



**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 | <b>Registration and Early Morning Refreshments (Ilanga)</b>                                                 |
| 08:30–08:35 | Safety Briefing Venue Official                                                                              |
| 08:35–08:45 | <b>Welcome and Opening Address – Conference Chairperson</b><br>N. Mbere, Webber Wentzel, South Africa       |
| 08:45–09:00 | <b>SAIMM Presidential Address</b><br>G. Lane, Vuuma                                                         |
| 09:00–09:15 | <b>Scene Setting Opening: Introduction to Critical Minerals</b><br>N. Backeberg, Project Blue, South Africa |

09:15–10:15

### **Opening Panel Discussion: From Potential to Prosperity – Building Africa's Critical Minerals Value Chains**

Facilitated by N. Backeberg, Project Blue, South Africa

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 taking place in Ilanga

#### **SESSION 1A: ESG, Energy Transition & Inclusive Development**

Session Sponsored by Anglo American  **AngloAmerican**

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|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10:35–11:05 | <b>Keynote Address: From gold to gold-copper: Reframing the energy transition as a mining transition: The harmony story</b><br>U. Govender, Harmony Gold, South Africa |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### **Just Transition, ASM and Social Equity**

|                                  |                                                                                                                                                                          |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Moderator:</b><br>11:05–11:25 | S. Eckstein, Ukwazi, South Africa<br><b>Leveraging Africa's ASM sector for equitable critical mineral value chains</b><br>M. Ncube, Independent Consultant, South Africa |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|             |                                                                                                                                                                    |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11:25–11:45 | <b>A mining transition vulnerability index for africa's critical minerals</b><br>M. Cole, E. Canpolat, M.. Lokanc, University of the Witwatersrand, , South Africa |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Session 1B taking place in Ballroom

#### **SESSION 1B Governance, Policy & Regional Collaboration**

|             |                                                                                                  |
|-------------|--------------------------------------------------------------------------------------------------|
| 10:35–11:05 | <b>Keynote Address:</b><br>N. Nzimande, Department of Mineral Resources and Energy, South Africa |
|-------------|--------------------------------------------------------------------------------------------------|

#### **Continental and Regional Policy. Legal Frameworks and Sustainable Development**

|                                  |                                                                                                                                                                                                                                                                    |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Moderator:</b><br>11:05–11:25 | N. Mbere, Webber Wentzel, South Africa<br><b>The path to the african green minerals strategy as the continental framework in building regional mineral value chains and equitable resource-based industrialization</b><br>M. N. Ncube, African Union, South Africa |
| 11:25–11:45                      | <b>Legal and contractual frameworks governing critical minerals in africa: challenges and opportunities</b><br>M. B. Stevens, African Legal Support Facility, South Africa                                                                                         |



