substantial growth, driven by urbanisation, infrastructure development and mining activities.

Nigeria and Ghana are the biggest mining markets in the region, with the global push for green energy solutions meaning reserves of critical minerals such as lithium, manganese and nickel are in high demand. The Nigerian mining sector alone is estimated to boast 44 different types of commercially viable minerals worth an estimated \$700 billion.

This is precisely where the RA40 excels, thanks to its heavy-duty drivetrain, durable construction, and high-capacity payload, which are engineered to maximise productivity in the demanding conditions found in Nigerian and Ghanaian mines and infrastructure

projects.

Financing to empower growth

Beyond the hardware, the Rokbak-HMD partnership also provides a critical commercial advantage. Customers in the region can access flexible financing options backed by Export Credit Agencies (ECAs) and Private Risk Insurers (PRIs), reducing the financial burden of fleet expansion and demonstrating a commitment to customer growth.

Rokbak's attendance at Nigeria Mining Week is part of a broader strategic focus on Africa, following a major presence in Mining Indaba in South Africa earlier in the year, and the appointment of dealers in other key markets, including Machinery Exchange in Zimbabwe.

The RA40 is expected to be particularly well-suited to the needs of the Nigerian market and the team on the ground during Nigeria Mining Week will include regional sales manager Paul Culliford, head of marketing, communications and product management Jacqueline Reid, and HMD CEO Matthew Khouri.

"We're investing time and resources into Africa because we believe in its potential," says Paul. "Nigerian Mining Week is yet another step in what we hope will be a long-term commitment to supporting customers here."



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WITS DIGIMINE DEVELOPS INNOVATIVE DIGITAL PLATFORM TO STRENGTHEN MINING-COMMUNITY RELATIONS



A new digital platform developed at the Sibanye-Stillwater Digital Mining Laboratory (DigiMine) within the Wits Mining Institute is offering a practical solution to one of the mining sector's most persistent challenges: building trust with the communities located near mining operations.

The platform, known as the Intelligent Community Dialogue Agent (ICDA), is being developed in collaboration with local and international partners as part of the MASTERMINE project, funded by the European Union's Horizon Europe programme.

According to Dr. Ahsan Mahboob, Head of DigiMine and principal investigator on the ICDA project, many of the most pressing challenges facing the mining industry today are not technical or operational, but social. "The most complex challenges facing mining companies today are no longer technical or geological, but social, particularly in how they manage their impact on local communities and the surrounding environment," said Dr. Mahboob.

He explained that while many mining companies recognise the importance of responsible community engagement, there is often a gap between intention and effective action.

The ICDA aims to close that gap by enabling structured, two-way communication and transparent, responsive interaction. "Addressing these tensions requires more than outreach. It demands consistent, transparent, and reciprocal engagement. Communities must feel that their concerns are not only heard but responded to with clarity and urgency," he said.

The ICDA solution

The ICDA is designed as a two-part system. It includes a mobile application for members of mining-affected communities, and a secure web platform for mining companies to manage, respond to, and analyse incoming feedback.

The platform was developed by a team of experts at DigiMine, including postdoctoral fellows at the University of the Witwatersrand, who contributed significantly to its design, development, and implementation.

The mobile app allows users to submit reports on key issues such as health, safety, infrastructure, labour, pollution, or resettlement.

It also offers access to frequently asked questions, public notices, announcements, and local event updates. "The ICDA has been developed to transform how information and services are delivered to communities. It ensures that mining-related communication is not only accessible but also structured, targeted, and transparent," said Dr. Mahboob.

"Through the app, community members gain access to relevant, site-specific information, from frequently asked questions to real-time updates on announcements, events, and engagement opportunities. It creates a central point of trusted information exchange".

On the administrative side, ICDA includes a web-based platform designed for use by mining partner organisations. This system was developed by Dr. Iqra Atif, senior lecturer at Geography, Archaeology and Environmental Studies, who leads the ICDA web platform team at DigiMine.

