



# SAIMM

THE SOUTHERN AFRICAN INSTITUTE  
OF MINING AND METALLURGY



VOLUME 119 NO. 9 SEPTEMBER 2019



## Proceedings of the Annual General Meeting Annual Report and Accounts

Presidential Address:

Post mining use of rehabilitated land – an opportunity for the  
South African mining industry for sustainable development  
by M.I. Mthenjane

## Introduction to our new President

# MZILA ISAAC MTHENJANE



Mzila and Linda with their daughters Tinyiko and Andzani

My middle name is Isaac. I used that name for the first half of my life, from secondary school through university and part of my working life until February 2002, ahead of my thirty-second birthday on 26 March. I had become intrigued by peoples' names and until then, had been engaged in random studies of how our names determine our destiny and serve (in some instances) as a delegation by our parents/guardians of the duties we should serve while on this Earth.

I'm speaking from an African perspective, because those are the names I understand; however, this may be true of other cultures too.

It was then that I decided to switch to my first name, Mzila; it was at the tail-end of the South African trend post-1994 of many black people making the same conversion. I will not deny the political influence, given the transformation prevailing in the country at the time, but the biggest driver of this change was my own perception of the delegation from my parents – I'm the first male child of three children and was the first in the family to attend university. The name Mzila means a 'path' or 'track' in the Nguni languages. Needless to mention that there were great expectations of me; however, of most importance was what expectation I had of myself. Could I live up to my name?

It marked a resetting of my career in mining, which after my graduation from the Wits School of Mines in 1992 with a Bachelor of Science degree in Engineering (Mining) (and student membership of the SAIMM) I began at Anglo Gold and Uranium Division's Elandsrand Gold Mine in the West Rand as a graduate trainee. The uniqueness of a career in mining for young black students became apparent at university, where black candidates in the fourth and honours years were a handful amongst a total of about 15 to 20 mining students – and only male students at that. Today, the Wits School of Mines is more than 90% black, and women comprise close to 50% of the final year students. In terms of lecturers, it's been a sea-change.

I followed the normal mining development path, and was fortunate to have been mentored by the then mine manager, Ian Cockerill, to mid-management from miner, shift boss, and Mine Captain, with increasing responsibility for section production, health and safety. On obtaining my Mine Manager's Certificate, I soon took on the role of technical assistant and thereafter Section Manager – Services, with a move to the acquired contiguous Deelkraal Mine in mid-1997 and responsibility for mine services and shaft development. I was also fortunate during 1996 to have been amongst five South African professionals selected for the Rotary Exchange programme for five weeks in the USA. The exchange took place in Orlando, Florida, where the closest thing to mining that I witnessed was a sand quarry and the construction of a hippo dam during the wall reinforcement ('gunniting').

On 5 April 1997 I also said 'I do' to my wife of 22 years. We are blessed with two beautiful young women, Tinyiko (20 years) and Andzani (16 years) – no, we have not tried for a boy! But we have adopted three Labrador and a hedgehog.

My experience at Deelkraal was short-lived because in March 1998, I joined the Class of '98 programme at Rand Merchant Bank for a stint in investment banking. The economy was fast evolving and every sector was going through structural transformation – engineers joining financial services for a better technically informed funding application. It was a four-year period during which I extended my knowledge of mining beyond 'stuf 'n gate' to understanding the role of corporate and project financing. A further highlight of this period was serving as the Executive PA to Mr Paul Harris, one of the three founders of RMB and at this time the CEO of FirstRand Bank, which was formed by the merger of FNB and RMB. There could have been no better strategy course than this experience and understanding leadership and change management at the time of establishing the FirstRand Philosophy following the merger.

However, I was a miner at heart and when Ian Cockerill joined Gold Fields as CEO, he recruited me in 2002 to come and assist in the Corporate Development unit as a Senior Manager, with responsibility for business development. It was great to be back, although the gold mining industry was experiencing the worst price environment, but the exchange rate provided some compensation. M&A transactions were common as a means of survival, consolidation of the industry, and creation of new entities such as ARM. I had the opportunity to spend three months in Ghana evaluating growth options for the Damang mining operations. It was an unforgettable experience, but I did not stay long enough to witness the development and extension of the open pit mine.

I joined Deutsche Bank (DB) in August 2004 in the role of Vice President - Corporate Finance. It was a prestigious two years, working with Martin Kingston as country head and Steven van Coller as head of the function. During my tenure at DB, the bank concluded its own black ownership and empowerment transaction, including employees, the DB Foundation, and a consortium of black investors. A highlight was the creation and conclusion of Exxaro Resources Ltd, led by the founder of Eyesizwe, Mr Sipho Nkosi and a consortium of communities, youth and women's groups to acquire a 52% majority interest in a conglomerate company with established coal mine production, sales, and marketing as well as interests in base metals and iron ore. It was not the last I would hear of Exxaro. I was also active in the industry through the Association of Black Securities Investment Professionals as the Secretary-General for a period of two years between 2001 and 2003.

In August 2006, I joined Niall Carroll at Royal Bafokeng Holdings, after the consummation of the merger between Royal Bafokeng Resources and Royal Bafokeng Finance to consolidate the interests of the Bafokeng Nation. My time spent with the Bafokeng was a period of self-discovery and further growth. I discovered my passion for sustainable development concepts and links to strategy, witnessed the leadership challenges and opportunities of true community development and financing and the balance and tension of leading and managing sustainability. A few highlights to note include leading and completing the Strategic Environmental Assessment (SEA) for the 1200 km<sup>2</sup> of land owned by the Bafokeng Nation – a strategic assessment of the opportunities and constraints for future development and economic diversification; the creation and listing of Royal Bafokeng Platinum (RBPlat), with Steve Phiri as CEO, through the acquisition of a majority interest in the BRPM JV (with Anglo American Platinum), including the creation of the brand as it stands today, taking on the role of Executive Business Sustainability, which was an unfamiliar title locally, and lastly the publication of RBPlat's first Integrated Report in its first year of reporting. After six years with the Bafokeng, it was time to find a new challenge.