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### PARALLEL SESSION

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11:45-12:05 | <b>From extraction to adoption: Critical minerals, transition pathways, and technology acceptance in southern africa</b><br>B. Swamba, <i>University of Johannesburg, South Africa</i>                                                                                                                                                                                                                                                                                                                                                  | 11:45-12:05                                                                                            | <b>Leveraging critical minerals for the attainment of sustainable development goals in SADC: A policy review and analysis</b><br>G. Dzinomwa <sup>1</sup> , A. G. O. Mutambara <sup>2</sup> , <sup>1</sup> Namibia University of Science and Technology, Namibia, <sup>2</sup> University of Johannesburg, South Africa                                                                                                       |
| 12:05-12:25 | <b>Social performance &amp; the critical minerals imperative in africa's just transition</b><br>G. G. Wessels, <i>Immersio3 Consulting, South Africa</i>                                                                                                                                                                                                                                                                                                                                                                                | 12:05-12:25                                                                                            | <b>Critical minerals in south africa: Catalyst for sustainable development or resource curse?</b><br>T. Madzivhandila, <i>University of Johannesburg, South Africa</i>                                                                                                                                                                                                                                                        |
| 12:25-12:45 | <b>The missing ESG pillar: Building municipal capability to support mining-led development</b><br>V. Naicker, <i>Anglo American, South Africa</i>                                                                                                                                                                                                                                                                                                                                                                                       | <b>Investment, Finance</b><br><b>Moderator:</b><br>12:25-12:45                                         | A. Lourens, <i>Minerals Council South Africa</i><br><b>De-risking critical minerals exploration in africa: attracting private investment into the early-stage pipeline</b><br>O. C. Mashabila, <i>Exploration Investment Company Botswana</i>                                                                                                                                                                                 |
| 12:45-13:45 | <b>Networking Lunch</b><br><b>Moderator:</b><br>B. Maphalala, <i>DSTI-NRF CIMERA, South Africa</i>                                                                                                                                                                                                                                                                                                                                                                                                                                      | 12:45-13:45                                                                                            | <b>Networking Lunch</b>                                                                                                                                                                                                                                                                                                                                                                                                       |
| 13:45-14:05 | <b>A comparative analysis of environmental, social and governance (ESG) performance in South Africa's manganese sector</b><br>S. Khan <sup>1</sup> , L. Haywood <sup>1</sup> , P. Naidoo <sup>1</sup> , E. Van Huyssteen <sup>1</sup> , J. Maritz <sup>1</sup> , J. Jele <sup>1</sup> , K. Lomko <sup>1</sup> , N. Mabena <sup>1</sup> , N. Ramashala <sup>1</sup> , T.J. Otto <sup>2</sup> , M. Modibedi <sup>1</sup> , <sup>1</sup> Council for Scientific and Industrial Research, <sup>2</sup> University of Pretoria, South Africa | 13:45-14:05                                                                                            | <b>African critical minerals investability: Botswana, the conversion problem, and the path from discovery to capital</b><br>J. A. H. Campbell, <i>Botswana Minerals plc, Botswana</i>                                                                                                                                                                                                                                         |
| 14:05-14:25 | <b>Social and cultural paradoxes in the mining, processing and beneficiation of critical minerals in South Africa</b><br>A. Bazolakio, A. F. Mulaba-Bafubiandi, <i>University of Johannesburg, South Africa</i>                                                                                                                                                                                                                                                                                                                         | <b>Digital Governance, Traceability and Operational Technology</b><br><b>Moderator:</b><br>14:05-14:25 | S. Mabaso, <i>Valhengwe Mining Advisory and Consulting, South Africa</i><br><b>Digital risk governance for critical minerals: Using IoT to strengthen safety, ESG, and regulatory compliance across processing value chains</b><br>M. Singo <sup>1</sup> , A F Mulaba <sup>1,2</sup> , <sup>1</sup> University of Johannesburg, South Africa, <sup>2</sup> Universite de Mbuji-Mayi, Mbuji-Mayi, Republic Democratic of Congo |



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## CRITICAL MINERALS CONFERENCE PRELIMINARY PROGRAMME

### PARALLEL SESSION

- 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, *University of Cape Town, South Africa*
- 14:45–15:05 **Afternoon Refreshments**
- 15:05–15:25 **Junior and Small-Scale Mining Support (JSMS) initiative**  
J. Morris, *Carbon Trust Africa, South Africa*
- 15:25–15:45 **Designing for inclusion from first contact: Social performance frameworks in early critical minerals exploration**  
M. M. Phambane, *Rio Tinto, South Africa*
- 15:45–16:05 **Critical minerals exploitation and the contribution of artisanal mining in DR Congo's economy**  
A. Y. Medard, *Critical Minerals Extractivist, Democratic Republic of Congo*
- 16:05–16:25 **Closing Remarks and Summation**  
B. Ntuka, *Durban University of Technology, South Africa*
- 16:25–16:45 **Continue to Session 1B**
- 16:45–18:45 **Networking Cocktail**  
Function sponsored by North-West University 

