

ROCK *talk*

Volume 12, Issue 2 | July 2026



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1. SANIRE WEBSITE

- Visit www.sanire.co.za to apply for membership.

2. APPLY FOR MEMBERSHIP

- On the SANIRE website click on **JOIN SANIRE** under the QUICK LINKS TAB to create a profile.

3. CREATE A PROFILE

- Complete all your personal details and click on **PROCEED**. Wait to receive your login details.

4. LOGIN DETAILS

- The login details, including your username and password will be sent to your email. Login to the **MyMembership portal** to complete your profile.

5. MYMEMBERSHIP PORTAL

- Once you have logged in, click on the **Become a Member tab** and follow the prompts to complete your application.

6. PROPOSER AND SECONDER

- For a Membership application you will be required to add the name and membership number of a proposer and seconder, who must be members of SANIRE. Contact: prudence@sanire.co.za if you require assistance.

7. APPLICATION FEEDBACK

- Once you have completed the application process the Administrator will review your application and provide feedback.

SANIRE Membership Application Guidelines



Presidents Corner

Newsletter

The first half of 2026 has been a significant period for SANIRE and the mining industry as a whole. Regrettably, there has been a slight increase in fatalities compared to the same period last year, with 32 lives lost in the six months ending June 2026, compared to 29 in 2025.

On a more positive note, there has been a notable reduction in total reportable accidents, decreasing from 979 in 2025 to 761 as of 22 June 2026. Additionally, fall-of-ground (FOG) related incidents have declined from 12 to 4, reflecting the impact of focused and sustained efforts to manage FOG risks across the industry.

To further strengthen FOG risk management, the Minerals Council South Africa's MOSH initiative has introduced leading indicator guidelines. These guidelines are designed to support the development and enhancement of FOG risk monitoring plans. All members are encouraged to make use of these valuable industry-developed resources to continue improving safety performance.

We are also pleased to report another successful round of COMCERT examinations, held in May and followed by the practical assessments. On behalf of SANIRE, sincere thanks go to the industry leaders and professionals who contributed their time and expertise to support the SCO and RMC practical exams. We extend our best wishes to all candidates and trust that their dedication will be rewarded with positive outcomes.

Continuous learning and professional development remain central to our growth. SANIRE Technical Nights, hosted by various branches, are gaining momentum and continue to provide excellent opportunities for sharing knowledge, engaging with technical presentations, and building professional networks. Members are encouraged to attend upcoming events, connect with mentors, and seek support for workplace challenges.

Finally, the much-anticipated SANIRE Symposium is fast approaching. We are excited to welcome all attendees to what promises to be an engaging and enriching event. The programme features a diverse and comprehensive agenda tailored for rock engineering professionals. Be sure to secure your place early to avoid disappointment.



Obakeng Rakumakoe
SANIRE President



ROCK ENGINEERING
— CONSULTING SERVICES —

CONTACT DETAILS:

Gregory More O'Ferrall

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Tel: +27 62 047 5352

SERVICES OFFERED:

Audits: Technical, Forensic, Due Diligence

Operational assistance: Legislative documents (COP/GCMP), Review of design and documents, training/mentoring, assist with geotechnical engineering design

Studies: Geotechnical Engineering input into Conceptual, Prefeasibility, Feasibility, and Final Design

Training: Strata Control/Rock Engineering Training to operational personnel

SANIRE Honorary Treasurer

Quarterly Update

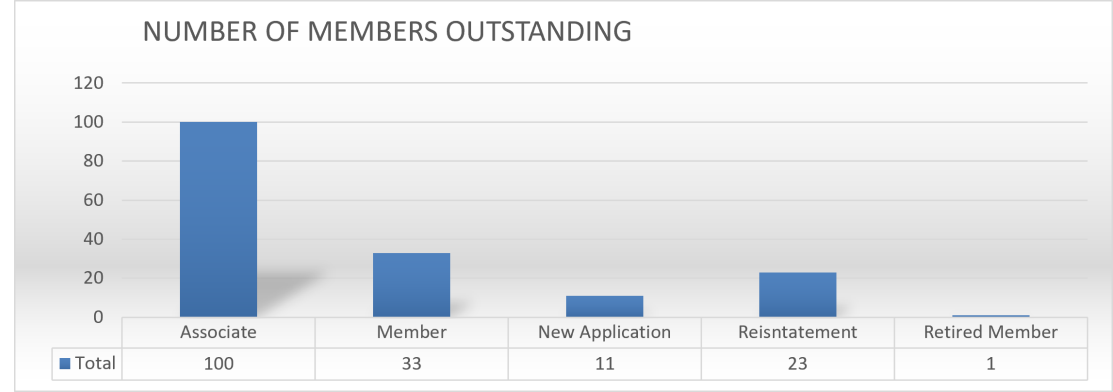
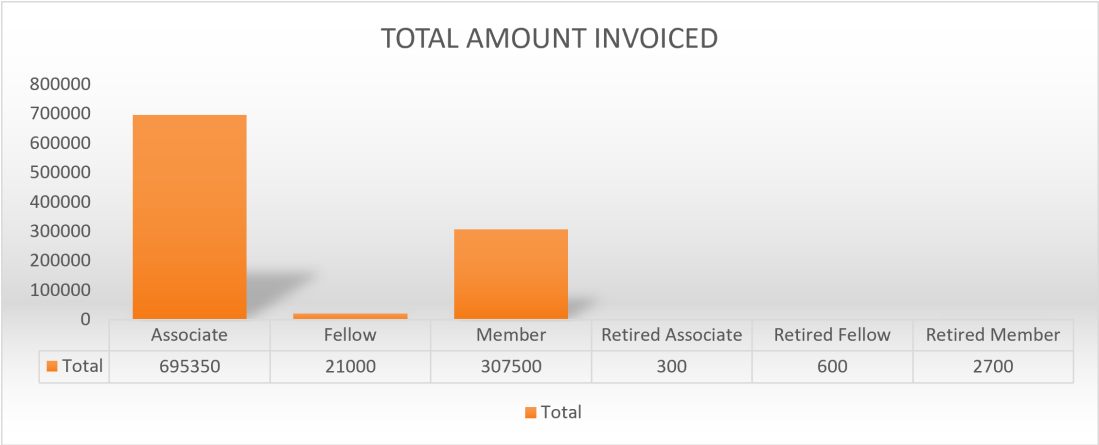
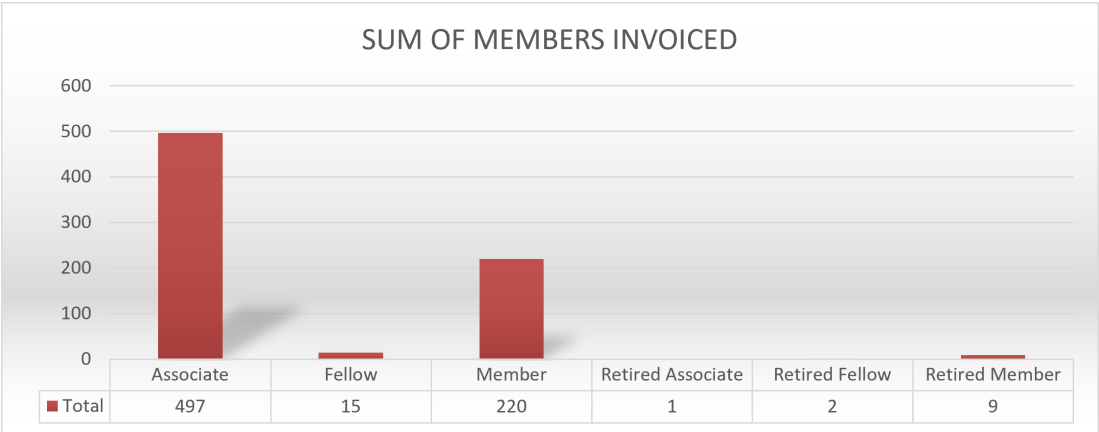
SANIRE Treasury Update – Q4 FY 2025/2026

