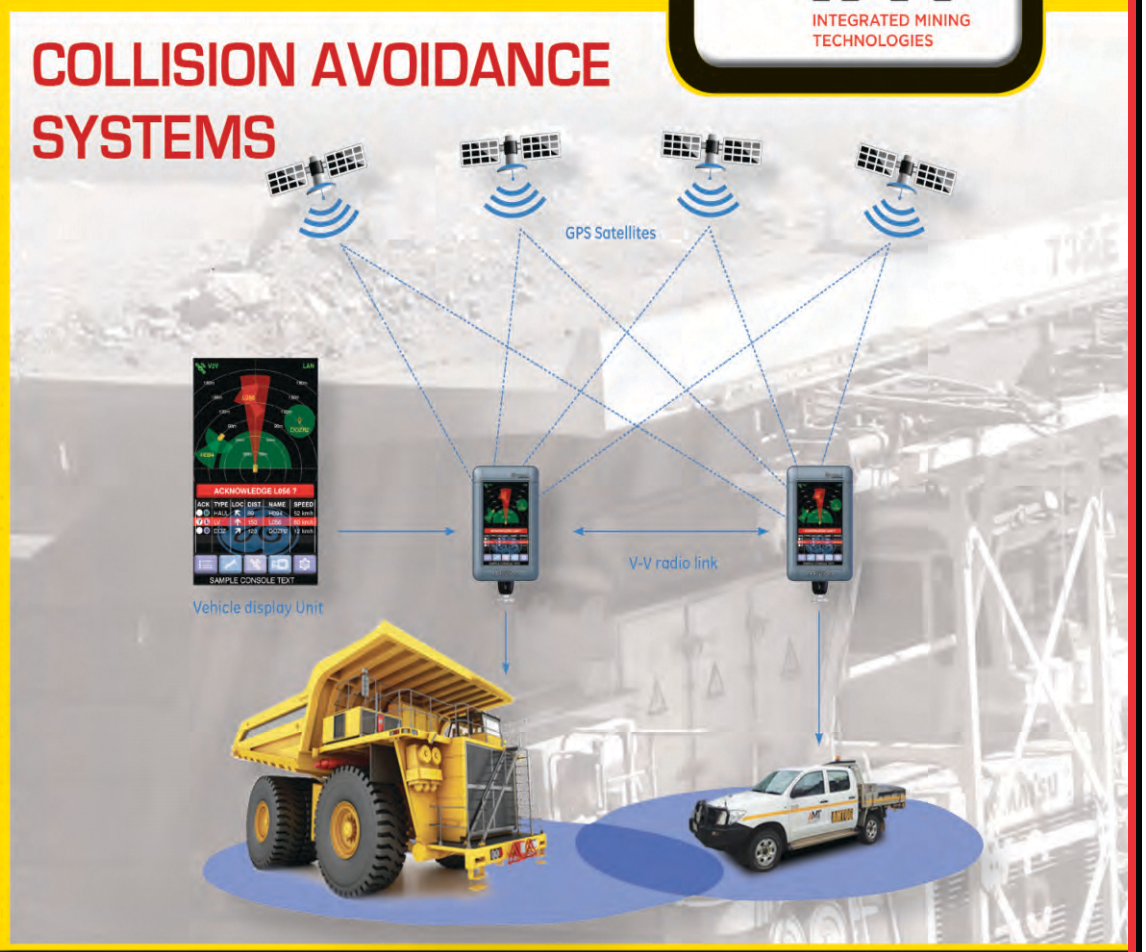
SAFETY AND PRODUCTIVITY

IMT
INTEGRATED MINING TECHNOLOGIES

COLLISION AVOIDANCE SYSTEMS



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MINING DEVELOPMENTS MAGAZINE
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Seriti's Naudesbank Colliery (Mpumalanga Province)

Mpumalanga, South Africa – July 2025 — Seriti Resources, one of South Africa's leading black-owned and -controlled mining companies, has officially broken ground on its latest venture—the Naudesbank Colliery, located in the heart of Mpumalanga province. This R500 million coal project, which commenced development in November 2024, represents a significant commitment to energy security, local job creation, and sustainable economic upliftment.

Designed to start as an opencast mine and later transition into a full underground mining operation, the Naudesbank Colliery is poised to become a critical cog in South Africa's coal production ecosystem. With first coal production targeted for February 2025, the mine will steadily ramp up to produce over 1 million tonnes of coal annually, supplying both local and regional energy needs.

A New Energy Anchor for Mpumalanga and South Africa

Situated in one of South Africa's richest coal belts, the Naudesbank site will play a pivotal role in stabilizing coal supply for the domestic energy grid. With load shedding and power instability remaining serious national concerns, the launch of new energy projects like this provides much-needed relief to a strained supply chain.

"This is a project that goes beyond coal—it's a catalyst for growth, transformation, and energy resilience," said Mike Teke, CEO of Seriti Resources, during the official groundbreaking ceremony. "We are not just investing in a mine; we are investing in the people, infrastructure, and future of Mpumalanga and South Africa as a whole."

The coal mined from Naudesbank is expected to be of high thermal quality, ideally suited for use in Eskom's coal-fired power stations nearby. With strategic logistics and railway links already in place, the colliery will be able to efficiently move coal to various nodes across the region.

Project Phases and Development Timeline

The Naudesbank Colliery is being developed in two main phases:

Phase 1: Opencast Mining (2024–2027)
Groundbreaking: November 2024
First coal extraction: February 2025
Surface infrastructure development: Wash plant, haul roads, storage yards, and worker facilities
Peak production: 1 million tonnes per year
Workforce: ~300 direct jobs, with over 1,000 indirect economic opportunities across services, logistics, and support sectors

Phase 2: Transition to Underground Mining (From 2027)
Mine life extension through underground reserves
Greater production sustainability with lower environmental surface impact
Longer-term workforce stability and enhanced local skills development programs

Investment, Ownership, and Strategic Intent

The R500 million capital injection by Seriti Resources is part of its broader strategy to expand coal production responsibly while driving inclusive socio-economic development. Seriti, which currently supplies more than 30% of Eskom's coal needs, is already a major player in South Africa's energy sector.