- 14:25–14:45 **Digital traceability solutions in the south african mining industry: Readiness, barriers, and a roadmap for implementation**  
N. S. Mpanamana, M. Mpofu  
*Council for Scientific and Industrial Research, South Africa*
- 14:45–15:05 **Afternoon Refreshments**
- 15:05–15:25 **Digital, Data, and Diversity: Leveraging Technology to Enable a Diverse Workforce in Critical Minerals**  
G. Mishra, *Microsoft, South Africa*
- Critical Minerals Value Chain**  
**Moderator:**
- 15:25–15:45 **Africa's copper supply: growth, constraints, and value chain participation in the energy transition**  
L. Mpangala, *Project Blue, South Africa*
- 15:45–16:05 **Unlocking africa's critical minerals for industrial growth – governance, legal architecture, and the lessons of implementation**  
N. Mbere, *Webber Wentzel, South Africa*
- Innovation, Skills and the Development Potential of South Africa's Critical Minerals**  
**Moderator:**
- 16:05–16:25 **Enabling a responsible and competitive critical minerals value chain: Innovation, technology, circularity, and skills development**  
H. D. O. Brodner, S. J. Ntsoelengoe, *Council for Scientific and Industrial Research, South Africa*
- 16:25–16:45 **Skills readiness and capability gaps in implementing south africa's critical minerals strategy**  
A. Gowera, P. Twala, I. Watson, *University of the Witwatersrand, South Africa*
- 16:45 **Close of Day 1**
- 16:45–18:45 **Networking Cocktail**  
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## CRITICAL MINERALS CONFERENCE PRELIMINARY PROGRAMME

### 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 1A taking place in Ilanga

#### 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:**

V. Naicker, Anglo American, South Africa

09:15–09:35

**Advancing REE extraction and separation  
readiness from primary and secondary  
resources at Mintek**

S.S. Nkabinde, 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**

R. Tshilidzi<sup>1,2</sup>, A. Mkhohlakali<sup>1</sup>, R. Letsoalo<sup>1</sup>,  
H. Mabowa<sup>1,2</sup>, J. Tshilongo<sup>1,2</sup>, L. Chimuka<sup>2</sup>,  
<sup>1</sup>Mintek, South Africa, <sup>2</sup>University of the  
Witwatersrand, 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, Mintek,  
South Africa