I was fortunate to receive an invitation for a job interview for an opportunity that had been open for a while at Exxaro Resources Limited – Executive Head, Strategy and Corporate Affairs. 'Wow', I said to myself, 'this is one of two companies that I'd envisaged working for at some point in the future.' The universe had truly conspired in my favour and I arrived at the job interview to find none other than the CEO, Mr Sipho Nkosi himself, the FD – Wim de Klerk, and the HR Executive, Mrs Retha Piater; the rest is history, other than to mention that my interest in cycling (road and mountain biking) were also duly noted. I've been at Exxaro for a little over six years (as at 30 April 2019). My role, reporting to the CEO, at first included process management for strategy development, media and public relations, communications, investor relations, and government relations. Following two organizational restructurings, the role is now focused on external stakeholder relations in terms of processes, engagement, and relationship-building with the financial community (investors and analysts), community, government, and media as well as integrated reporting and spokesperson for the company. It's a fun and fulfilling role which has enabled me to apply all my experience in mining, investment banking, and sustainability as the organization adapts to a new era of systemic technological and climate changes. I'm fortunate to be part of an innovative and pioneering executive leadership team at Exxaro, under the leadership of Mxolisi Mgojo – we celebrated the 10th anniversary of Exxaro, one of the most successful Black Economic Empowerment transactions in the mining industry. It's been six years of growth and learning, with experiences of failure (the Mayoko write-off) and successes (the acquisition of Total's coal assets and subsequent growth of the coal export business, commissioning of 239 MW of wind-generated electricity, and improving stakeholder relationships); and I completed an Advanced Management Programme with INSEAD in Fontainebleau, France.

I had no idea at all that while growing up in the streets of Meadowlands, Soweto and schooling at Rishile Primary School, Mawila Secondary School, and Holy Cross Convent and finally matriculating at La Salle College, Discovery that this is where I would be 30 to 40 years later in my life. Perhaps it's best that I didn't know and instead continued to receive the inspiration and guidance from my parents, who both still live, and my sibling brother and sister, and remained focused on the path ahead of me and my possibilities for the future. It's been a long journey of endurance, triumphs, mutual partnerships, and focus, and over the next fifty years will continue to chart a path that others may choose to follow.

#### External roles held:

- Non-executive Director on the Board of:
  - Merafe Resources (listed on the JSE Exchange)
  - Fraser Alexander (Pty) Ltd – a private company wholly owned by Royal Bafokeng Holdings
- Chairman of Wits University Mining Engineers Association

**Member of:** The Advisory Board of Student Support Programme, The Advisory Board for the Head of the School of Mining at Wits, and The Minerals Advisory Board for the Department of Chemical Engineering at UCT.

**Education:** BSc Engineering (Mining), Wits Senior Management Development Programme, the Graduate Institute of Management and Technology (GIMT), and Advanced Management Programme, INSEAD.

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# SAIMM

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## Contents

### ARTICLES

Profiles of the Branch Chairpersons ..... iii-vii

### PRESIDENTIAL ADDRESS

Presidential Address: Post-mining use of rehabilitated land – an opportunity for the South African mining industry for sustainable development  
by M.I. Mthenjane ..... 693

Proceedings, 122th Annual General Meeting, 2019 ..... 697

Annual Report for the year ended 30 June 2019. .... 709

Annual Financial Statement ..... 743

Annual Financial Statement for the SAIMM Western Cape Branch ..... 759

Annual Financial Statement for the SAIMM Scholarship Fund ..... 771

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# SAIMM Branch Chairpersons



## Democratic Republic of Congo Branch

### Susa Maleba

Susa is a Mining Engineer, married with three children.

#### Education

BSc (Hons), Mining Engineering, with specialization in:

Mining Environment, Pretoria University, 2004

BSc Eng, Mining, University of Lubumbashi, 1999

Postgraduate Certificate, Advanced Taxation, University of South Africa, 2005

Intermediate Certificate, Mine Environmental Control/ Occupational Hygiene, Chamber of Mines of South Africa, University of South Africa, 2004

#### Registrations/Affiliations

MSAIMM 704782, MVSSA 60872

#### Specialization

Mining design, mine planning and scheduling, mining ventilation, and mining environmental control.

#### Expertise

Susa Maleba has been involved in the field of mining engineering for the past 15 years. His expertise includes:

- Underground mine design, layout, and scheduling (Mine 2-4D and EPS)
- Mine ventilation and refrigeration
- Open pit optimization (NPV-Scheduler)
- Feasibility studies on open pit and underground operations
- Open pit design (Mine 2-4D)
- Open pit production scheduling (NPV-Scheduler and EPS)
- Mine environmental control and occupational hygiene
- Projects management
- ESIA projects management and coordination.

#### Employment

Oct 2009–present: SRK Consulting (Pty) Ltd, Mining Engineer, DRC

Aug 2007–Aug 2009: A & B Global, Mining Consultants, Mining Consultant, South Africa

Jul 2003–Jul 2007: CSIR MININGTEK, Research Engineer, South Africa

Sep 2002–Jun 2003: SARS, Tax Consultant, South Africa

Sep 1997–Jul 2000: Gecamines – Sodimico, Engineer in training and Junior Engineer, DRC.

#### Languages

• English–read, write, speak • French–read, write, speak • Swahili–read, write, speak.