“Our goal was to create a secure and user-friendly interface that gives mining partners the tools they need to monitor real-time feedback, detect emerging issues, and engage proactively with communities,” said Dr. Atif. “The system includes dashboards, hotspot visualisation, and customisable content management functions, all accessible through a single portal”.

Dr. Mahboob added that the ICDA supports the broader goals of responsible mining by aligning engagement practices with corporate social responsibility and sustainability

frameworks. “The platform provides mining operators with a structured system to monitor community feedback and integrate it into operational or policy decisions. It enhances both the responsiveness of engagement and alignment with social and environmental commitments”.

Part of a Global Initiative

The ICDA forms part of the OURMINE module within the larger MASTERMINE project. This module is dedicated to improving communication between mining operations and the communities they affect, using innovative tools to foster dialogue and long-term collaboration. “ICDA was developed as part of the OURMINE module of the MASTERMINE project, which focuses on fostering trust, dialogue, and social innovation between mining operations and the communities they affect,” said Dr. Mahboob. The platform also reflects a broader shift in the

mining sector as it moves from the Fourth to the Fifth Industrial Revolution (5IR). This next phase places greater emphasis on human-centred innovation, where digital technology is not only used to improve productivity, but also to support inclusion, transparency, and social responsibility.

Preparing for Testing and Rollout

The ICDA is now entering its closed testing phase. Selected mining partners, based in Europe and potentially South Africa, will evaluate the system in real operational conditions.

Their feedback will inform the final refinements before broader deployment. Designed for scalability and adaptability, the ICDA is intended to support a wide range of mining environments, enabling companies to strengthen transparency, accountability, and communication in line with global sustainability practices.



FIRST DEALER IN POWER TECHNIQUE NETWORK TO PLUG INTO ELECTRIC FLEET WITH A QUARTET OF ATLAS COPCO E-AIR COMPRESSORS – POWER ON!

A customer seeking a simple, plug-and-play compressed air solution, supplied directly to point of use, with no installation required, prompted one of Atlas Copco Power Technique's dealers to order four T900 E-Air mobile electric compressors.

Ticking every box, these robust compressors are geared to power the customer's tough mining operations in South Africa's Northern Cape province, with some of the machines primed for deployment underground.

Atlas Copco, globally renowned for its high-quality, reliable and efficient mobile diesel air compressors, has developed a cutting-edge range of E-Air mobile electric compressors, as a direct response to mining and industry's escalating demands for efficiencies and environmental stewardship. In addition to the E-Air T900, Atlas Copco also offers the E-Air T400 and E-Air T500 – all fixed speed machines.

"While mobile diesel compressors have long been the backbone of mining and industry, the mobile electric machine is unmistakably gaining ground, offering an excellent compressed air alternative," affirms Atlas Copco Power Technique's AIP Sales Engineer, Riaan Burke. "A steady increase in awareness of our E-Air offering is definitely driving stronger interest. Simply put, there's a distinct appeal to an electric compressor elegantly clad in yellow!"

"Our range of electric compressors embody the same core philosophies as our respected diesel-driven mobile units, delivering optimal, robust and reliable performance, seamlessly navigating through even the toughest environmental conditions." The key differences, according to Burke, lie in the electric machines' ability to provide cleaner, quieter and more energy-efficient air delivery. With no installation required, the compressor can simply be plugged into the nearest power socket and is ready to deliver air. Burke further points out that there is no need for a receiver due to modulating control. "Representing a significant step forward in both technology and performance, these electric units offer a

lower total cost of air system ownership while substantially reducing carbon footprints."

Atlas Copco's E-Air mobile electric compressors is unlocking new potential across mining and industry where demanding, dust-heavy environments are part of daily operations. Engineered for high performance where reliability is critical, these compact machines deliver compressed air on any site with access to grid power. Confined or sensitive spaces, urban sites, indoor facilities, open-pit and underground mining as well as tunnelling operations present environments where these quiet-running, emission-free machines truly come into their own. "Our goal is not just about meeting today's needs; our mandate is to equip our customers with forward-thinking solutions that tackle future challenges head-on," comments Burke emphatically.