Dear Members,

As we reached the end of the 2025/2026 financial year on 30 June 2026, we would like to express our sincere gratitude to every SANIRE member whose continued support and commitment have contributed to another successful year.

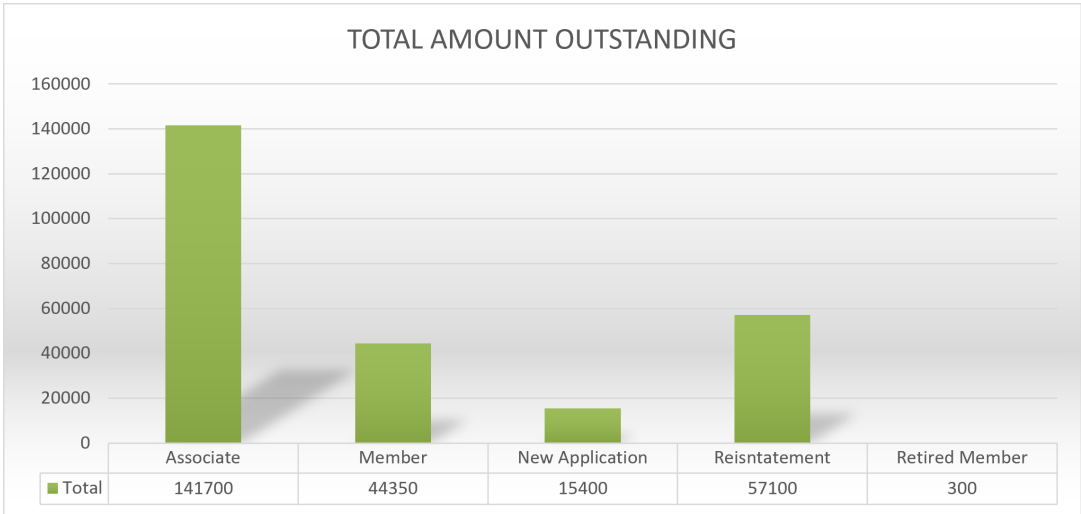
We are pleased to present a summary of the membership invoicing and payment status for the 2025/2026 financial year. To date, membership invoices have been issued to 497 Associate Members, 220 Members, and 15 Fellows. We are also pleased to report that a total of 576 members have paid their membership fees.

A detailed breakdown of the membership financials for the 2025/2026 financial year is provided below.



SANIRE Honorary Treasurer

Quarterly Update



SANIRE extends its heartfelt appreciation to all members who consistently ensure that their membership accounts remain in good standing year after year. Your ongoing support and commitment are highly valued and play a vital role in strengthening our Institute.

We would also like to assure all members that the SANIRE Council continues to work collaboratively to enhance the value of membership and to ensure that members experience meaningful benefits from being part of the SANIRE community.

The Institution continues to carry a significant amount of outstanding recoveries relating to both historical events and events conducted during the 2025/2026 financial year. While the administrative team remains committed to diligently pursuing these outstanding amounts, the recovery process has, in some cases, been hindered by limited or no response from the respective companies and individuals.

Council respectfully appeals to all companies and individuals with outstanding balances, and who have received correspondence in this regard, to give urgent attention to the settlement of these accounts. The timely recovery of these funds is critical to maintaining the financial sustainability of the Institution and ensuring that SANIRE can continue to fulfil its mandate, deliver value to its members, and support its ongoing programmes.

We extend our sincere appreciation to the companies and individuals who responded promptly to our communications and settled their outstanding accounts. **We also apologise for any instances where payments had been made but were not reflected on our systems in a timely manner.** SANIRE is committed to maintaining positive relationships with its members and stakeholders, and it is never our intention to cause frustration or inconvenience.

In the interest of transparency, we acknowledge that we are currently addressing challenges within our finance function, and we are actively implementing measures to improve the accuracy and efficiency of our financial processes. We appreciate the patience, understanding, and continued support of our members as we work to strengthen these systems.

Council appreciates the cooperation of all members and stakeholders in this regard and thanks those who consistently honour their financial commitments to the Institution.

As we commence the 2026/2027 financial year, membership renewal invoices will be issued to all members before the end of July 2026. We kindly encourage all members to ensure that their accounts remain in good standing by settling their membership fees promptly.

To facilitate the efficient allocation of payments and minimise the occurrence of unallocated funds, we strongly recommend that individual members make their membership fee payments directly through the membership portal available on the SANIRE website. Using the online platform helps ensure that payments are accurately matched to member accounts and supports the efficient administration of membership records.