#### Publications

1. Maleba, S. Life of the mine plan for Xstrata. Kroondal Chrome, 2008.
2. Maleba, S. and Jager, T. 2005. Best practice guidelines for the mining and rehabilitation of granite mines in the Brits-Rustenburg areas of SA.
3. Els, R. and Maleba, S. Investigation into nanotechnology for mining applications, CSIR Mining Technology STEP Project. 2005.
4. Maleba, S. Critical review of mining taxation in the African mining countries. UNISA, September 2004.
5. McGill, J.E., Maleba, S., Moseme, R., and Peake, A.V. Mining Plan for Ndwedwe Ceramics (Pty) Ltd. 2004.
6. Maleba, S. and Moseme, R. Mining plan for Phuthadjithaba Sandstone, 2004.
7. Matesa, J. and Maleba, S. Heat gains measurement of four insulation systems supplied by Robor. 2004.
8. Matesa, J. and Maleba, S. Measurement of the heat transfer and air pressure drop characteristics of a 350 kW Manos engineering cooling coils. 2003.
9. Maleba, S. Applicability of a mechanised rooms and pillar mining method in the exploitation of the east reef Kisenda Mines (Technical and economical analysis). University of Lubumbashi 1999. ◆

# SAIMM Branch Chairpersons



## Johannesburg Branch

### Daniel F. Jensen

Danie has more than 35 years' success driving comprehensive strategic planning, project governance, business analysis, tender/bid development, and general management for renowned, world-class organizations, all aimed at cultivating business and revenue growth and optimal performance. He has been involved in the mining industry specifically from 2003 onwards. While consulting to re-establish a diamond and a coal mine in eSwatini (Swaziland), he initiated the eSwatini 'Mining Rights' Project with a potential market capitalization in excess of US\$1 billion. Danie was employed on a contract basis between 2007 and 2009, at RSV ENCO as Project Management Office Manager (PMO), where he was instrumental in the establishment of major engineering, procurement, commissioning, and management (EPCM) coal mining projects such as Thubelisha and Impumelelo at Sasol Secunda. He also spearheaded key efforts to implement an innovative documentation management systems (DMS) and a new PMO system (using PRISM Management Suite and ProjectWise software packages) to effectively support the delivery of cutting-edge EPCM mining projects with values of over R5 billion. He spent the period from 2010 to 2012 in the IT industry, where he was instrumental in compiling numerous tenders and initiating projects worth over R2 billion. He returned to his home ground of engineering project development and management in 2012, and played an integral role in assisting the companies he worked with in pioneering 93 project portfolio concept business plans, about 35% of which are mining-related, to be executed on a global scale with a value of over US\$20 billion if implemented.

Danie has been an active member of the Johannesburg Branch of the SAIMM since 2007 and is currently proudly serving as Chairperson since the untimely passing of John Luckmann, stepping from his role as Branch Secretary to Acting Chairperson, and subsequently elected Chair. He holds a Master of Science degree in Project Management, certificates in Project Risk Management and Senior Management Programme (University of Pretoria), Senior Management and Staff Course (South African Air Force), and Bachelor of Technology, Engineering (Technical University of Tshwane). ♦



## Namibian Branch

### Nikowa Mabvuto Namate

Nikowa Namate is Deputy Head and lecturer at the Department of Mining and Process Engineering, Namibia University of Science and Technology (NUST). He holds a Bachelor's degree in Mining Engineering from the University of Zimbabwe and a Master's in Industrial Engineering (MIE) from NUST, and has over fifteen years of industrial and academic experience. His major research interests are in industrial engineering processes and ergonomics. Nikowa is also a certified energy auditor. He has an in-depth understanding of the mining industry in Namibia, and plays an active role in the development and diversification of the sector by providing consulting services to small-scale enterprises. ♦

# SAIMM Branch Chairpersons



## Northern Cape Branch

### Fabian Nieuwenhuys

Fabian Nieuwenhuys has been a Member of the SAIMM since 2014 and a member of the Northern Cape Branch Committee since 2015. He was elected as Branch Secretary in 2016 and Branch Chairman in 2018.

After graduating from the Cape Peninsula University of Technology in 2008. Fabian began his career as a professional-in-training at the Namakwa Sands smelting operation, a heavy mineral sands smelting facility situated on the west coast of South Africa. In 2011 he was promoted to the position of Senior Plant Metallurgist, and subsequently re-assigned to the Namakwa Sands mineral separation plant.

In 2013 Fabian joined the Assmang Group as a Project Metallurgist at the Khumani iron ore mine and after two years was promoted to the position of Production Manager at the wet high-intensity magnetic separation (WHIMS) process in 2015. In 2016 Fabian completed a Postgraduate Diploma in Management Practice at the University of Cape Town's Graduate School of Business.

Since 2016 Fabian has fulfilled multiple roles and responsibilities within the Khumani Mine management structure, and is currently assigned as the manager of the Metallurgical Services department, the load-out operations, as well as both primary crushing plants.

Fabian is married to Azalia, with a son and two daughters – Aden, Logan and Dyllan. His hobbies include reading, camping, playing the acoustic guitar, and online video gaming. ♦



## Pretoria Branch

### Sezer Uludag

Sezer Uludag holds a BSc (Mining Engineering) and an MSc (Mining Engineering) from the University of the Witwatersrand. She is currently a lecturer in the Department of Mining Engineering at the University of Pretoria, where she presents three undergraduate and two postgraduate modules on underground and surface mining methods. Her research interests include drilling and blasting, automation, application of systems thinking and system dynamics to mining-related problems, rock cutting, and spontaneous combustion. She is currently busy with a PhD study on the quantification of the impact of disruptive technologies in an open pit mining environment using system dynamics methods.

Sezer was previously as a consultant at Anglo American Technical Solutions, creating innovative value-adding solutions to drilling and blasting related issues, as well as working on support governance and supply chain within the Group on drilling and blasting quality and standards. Prior to that, she was a lecturer at the University of the Witwatersrand, where she presented a full-year course on Excavation Engineering, involving principles of rock cutting, drilling and tunnel boring machines; and drilling and blasting principles and design. She also lectured and coordinated a Graduate Diploma Engineering course on blasting technology. ♦

# SAIMM Branch Chairpersons



## Western Cape Branch

### Lawrence Bbosa

Lawrence Bbosa completed his schooling in Nairobi, Kenya. He gained a BSc in Electro-Mechanical Engineering at the University of Cape Town in 2005, followed by an MSc in Chemical Engineering, specializing in the analysis of theories and models relating to ore breakage, and the comparison of the breakage behaviour of ores in a series of devices common to comminution research.