The Naudesbank Colliery reinforces Seriti's commitment to:
Expanding black economic empowerment (BEE) in mining
Ensuring local beneficiation and job creation
Enhancing infrastructure resilience in host communities
Leading responsible mining practices, including environmental stewardship and stakeholder engagement
Community Development and Shared Prosperity
One of the most impactful aspects of the Naudesbank project lies in its community integration. Beyond employment, Seriti has committed to implementing a comprehensive Social and Labour Plan (SLP) that channels resources into:

Infrastructure Upgrades
Rehabilitation and upgrading of rural roads
Access to clean potable water systems
Electrification and street lighting for nearby villages
Community health clinics and mobile medical services

Education and Skills Development
Technical bursaries for local youth in engineering and mining
Adult basic education and training (ABET) programs
Apprenticeship and internship pipelines through partnerships with TVET colleges
Mine operator simulator training to build local technical capacity

Enterprise Development
Support for SMMEs (Small, Medium, and Micro Enterprises) through preferential procurement
Establishment of a local supplier database for goods and services
Agricultural and alternative income-generation projects to diversify livelihoods

Royalty Sharing and Community Trusts
Seriti has outlined a royalty-sharing structure where a portion of mine revenue will flow into community trusts, empowering residents to invest in long-term priorities such as housing, education, and small business funding.

Environmental Management and Sustainability
While coal remains a vital component of South Africa's energy mix, Seriti acknowledges its environmental obligations. As such, the Naudesbank Colliery has been planned with sustainability and ecological balance in mind.
Key environmental features include:
Progressive land rehabilitation of opencast areas
Dust and noise mitigation measures, including vegetative buffers and controlled blasting schedules
Water management systems to prevent contamination of nearby rivers and boreholes
Biodiversity preservation zones around sensitive habitats
Environmental monitoring committees involving local residents and independent specialists
The long-term vision includes rewilding post-mining land for agriculture or nature conservation, supporting climate adaptation and food security in the region.

Job Creation and Skills Legacy
One of the most tangible impacts of Naudesbank will be its role in combatting rural unemployment in Mpumalanga, where mining remains the dominant economic activity.

The project is expected to create:
Over 300 direct jobs during peak construction and early operations
Thousands of indirect jobs through transport, food supply, equipment servicing, and housing
Upskilling opportunities in areas such as diesel mechanics, geology, environmental sciences, and automation
Mike Teke emphasized, "We are not only employing people—we are building careers and crafting the next generation of mining professionals."

National Energy Implications
As South Africa seeks to stabilize its energy grid while navigating a just energy transition, projects like Naudesbank play a transitional role—ensuring consistent power supply while the country builds renewable energy capacity.

Coal still accounts for more than 70% of South Africa's electricity generation, and new investments in modern, cleaner, and more efficient coal mines are critical to bridging the gap over the next 10–15 years.
Seriti is also exploring renewable energy partnerships to hybridize its operations with wind and solar energy, thereby reducing its long-term carbon footprint.

Local Voices and Partnerships
The reception from community leaders and regional government officials has been largely positive. Chief Sipho Mahlangu, representing one of the host communities, remarked: "This mine will change our lives—not just for today, but for generations. We welcome Seriti and are hopeful that this partnership will uplift our youth, build our infrastructure, and honor our land." The project also has the support of the Department of Mineral Resources and Energy (DMRE), which views it as a flagship in community-centered mining.

Conclusion: A Model for Modern Mining in Africa
Seriti's Naudesbank Colliery represents the best of what modern African mining can offer—economic strength, environmental responsibility, and social inclusivity. As South Africa navigates the complex balance between energy demand, environmental sustainability, and equitable development, this project provides a blueprint for integrated growth.

With first coal expected in early 2025 and underground operations ramping up by 2027, Naudesbank is set to deliver long-term returns—not only for Seriti Resources and its shareholders, but for the people of Mpumalanga, the power needs of South Africa, and the future of responsible mining.

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Mine Safety in Kenya: Protecting Lives, Powering Progress

Setting the Scene: Why Safety Matters Now
Kenya's mining sector, though still growing, plays an increasingly significant role in the economy—with contributions rising thanks to resources like gold, titanium, and rare earth elements. But with mining comes serious hazards: cave-ins, gas exposure, mechanical failures, chemical use, and environmental degradation. Recent incidents such as mine collapses and unsafe use of explosives in Turkana highlight that non-adherence to safety protocols still poses real and immediate threats.

Benefits of Up-to-Date Mining Regulation
Modern regulations—anchored in the Mining Act of 2016, the Employment & Training Regulations (2017, revised 2022), and environmental guidelines—provide clear advantages:

· Lives Saved & Injuries Prevented
Enforced occupational health rules reduce collapses, respirable dust, chemical exposure, and unsafe blasting, especially in high-risk gold and artisanal sites.

· Stronger Local Job Creation
Mandatory Kenyan hiring policies help train local talent and reduce reliance on foreign labor, building long-term domestic technical capacity.

· Environmental Protection & Community Trust
Required Environmental Impact Assessments, mine rehabilitation guidelines, and community benefit-sharing build goodwill, lower conflicts, and prevent harm to ecosystems.

· Regulatory Transparency & Revenue Growth
Digital licensing, licensing audits, and anti-smuggling laws improve compliance, reduce corruption, and help the state collect due royalties.

Role of MESK and House of Safety Kenya
The Mining Engineers Society of Kenya (MESK) sets industry-aligned professional and ethical standards. Their guidelines emphasize training, risk assessment, engineering best practices, and adherence to both safety and environmental norms.
Meanwhile, House of Safety Kenya plays a vital role on the ground:

· Supplying certified personal protective equipment (PPE) and safety gear

· Facilitating training in fire safety, first aid, and emergency response

· Supporting compliance by helping miners meet audit and occupational health and safety (OHS) requirements

Their approach helps mining operations shift from reactive response to proactive, risk-informed planning, directly promoting safer workplaces nationwide.