Burke concludes by highlighting the importance of their dealer network: "As valued partners, our dealers provide us with a direct route to market. Furthermore, their strategic location near customers allows for swift, efficient product and service delivery, ensuring peak plant availability and sustained productivity."

With the supply of the four Atlas Copco T900 E-Air compressors to the site end-March/early April 2025, Power Technique's dealer once again underscores their commitment to supporting customers with advanced solutions designed for optimal performance in challenging environments.



TATAKI MINE TO GENERATE OVER P54 BILLION IN REVENUE OVER 10 YEARS



On 16 September 2025, President Duma Boko officially opened Tataki Mine, a new mining operation located in Matsiloje Village. The mine revives the former Tati Nickel Phoenix assets, which were liquidated eight years.

Tataki Mine contains one of Botswana's largest reserves of nickel, copper, cobalt, and platinum group metals. After reopening under GCR, Tataki will produce a variety of metals and hydroxide salts that are widely traded internationally.

Products will include nickel and cobalt hydroxide precipitates, copper cathodes, metal bars for platinoids (platinum, palladium, rhodium), and precious metals, including gold. Under GCR's leadership, Tataki Mine will manufacture value-added products on-site, with a focus on introducing new skills and advanced technologies to Botswana's

workforce.

Speaking during the official opening GCR Executive Chairman Cevdet Caner said GCR plans to invest USD 200m (over P 2 billion) into Tataki Mine over the coming decade, including USD 50m in the first 18 months to ramp up steady-state production levels.

Over the next decade, Tataki Mine is expected to generate over USD 4.2bn (over 54 billion) in revenue and contribute a 1.5% increase in annual GDP to Botswana.

"Positive social impact and participatory engagement that aligns mining operations with local needs is a key priority for us." Caner said highlighting that the GCR will work closed with local communities around the mine to contribute to their social development.

Global Critical Resources Corporation (GCR) is

a U.S.-registered producer of the critical metals that power modern life with assets in Africa and South America. GCR's Executive Chairman, Austrian entrepreneur Cevdet Caner, has over two decades experience investing in the mining and property sectors and is the founder of several multi-billion-dollar real estate and natural resource companies.



VISION AI FOR ASSET RELIABILITY: CONVERTING UNTAPPED VISUAL DATA INTO UPTIME, SAFETY, AND MEASURABLE ROI

Across sub-Saharan Africa, mines and minerals processors are under pressure to improve plan-to-actual adherence, reduce unplanned downtime, and lift safety performance, often with ageing assets, skills shortages, and uneven connectivity.

DGC Africa's Vision AI for Asset Reliability transforms existing optical and thermal camera networks into a 24/7 intelligent monitoring layer that detects anomalies earlier, prioritises interventions, and, where authorised, automates protective actions.

Documented results across comparable industrial deployments include 3–5% yield improvement, ~10% downtime reduction, ~3% energy savings, 95%+ detection precision, 10× more relevant anomalies surfaced, and 1:5+ first-year ROI.

The reliability gap: thousands of cameras, almost no analysis

Industrial sites often operate hundreds of cameras, yet less than 1% of captured video is ever analysed.

Human observation is limited by shift length and attention; point sensors provide depth but lack visual context. The consequence is predictable: late detection, reactive maintenance, and avoidable safety exposure.

Vision AI closes the gap by continuously analysing streams from optical and thermal cameras, learning normal operating patterns, and elevating only material deviations—complete with video evidence, location, severity, and trend context.

What Vision AI for Asset Reliability is — and how it works

DGC Africa's solution combines computer vision, thermal analytics, and edge processing with open integration to plant systems.