We remind all members that, in line with the SANIRE Constitution, membership fees are due by **31 December** each year. Members whose subscriptions remain unpaid beyond this date were considered not in good standing.

Your commitment to paying fees on time is vital in sustaining SANIRE’s mission to serve the Rock Engineering community.

SANIRE Honorary Treasurer

Quarterly Update

Treasury Tips:

To assist with the smooth administration of your membership account, please keep the following in mind:

- **Renew your membership promptly.**
Settle your membership fees as soon as you receive your renewal invoice to ensure your account remains in good standing and to avoid any interruption to your membership benefits.
- **Pay through the SANIRE membership portal.**
Wherever possible, make your payment directly via the SANIRE website. This enables payments to be allocated accurately and efficiently to your membership account.
- **Use the correct payment reference.** Always quote your membership number or invoice number when making an electronic funds transfer (EFT). This assists with the prompt allocation of your payment.
- **Update your contact information.** Ensure that your email address, telephone number, employer details, and postal address are kept up to date so that you continue to receive invoices and important SANIRE communications.
- **Submit proof of payment when required.**
If you have made an EFT payment, please forward your proof of payment to the SANIRE office if requested to assist with the reconciliation process.
- **Address outstanding balances early.** If your account reflects an outstanding balance or if you have any queries regarding your invoice, contact the SANIRE office as soon as possible so that the matter can be resolved promptly.
- **Retain your payment records.**
Keep copies of invoices, payment confirmations, and correspondence for your records.



Glorious Nkosi
SANIRE Honorary Treasurer



SANIRE Branch Contributions

Western Bushveld Branch

During the first quarter of 2026, the branch reflected on recent operational experiences and technical learnings presented at SANIRE Technical Nights hosted fully online on 30 April 2026. The Technical Night focused on Rock Engineering Leadership, Fall of ground (FOG) incident and innovations in support systems such as Blast-on-Mesh (BOM).

The evening's first presenter Lizelle Prinsloo (Valterra) delivered on the soft skills of Rock Engineering, with emphasis on conflict management, emotional intelligence and some of the key characteristics that compliment a Rock Engineer's technical abilities.

Unathi Maqina (Sibanye Stillwater) succeed Liezel as the second presenter. Unathi presented a technical case study review of a rock mass failure incident (rock burst) at one of the Sibanye Operations. The observations & findings from the rock burst presentation reinforced the importance of strict adherence to design criteria (with emphasis on crush pillar cutting), effective line management, and a strong culture of compliance. The branch emphasises that engineering design alone is insufficient without disciplined execution and continuous verification underground.

In parallel, the branch's Technical Night explored advancements in Blast-on-Mesh (BOM) applications in narrow reef conventional stope as presented by Moses Modika (Sibanye Stillwater). The technology

utilises high tensile strength steel mesh capable of withstanding blast-induced loading, offering improved areal coverage and enhanced worker protection. The presentation elaborated on practical challenges such as blast damage, scraper interactions, and cost constraints that must be carefully managed. Moses highlighted that the targeted application is recommended in poor ground conditions (RMR <45), seismically active areas, and geological disturbances. The branch recognises that while BOM presents a promising support enhancement, its implementation must be guided by clear criteria and cost-benefit considerations.

Overall, the Western Bushveld Branch continues to promote:

- Learning from incidents to improve risk management strategies
- Adoption of innovative support technologies where appropriate
- Strengthening of operational discipline and accountability
- Collaboration between rock engineering and production teams

Unathi Maqina
Western Bushveld Branch Chairperson



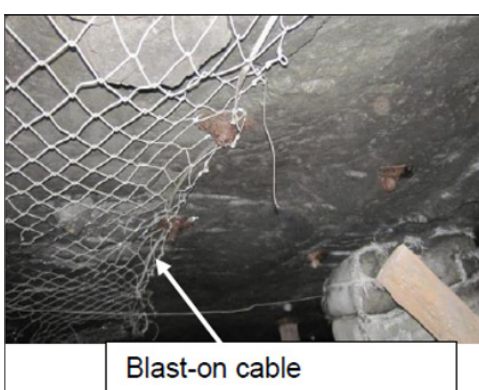
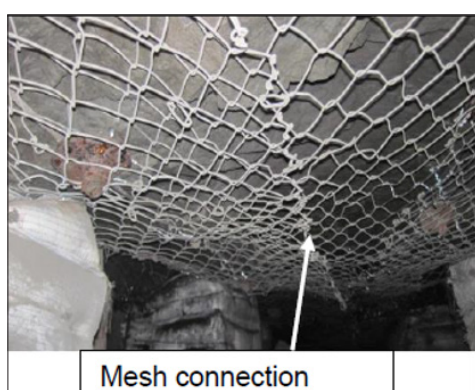
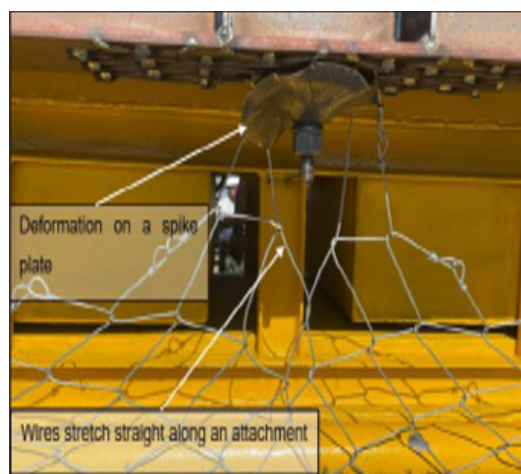
SANIRE Branch Contributions

Western Bushveld Branch Technical Night



Blast on Mesh in Narrow Conventional Stopes(SW≤1.15)