Emerging Safety Trends in Mining
Kenya is gradually adopting modern technologies that improve both productivity and safety:

· Internet of Things (IoT) & Wearables
Smart helmets detect hazardous gas, falls, and fatigue. Real-time monitoring ensures immediate alerts and rescue activation.

· Artificial Intelligence & Predictive Analytics
Machine learning systems flag rockfall risks, conveyor failures, or airborne dust spikes before they escalate.

· Augmented Reality (AR)
AR enables immersive but safe training and maintenance simulations, helping operators rehearse emergency scenarios without real risk.

· Unified Security & Compliance Platforms
Cloud-based systems maintain centralized surveillance, access logs, and incident response management, even across remote sites.

· Digital Governance Tools
Online license portals, geological data mapping, and digital royalty systems enhance transparency, policy enforcement, and investor confidence.

Key Regulations Safeguarding Mines
1. Mining Act 2016 – The foundational legal framework governing mineral rights, licensing, mining ethics, and environmental obligations.
2. Mining (Employment & Training) Regulations 2017 (updated 2022) – Enforces local workforce quotas, training standards, and skill transfer goals.
3. Occupational Safety & Health Act 2007 – Outlines mine worker rights, employer duties, and hazard management procedures.
4. Environmental Impact Assessment and Mine Rehabilitation Guidelines – Demand environmental and social impact assessments and formal site decommissioning processes.
5. International ILO Convention C176 – Sets global standards on mine safety and health, serving as a benchmark for regulatory compliance.

Moving from Risk to Resilience
Kenya's path forward lies in combining these regulatory frameworks with technology adoption and grassroots implementation. Key building blocks include:

· Upskilling workers and engineers through virtual and on-site drills and certified training courses

· Adopting digital monitoring systems to flag gas leaks, structural faults, or worker fatigue in real time

· Empowering organizations like House of Safety Kenya to offer training programs, PPE distribution, audits, and compliance consulting

· Strengthening enforcement via county-level inspection teams, licensed permitting audits, and sanctions for misuse of explosives or illicit chemicals

· Formalizing artisanal miners—with licensing, safety training, and access to safer tools and techniques—to reduce dangerous

informal practices prevalent in regions like Migori, Turkana, and Kakamega

Conclusion: Safety is the Bedrock of Sustainable Mining
Mining safety isn't just a regulatory obligation—it's the foundation for long-term success. A well-protected workforce boosts productivity, enhances community trust, reduces liability, and attracts investment into Kenya's naturally rich but underdeveloped mineral sector.
With organizations like House of Safety Kenya directly supporting training and protective services, alongside progressive standards from MESK and national regulators, Kenya's mining industry is poised to evolve from fragmented and hazardous to technologically advanced and responsibly governed.
By embracing the fusion of regulation, innovation, and capacity-building, Kenya can create a future where mining powers progress without compromising human safety or environmental integrity.

Kumba Iron Ore and Anglo American Break New Ground with R11.2 Billion UHDMS Plant at Sishen

Northern Cape, South Africa — In a strategic leap toward enhancing ore beneficiation, production efficiency, and long-term sustainability, Kumba Iron Ore, a subsidiary of Anglo American, has launched construction of the Ultra High Dense-Media Separation (UHDMS) plant at its flagship Sishen Mine in the Northern Cape. With an investment of R11.2 billion, the UHDMS Project represents one of the largest mining technology upgrades in South Africa's recent history and aims to dramatically improve high-grade iron ore yields while extending the life of the Sishen operation to 2044.

After groundbreaking construction activities in November 2024, following initial engineering and earthworks that began in August 2024, the UHDMS plant is scheduled to begin operations by 2026 and ramp up to full-scale production by 2028. This project underscores Anglo American's long-term commitment to technological innovation, sustainability, and socio-economic development in South Africa's mining sector.

What is the UHDMS Project?
The Ultra High Dense-Media Separation (UHDMS) plant is a cutting-edge ore beneficiation system designed to upgrade lower-grade iron ore, allowing Kumba to process previously uneconomical ore and maximize resource utilization. Traditionally, only about 18% of ore mined from Sishen met premium product criteria. The UHDMS plant will raise that recovery rate to an impressive 55%, ensuring that a greater proportion of mined material becomes export-grade product.

This translates to:
Higher production yields from existing resources
Reduced environmental footprint through optimized processing
Increased economic value per tonne mined
Extended mine life by two decades
Kumba CEO Mpumi Zikalala described the project as “a revolutionary beneficiation step that enables Sishen to remain globally competitive, technologically advanced, and environmentally responsible, all while creating enduring value for our communities and shareholders.”

Investment Profile and Strategic Significance
The R11.2 billion capital investment covers:
Advanced dense-media separation (DMS) modules
Refurbishment of existing DMS infrastructure
New slurry pipelines and screening systems
Energy-efficient pumping and control systems
Waste and tailings management upgrades
Worker housing and supporting facilities
This is one of the most significant beneficiation-focused investments in South African mining since the introduction of modern ore-sorting technologies. It is fully aligned with the Mining Charter's emphasis on local value addition and inclusive economic participation.

For Anglo American, the UHDMS system also marks an evolution toward more digitalized, precision mining, where real-time ore characterization, sensor-based separation, and AI-assisted recovery form the backbone of operations.

Boosting South Africa's High-Grade Iron Exports
The Sishen mine is already one of the largest iron ore operations in the world, contributing substantially to South Africa's mineral exports. With the UHDMS upgrade:
Premium product output will increase by 150%

Kumba will deliver more >64% Fe-content iron ore, in demand by low-carbon steelmakers
It will unlock access to ~1.8 billion tonnes of previously uneconomic ore
Iron ore grades will consistently meet the needs of European and Asian steel markets
These improvements are especially timely as global steelmakers seek higher-grade ores to reduce their carbon emissions per tonne of steel—a key driver in the global green steel revolution.