From January 2009 to June 2013 he held the position of Senior Scientific Officer at UCT's Centre for Minerals Research, where he coordinated and assisted activities within the research group, conducted numerical modelling simulations and laboratory experiments, and taught and assisted undergraduate and postgraduate students. During this time he completed a PhD in Chemical Engineering. The scope of his research covered both applied and computational aspects of comminution, including computational modelling of tumbling mills using the discrete element method (DEM), validation with experimental data from positron emission particle tracking (PEPT), and modelling of power draw and energy dissipation in terms of charge motion variables. Since 2013 he has held the post of Senior Lecturer in the Department of Chemical Engineering at UCT, where he teaches in the Chemical Engineering degree programme and also pursues comminution research with the Centre for Minerals Research.

Lawrence is currently the Chair of SAIMM's Western Cape Branch. He is married to Constance, and they have two daughters, Emerald and Alyssa. He is a keen long-distance runner, and has completed the Two Oceans Half Marathon three times, as well as the Two Oceans Ultramarathon in 2014. ♦



## Zambian Branch

### Darius Muma

Darius Muma graduated from the University of Zambia (UNZA) in 2004 with a BSc Chemistry. He worked as an Environmental Project Assistant at UNZA School of Mines with the Advocacy for Environmental Restoration Zambia (AREZ), before joining Konkola Copper Mines' (KCM) Nchanga Mine in Chingola as a Graduate Chemist. He remained with KCM for 8½ years, progressing through the ranks to Senior Chemist, Sectional Chemist, and Acting Head of Analytical Services. During this time he gained a Diploma in Business Management (Association of Business Executives, UK). In February 2014, Darius moved to Mopani Copper Mines' Mufulira Mine to take up his present position of Assistant Superintendent Technical.

While at Mufulira, he has completed a Bachelor of Education in Environmental Education at UNZA, and also an MSc in Sustainable Mineral Resource Development under the Education for Sustainable Development in Africa (ESDA) joint programme of the University of Cape Town's Faculty of Engineering and Built Environment and the UNZA School of Mines. Darius is married to Priscilla Chola, a professional nurse and tutor at Nchanga School of Midwifery and Nursing in the Zambian Ministry of Health, and the couple have three children; Martin Kazandwe, Precious Mwaba, and Gracious Kunda. \_

Darius has a wide range of specialized skills and training in mineral sampling and assaying, including X-ray fluorescence, fire assay and related pyrometallurgical analysis techniques, laboratory auditing, chemometrics and intelligent laboratory systems, metallurgical accounting, and laboratory information management systems and project management. He is also a BSI Certified Auditor for BSI ISO 14001 and Lead Auditor for BSI ISO 9001. He is a Member of the SAIMM (currently Chairperson of the Zambian Branch), the Royal Society of Chemistry (RSC), the Chemical Society of Zambia (CSZ) (currently Northern Region Vice President), the Engineering Institution of Zambia (EIZ), and a student member of ABE, UK. ♦

# SAIMM Branch Chairpersons



## Zimbabwean Branch

### Clara Petronella Sadomba

Clara Sadomba graduated from the University of Zimbabwe in 1990 with a Bachelor of Technology (Applied Chemistry & Chemical Technology), and went on to complete a Master's degree in Metallurgical Engineering at McGill University, Montreal, Canada in 1996. After a brief spell in the chemicals and plastics industries, she joined Zimbabwean integrated ferrochrome producer Zimasco (Pvt) Ltd under their graduate learnership programme and has been with the company since then, progressing through the operational, middle, and executive managerial levels. She is currently General Manager - Marketing and Administration, with key responsibilities that include marketing strategy and planning; market analysis; marketing, sales, and logistics process optimization; corporate communication; and administration of head office operations.

Clara has extensive international business experience with cross-sector and cross-cultural exposure. She is registered as a Professional Engineer with the Engineering Council of Zimbabwe and a member of the Zimbabwe Institute of Engineers. She is also Chairperson of the Zimasco Pension Fund.

Clara is single, with one son aged eighteen. ◆



## Zululand Branch

### Christo Mienie

Christo Mienie obtained his Dip Tech (T5) in Metallurgical Engineering from the Vaal Triangle Technikon. He began his career with Iscor (Mittal Steel) in their research and development department, where his area of focus was iron manufacturing, with particular interest in the evaluation and characterization of iron ore, coal, and coke for the blast furnace, direct reduction, and Corex processes.

In 1992 he joined Richards Bay Minerals (RBM), and gained valuable metallurgical and production experience over the next 14 years at various RBM plants including the roaster, char plant, iron processing, slag processing, and the smelter. His responsibilities included increasing the production of prime grade slag and pig iron, furnace rebuilds, establishing new markets and customers in conjunction with the marketing department, and the introduction of best practices in process metallurgy. His HR responsibilities included the management, training, and development of metallurgists, and he obtained valuable experience with regard to business restructuring ('right-sizing') while the team leader responsible for the SHEQ and technical departments. He completed his Management Development Programme through the University of Durban Westville during 1997.

Christo left the corporate world when he joined Spectrum Technical (Pty) Ltd in 2006 as a director and shareholder – his current position. Services to clients includes plant feasibility studies, flow sheet design, process equipment selection and supply, pilot-scale test work, plant commissioning, troubleshooting, and cost analyses in the metals and minerals industry.

Christo is married to Marietjie, and they have two boys – Francois and Christo Junior. He is a keen jogger. ◆



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At Exxaro, we believe in powering possibility for the youth by creating platforms to develop and harness their business skills, particularly in the fields of digital technology and 4th industrial revolution related skills. Our Youth Exponential Development programme (YD<sup>x</sup>), in partnership with SADICO, plays a role in the growth of the youth in the communities in which Exxaro operates, and in turn, the economy at large.