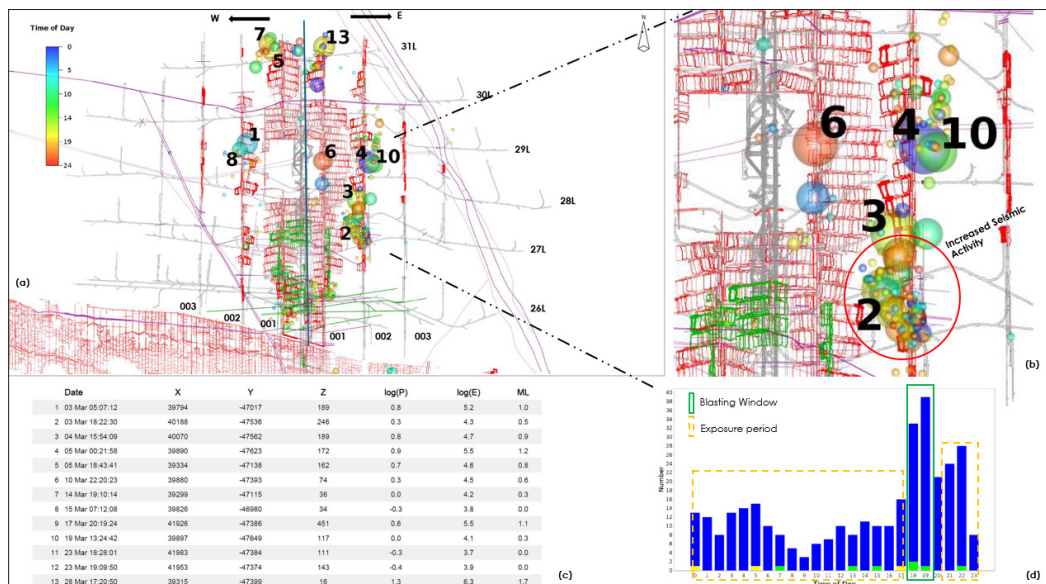
Presented by: M Modika
Date: 30 April 2026





SANIRE Branch Contributions

Western Bushveld Branch Technical Night

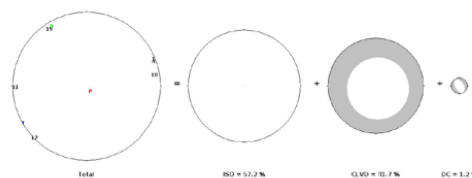


Mechanism of Failure

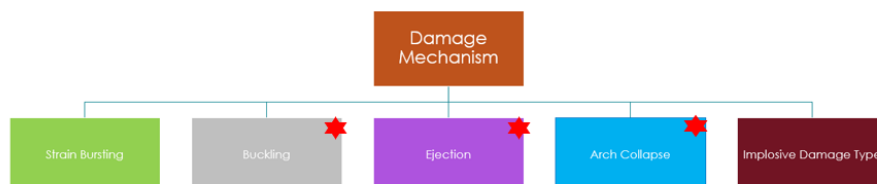
Topic/Failure – Dynamic (Rock Burst)

Modified Type I & Type II Rock Bursts		
	Type I	Type II
Rate, Trigger	Rate is a function of mining activity. Trigger is the creation of an excavation.	Not enough data to determine relationship with mining rates.
Location	Generally within 100 m of mining face or on some preexisting zone of weakness or geological discontinuity near the mine.	On some preexisting fault surface up to 3 km from the mine
Failure of intact rock or disturbed rock mass. Orientation of failure plane.	Intact rock can be broken in the rupture when mining induced stresses exceed the shear strength of the material. Orientations of rupture planes can vary.	All occur on preexisting, possibly pre stressed tectonic faults. Mining may simply trigger these events on faults of preferred orientations.
Stress change	Often high stress drops observed	Stress drops similar to natural earthquakes
Magnitude	Low to medium	Potential for high magnitudes

Moment Tensor Beachball - Decomposition



Comment: The source mechanism has dominant ISO and CLVD components (57.2% and 41.7% respectively), consistent with a crush-type failure and/or slope closure.
Quality Index: 0.19



SANIRE Branch Contributions

Gauteng Branch

The Gauteng Branch of the South African Institute of Rock Engineering (SANIRE) hosted its second Technical Evening of 2026 on 18 June at the premises of event sponsor, Mpumatech, in Linbro Park. The event brought together industry professionals for an evening of technical learning, product innovation, and meaningful networking.

The evening began with a warm welcome from the Gauteng Branch Chairperson, Mrs Yolanda Chambati, who set the tone for an engaging and insightful event. This was followed by a meaningful safety share presented by Branch Secretary, Mr Akshay Sewcharan, highlighting the continued importance of maintaining both physical and psychological safety within the mining environment. An engaging icebreaker session was then facilitated by Mr Ohveshlan Pillay, which was designed to connect attendees' areas of expertise with specific professional development needs. This interactive exercise highlighted the value of collaboration within the rock engineering community and reinforced the importance of identifying mentors and specialists who can support skills development and broaden exposure across the discipline.

The keynote technical presentation was delivered by Mr Ray Clark, General Manager of Mpumatech, who provided valuable insights into the performance of friction bolts. His presentation explored the key variables influencing support performance, including material selection, manufacturing processes, drilling practices, and protective coatings. A notable discussion point was the impact of bent drill steel during barring activities, which can result in "ribbing" of support holes and adversely affect bolt performance.

The second sponsor presentation was presented by Mr Shaun Swanepoel of Laser Metal Pressings, who showcased recent innovations aimed at optimising Hydrabolt performance. His presentation also highlighted important safety enhancements, including the development of a self-release coupler system for both Hydrabolts and pre-stressing pots.

In addition to the technical presentations, attendees heard from Ms Adelaide Moganedi of the Mine Health and Safety Council (MHSC), who addressed the pressing issue of critical skills shortages within the mining industry, particularly in the fields of Rock Engineering and Seismology. Ms Moganedi outlined the Council's efforts to better understand these challenges through industry surveys, with the aim of identifying key obstacles and developing practical solutions.

The evening concluded with food, refreshments, and lively conversation, creating a warm and welcoming atmosphere for networking and professional engagement. It was a fitting addition to the Gauteng Branch calendar and reflected the strong sense of community that SANIRE continues to foster within the rock engineering fraternity.

The Gauteng Branch extends its sincere gratitude to the evening's sponsors, Mpumatech and Laser Metal Pressings, for their continued support and for sharing their technical expertise. Appreciation is also extended to all members and guests who attended and contributed to the success of the event.