Timeline: From Concept to CommissioningMilestoneDateFeasibility & design approvalQ1 2024Earthworks & engineeringAugust 2024Main construction launchNovember 2024Mechanical commissioningMid 2026First productionQ4 2026Full production ramp-up2028Sishen mine life extended to2044

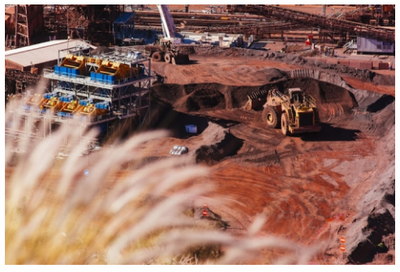
Job Creation and Economic Development
The UHDMS project is expected to have a transformative impact on the Northern Cape region:
During Construction:
Up to 1,500 jobs will be created during peak construction phases
Local contractors and suppliers prioritized through preferential procurement
Skills training for artisans, welders, electricians, and civil engineers
During Operation:
200+ permanent roles added to the current workforce
Training in UHDMS operation, digital control systems, and equipment maintenance
Long-term boost to service industries including housing, retail, and transport
As part of its Social and Labour Plan, Kumba will continue to invest in community schools, clinics, and enterprise hubs, ensuring that mining-driven growth is inclusive and lasting.

Sustainability, Innovation, and Responsible Mining
Anglo American has positioned the UHDMS Project as a flagship of its FutureSmart Mining™ initiative, which integrates digitalization, automation, and environmental stewardship. Environmental safeguards at Sishen will include:
Water recycling systems to reduce freshwater use
Tailings filtration to minimize waste
Dust suppression tech and noise control
Remote operation and monitoring for efficiency and safety
Integration of renewable energy sources to power key systems
These features are expected to cut energy consumption by up to 15% per tonne, reduce CO_2 emissions, and help Sishen transition to a low-carbon mining model.

Strategic Implications for South African Mining
The UHDMS Project speaks to larger trends reshaping the mining sector:
Beneficiation over raw exports: Adding value domestically keeps more wealth in the country
Tech adoption: From AI-based quality control to automated DMS, mining is going digital
Green economy alignment: Higher-grade ores help downstream steel industries cut emissions
Mine-life extension: Reducing greenfield dependence and maximizing existing resources
The project is widely viewed as a strategic model for other iron ore operations and even adaptable to other commodities, including manganese and lithium.

Voices from the Ground
Sishen General Manager, Teboho Mokoena, stated:
"With UHDMS, we are giving new life to Sishen—while making it safer, more productive, and better for the environment. This project demonstrates how South African mining can lead the way in innovation."
Northern Cape Premier Zamani Saul added:
"This is the kind of forward-looking investment our region needs. It brings dignity to workers, confidence to communities, and sustainability to the economy."

Looking Ahead
As South Africa navigates the delicate balance between economic growth, industrial transformation, and climate responsibility, the Sishen UHDMS Project stands tall as a testament to what modern mining can achieve. With its world-class technology, commitment to socio-economic upliftment, and deep integration with global steel markets, the project will leave a lasting legacy—not only on the landscape of the Northern Cape, but on the broader story of African resource development.



South Africa Launches Landmark Titanium Beneficiation Complex in Richards Bay: $4.5 Billion Project to Transform Mineral Value Chain

Richards Bay, KwaZulu-Natal – In a bold step toward industrialization, mineral beneficiation, and global competitiveness, South Africa has greenlit the KwaZulu-Natal Titanium Beneficiation Complex (KZN TiBC) — a US$4.5 billion mega-project located within the Richards Bay Industrial Development Zone (RBIDZ). Set to begin operations in 2027, the project will position South Africa as a key global player in the production and export of titanium dioxide (TiO_2) pigment, a critical material used in aerospace, paints, coatings, plastics, cosmetics, and green technologies.
Expected to produce 80,000 tonnes of TiO_2 pigment annually, with 85% destined for international markets, the complex represents a transformational beneficiation milestone, converting South Africa's abundant titanium reserves into value-added exports, and creating up to 3,000 direct jobs and many more indirect opportunities in associated industries.

Why This Project Matters
South Africa holds the world's second-largest reserves of titanium-bearing minerals, yet historically, most of these have been exported as raw ilmenite or rutile, generating minimal domestic value. The KZN TiBC marks a pivotal shift, as it will locally process titanium feedstock into high-purity pigment, tapping into a multi-billion-dollar global market and shifting the country up the global value chain.

According to Trade, Industry and Competition Minister Ebrahim Patel, “This project is exactly what we envisioned when we spoke of re-industrializing South Africa through beneficiation. We are no longer just mining — we are now making, processing, and exporting products of higher value.”

Project Overview and Timeline
The KwaZulu-Natal Titanium Beneficiation Complex comprises multiple integrated units to process ilmenite and rutile into pigment-grade titanium dioxide. It includes:
A feedstock preparation plant
A chloride-based TiO_2 pigment production facility
Chlorine and acid recycling infrastructure
Waste treatment and energy recovery systems
Export terminal integration with Richards Bay HarbourMilestoneDateFinal investment decisionQ4 2023GroundbreakingMid 2024Civil works and EPC phase2024–2026CommissioningLate 2026First operationsEarly 2027

Investment and International Collaboration
The $4.5 billion investment is spearheaded through a public-private consortium, involving:
South Africa's Industrial Development Corporation (IDC)
The Department of Trade, Industry and Competition (the dtic)
Richards Bay IDZ as the host zone
International technology partners and pigment manufacturers
Potential strategic investors from China, Europe, and India
Advanced chloride processing technology—not widely used on the continent—will be licensed from global TiO_2 leaders, ensuring the pigment produced meets stringent international purity and quality standards.

Jobs and Local Economic Impact
The project is expected to be a major economic engine for KwaZulu-Natal, particularly the uMhlathuze region, creating:
~3,000 direct jobs in construction, operations, and maintenance
Over 5,000 indirect jobs in supply chains, transport, logistics, and support services
Targeted youth employment, with a focus on local hiring through accredited training academies
KZN Premier Nomusa Dube-Ncube noted, “This complex will breathe new life into Richards Bay's economy, unlocking skills, technology transfer, and inclusive growth.”