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# Presidential Address: Post-mining use of rehabilitated land – an opportunity for the South African mining industry for sustainable development

M.I. Mthenjane<sup>1</sup>

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Presidential Address Video

## Background

The paper discusses post-mining land use however, the essence of the topic is the emotional motivation behind the decisions related to mining investment and development. Therefore this is not a typical SAIMM technical paper about the science and techniques of post-mining land use. There are already numerous papers written and conferences held on this aspect of post-mine land use; the science is well understood, but the evidence of the practical application of the (environmental, social, and economic) science is sparse. At a recent conference held in November 2017 on the theme of ‘Science, Business, Society Dialogue – linking science, society, business and policy for the sustainable use of abandoned mines in the SADC region’, it was demonstrated through the delivery of several papers on the possible viable options of post-mine land use. The conference was structured in nine sessions, covering the following relevant topics:

- Sessions 1 and 2: Nature and magnitude of the problem: raising awareness
- Sessions 3 and 4: International experiences in remediation: case studies
- Sessions 5, 6 and, 7: Technological solutions: converting liabilities into assets
- Session 8: Implementing solutions: social and legal aspects
- Session 9: Wrap up, lessons learned: conference resolution.

Summaries of the key outcomes of the sessions are available for reference.

The aim of this paper, accompanied by the video speech, is to provide a visualization of the possibilities of post-mine land use. Mining contributes approximately 7% to South Africa’s GDP - this is the lowest it has ever been and is attributable to both a diversifying economy and to poor mining and investment policy which has resulted in reduced investment in the sector. The objective of the paper is to highlight the opportunities, for succeeding and diversifying economic activity following mining and mineral extraction which can continue to sustain the livelihoods and wellbeing of communities and societies beyond mining.

During mining, very few alternative and local economies develop. Dependence on mining and its value chain prevails until mining ceases. This idea is conveyed in Figures 1a and b.

Several mining regions in South Africa (and elsewhere in the world) are experiencing post-mining poverty as mines close due to unfavourable market conditions and resources are depleted. What follows is typical mine closure plans which have had no consideration for the economic wellbeing of the communities that have established themselves around the mining activity. This paper and the associated video aim to demonstrate the increasing recognition and acknowledgement by mining companies that economic wellbeing of communities and the country does not have to cease with the end

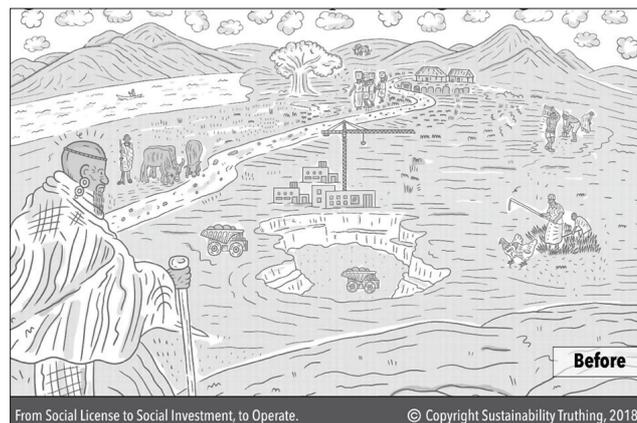


Figure 1a—Socio-economic impact during mining

# Post-mining use of rehabilitated land – an opportunity for the South African mining industry

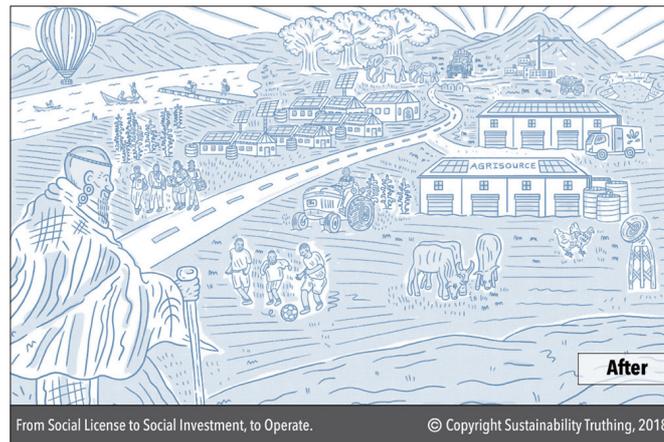


Figure 1b—Socio-economic possibilities beyond mining

of the life of mine. Economic succession planning is a concept where post-mine land use explores the possibilities of positive economic development and continuing social impact long after a mine has closed.

The paper should be read together with the video provided in the attached QR code which shows some of the possibilities of post-mine land use, with specific reference to opencast mining. There's no doubt that underground mining also provides for different post-mine land use, other than agriculture. The vacated underground spaces lend themselves to several uses, subject to safety, health, and cost considerations, especially with deep level mining in gold and platinum mining.

## Introduction

Over the two decades of my career the landscape of the global mining industry has changed fundamentally. In South Africa it has changed irrevocably. As industry professionals and leaders, it is incumbent on us not only to salvage what remains of our sector, but grow it from what is now a low base relative to the size and international profile of the industry on the country's transformation to democracy in 1994. As an industry, and by implication as an Institute, we have to think very carefully and very creatively as to where and how we take the sector from here to the future and more importantly, how the sector takes people from here to the future, given its predefined duration.

I start the discussion with mineral succession planning, but I'll end with something very different from this starting point. As a matter of fact, that is the key message of this address, that where we have started with the development of a mine for mineral exploitation is not, and should not be, to end mining exploitation activity with no consideration of a better future beyond mining; and the question becomes, if not a vastly mined-out landscape, what will we end up with? The possibilities are found in what I believe are three essential leadership attributes that we need today in our society and mining in particular: *firstly*, **visioning** a better future and progress for humanity, *secondly*, a dose of **courage** to challenge orthodoxy and explore new opportunities, and lastly the will to **selflessly** act for the benefit of others, rather than for ourselves.