SANIRE Branch Committees

2025-2026

Coalfields Branch

Chairperson: Zanele Sithole
Vice Chairperson: Mandlenkosi Mazibuko
Treasurer: Mamokete Mokoena and Willem Liebenberg
Secretary: Uzi Makhode
Technical Events Coordinator: Khathutshelo Sigwadi
Education, Research and Development
Officer: Katekani Mohlabé

Eastern Bushveld Branch

Chairperson: Narisha Siriram
Vice Chairperson: Melusi Shongwe
Treasurer: Vhutshilo Nematili
Secretary: Karabo Phala
Youth Development Representative: Olebogeng Tshikane
Suppliers Representative: Daniel Tshwene

Free-Vaal Branch

Chairperson: Louis Lochner
Vice Chairperson: Thapelo Mangali
Secretary: Sekete Maketekete
Treasurer: Pierre Spies
Young Members: Tumi Moyake
Supplier Representative: Jacques Lubbe

Gauteng Branch

Chairperson: Yolanda Chambati
Vice Chairperson: Gerald Gainsford
Secretary/Treasurer: Akshay Sewcharan
Education: Dr Richard Masethe
Technical Events Coordinator: Katinka Cartes
Supplier Representative: Wynand Greyling

Northern Cape Branch

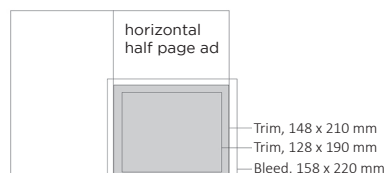
Chairperson: Vuma Nokwe
Vice Chairperson: Asivhanga Malovhel
Treasurer: Mosa Makwela
Administrator: Eveline Kekana
Youth Development Representative: Naledi Letlape
Supplier Representative: Ikaneng Marungwana

Western Bushveld Branch

Chairperson: Unathi Maqina
Vice Chairperson: Moses Modika
Treasurer: Annie van Niekerk
Secretary: Kelebogile Phologane
Vice Secretary: Neil Kruger
Supplier Representative: Stefan Nel
Young Member Representative: Renard Pretorius
Technical Visits Representative: Neil Kruger

SANIRE ROCKtalk Advertising Rate Card 2025-2026

Front cover	Trim: 230 h x 210 w Type: 170 h x 190 w
Full page Advert (A4)	Trim: 297 h x 210 w Type: 277 h x 190 w Bleed: 307 h x 220 w (bleed allowance 5 mm top, bottom, side)
Half page (A5)	Trim: 210 h x 148 w Type: 190 h x 128 w Bleed: 220 h x 158 w
Third page horizontal	Trim: 99 h x 210 w Type: 79 h x 190 w
Square page	Trim: 60 h x 60 w Type: 50 h x 50 w



Should the advert be intended to go to the edge of the page, text and images (those that do not bleed off the page) must fit into the type area, and the artwork must be extended an extra 5 mm (bleed) beyond the trim size to ensure that, when the page is trimmed, text isn't cut off and the artwork indeed goes to the edge of the page. If the advertiser does not want the ad to run up to the edge of the page, the entire ad must fit into the type area.

2025-2026 Advertising Rate Card (all sizes in mm)

Type of Advert	Height	Width	Rate
Front Cover	230 h	210 w	R4000.00
Full Page (A4)	297 h	210 w	R8000.00
Half Page (A5)	210 h	148 w	R2800.00
Third Page Horizontal	99 h	210 w	R2400.00
Square	60 h	60 w	R1000.00

BOOK YOUR SPACE: info@sanire.co.za

VIEW THE LATEST ISSUE OF ROCKtalk
www.sanire.co.za

Coal Mine Pillar Design Workshop

Key Takeaways

- **Encouragement to embrace incremental progress in engineering knowledge**

The workshop emphasised that advancing engineering knowledge through imperfect, incremental improvements is more valuable than delaying the development of frameworks in pursuit of a flawless solution. In other words, meaningful progress is achieved through an iterative process.

- **The need for observational verification**

Engineering formulae, particularly pillar strength equations, are largely based on empirical observations from historical data. Consequently, there is a critical need for site-specific field validation, monitoring, and instrumentation to confirm design assumptions.

- **Risk versus Factor of Safety**

Modern engineering design is shifting from reliance on a deterministic Factor of Safety (FoS) towards reliability-based engineering. Structures with the same FoS may exhibit significantly different probabilities of failure owing to variability in material properties, geological conditions, and applied loads.

- **Elastic Modulus versus Stiffness**

The workshop reinforced that the elastic modulus is an intrinsic material property, whereas stiffness is a structural property that depends heavily on geometry, boundary conditions, and member dimensions (width-to-height ratios).

Value to Academic Career

- **Enhancing teaching through real-world engineering practice**

The workshop enriched my understanding by integrating historical case studies and industrial practice into engineering concepts, enabling me to shift my lectures from presenting static textbook formulae to demonstrating the dynamic and evolving nature of engineering practice.

- **Teaching risk-based engineering**

The emphasis on statistical estimation, Bayesian inference, and Monte Carlo simulation provides a valuable framework for enhancing mining stability analyses by moving from deterministic approaches to risk-based engineering principles.

- **Fostering critical thinking**

The workshop strengthened my appreciation of professional scepticism and critical thinking, highlighting the importance of complementing theoretical design methods with observational approaches, field trials, and continuous validation.

- **Creating opportunities for collaborative research**

Finally, attending the workshop created valuable opportunities to engage with industry leaders and regulatory bodies, opening avenues for collaborative research, industry-sponsored postgraduate projects, research funding, and access to new datasets for high-impact, peer-reviewed publications.

Dr. Jacques Kanda & Prof. Bryan Watson
Wits University

In 2019, before the COVID-19 pandemic, we began discussions about organising this Coal Pillar Workshop. Then, in 2020, the pandemic brought our plans to a standstill. At times, it seemed the idea would be buried and that holding the workshop would be impossible. However, through perseverance and the commitment of many individuals, we ultimately brought it to fruition.

Walking this journey alongside my fellow committee members, peers, and industry leaders has been a true honour and an experience I will look back on with great fondness.

One of the key messages I take away from this workshop is that we have not yet reached our final destination with regard to coal pillar designs. Remarkable work has been undertaken by formidable engineers who came before us, but we cannot simply sit back and admire those achievements. It is our responsibility to take the baton forward and continue striving for excellence in the field of Coal Rock Engineering.