Core capabilities

- Continuous visual analytics (24/7) across hot, dusty, vibration-prone zones where human rounds are risky or infrequent
- Model-based pattern recognition that distinguishes normal process cycles from true anomalies
- Risk-prioritised alerting via control room HMI, email, SMS, or WhatsApp to eliminate noise and accelerate decisions
- Optional machine integration to slow/stop conveyors, interlock feeders, or trigger safety actions when thresholds are crossed
- Edge + cloud architecture for low-latency detection even on limited-connectivity sites, with secure dashboards for trend review
- Open protocols (e.g., OPC-UA) for interoperability with SCADA/PLC/DCS without costly rip-and-replace

High-impact use cases in mining and minerals processing

Equipment monitoring: towards zero unplanned downtime

- Conveyor health: progressive crack/tear tracking from first abrasion; severity escalation tied to load and duty cycle
- Thermal integrity: kiln and furnace shell profiling, refractory hot-spot detection, switchyard thermal exceptions
- Rotating equipment oversight: visual cues of misalignment, abnormal vibration proxies, lube leaks, seal failures



Material monitoring: quality, throughput, and Net Zero alignment

- Granulometry: continuous particle size distribution for ore, sinter, coke, and coal to stabilise downstream circuits
- Moisture and contamination: IR-assisted moisture estimation; foreign object detection to protect crushers and mills
- On-belt quality control: fines/undersize rates, oversize excursions, and blending adherence in real time

Process and safety monitoring: zero-incident ambition

- Big-rock detection pre-crusher with interlock options to prevent jams
- Restricted-zone intrusion and PPE: automated compliance oversight in high-risk areas
- Casting/ladle monitoring: flow anomalies, slag carryover indicators, and bay-level safety envelopes

Quantified business outcomes

- Throughput and yield: 3–5% improvement via tighter process control informed by real-time visual data
- Asset availability: ~10% reduction in downtime through early detection and planned interventions
- Energy intensity: ~3% reduction through thermal optimisation of kilns, furnaces, and auxiliary systems
- Operational focus: 95%+ precision in anomaly detection and 10× more relevant issues surfaced than manual inspection—without alert fatigue
- Financial return: portfolios report 1:5 or better ROI in year one, compounding as models learn and scope scales

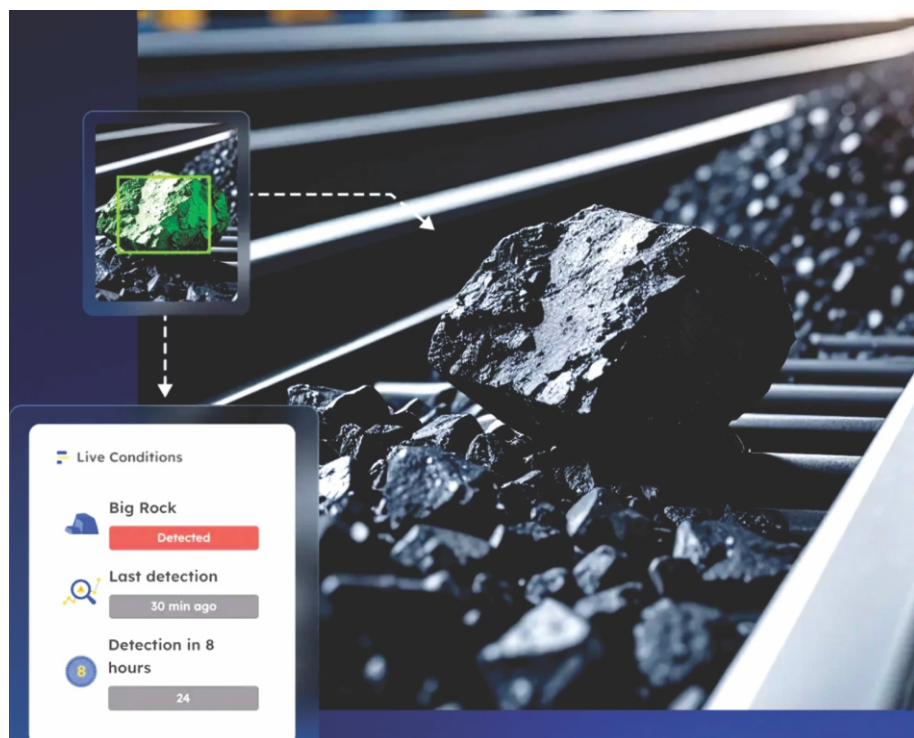
Field vignette: conveyor failure prevented by progressive monitoring