When I was growing up as a 'younger' mining engineer in the goldfields of the Witwatersrand, my senior managers used to say that 'mining is a people business'. I've always wondered what that means? Which people are we referring to?

- Is it the many workers who strive and work in these mines?
- Is it about those who are outside the mine and having expectations of some benefit from the mine?

Is it not obvious that mining is a people business? Both those who are working within and those outside of mining looking towards it. In fact, what business is not about people?

## Digging for the heart of mining

If mining was a people business, how should people be treated? Are we exemplary as an industry today on the fair and equitable treatment of people, considering the social and environmental impact from our decisions and actions related to mining investment and decision-making? Are we demonstrating sincere consideration and humaneness to the environmental impact, which is visible and tangible, and acknowledging our ignorance/nonchalant attitude towards the social fractures that it causes, which are subtle and veiled by the short-term economics – are we 'digging for the heart of mining' to provide the compassionate input required for mining investment and development decision-making, in addition to financial and technical viability? This is a call for **leadership**, the traits described above and application of systems engineering and thinking which is currently lacking in mine design and planning to make a lasting impact of mining on the wellbeing of people.

While some concessions for the conduct of mining towards the environment can be offered (and only some), because of the unavoidable disturbance to landscape, flora and fauna, the negative impact on people's livelihoods in pursuit of profit is unforgivable. Mining has a long history in South Africa and a rather unpleasant one at that; but I don't intend to dig into the past (no pun intended at all). It's only in the recent 20 to 30 years that we have begun to understand the balance required in mineral exploitation such that we show care to people and really make mining a people business, placing human wellbeing at the centre of its business - this endeavour still remains off-centre, but we are beginning to see signals of hope for the future of communities arising from mining.

To achieve the balance suggested from the Figure 2a, some have proposed more stringent legislation, higher penalties for transgressing mines, and confiscating the mining permits. But what good would this do for the majority of those communities who depend on mining for a livelihood? More and more, the call

## Post-mining use of rehabilitated land – an opportunity for the South African mining industry

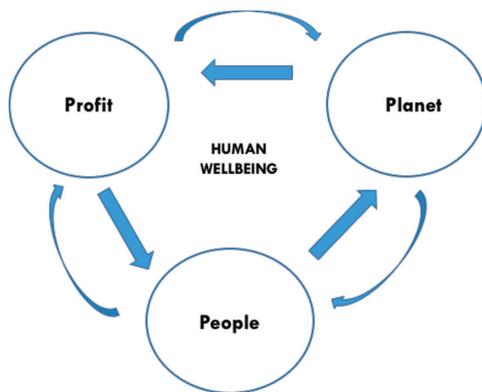


Figure 2a—Triple bottom line – balance of social (people), economic (profit), and environment (planet) for human wellbeing (sustainability)

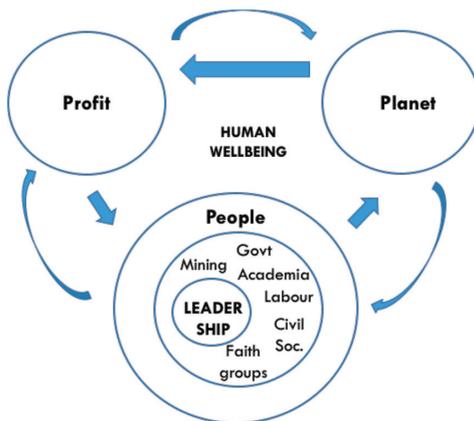


Figure 2b—Leadership is/leaders are, from amongst us...collaboration of leaders amongst social partners can result in high-impact and sustainable initiatives

for leadership is growing louder as a possible solution – the industry needs leadership in order to live up to its promise of being a people business. But where does one find this leadership? Why is it hard to find? Is it not born yet or is it still in the making?

The mining industry continues to evolve, and leadership is emerging from within the people who are directly and indirectly affected by mining – it is leadership with a heart and the mindset to understand that a mine is part of a social system - profit must be pursued with due consideration for the wellbeing of people by balancing people's needs and what is sourced from nature with the profits from the mine, which should benefit the community and greater society. Figure 2b is an reinterpretation of the well-known triple bottom line model for sustainability to illustrate this perspective on leadership.

A practical illustration - in Limpopo, a Collaborative Regional Development Platform is being established amongst social partners that include the participation and leadership of the Provincial government, through the office of the Premier, two South African-based and global mining companies, a (global) civil society organization and domestic R&D institution to work together towards better outcomes from mining which will stimulate regional economic development and diversify the economy of the Province. It's an exciting venture to look forward to.

It's not an easy task to act out of the norm and comfort of what we have become used to for the past and more than 100 years of mining in South Africa; however, given the current socio-economic challenges, it is a task that is necessary and achievable when the vision is clear.

The scar on nature (and society) that results from mining, especially opencast mining, is unavoidable. The question is – do we have a mining leadership that sees beyond the short-term benefits from this scarring of the Earth to the possibilities of new economies when mining has been completed? Do we have to leave closed mining operations in this condition? Do any of us have an image of a post-mining activity and economic succession long after the mining economic returns have filled our bellies? The possibilities are endless. To name a few:

