



SAIMM
THE SOUTHERN AFRICAN INSTITUTE
OF MINING AND METALLURGY

CRITICAL MINERALS 2026

FROM POTENTIAL TO PROSPERITY –
BUILDING AFRICA'S CRITICAL MINERALS VALUE CHAINS
THROUGH COLLABORATION, INNOVATION AND GOVERNANCE

30–31 JULY 2026

VENUE: ROYAL MAJESTIC HOTEL, ROSEBANK, JOHANNESBURG

CRITICAL MINERALS CONFERENCE PRELIMINARY PROGRAMME

Day 1 – Thursday, 30 July 2026

07:30–08:30	Registration and Early Morning Refreshments
08:30–08:35	Safety Briefing Venue Official
08:35–08:45	Welcome and Opening Address – Conference Chairperson N. Mbere, Webber Wentzel, South Africa
08:45–09:00	SAIMM Presidential Address G. Lane, Vuuma
09:00–09:15	Scene Setting Opening: Introduction to Critical Materials Project Blue, South Africa Drivers of critical materials: technology

	geopolitics & defense Key raw materials in the spotlight Opportunities (and challenges) for Africa
09:15–10:15	Opening Panel Discussion: From Potential to Prosperity – Building Africa's Critical Minerals Value Chains M. Mthenjane, Minerals Council South Africa T. Makube, Department of Trade Industry and Competition N. Nzimande, Department of Mineral Resources and Energy
10:15–10:35	Mid-Morning Refreshments

PARALLEL SESSION

SESSION 1A: ESG, Energy Transition & Inclusive Development

10:35–11:05	Keynote Address: From Gold to Gold-Copper: Reframing the Energy Transition as a Mining Transition: The Harmony Story U. Govender, Harmony Gold, South Africa
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Just Transition, ASM and Social Equity

Moderator:

11:05–11:25	Leveraging Africa's ASM sector for equitable critical mineral value chains M. Ncube, Independent, South Africa
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11:25–11:45 **A Mining Transition Vulnerability Index for Africa's Critical Minerals**

M. Cole, E. Canpolat, University of the Witwatersrand; World Bank, South Africa

SESSION 1B Governance, Policy & Regional Collaboration

10:35–11:05	Governance Category Keynote Address: N Nzimande, Department of Mineral Resources and Energy, South Africa
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Continental and Regional Policy. Legal Frameworks and Sustainable Development

Moderator:	N. Mbere, Webber Wentzel, South Africa
11:05–11:25	The Path to the African Green Minerals Strategy as the continental framework in building regional mineral value chains and equitable resource-based industrialization M. N. Ncube, African Union

11:25–11:45 **Legal and Contractual Frameworks Governing Critical Minerals in Africa: Challenges and Opportunities**

M. B. Stevens, African Development Bank

CONTACT

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PARALLEL SESSION

11:45–12:05	From Extraction to Adoption: Critical Minerals, Transition Pathways, and Technology Acceptance in Southern Africa B. Swamba, <i>University of Johannesburg, South Africa</i>	11:45–12:05	Leveraging Critical Minerals for the Attainment of Sustainable Development Goals in SADC: A Policy Review and Analysis G. Dzinomwa, A. G. O. Mutambara, <i>Namibia University of Science and Technology, Namibia</i>
12:05–12:25	Social Performance & the Critical Minerals Imperative in Africa's Just Transition G. G. Wessels, <i>Immerssion3, South Africa</i>	12:05–12:25	Critical Minerals in South Africa: Catalyst for Sustainable Development or Resource Curse? T. Madzivhandila, <i>University of Johannesburg, South Africa</i>
12:25–12:45	TBC	Investment, Finance Moderator:	A. Lourens, <i>Minerals Council South Africa</i>
12:45–13:45	Networking Lunch	12:25–12:45	De-risking Critical Minerals Exploration in Africa: Attracting Private Investment into the Early-Stage Pipeline O C Mashabila, <i>Botswana Geoscience Institute and Exploration Investment Company Botswana, Botswana</i>
13:45–14:05	A Comparative Analysis of Environmental, Social and Governance (ESG) Performance in South Africa's Manganese Sector S. Khan, L. Haywood, P. Naidoo, E. Van Huyssteen, J. Maritz, J. Jele, K. Lomko, T. Otto, M. Modibedi, <i>Council for Scientific and Industrial Research, South Africa</i>	12:45–13:45	Networking Lunch
14:05–14:25	Social and cultural paradoxes in the mining, processing and beneficiation of critical minerals in South Africa B. Swamba, A. F. Mulaba-Bafubiandi, <i>University of Johannesburg, South Africa</i>	13:45–14:05	African Critical Minerals Investability: Botswana, the Conversion Problem, and the Path from Discovery to Capital J A H. Campbell, <i>Botswana Minerals, Botswana</i>
14:25–14:45	Striking a Balance Between Critical Minerals and the Right to Education in Africa's Role in Green Energy Transition H. Mutlokwa, <i>University of Cape Town, South Africa</i>	Digital Governance, Traceability and Operational Technology Moderator:	S Mabaso, <i>Vahlengwe Mining Advisory and Consulting</i>
		14:05–14:25	Digital Risk Governance for Critical Minerals: Using IoT to Strengthen Safety, ESG, and Regulatory Compliance Across Processing Value Chains M. Singo, A F Mulaba, <i>University of Johannesburg, South Africa</i>
		14:25–14:45	The Application of Digital Traceability Solutions in the South African Mining Industry N. S. Mpanamana, <i>Council for Scientific and Industrial Research, South Africa</i>