I hope the discussions and insights shared during this workshop will serve as a catalyst for further collaboration, research, and innovation as we continue to advance our understanding and practice in this important field.

Charl Skinner
Principal Rock Engineer Seriti Resource

Coal Mine Pillar Design Workshop Sponsor Appreciation



Coal Mine Pillar Design Workshop Comments

A short note related to the recent Coal Mine Pillar Design Workshop

As a practising rock engineer with more than 30 years' experience, the recently held SANIRE Coal Pillar Design Workshop provided an opportunity to gain insight into the latest developments in coal pillar strength analysis, conducted by Prof. Nielen van der Merwe. The workshop provided a much-needed follow up from a similar workshop conducted at Wits University in 2015, after the van der Merwe et al formulae were published in 2013. The latest workshop presented the history of coal pillar strength in South Africa, tracing the evolution of pillar strength research from the early work of Steart, through the landmark contributions of Salamon et al, and the subsequent refinements by Wagner, Madden and van der Merwe.

For me, one of the important aspect of the workshop was the discussion around time-related weakening of coal pillars, as this has direct relevance to long-term pillar performance, future mine design, old mine workings, subsidence risk and post-mining environmental stability.

Attendance and participation in the workshop were excellent across the Southern African coal rock engineering fraternity, as well as other rock engineering disciplines, academia, the DMPR and mining professionals. I found the discussions to be frank, practical and focused on achieving a common understanding of the history, the complexity and the application of coal pillar strength formulae, to support the design of stable coal pillar layouts. These discussions are important and needs to be continued, not only for the safe extraction of coal, but also for improving confidence in the long-term stability of underground coal mines and reducing the future environmental risks associated with old workings.

I would like to thank Prof. van der Merwe for presenting this work, the SANIRE organising committee for all the arrangements, and my fellow mining industry colleagues who attended and contributed to the discussions.

Jaco J. van Vuuren
**Founder and Managing
Director Saxum Mining**

SANIRE-COAL Workshop

The two day Coal Mine Pillar Design Workshop held recently at the Birchwood Hotel in March afforded a unique opportunity to all the invited inspectors from the DMPR, consultants, invited researchers and coal rock engineering practitioners to gain first-hand a better understanding of the evolution of coal mine pillar design and the research and key milestones that followed on from the unfortunate Coalbrook Colliery disaster of 1960, and how it has shaped and evolved the South African Coal Mining industry from Professor Nielen van der Merwe, who himself played a major role in this journey.

The shared personal memories along the way imparted during the workshop provided additional insight and context and was supplemented with the prepared lecture notes and a collection of 19 carefully selected South African coal pillar design papers from 1954 – 2019 for the delegates to take away and assimilate at their own pace.

A big thank you to everyone that attended and contributed to the success of this once off workshop.

Sandor Pheto
**(Organizing Chairman) Glencore Operations South
Africa (Pty) Ltd**



SANIRE News

TuniRock 2026, the 3rd International Conference on Advances in Rock Mechanics, was held 9-12 April 2026 in Hammamet, Tunisia. The International Conference brought together leading researchers, engineers, and industry experts from around the world in the fields of rock mechanics and rock engineering. The conference provided an international platform for knowledge exchange, innovation, and collaboration on emerging challenges in rock engineering and geological storage technologies.

The event featured keynote lectures by Prof. Seokwon Jeon, the current President of the International Society for Rock Mechanics and Rock Engineering (ISRM), Prof. Sérgio Fontoura, the elected and incoming ISRM President, and Dr. Muriel Gasc-Barbier, ISRM Vice President for Europe. Representing both the University of KwaZulu-Natal (UKZN) and the South African



National Institute of Rock Engineering (SANIRE), Dr. Richard Masethe had the privilege of engaging with these distinguished leaders during the conference. Their interactions facilitated valuable discussions on international collaboration, rock engineering innovation, and the advancement of geotechnical practice and research across Africa and Europe.



The Geological Society of South Africa (GSSA) hosted a CPD-accredited, virtual and in-person event titled "Geotech for Geologists". The hybrid symposium was held in Johannesburg and

covered ground conditions, rock engineering, and multidisciplinary collaboration

At the GSSA Online Symposium, Mr. Sifiso Mashile and Dr. Richard Masethe represented the Rock Engineering discipline through presentations focused on enhancing mining safety and operational performance. Mr. Mashile presented on the **Practical Implementation and Optimisation of Ground Support Systems in Deep-Level Platinum Mining**, highlighting strategies for improving ground support effectiveness under challenging mining conditions.

Dr. Masethe delivered a presentation entitled **"From Common to Best Practice – What a Geologist Should Know About Rock Engineering and Vice Versa"**, emphasizing the critical relationship between geology and rock engineering in mining operations. Drawing on South African mining case studies, he demonstrated that failures are seldom attributable to a single discipline; rather, they often result from inadequate integration between geological understanding, engineering design and implementation.



Members Contribution

Blog

What Geotechnical Instrumentation Has Taught Me Over the Years

Over the years, I have been involved in the design, procurement, commissioning and operation of geotechnical instrumentation systems across a variety of mining environments. While the technology has evolved significantly, many of the lessons learned remain remarkably consistent.

Rock Engineers rely on measurements of stress, strain, deformation, vibration and groundwater pressure to understand ground conditions, validate design assumptions and manage geotechnical risk. Instruments such as stress meters, extensometers, tilt meters, piezometers, vibration sensors, closure meters and crack meters make this possible. However, the ultimate objective is not to collect measurements—it is to generate information that leads to better engineering decisions.

One of the most common mistakes is assuming that geotechnical instrumentation can simply be procured, installed and left to run. If only it were that easy.

Successful monitoring systems require expertise in instrumentation, telemetry, communications, power management, software integration and data processing, in addition to rock engineering knowledge. In my experience, the biggest challenge is often not the instrument itself but the telemetry system behind it. Selecting the correct communication architecture, ensuring reliable data transmission and minimising power consumption can be far more complicated than installing the sensor.

South African mines present their own unique challenges. A telemetry solution that works perfectly in a shallow open-pit operation may struggle in a deep-level gold mine with extensive workings, long communication distances, seismic activity and limited infrastructure. A poorly designed telemetry network can quickly transform an expensive monitoring system into an expensive collection of blinking lights and unanswered questions.