- **Agriculture** and mining are complementary activities, in spite of conflicts of land use which may arise at times. However, as mining activities decline and mines approach closure, the rehabilitated land that becomes available can be used for a varied range of large-scale agricultural activities, given available technology and innovation tools. Further, the agricultural activities can succeed mining as part of the concurrent rehabilitation of the mined-out areas in surface mining operations.
- **Energy** – deep-level gold and platinum mines such as found in South Africa are suitable for underground pumped hydroelectric storage (UPHES). The UPHES concept involves pumping water while electricity is cheap into an upper reservoir, increasing the potential energy of the water. When the electricity is expensive (during daytime on weekdays) the water flows back to the lower reservoir generating electricity through turbines which is sold to Eskom. A profit to run the system is derived from the price difference between electricity used for pumping and the significantly more expensive electricity generated. However, 20% more energy is needed to run the whole system than what can be generated. This system could therefore not be solely relied upon to provide all energy needed, but is designed to complement other forms of energy. The idea is to use part of the existing underground mine void as an upper reservoir on one or more levels, with a pressure pipe connecting to a lower reservoir, and pumps and turbines (separately positioned) that either pump or generate energy. There is also the potential to develop geothermal energy generating opportunities.
- **Tourist attractions** and multi-purpose facilities – there are several examples from around the world where prior mining locations have been repurposed for leisure activities, viz, Eden Project ('from pit to paradise') in Cornwall, UK was previously a china clay pit and is now a tourist attraction with a diversity of activities ....; the Butchart gardens was once the location of a limestone quarry and is now one of the most beautiful gardens (the Sunken Garden) in Canada and is now designated a National Historic Site of Canada attracting over 1 million visitors a year.

### The SAIMM and sustainable development from mining

Over the last eight years the Institute has pivoted from its purely technical focus and has been encouraging papers and discussions on matters relating to environment, social licence, and policy, and in my view, these discussions have been complementary to

## Post-mining use of rehabilitated land – an opportunity for the South African mining industry

our primary mandate of technical discourse. One of the areas that has attracted increasing attention is that of the post-mining landscape, which includes not only physical rehabilitation of the damage created by mining, but attention to the social and environmental impacts of mine development and closure on mining-affected communities. From a policy perspective, current statutes and regulations in the MPRDA, NEMA, and the Water Act are limited to physical rehabilitation and none of these statutes deal in any way with the social consequences of mine closure. Social and Labour Plans and Corporate Social Investment cease on mine closure while mine closure provisioning is restricted to physical rehabilitation.

These burning issues need to be addressed and redressed and this imperative will constitute the primary focus of my Presidency. In May this year my predecessor, Alistair McFarlane suggested that the Institute's Technical Programme Committee, (the TPC) introduce a bespoke Post-Mining Landscape workstream. The recommendation was endorsed at the May 2019 Council meeting and Professor Michael Solomon, a Member of Council and Chairman of the Mineral Economic Division of the Institute was asked to provide a proposal for the imperative for approval of Council. This decision will fall within my term and I will pick up the reigns of the initiative. I will commit to raising the profile of the imperative and ensure that it has significant traction by the time I pass the baton to the next President.

The objective of this workstream is to build on work done over a number of years by Prof Solomon. The Mineral Economics Division was established under the Presidency of Gys Landman and in 2010 undertook a substantial piece of research into the call for the nationalisation of South African mines. The research report, which recognized and highlighted the enormous stress affecting mining communities in the platinum belt, was released at the Mining Indaba in Cape Town in 2012. Since then Professor Solomon's work has focused on the theme of Economic Succession Planning for South African Mines which is directed towards ensuring a post-mining economic future for mining-affected communities.

The imperative considers the concurrent diversification of mining land, infrastructure, and water to provide for parallel and successive economies to mining that are not dependent on the mining activity itself. The parallel economy constitutes a transitional economy while mining is still active and develops into a substitutive economy on closure of the mine. The construct provides a value proposition for the mining company by transforming mining land, effectively a liability in mine closure terms, into a balance sheet asset with a considerably reduced rehabilitation liability. More importantly, it provides for a post-mining economy for the mining-affected and dependent mining communities.

There are three specific projects currently underway that are actively working on the development of post-mining economies, and I would like to table these as possible case studies of the principles and tenets of ensuring economy beyond mining. The **first** is Sibanye-Stillwater which has announced the closure of Cooke Shafts 1, 2, 3 and 4 and has made 16 000 hectares of land available for redevelopment for the economic benefit of the mines, retrenched workers and dependent communities. The **second** project is a platinum mine on the Western Limb where an innovative, integrated post-mining economic project is underway. The mine has a 30 to 40-year life of mine and has sufficient time to diversify its land and infrastructure for agriculture and tourism and ensure that these alternative economies have traction and

are sustainable by mine closure. The **third** case study is my own company, Exxaro, which is developing a very large opencast coal mining project in an environmentally sensitive area. However, this is only one example where the company can demonstrate and develop this concept of economic succession planning.

By creatively developing economic succession planning principles into the actual design of the mine, the sustainable economic viability of the project's affected communities is ensured by using mining as the catalyst for other forms of economic activity. Highlighting actual projects we will demonstrate the feasibility of the approach and demystify its design principles. It will also focus on what works and what does not, and in so doing provide a pragmatic proof of concept for our members to follow, learn, emulate the successes, and avoid the failures.

In conclusion, during my term as President of the Institute, I will be actively promoting programmes that develop a better understanding of the current contribution that mining makes to society and the broader economy with a view to the proactive planning of post-mining economies. This will require an assessment of the present impact that mining makes to the country's monetary, social and political economy and the contribution it can make in catalysing broad-reaching sustainable economic development, not only for affected communities but for the country as a whole. At the centre of this imperative will be the proactive contribution that the mining industry can make to achieving the objectives of all 17 of the United Nations Sustainable Development Goals (SDGs). For example, the concept of resource- exhausted mine land reclamation advances SDG 15, which focuses on life on land. Ecological systems theory can provide a good starting point for understanding transitions to sustainability.

I aim to commit the Institute to an ongoing programme to build awareness of the need to provide for post-mining economies and critical role that our members can play in the active participation as an imperative. I will also strive to create strategic relationships and partnerships between the SAIMM and other organizations currently supporting the Economic Succession Planning imperative.