### Session 1B taking place in Ballroom

#### 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:**

T. Otto, University of Pretoria, South Africa

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

09:55–10:15

**Agile logistics practices to foster low-  
carbon economy in South Africa's minerals  
transportation**

M. Serero<sup>1</sup>, A.F. Mulaba-Bafubiandi<sup>1,2</sup>

<sup>1</sup> University of Johannesburg, South Africa

<sup>2</sup> Université de Mbuji-Mayi, BP225, Republic  
Democratic of Congo



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### PARALLEL SESSION

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10:15–10:35 | <b>Deporment of calcium, aluminium, silica, iron, and phosphorus during caustic cracking of monazite ores: Effect of impurity accumulation in recycled caustic liquor on cracking performance</b><br>S. Mokoena <sup>1</sup> , Beberto Baloyi <sup>1</sup> , G. Ndlovu <sup>1</sup> , E. Muller <sup>1</sup> , P. Petersen <sup>2</sup> , T. Mokone <sup>2</sup> , <sup>1</sup> Mintek, South Africa, <sup>2</sup> University of Cape Town, South Africa | 10:15–10:35                                                         | <b>Global competitiveness assessment of south african manganese mining: A benchmarking study of production, reserves and infrastructure access</b><br>S. Khan <sup>1</sup> , T.J. Otto <sup>2</sup> , J. Maritz <sup>1</sup> , J. Jele <sup>1</sup> , T. Kgarume, B. Maphalala <sup>3</sup> , M. Mpofu <sup>1</sup><br><sup>1</sup> Council for Scientific and Industrial Research, South Africa <sup>2</sup> University of Pretoria, South Africa <sup>3</sup> DSTI-CIMERA, South Africa |
| 10:35–10:55 | <b>Mid-Morning Refreshments</b>                                                                                                                                                                                                                                                                                                                                                                                                                          | 10:35–10:55                                                         | <b>Mid-Morning Refreshments</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 10:55–11:15 | <b>Particle swarm optimisation of rare earth elements recovery from coal fly ash using wet magnetic separation</b><br>T.S. Zireva <sup>1</sup> , M. J. Mvita <sup>1</sup> , N.P. Baloyi <sup>1,2</sup><br><sup>1</sup> University of Johannesburg, South Africa<br><sup>2</sup> Mineral Processing and Technology Research Centre, South Africa                                                                                                          | <b>Moderator:</b><br>10:55–11:15<br>G. Marape, Mintek, South Africa | <b>From endowment to prosperity: Unlocking Southern Africa's critical minerals opportunity</b><br>G. Lane, Vuuma, South Africa                                                                                                                                                                                                                                                                                                                                                            |
| 11:15–11:35 | <b>Solvent extraction and separation of light rare earth elements from acid mine drainage</b><br>J. Baloyi, S. Tau, R. Mbhele, V. Masindi,<br>Council for Scientific and Industrial Research, South Africa                                                                                                                                                                                                                                               | 11:15–11:35                                                         | <b>Choosing the future: Railway reform scenarios and the competitiveness of Southern Africa's critical minerals value chains</b><br>E de Ruiter, Auctoro Advisory, South Africa                                                                                                                                                                                                                                                                                                           |
| 11:35–11:55 | <b>Optimizing spodumene concentration using sensor-based sorting and heavy liquid separation tests: A case study in Brazil</b><br>P. Esteves <sup>1</sup> , R. Costa <sup>2</sup> , P. Ferreira <sup>2</sup> , A. Sarubbi <sup>1</sup> , C. Senna <sup>1</sup> , <sup>1</sup> Steinert Latinamericana, Brazil<br><sup>2</sup> MG LIT, Brazil                                                                                                             | 11:35–12:35                                                         | <b>Panel discussion: Railway corridors as mineral economy enablers</b><br>G. Lane, Vuuma, South Africa<br>E. de Ruiter, Auctoro Advisory, South Africa<br>I. Mwiinga, EITI Secretariat, Zambia<br>W. Pienaar, Kumba Iron Ore, South Africa                                                                                                                                                                                                                                                |
| 11:55–12:15 | TBC                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 12:15–12:35 | <b>Metallurgical performance of an industrial Concorde CellTM in various streams of a PGM concentrator</b><br>R. Munyenyiwo, Metso, South Africa                                                                                                                                                                                                                                                                                                         |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



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### PARALLEL SESSION

12:35–13:35

**Moderator:**

#### Networking Lunch

M. Ntunka, *Durban University of Technology, South Africa*

13:35–13:55

#### Optimisation of copper-cobalt extraction using response surface methodology coupled with bayesian neural networks

M. J. Mvita<sup>1</sup>, N.P. Baloyi<sup>1,2</sup>, <sup>1</sup>*University of Johannesburg, South Africa*, <sup>2</sup>*Mineral Processing and Technology Research Centre*

13:55–14:15

#### Selective copper removal from anode slimes via acid leaching: implications for critical mineral recovery

C. Ndhlovu, *Copperbelt University, Zambia*

14:15–14:35

#### Beneficiation of critical minerals from mine tailings: microstructural insights and processing opportunities

K. Mudzanani<sup>1</sup>, V. Masindi<sup>2</sup>, C. Tshilande<sup>3</sup>  
<sup>1</sup>*Mintek, South Africa*, <sup>2</sup>*Counsel for Scientific and Industrial Research, South Africa*  
<sup>3</sup>*University of Johannesburg, South Africa*

14:35–15:15

Continue to Session 2B

15:15–15:30

Close of Conference and Afternoon Refreshments

12:35–13:35

**Moderator:**

#### Networking Lunch

#### Technical Supplementary Session

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

#### Determination of the cause of high dust load during converter processing

S.S. Siwila, *Copperbelt University, Zambia*

14:15–14:35

#### Flowsheet development for the recovery of tantalum from a pegmatite ore body

J. O. Mogalanyane, J. A. Venter, M. Mujaji, *CoreMet Mineral Processing, South Africa*

14:35–15:15

Continue to Session 2B and Closing in the Plenary Room

15:15–15:30

Close of Conference and Afternoon Refreshments

## CONTACT

FOR FURTHER INFORMATION CONTACT:

**Gugu Charlie**, Conferences and Events Coordinator

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