A large open-pit operation faced recurring belt rips. Vision AI flagged faint abrasion lines on Day 1, escalated severity as growth accelerated by Day 4, and issued a high-severity alert on Day 7 with precise belt coordinates and progression graphs. Maintenance executed a controlled splice during planned downtime. The site avoided a catastrophic rip, multi-shift production loss, and emergency repair premiums—paying for the pilot within weeks.

Why DGC Africa: implementation that works in African conditions

- 115+ years of industrial execution in smelting, minerals processing, cement, and power—translating analytics into timely, competent action
- Pan-African delivery across South Africa, Zambia, DRC, Zimbabwe, and Madagascar for rapid mobilisation and local compliance
- Integrated asset-integrity ecosystem—condition monitoring, oil analysis, mechanical services, industrial linings, shutdowns—so insights flow into work orders and get closed out
- Brownfield-ready architecture with rugged hardware, edge analytics, and staged integrations suited to dust, heat, and patchy networks
- Change enablement through operator training, supervisor playbooks, and KPI governance so the system is used—and trusted—on the floor

Governance and KPIs: making value visible and auditable



- Leading indicators: detection-to-intervention time, hot-spot dwell time, crack-growth rate, big-rock near-misses avoided
- Reliability metrics: MTBF/MTTR improvements, planned vs. unplanned work mix, maintenance schedule adherence
- Production and energy: yield variance, specific energy consumption, rework and scrap rates
- Financials: avoided downtime hours, avoided damage events, payback and ROI tracked by use case

Implementation with minimal disruption

Phase 1 — Assess and prioritise: site survey of camera coverage and connectivity, value mapping to pinpoint the highest-impact lines,

kilns, bays, or switchyards; business case and roadmap agreed

Phase 2 — Deploy and integrate: plug-and-play rollout for the first use cases in under a week; secure dashboards live; optional SCADA/PLC/DCS hooks; operator and supervisor training

Phase 3 — Optimise and scale: model tuning, alarm rationalisation, and expansion to adjacent processes; quarterly value reviews

Vision AI has moved beyond promising pilots to become a practical reliability lever for African heavy industry. By converting under-analysed visual data into precise, context-rich signals, DGC Africa enables earlier interventions, safer operations, and steadier throughput, without demanding rip-and-replace investment or perfect connectivity. The combination of 24/7 coverage, plant-specific learning, and integration with proven asset-integrity services is what changes outcomes: fewer surprises, lower total cost of reliability, and a sturdier path to plan adherence in some of the world's most demanding operating environments.

About the Dickinson Group

Founded in 1910, the Dickinson Group of Companies stands as a fifth-generation, privately-owned enterprise specialising in Asset Integrity Management, Industrial Solutions, and Human Capital Development. With operations spanning sub-Saharan Africa and the Middle East, the Group combines deep industrial expertise with innovative approaches to complex operational challenges. www.dgc-africa.com contactus@dgc-africa.com

THE ROLE OF ZINC COATINGS IN ADVANCED CORROSION PROTECTION

The International Zinc Association (IZA) Africa has emphasised the essential role of zinc-based coatings in extending the service life of steel across multiple industries. Used for decades to counteract both aqueous and atmospheric corrosion, zinc coatings protect steel through three distinct yet complementary mechanisms: barrier protection, cathodic or sacrificial protection, and the formation of inhibiting corrosion products.