As part of its Broad-Based Black Economic Empowerment (B-BBEE) strategy, the project will:
Include equity participation for local community trusts
Source at least 40% of inputs from black-owned and local enterprises
Implement training programs for chemical engineers, technicians, and operators
Establish supplier development hubs in the Richards Bay area

Titanium Dioxide: The Strategic Mineral
Titanium dioxide pigment is used in:
Paints and coatings
Plastics and packaging
Pharmaceuticals and sunscreen
Ceramics, papers, and inks
Aerospace and 3D-printing applications
The global market for TiO_2 is currently valued at over $25 billion annually and is projected to exceed $35 billion by 2030, driven by demand from Asia, the EU, and the Americas.
South Africa's ability to manufacture TiO_2 locally means:
Reduced reliance on imports
Improved trade balances
Greater price stability for local industries
Strategic positioning as an export hub to BRICS nations and beyond

Green Design and Sustainability Focus
In alignment with South Africa's Just Energy Transition framework, the KZN TiBC will incorporate green design principles and resource efficiency technologies, including:
Closed-loop water recycling systems
Energy recovery from process heat
Use of green hydrogen trials in pigment processing (R&D phase)
Advanced air pollution controls and acid reclamation units
The project aims to meet or exceed global

environmental benchmarks for emissions, effluent control, and solid waste management.

Strategic Positioning in Africa and Globally

Located within the Richards Bay IDZ, the complex benefits from:
Proximity to titanium feedstock sources in KZN and Mozambique
Export-ready infrastructure, including port access, bulk handling terminals, and railways
Designation as a Special Economic Zone (SEZ), offering tax and customs incentives
The Richards Bay IDZ CEO Thabane Zulu emphasized:
“This is the single most significant beneficiation project our zone has hosted to date. It puts South Africa on the map as a serious player in high-value industrial minerals.”

Collaboration with Education and Research Institutions

The project will partner with:
University of KwaZulu-Natal (UKZN) for materials research
Durban University of Technology (DUT) for technician training
Council for Scientific and Industrial Research (CSIR) for pigment characterization and quality testing
These partnerships aim to build a South African knowledge base in titanium science and support the long-term competitiveness of the sector.

Statements from Stakeholders

President Cyril Ramaphosa, in support of the initiative, stated:
“The Titanium Beneficiation Complex aligns with our national vision of turning mineral wealth into industrial opportunity. It creates jobs, strengthens the rand, and proves that Africa can be a producer of premium industrial materials.”

Dr. Kgosi Ledwaba, IDC Executive for Mining and Metals, added:
“This is not just an industrial project. It is a turning point for our country's beneficiation agenda — taking us from a mining nation to a manufacturing nation.”

The Road Ahead

As civil works progress through 2025–2026, the focus will shift to:
Finalizing offtake agreements with global TiO_2 buyers
Building local supply chains for acids, packaging, and logistics
Launching the KZN Titanium Skills Institute, a center of excellence for beneficiation skills

By 2027, South Africa will officially export its first tonne of domestically processed TiO_2 pigment—a momentous achievement symbolizing a new era in African mining and industrialization.

✅ Key Highlights at a GlanceFeatureDetailsCommodityTitanium dioxide (TiO_2) pigmentLocationRichards Bay IDZ, KwaZulu-NatalInvestmentUS $4.5 billionAnnual Capacity80,000 tonnesExport Share85% (Asia, EU, BRICS)Job Creation~3,000 direct; 5,000+ indirectOperational Start2027Lead InstitutionsIDC, dtic, RBIDZ, international partnersGreen TechEnergy recovery, recycling, low emissions

Kenya Approves Strategic Mrima Hill Rare Earths Project: Paving the Way for Critical Mineral Supply Chain Diversification

Kwale County, Kenya — In a groundbreaking development for both the Kenyan economy and the global rare earths market, the Kenyan government has officially approved a strategic mining consortium to develop the Mrima Hill Rare Earths Project—a high-potential deposit located in Kwale County near the country's Indian Ocean coastline. Spearheaded by Australian firms RareX Ltd and Iluka Resources, the project is poised to become a major regional source of rare earth elements (REEs), manganese, phosphate, and niobium—minerals critical to the green energy, defense, and electronics industries.

The project represents a significant milestone in Kenya's evolving mining sector, bringing with it new opportunities for foreign investment, industrial growth, and strategic alignment with Western partners eager to diversify critical mineral supply chains beyond China.

Strategic Significance of Mrima Hill

The Mrima Hill deposit has long been recognized as one of Africa's most promising rare earths resources, with high concentrations of monazite and bastnäsite, rich in light and heavy REEs including neodymium, praseodymium, dysprosium, and terbium. These elements are essential for:

Electric vehicle (EV) motors
Wind turbines
Defense technologies
Consumer electronics
Satellite and radar systems

The global urgency to secure independent, ethical, and stable REE supplies has skyrocketed in recent years due to:

China's dominance (controlling ~70% of rare earth refining capacity)
Rising geopolitical tensions
Surging demand from clean energy technologies

By bringing Mrima Hill online, Kenya positions itself as a non-aligned and strategic REE supplier in Africa, enabling Western nations to reduce dependency and build more resilient supply chains.

Consortium Structure and Mining Plan

The RareX–Iluka consortium, approved by Kenyan authorities in 2024, plans to:

Mine ore and tailings from Mrima Hill using modern opencast and selective extraction techniques
Transport and export REE-rich concentrates to Iluka's state-of-the-art rare earth refinery in Australia for further separation and processing
Employ eco-sensitive practices with minimal surface disruption and strong environmental monitoring protocols
Iluka Resources, already supported by the Australian government's Critical Minerals Strategy, will be the off-taker and processor of the materials, ensuring secure end-use in Western industrial ecosystems.

Economic Benefits and National Value

Although much of the downstream processing will occur in Australia, Kenya stands to gain significantly through:

Foreign direct investment (FDI) into the mining and logistics sectors
Up to 700 direct jobs in the local economy, with more than 3,000 indirect jobs through service and support industries
Royalties and taxes flowing to both the national government and Kwale County
Development of road, power, and water infrastructure in rural coastal areas
Formal community development agreements (CDAs) tied to education, health, and SME support

Kenya's Ministry of Mining and Blue Economy confirmed that the project would be operated under a Production Sharing Agreement (PSA) model, ensuring that the country retains both equity and long-term resource control.