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PARALLEL SESSION

14:45–15:05	Afternoon Refreshments
15:05–15:25	Junior and Small-Scale Mining Support (JSMS) Initiative <i>J. Morris, Carbon Trust Africa, South Africa</i>
15:25–15:45	Stakeholder Engagement in Critical Minerals Mining: A PRISMA-Based Review of Research Gaps in the Rustenburg Region <i>M. Chauke, G. Bosch, University of Johannesburg, South Africa</i>
15:45–16:05	Dr Ntunka to provide closing remarks/ summation <i>B. Ntuka, Durban University of Technology</i>
16:05–16:45	Continue to Session 1B
16:45	Close of Day 1
16:45–18:45	Networking Cocktail Function sponsored by North-West University 

14:45–15:05	Afternoon Refreshments
15:05–15:25	Cyber Security <i>J. Simmons, South Africa</i>
	Critical Minerals Value Chain
	Moderator:
15:25–15:45	Africa's copper supply: growth, constraints, and value chain participation in the energy transition <i>L. Mpangala, Project Blue, South Africa</i>
15:45–16:05	Losing the Downstream: South Africa's Metallurgical Smelter Closures and the Case for Strategic Intervention <i>R. Coetzee, SFA Oxford, South Africa</i>
	Innovation, Skills and the Development Potential of South Africa's Critical Minerals
	Moderator:
16:05–16:25	A. Ndlovu, University of Cape Town Innovation, Technology, Circularity, and Skills for Responsible and Competitive Critical Mineral Value Chains: A Framework for Mineral Development Zones and Centres of Excellence <i>H. D. O. Brodner, S. J. Ntsoelengoe, Council for Scientific and Industrial Research, South Africa</i>
16:25–16:45	Skills Readiness and Capability Gaps in Implementing South Africa's Critical Minerals Strategy <i>A. Gowera, University of the Witwatersrand, South Africa</i>
16:45	Close of Day 1
16:45–18:45	Networking Cocktail Function sponsored by North-West University 

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Day 2 – Friday, 31 July 2026

07:30-08:30

Registration and Early Morning Refreshments

08:30-08:35

Safety Briefing

Venue Official

08:35-08:40

**Welcome and Recap – Conference
Chairperson**

N. Mbere, Webber Wentzel, South Africa

08:40-08:45

Delegates Break into Breakaway Sessions

PARALLEL SESSION

SESSION 2A: Innovation, Beneficiation & Value Addition

08:45-09:15

**Innovation & Beneficiation Category Keynote
Address**
TBC

Panel 2A-1: REE Extraction, Processing and Measurement

Moderator:

09:15-09:35

**Advancing REE Extraction and Separation
Readiness from Primary and Secondary
Resources at Mintek**
*G. Ndlovu, L. Motsepe, E. Muller, Mintek, South
Africa*

09:35-09:55

**Repurposing coal fly ash and phosphogypsum
waste material for the recovery of critical
minerals**

T. M. Rampfumedzi, Mintek, South Africa

09:55-10:15

**Thermally induced phase transformation of
phosphogypsum for rare earths recovery**
*X.V. Rikhotso, J. Sehata, A. Mkhohlakali, H.M.
Mabowa, L. Chimuka, J. Tshilongo, Analytical
Chemistry Division, MINTEK, Molecular Sciences
Institute, School of Chemistry, University of the
Witwatersrand, South Africa*

10:15-10:35

**Pre-treatment of rare earth phosphate minerals
to enhance leaching of rare earth elements – A
review**
S F Mokoena, Mintek, South Africa