Barrier protection isolates the steel substrate from corrosive agents and ensures that the zinc layer corrodes first. However, barrier action remains effective only as long as the coating is of sufficient coating thickness and bare steel is not exposed. However, in cases where the coating is scratched or suffers limited damage, zinc continues to protect the steel through galvanic action.

Since zinc is less noble than steel, it preferentially corrodes at these exposed sites, ensuring that the underlying substrate remains intact. Over time, zinc corrosion products such as zinc carbonate and zinc hydroxide form adherent films that act as inhibitors, further reducing the rate of corrosion and extending the durability of the system.

Hot dip galvanizing remains the most widely applied zinc coating process for structural steel applications. In this method, steel is cleaned, pickled, fluxed, and immersed in molten zinc at temperatures between 435°C and 455°C. The process forms a tightly bonded series of iron-zinc alloys that envelops the steel entirely, including recesses and internal cavities.

Batch hot dip galvanizing produces relatively thick coatings, often exceeding 85 µm, which ensures long, maintenance free service lives for steel used on bridges, electrical pylons, rebar in concrete, and other heavy structural steel components.

By contrast, continuous hot dip galvanizing of steel sheet, performed on high-speed lines at integrated steel mills, produces thinner coatings in the range of 15 to 20 µm per side. It is normal to apply an organic primer and topcoat over the galvanized layer which gives a very good product. In South Africa we have Chromadek Ultim and Bluescope Colourbond Ultra as examples of this product.



Uncoated continuously galvanized sheet products are highly suitable for applications such as automotive body panels, roofing materials, and consumer goods. Coating thickness remains the critical determinant of service life, as galvanized steel corrodes in a linear fashion over time.

In highly corrosive marine environments, Galfan has proven to be a particularly effective coating. This zinc–aluminium eutectic alloy, comprising 95% zinc and 5% aluminium, with trace mischmetal, was designed to provide a zinc rich coating without the formation of brittle intermetallics at the steel interface.

The resulting two-phase microstructure corrodes according to a parabolic rate law, slowing down over time and providing nearly double the operational life of conventional continuously galvanized coatings. Galfan is widely applied to wire, strand, rope, and tubing where formability and long-term performance are critical.

Another widely used zinc alloy coating is Zinalume, which consists of 55% aluminium, 43.5% zinc, and 1.5% silicon. Supplied mainly in sheet form, Galvalume is applied to roofing, cladding, and other building profiles. Its corrosion protection arises from the complementary roles of zinc and aluminium.

The zinc rich regions corrode first, protecting exposed steel, while the aluminium remains largely unaffected until the zinc is depleted, at which point aluminium oxidation products form a durable barrier layer. This dual

mechanism provides extended protection, but the performance of Zinalume depends heavily on coating thickness, environmental corrosivity, and the quality of any top-coat systems. In South Africa, the material is sold under trade names such as Zinalume, Colourbond, and Colourplus.

“Engineers and specifiers must carefully distinguish between coating systems when designing for durability,” cautions Simon Norton, Director, IZA Africa. Batch hot dip galvanizing provides vastly superior life expectancy compared to thin electroplated bolts and fasteners, which fail rapidly in aggressive environments. “Always specify bolts to be hot dip galvanized,” urges Norton.

Duplex coating systems, where organic coatings or UV stabilised powder coatings are applied over galvanizing, offer enhanced performance and aesthetic options, but must be designed with care to avoid premature failure through coating under film corrosion or coating delamination.

“Zinc coatings represent a comprehensive engineering solution to the problem of steel corrosion,” explains Norton. “By employing barrier protection, galvanic action, and inhibiting corrosion products simultaneously, zinc extends the service life of steel by decades.

Proper specification and application of these coating systems is fundamental to reducing life-cycle costs, conserving resources, and ensuring sustainable infrastructure across Africa,” he concludes.



ALIGNING NAMIBIA'S ENERGY AMBITIONS: A SYNERGISED APPROACH TO LOCAL CONTENT

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