Project TimelineMilestoneDateFeasibility and EIA approvalQ3 2024Mining licence issuanceQ4 2024Groundbreaking and mobilizationEarly 2025First ore productionLate 2026Full-scale commercial exports2027 onwards

Mineral ProfileMineralUse CaseNeodymium & Praseo**dymium** (NdPr)Permanent magnets in EVs and turbinesDysprosium & TerbiumHeat-resistant alloys, high-tech electronicsManganeseSteelmaking, batteriesPhosphateFertilizer, food processingNiobiumAerospace alloys, superconductorsThe coexistence of REEs with phosphate and niobium adds economic viability, allowing multiple revenue streams and optimized resource recovery.

Environmental and Social Considerations

Mindful of historical tensions surrounding Mrima Hill's ecological and community importance, the consortium has committed to a sustainable development framework, including:

Full Environmental and Social Impact Assessment (ESIA) completed with public participation

Creation of buffer zones to protect sacred and sensitive ecological areas

Implementation of biodiversity offset programs in partnership with conservation NGOs

Establishment of a Community Advisory Board (CAB) with representation from elders, youth, and local business owners

Ongoing grievance redress mechanisms and local employment targets of 60%+

Infrastructure and Logistics

The project will rely on:

Upgraded gravel roads and haulage routes connecting Mrima Hill to Likoni Port in Mombasa

Storage and containerization hubs in Diani and Miritini

Exploration of rail integration options with Kenya Railways for long-term ore transport

The consortium is also contributing to the extension of grid power from Ukunda, with solar hybridization options under consideration for lower carbon emissions.

Kenya's Critical Minerals Vision

The Mrima Hill project aligns directly with Kenya's Mining Policy 2021 and its recent designation of critical and strategic minerals as a national development priority.

According to Cabinet Secretary for Mining, Salim Mvurya,

“The development of Mrima Hill is not just a mining story—it is a story of economic transformation. By responsibly unlocking our rare earths, we are positioning Kenya on the global innovation map.”

International and Regional Relevance

The RareX–Iluka partnership has broader geopolitical relevance. It:

Supports Africa's role in global energy transition

Aligns with the Minerals Security Partnership (MSP) between the U.S., EU, Japan, and other democratic countries

Creates trade and investment links between Kenya and Australia, a global mining and technology leader

Encourages African downstream processing dialogues, potentially leading to future local separation and refining capabilities

Voices from the Community

Fatuma Hassan, a teacher in Lunga Lunga, Kwale, said:

“If this mine respects our land and helps build schools and clinics, we will welcome it. But we also want our children to work there—not just see trucks passing by.”

Consortium liaison officer Joseph Mburu confirmed plans to establish:

A skills development academy for REE-related mining

Scholarships and internships at Australian universities

Early-stage support for local SME suppliers

✅ SummaryProject NameMrima Hill Rare Earths ProjectLocationKwale County, KenyaLead CompaniesRareX Ltd & Iluka Resources (Australia)Investment TypeMining, beneficiation, exportKey MineralsREEs, manganese, phosphate, niobiumFirst ProductionLate 2026SignificanceStrategic critical mineral supply chain projectEmployment700+ direct, 3,000+ indirect jobsExport DestinationIluka refinery, Australia

Karowe Underground Expansion (Botswana)

Project Background & Rationale
Location: Central Botswana, at the existing Karowe open-pit diamond mine
Objective: Extend the mine's life from mid-2025 to beyond 2040 by transitioning to underground mining focused on the South Lobe of the AK06 kimberlite

Technical Scope & Infrastructure
Production Shaft:
8.5 m internal diameter, ~767 m deep, outfitted to hoist ~7,400 t/day of ore and development waste
Ventilation Shaft:
6 m diameter, ~729 m deep, ensuring adequate airflow
Vertical Reach: The system accesses 400 m vertical diameter—from ~310 m to ~710 m above sea level
Feed & Recovery: Underground ore begins supplementing stockpiles in 2027, with full underground feed expected by H1 2028
Production Estimate: The project aims to process ~2.7 Mt of ore annually, targeting total diamond recoveries of ~6.8 million carats over the mine's life

Timeline & Key Milestones
Pre-production Build (2020–2027): Eight-year ramp-up period, winding down open-pit in 2025 Mid-2024: Production and ventilation shafts connected; ventilation shaft ahead of schedule
2025: Main focus on: Completing final shaft sinking (~$115 million CAPEX)
Equipping production shaft & lateral development
Commissioning surface plant (winders, air coolers)
H2 2027: Infrastructure and commissioning complete
H1 2028: Full-scale underground production begins

Capital & Economics
Total Pre-production CAPEX: ~$683 million — a 25% increase from an initial estimate of ~$547 million
2024–2025 Spending:
2024: ~$100–115 million focused on shaft sinking, station development, winders, surface infrastructure
Financing: Fully funded under an updated feasibility study, with $190 million project loan and $30 million working capital facility
Value Creation:
Feasibility study forecasts ~$1.1 billion in cash flow, NPV ~$750 million at 5% discount rate, and a ~3-year payback

Challenges & Mitigations
Geological & Water Flow Issues: Intervening high-water sandstone layers required extensive grouting; caused a ~1.5-year schedule delay and ~$136 million cost overrun
Technical Adjustments: Grouting was effective; staff secured steady progress below the horizon despite shifting lithologies
Safety & Sustainability:
3.3 million hours worked and 1,244 days without lost-time injury
Total Recordable Injury Frequency rate (TRIFR) of 0.59
Adheres to IFC and Equator Principles, with environmental safeguards

Strategic & Economic Impact
Extended Mine Life: Transforms Karowe into a robust operation through 2040
Premium Diamonds: Access to high-grade underground ore promises continued discovery of exceptional stones (e.g., Lesedi La Rona, Sewelô)
Revenue Growth: Underground operations expected to enhance cash flow, backing Lucara's long-term dividend and investment strategy
National Benefit: Continued employment, infrastructure upkeep, and economic stimulus for Botswana