Even after successful installation, the work has only just begun. Modern instruments typically produce raw outputs rather than engineering information. A piezometer does not provide pore-water pressure directly; it provides an electrical response that must be converted using calibration factors. An extensometer does not provide a deformation profile ready for a design package; measurements must first be referenced against a fixed point and processed into meaningful deformation values. Vibration sensors generate waveform data that often require further analysis before useful conclusions can be drawn.

Without proper processing and interpretation, monitoring systems generate data rather than knowledge.

Another lesson I have observed repeatedly is the annual rush of instrumentation orders as financial year-end approaches. While this may sound like good news for suppliers, it is often a symptom of poor planning. Budgets remain unspent, equipment is procured to avoid future budget reductions, and monitoring systems are ordered without a clear execution strategy.

The result? A surprising amount of geotechnical instrumentation never gets installed or never reaches its intended operational state. The problem is rarely the equipment itself. More often, it is inadequate planning and a lack of appreciation for what is required to execute an instrumentation project from start to finish.

Site preparation is another area that is consistently underestimated. Many installations are scheduled with confidence that everything is ready. Yet, after years in the industry, I am still waiting for the day I arrive on a mine site and everything actually is ready.

I remember one particular installation where I phoned ahead and asked the usual question: “Is everything ready for installation?” The answer came back confidently: “Absolutely. Everything is 100% ready.” When I arrived on site, the drill rig was still making its way to the location, the electrician was on leave, the IT technician was attending a production meeting, and the grout had not even been ordered. In fairness, one thing was indeed ready—the coffee. After enough years in instrumentation, you learn that when someone says a site is “100% ready”, it usually means the project has officially entered the “we’ll sort it out when you get here” phase.

To be fair, this is not a criticism of Rock Engineers. In most cases, the monitoring objectives are sound and the engineering vision is correct. The challenge lies in project execution. Instrumentation projects involve multiple disciplines that must be coordinated successfully if the system is to deliver reliable and useful information.

One recurring observation from successful projects is that each specialist focuses on their area of expertise. Rock Engineers are experts in understanding ground conditions, assessing geotechnical risk and making engineering decisions. Their time is best spent answering questions such as:

- Are stress levels increasing around a crush pillar?
- Is a remnant becoming unstable?

Members Contribution

Blog Continues

- Is closure accelerating in a stope panel?
- Are support systems performing as designed?
- Is the hangingwall becoming more active?
- Are pore-water pressures increasing ahead of a decline development?
- Is seismic activity resulting in measurable deformation?
- Is a barrier pillar carrying more load than originally anticipated?

These are engineering questions, and this is where Rock Engineers add the greatest value.

Instrumentation, telemetry and monitoring systems are specialised disciplines in their own right. Instrument selection, communication network design, commissioning, calibration, software integration and long-term maintenance all require dedicated expertise and experience. Attempting to manage every aspect internally often leads to avoidable delays, increased costs and, in some cases, instrumentation systems that spend their entire service life in the stores container without collecting a single reading.

My advice to fellow Rock Engineers is simple: stay focused on what you were trained to do. Your expertise lies in understanding the rock mass, assessing risk and making engineering decisions. Instrumentation specialists should focus on instrumentation, telemetry specialists should focus on telemetry, and software specialists should focus on data management. The best projects happen when everyone operates within their area of expertise.

Finally, while modern systems are capable of recording data 24 hours a day, many mines still underestimate the importance of monitoring software platforms. This is another common mistake.

Rock Engineers do not need more data; they need better information. Consider a mine with multiple extensometers, piezometers, stress meters and vibration sensors collecting data every hour. Within a few months, hundreds of thousands of readings may have been captured. No Rock Engineer has the time to

manually analyse that volume of information. Effective monitoring software is therefore no longer a luxury—it is a necessity. Engineers need dashboards, trends, alarms and automated reporting if they are to extract maximum value from their monitoring investment.

The most successful monitoring systems are not necessarily those with the most instruments. They are the systems that consistently provide reliable, understandable and actionable information.

After years of experience in the field, my most important lesson is simple: focus less on how to get the data and more on how to use the data.

After all, a Rock Engineer is not interested in a piezometer reading for the sake of a piezometer reading. The real question is whether increasing pore-water pressure could affect slope stability. A closure meter is not installed because someone enjoys looking at convergence graphs. It is installed to determine whether excavation stability is changing. A stress meter does not exist to generate numbers—it exists to help understand whether a pillar, abutment or excavation is behaving as expected.

The instruments, cables, telemetry and software are merely tools. The real objective is to better understand the rock mass, manage risk and make informed decisions that improve safety and productivity.

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ROCKtalk

THE NEXT ROCK Star

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1. **What would you consider as your biggest career faux pas to date and what lesson/s have you learned from it?**

My biggest career faux pas was focusing more on the technical aspects of my work and not giving the same level of attention to the administration part. As I gained experience, I learned that technical excellence alone is not enough, proper record keeping of the reports is equally important, especially in an environment that is subject to DMRE audits. This taught me the importance of striking a balance between technical work and administrative responsibilities to ensure both operational and regulatory requirements are met.

2. **What motivates you to get out of bed in the morning?**

The opportunity to learn, grow, and make a positive impact.

3. **What is your favourite quote (why)?**

"If you want to move a mountain, you first start with small stones"

It reminds me that significant achievements are accomplished through consistent effort and small daily actions.

4. **What is your personal song (why)?**

Hall of Fame because it motivates me to work hard, stay focused, and strive for excellence in everything I do.

5. **What is your favourite movie?**

The Great debaters

6. **If the story of your life were to become a biopic, what would the title be?**

Breaking the Barriers

7. **If the story of your life were to become a biopic, which famous actor or actress would play you?**

Lupita Nyong'o

8. **What is the best vacation you've been to or plan on going to?**

Istanbul, Turkey. I've always been fascinated by its rich history, beautiful architecture, culture and their coffee (Kahve) tradition.

9. **Do you have a favourite newspaper, blog?**

I don't really have one favourite, but I like reading



Engineering News and Mining Weekly for work related updates, and News24 for general news.

10. **How do you unwind?**

unwind by reading the Bible and praying quietly. It helps me reflect, stay calm, and reconnect spiritually through fellowship with the Holy Spirit.