SESSION 2B Infrastructure & Strategic Corridors

08:45-09:15

**Keynote Address: The Hidden Infrastructure
of Critical Minerals: A Systems Perspective for
South Africa**
*J. Courtneage, Mandela Mining Precinct, South
Africa*

Logistics Corridors, Transport and Regional Competitiveness

Moderator:

09:15-09:35

**Moving More Than Minerals: Railway Corridors
as Enablers in SADC's Critical Minerals
Economy**
*B. Dlamini, Development Bank of South Africa,
South Africa*

09:35-09:55

**Enhancing Logistics Corridor Performance
Through Informed Decision-Making**
*R. A. Dondofema, Council for Scientific and
Industrial Research, South Africa*
**Agile logistics practices to foster low-
carbon economy in South Africa's minerals
transportation**
*E. Muchefa, A. F. Mulaba, University of
Johannesburg, South Africa*

10:15-10:35

**Global Competitiveness Assessment of South
African Manganese Mining: A Benchmarking
Study of Production, Reserves and
Infrastructure Access**
*S. Khan, T. Otto, J. Maritz, J. Jele, M. Mpofu,
CSIR, South Africa*

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10:35–10:55
10:55–11:15

Mid-Morning Refreshments

Selection Criteria and Parameters for Measurement and Analysis of Rare Earth Elements in various materials

T. M. Rampfumedzi, *Mintek, South Africa*

11:15–11:35

Particle Swarm Optimization of Rare Earth Elements Recovery from Coal Fly Ash Using Wet Magnetic Separation

T. S. Zirevaa, M. J. Mvita, N. P. Baloyia,
University of Johannesburg, South Africa

11:35–11:55

Solvent extraction and separation of light rare earth elements from acid mine drainage

J. Baloyi, S. Tau, R. Mbhele, V. Masindi,
CSIR, South Africa

11:55–12:15

Optimizing spodumene concentration using sensor-based sorting and heavy liquid separation tests: A case study in Brazil

P. Esteves, R. Costa, P. Ferreira, A. Sarubbi,
C. Senna, *Steinert, South Africa*

12:15–12:35

Gravity Separation Testwork for Lithium Recovery from Black Mass

R. Tseka, J. Kabangu, *South Africa*

12:35–13:35

Networking Lunch

13:35–13:55

The development of Manganese rich cathode materials for Lithium-ion batteries

M. Modibedi, *et al, South Africa*

13:55–14:15

Optimisation of Copper-Cobalt Extraction Using Response Surface Methodology Coupled with Bayesian Neural Networks

M. J. Mvita, N.P. Baloyi, *University of Johannesburg, South Africa*

10:35–10:55
10:55–11:15

Mid-Morning Refreshments

From Endowment to Prosperity: Unlocking Southern Africa's Critical Minerals Opportunity
G. Lane, *Vuuma, South Africa*

11:15–11:35

Choosing the Future: Railway Reform Scenarios and the Competitiveness of Southern Africa's Critical Minerals Value Chains

E de Ruiter, *Auctoro Advisory, South Africa*

11:35–12:35

Panel Discussion: Railway Corridors as Mineral Economy Enablers

12:35–13:35

Networking Lunch

Technical Supplementary Session

Moderator:

13:35–13:55

Electronic and electrical waste as a novel source of critical minerals

M.H. Durski, M. Williams-Wynn,
Baclan Energy, South Africa

13:55–14:15

Copper flotation advanced process control for Palabora Mining Company

M. Erwee, *et al, South Africa*

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14:15–14:35	Digital, Data, and Diversity: Leveraging Technology to Enable a Diverse Workforce in Critical Minerals G. Mishra, <i>Microsoft, South Africa</i>	14:15–14:35	Determination of the Cause of High Dust Load During Converter Processing P. Siwila, <i>Copperbelt University, Zambia</i>
14:35–14:55	Selective Copper Removal from Anode Slimes via Acid Leaching: Implications for Critical Mineral Recovery C. Ndhlovu, R.M. Lamy, Y. Hara, S. Chisempi, L. Kabondo, T.C. Phiri, <i>Copperbelt University, Zambia</i>	14:35–14:55	Flowsheet development for the recovery of tantalum from a pegmatite ore body J.O. Mogalanyane, <i>Comet, South Africa</i>
14:55–15:15	Beneficiation of Critical Minerals from Mine Tailings: Microstructural Insights and Processing Opportunities K. Mudzanani, V. Masindi, C. Tshilande, S. Fontainis, <i>Mintek, South Africa</i>	14:55–15:15	
15:15–15:30	Close of Conference and Afternoon Refreshments	15:15–15:30	Close of Conference and Afternoon Refreshments

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