Local Voices & Broader Context
Diamond Discoveries: In August 2024, the mining community celebrated Karowe's discovery of a 2,492-carat diamond—the second-largest ever—confirming the mine's knack for exceptional finds
Reddit Reactions:
“Botswana diamond could be second-largest gem-quality example ever found”
Local excitement balanced with critique:
“I'm sure the barefoot, mercury-poisoned 11-year-old who dug it up will share in the profit.”
These comments reveal both wonder and concerns about wealth distribution and ethical practice.
Operational Advice: International workers highlight the logistical realities of underground operations in Botswana (accommodation, power, gear, social dynamics)

Summary Table Area Details Owner Lucara Diamond Corp (Canada)GoalTransition from open-pit to underground miningShafts8.5 m prod. shaft (767 m); 6 m vent shaft (729 m)CAPEX$683 million total; 2024/25 spend = ~$115 mStart DateH1 2028Production~2.7 Mt ore/year; ~6.8 M carats LOMNPV / Payback~$750 m; ~3-year paybackRisks ManagedGrouting, water inflow, cost overrunsSafety Metrics>1,200 days LTI-free; TRIFR 0.59Strategic OutcomeExtended mine life, precious diamond yield, Botswana economic benefits

Final Thoughts
The Karowe Underground Expansion is a globally significant mining development: transforming one of the world's richest diamond orebodies into a sustainable, long-life operation. Despite technical challenges and cost escalation, infrastructure delivery remains on track for 2028. With strong safety performance and backing of high-value stones, the project is poised to benefit both Lucara shareholders and Botswana's economy, provided environmental, social, and governance commitments are upheld.

Goulamina Lithium Project (Mali)

The Goulamina Lithium Project, operated by Lithium du Mali (formerly Mali Lithium), is a world-class hard-rock spodumene mine, located ~50 km west of Bougouni, southern Mali

Initially a 50:50 joint venture between Ganfeng Lithium (China) and Firefinch Limited (Australia), Ganfeng has since acquired the remaining 40 % for US $342.7 million, achieving full ownership, with the Malian government now holding a total of 35 % (10 % free-carry and 25 % paid)

Reserves & Production Profile
Mineral Resources tower at 211 Mt @ 1.37 % Li_2O, with Ore Reserves of 52 Mt @ 1.51 % Li_2O
Over a ≥21-year mine life, total spodumene concentrate output is pegged at 15.6 Mt

Annual production schedule:
Stage 1 (underway): 506,000 tpa SC6 (6 % Li_2O) — already producing a high-quality, low-impurity concentrate
Stage 2: ramp-up to ~831,000 tpa, with average annual output estimated at ~726,000 tpa over the life-of-mine

Timeline & Commercial Milestones
A Definitive Feasibility Study was finalized in December 2021
Construction began in 2022 and production officially commenced on December 15, 2024, marking Mali's first lithium output
By June 24, 2025, the first lithium concentrate shipment had departed for China

Economics & Financial Performance
Stage 1 Capex: US $255 million
Stage 2 Capex: US $70 million
Estimated cash cost is remarkably low: US $312/t, with AISC around US $365/t

Financial highlights (unleveraged):
Pre-tax NPV (8%): A$5.6 billion (~US $4.0 billion)
Post-tax NPV (8%): A$4.1 billion (~US $2.9 billion)
IRR: 97.8% pre-tax, 83% post-tax

Infrastructure & ESG Features
Supporting infrastructure includes a power plant (with renewable/hybrid options), 200-room camp, tailings storage facility, and water pipeline from Sélingué Dam (~25 km)

Processing flow-sheet: involves conventional crushing, dense media separation, ball milling, and flotation to produce high-grade SC6
The Malian state's 35 % participation reflects new mining code provisions aimed at increasing local benefit and oversight

National Impact & Local Benefits
Goulamina is positioned as a transformative economic engine: generating annual revenues of ~100–160 million USD, creating approximately 2,000 direct jobs, and requiring at least 51 % local subcontracting
The government's portion of dividends is partially reinvested in community projects like roads, schools, and clinics
Agriculture-dominated Bougouni region now benefits from improved infrastructure and steady employment

Strategic & Geopolitical Relevance
Goulamina has positioned Mali as West Africa's first lithium-exporting nation, powering critical battery supply chains now reliant on Africa to meet global decarbonization demands
Mali's push aligns with its new mining code aimed at securing local ownership, with 35 % ownership reinforcing state control
The Chinese Ganfeng-Mali partnership exemplifies a strategic, state-backed resource alliance

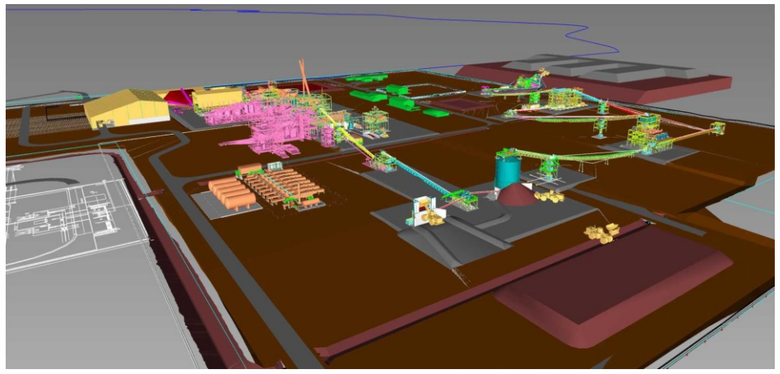
Local Sentiment & Public Discourse
Reddit users reflect both optimism and skepticism:
“La mine devrait rapporter plus de 100 milliards de francs CFA par an … 35% des revenus de Goulamina reviendront au Mali… 51% de la sous-traitance devra être octroyée à des entreprises maliennes.”

Another hopeful voice:
“This is such a good news for Mali… Mali GDP is 19 billion a year so 200 million extra a year is good revenue… I think the mine is worth 100 billion, so Mali will get steady flow of cash.”
While some bristle at heavy Chinese involvement:
“ça choque personne quand c'est les chinois apparemment... XD putain de blague ces maliens.”