11. **What is your greatest fear?**

My greatest fear is not reaching my full potential, as I want to keep growing and making the most of my abilities.

12. **What is your hidden talent?**

Teaching

13. **What is the one thing that very few people know about you?**

I sing at church

14. **If you could interview one person (dead or alive) who would that be (why)?**

My mom, because I would want to be in her presence, breathe the same air as her, and learn more about her life, strength, and the journey that shaped her.

15. **If you could only drink one beer/cocktail for the rest of your life, what would it be?**

Strawberry Daiquiri

16. **If you were an animal, what would you be (why)?**

An Ant. I admire their discipline, work ethic, and determination. They remind me that success comes from persistence, teamwork, and taking one step at a time.

17. **If you were on death row, what would your last meal be?**

Pap and boerewors with chakalaka and achar. A simple meal, but one of my favourites and a reminder of home.

18. **What do you want to be remembered for?**

A lady who never allowed her background to define her.

19. **If you were stuck on an island what three things would you bring?**
Bible, non-stop supply of food, and a satellite phone
20. **If you were a rockstar, what would your stage name be?**
Rinoldakeba
21. **Growing up, what was your dream career?**
A Medical Doctor
22. **Why did you choose Rock Engineering as a career?**
I have always enjoyed Rock Engineering as a module at university, as I found it both challenging and interesting. Although I initially ended up as a mining intern, I later developed a strong desire to grow within the field and contribute positively to the Rock Engineering fraternity.
23. **What are 3 words to describe Rock Engineering?**
Stability
Safety
Sustainability
24. **What do you find the most challenging in Rock Engineering?**
The most challenging aspect is the significant responsibility that comes with every decision, knowing it directly affects safety in an operation.
25. **What do you like most about Rock Engineering?**
I enjoy working on stability assessments projects, conducting inspections, numerical modelling and engaging with mining personnel through trainings, safety campaigns and coaching.
26. **What are some areas that you believe will become of increasing importance in the near future of the rock engineering discipline?**
In the near future, several areas within Rock Engineering are likely to become increasingly important. One of the key areas is data driven geotechnical analysis, where the use of digital technologies, monitoring systems, and real time data will enhance decision making and improve the prediction of rock mass behaviour. Another important area is the advancement of numerical modelling, which allows for a better understanding of complex underground and highwall conditions, leading to more effective and optimized designs. I also foresee an increased focus on risk management and ground control strategies, particularly as mines seek to extend their life through the extraction of shallower reserves and the potential implementation of pillar extraction in shallow mining environments. This will require improvements in support design, pillar design, and strategies aimed at combating falls of grounds. Furthermore, there will be a growing need for research into coal pillar strength in the Waterberg region, as it is expected to play a significant role in the future of South Africa's coal industry. Lastly, sustainability and safer mining practices will continue to gain importance, requiring Rock Engineers to balance production objectives with long term stability and environmental considerations.
27. **What is your view on the continued loss of critical Rock Engineering skill in South Africa?**
The continued loss of critical Rock Engineering skills in South Africa is a serious concern, as it

directly impacts safety, efficiency, and the long term sustainability of mining operations. Rock Engineering is a specialised discipline that requires experience, mentorship, and strong technical grounding, and when skilled professionals exit the industry, that knowledge is not easily replaced. I believe this highlights the importance of intentional skills development, mentorship programmes, and creating pathways that attract and retain young aspiring Rock engineers in the field.

28. **What solutions would you propose to abate this looming problem?**
To address the loss of critical Rock Engineering skills in South Africa, a multifaceted approach is needed. Firstly, mentorship and structured knowledge transfer programmes should be implemented to ensure that experienced Rock Engineers actively develop younger aspiring Rock Engineers. Lastly, companies and institutions should create clearer career pathways and development plans to retain young Rock Engineers or aspiring Rock Engineers within the discipline.
29. **Who is your role model/mentor? What is the best advice you have ever been given?**
My role model is the character of Christ in the bible. His teachings inspire me to live with integrity, humility, love, and purpose.
30. **What advice would you give to someone who wants to choose Rock Engineering as a career?**
My advice to someone considering Rock Engineering as a career is to develop a strong foundation in the core principles of Rock Engineering and remain committed to continuous learning. Rock Engineering requires both theoretical understanding and practical application, so it is important to ask questions, and seek understanding.

One piece of advice that had a significant impact on me came from my supervisor: "Read at least one research paper a week." While I did not always manage to do so consistently, the habit greatly improved my understanding of the fundamentals of Rock Engineering and exposed me to new ideas and developments within the field.

My advice: read and never stop studying. Wisdom is often hidden in the pages of books, journals, and research papers. Continuous learning not only deepens your technical knowledge but also helps you stay abreast of developments in the industry as Rock Engineering is constantly evolving.

I would also encourage aspiring Rock Engineers to develop strong problem solving, leadership, and communication skills. Equally important is understanding that safety must remain at the centre of every decision, as the work we do directly impacts the safety of mining personnel, and sustainability of mining operations.

Lastly, I would recommend seeking guidance from a mentor or coach. Learning from experienced professionals can significantly accelerate both technical development and personal growth, while providing valuable insights, support, and direction throughout your journey in Rock Engineering. This is made possible by subscribing to bodies such as SANIRE where one gets to network with experienced Rock Engineers.



Editor's blog:

You were never designed by God to blend into the crowd; you were created to stand out. Your life is not a copy of someone else's story but an original masterpiece with a divine purpose only you can fulfill. The moment you truly believe in the vision God placed within you, your faith begins to attract the people, opportunities, wisdom, and resources your calling requires. Dreams rarely die because of a lack of resources; they die when the dreamer loses faith before the harvest arrives. Stop measuring your worth by the opinions of those who cannot recognize your value. A diamond remains priceless even in the hands of someone who mistakes it for an ordinary stone. Your value is not determined by applause, acceptance, or human validation; it was established by God before anyone had an opinion of you. Never shrink your purpose to fit someone else's limited perspective. Believe boldly, walk confidently, and trust that what God has ordained for your life cannot be cancelled by human rejection. The world doesn't need another imitation. It needs the unique person God created you to be.



Dr Richard Masethe (Editor)
**Chairperson: Communication and
Publications**

Upcoming Events

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