Summary: Key Metrics at a GlanceFeatureDataResources / Reserves211 Mt @ 1.37 % Li_2O / 52 Mt @ 1.51 % Li_2OAnnual Production506 ktpa → 831 ktpa (2nd stage)Mine Life≥21 yearsCapexStage 1: US $255m; Stage 2: US $70mCash CostUS $312/t; AISC US $365/tNPV / IRRPost-tax 8% NPV ~US $2.9b; IRR 83%OwnershipGanfeng 65%; Mali government 35%; locals 5%Jobs~2,000 direct; >51% local contracting

Final Insights
The Goulamina Project stands out as a low-cost, high-return lithium operation that balances strong financial fundamentals with meaningful local and national benefits. Its alignment with sustainability goals (renewable energy integration, local content requirements) helps mitigate geopolitical risk.

That said, meaningful monitoring—especially around environmental safeguards, profit transparency, and community development—is vital to ensure long-term success and sustainable impact. If you're interested in deeper exploration (e.g., ESG profiles, off-take agreements, tech specifics), I'm happy to dive in further!



Kiaka Gold Mine (Burkina Faso)

Project Overview & Background
Kiaka Gold Project is an open-pit gold mine being developed by West African Resources (WAF) in the Zoundwéogo (Manga) province, around 45 km south of the Sanbrado mine and approximately 110 km southeast of Ouagadougou, Burkina Faso's capital
Ownership: WAF holds 90%, with the Government of Burkina Faso retaining 10% Acquired from B2Gold and GAM S-Mining in November 2021 (
The 2022 feasibility study (Feas) summarized a US $430m capital investment, projecting a gold production rate of ~219,000 oz/y over an ~18.5-year lifespan
A refined feasibility update in August 2024 increased early-stage production estimates to ~258,000 oz/y in the first five years, averaging 234,000 oz/y across a ~20-year life

Scale & Mining Method
Ore Reserves: ~164 million tonnes grading 0.9 g/t Au (~4.8 million oz gold) as of July 2024
Resources: ~285 Mt at 0.9 g/t, equating to 7.9 Moz
Mining: Fully open-pit, with an overall strip ratio of 1.8:1 in ore-bearing zones
Pit design: Kiaka Main (~2 km × 900 m × 460 m deep) with a smaller South Pit
Mining fleet comprises 230 t and 140 t excavators alongside 95 t haul trucks, with expanded operations as per 2024 updates
Process plant: Includes single-stage gyratory crusher, SABC mill, and carbon-in-leach (CIL) circuit spanning ~7 Mtpa capacity

Project Timeline & Progress
Q1 2023: Major works began on site
End-2023: Camp and security zones built, earthworks began on plant area
June 2023: Secured US $265 m in financing from Sprott Resource Lending and Coris Bank
Late 2024: Concrete works, conveyor installation, and crushing circuit advanced, equipment deliveries underway
May 2025: Stripping, mining, and crushing fleet operational, with over 800,000 bcm moved and 184,000 t ore on pad
Q3 2025: First gold pour expected; full ramp-up anticipated in H2–late 2025

Economics & Financing
Pre-production CAPEX: $430 m (2022 Feas); updated to $447 m with owner-mining inclusion; separate 2024 update pegged $565.6 m inclusive of changes
Financing: Fully funded via $265 m loan plus internal cash flows from Sanbrado
Feas stats:
Pre-tax NPV 5%: US $1.24 billion; Post-tax IRR ~21%; 2.25–3.25-year payback
Long-life asset with stable returns targeting ~420,000–480,000 oz gold annually group-wide

Technical & Operational Detail
Grade control: Reverse-circulation drilling confirms resource continuity with high-grade intersections, e.g., 18 m @ 6.3 g/t Au near-surface
Low strip: A 0.8:1 strip ratio for initial Stage 1 pit reduces operational costs
Equipment fleet: Heavy machinery including Caterpillar 6020 excavators and 140 t trucks commissioned to meet increased mining volumes
Infrastructure: Tailings facility lining is complete; 225 kV grid connection pending in Q3 2025, with generator backup in use

Social & Environmental (ESG) Factors
Local employment: While formal numbers are limited, site operations employ locals and are expected to boost the region's economy through indirect jobs .
Cost efficiency: AISC estimated at ~US $1,052–1,300/oz
Conflict & permits: In 2024, Burkina Faso's junta indicated potential overhaul of mining permits. WAF reassured that Kiaka remains licensed and compliant
Child labor caution: Burkina Faso's mining sector has child labor issues, but there's no evidence tying Kiaka to this. Reporting awareness remains pertinent .

Strategic & Regional Impact
Contribution to GDP: Kiaka enhances Burkina Faso's gold output, projected to be among the country's largest new mines alongside Sanbrado
Diversified production: By 2025, WAF will increase annual gold production from 230,000 oz to ~420,000 oz, enhancing Burkina's standing as West Africa's top producer .

Sustainability model: Owner-mining strategy introduced in 2024 is expected to improve cost control and local job gains versus contractor-based models
Regional precedent: Kiaka's progression defines it as a benchmark for future large-scale mining operations in Burkina and the wider Sahel.

Summary TableCategoryKey DetailsLocationZoundwéogo province, ~45 km south of SanbradoOwnershipWAF 90%, Govt 10%Reserves/Resources4.8 Moz / 7.9 Moz AuCAPEX~$447–566 mLifeline~19–20 yearsProduction258,000 oz/y (first 5 years); 234,000 oz/y LOMFirst GoldQ3 2025ESGLow strip ratio, grade control in place, grid power plannedPolitical RiskPermits secure amid sector regulatory shiftsOutput RoleWAF's second mine elevates Burkina's national output

Final Outlook
Kiaka is a transformative open-pit gold mine with solid backing, strong technical grounding, clear ESG planning, and a proven path toward substantial gold output in 2025. Production is on schedule, and the project is set to significantly reinforce both WAF's growth trajectory and Burkina Faso's gold economy.

If you'd like further information—such as commodity price sensitivity, community engagement strategies, or comparative analysis with other regional gold projects—just let me know!

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