In closing I would like to commit my Presidency to furthering the cause of minerals-driven sustainable development and the advancement of social benefit from mining activity. These noble intentions can be achieved only with the cooperation of and collaboration with the leadership of the mining industry and the conscientization of our membership, (a large component of the current and future leadership of the industry) on the criticality of social stability in mining communities and perceptions of equitable benefit sharing on the part of mining-affected people. I invite you, our membership and constituency, during and beyond my Presidency, to help achieve this bold vision to benefit our and future generations.

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## TECHNOLOGY

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The RhoVol machine is a densimetric measurement system that determines the density of an ore sample, by measurement of the mass and volume of the sample, on an individual particle basis.

Batches are processed totally autonomously and data is displayed as it is captured. The data is available in a standard spread sheet format on a per particle basis.

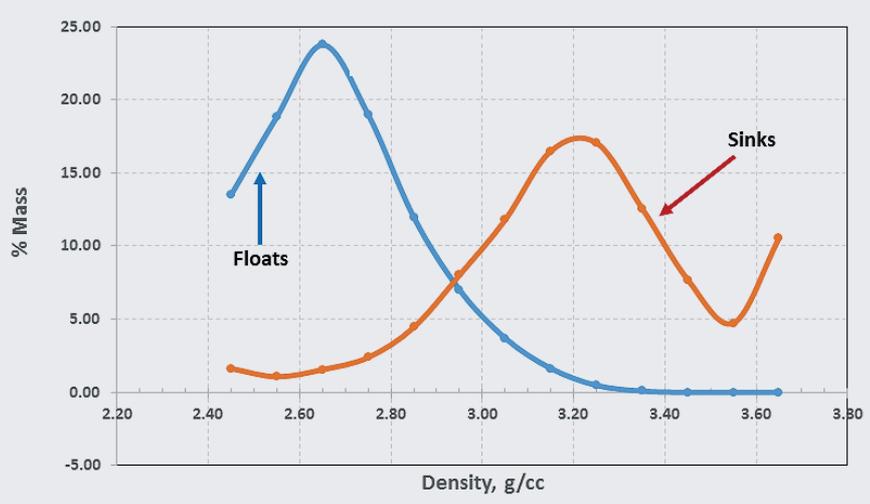
The density measurement is material independent and the range is programmable but not restricted.



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- 1000 particles/hour average processing time

### INFERRED OPERATING CUT-POINT AT INTERSECT



### DATA AVAILABLE PER PARTICLE

- |                                 |                   |
|---------------------------------|-------------------|
| • Weight                        | • Flatness        |
| • Volume                        | • Elongation      |
| • Density                       | • Compactness     |
| • Sieve size (square and round) | • Roller gap size |

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# Proceedings, 122<sup>nd</sup> Annual General Meeting, 2019

The 122<sup>nd</sup> Annual General Meeting of the Southern African Institute of Mining and Metallurgy was held at the Country Club, Napier Road, Auckland Park, Johannesburg on Thursday 15 August 2016.

## Welcome

The President, Alastair Macfarlane, extended a special welcome to the guests and representatives of our sister institutes and other associations, and also to recipients of awards, senior members of industry, Honorary Life Fellows, Past Presidents, our members, and other guests, among them the following:

**Association of Mine Engineers of South Africa**

Mthi Mtshengu, *President*

**Engineering Council of South Africa**

Cyril Gamede, *President*

**Institute of Mine Surveyors of South Africa**

Ebrahim Ramzan, *President*

**Geological Society of South Africa**

Sifiso Siwela, *President*

**South African Colliery Managers Association**

Thabang Monyele, *Vice President*

**South African Council for Automation and Control**

Alfred Schroder, *President*

**South African Institution of Chemical Engineers**

David Lokhat, *President*

**South African Institute of Electrical Engineers**

George Debbo, *President*

**South African National Institute of Rock Engineering**

Paul Couto, *President*

**Women in Mining South Africa**

Thabile Makgala, *Chairperson*

## Past Presidents attending

Alf Brown	Cuthbert Musingwini
Marek Dworzanowski	Selo Ndlovu
Henry James	Joshua Ngoma
Rodney Jones	Dick Stacey
Gys Landman	

## Minutes

The minutes of the previous Annual General Meeting, published in the September 2018 issue of the *Journal* and sent to all members, were confirmed.

## Obituaries

The President announced the deaths, during the year, of the following members.

### *Fellow*

Carel Aron Roodt

### *Retired Fellows*

Robert Edward Franklin Cowley

Frederick de Vries

Philip John Donne Lloyd

John Arthur Luckmann (*Chairperson of the Johannesburg Branch 2016-2018*)

### *Member*

Charl Petrus Celliers

### *Retired Members*

Raymond John Thomas Butler

Dieter Robert Chelius

Frank Fenwick

Kenneth Michael

### *Associates*

Andrew William Jameson

Adriaan Albertus van Jaarsveld

In memory of the deceased and in sympathy with the bereaved, all rose and observed a moment of silence.

## Honorary Life Fellowship

*Isabel Geldenhuys*: Honorary Life Fellowship is awarded by the Council to Corporate Members of the Institute who have rendered outstanding service to the Institute over many years. It is my pleasure to announce that the Council has decided to award Honorary Life Fellowship to:

- *Marek Dwozanowski*, for his outstanding service and support of the SAIMM over many years.
- *Cuthbert Musingwini*, for his outstanding service and support of the SAIMM over many years.
- *Kathryn Sole*, for her outstanding service and support of the SAIMM over many years as well as her role as the Chairperson of the Organizing Committee for the Copper-Cobalt Conference.

## Brigadier Stokes Memorial Award

*Alastair Macfarlane*: The Brigadier Stokes memorial Award was instituted in 1980 to commemorate the outstanding contribution to the South African mining industry made by Brigadier R.S.G. Stokes, an honorary Life Fellow and Past President of this Institute. This is the premier award of the Southern African Institute of Mining and Metallurgy and is made to an individual

## Proceedings, 122<sup>nd</sup> Annual General Meeting 2019

for the very highest achievement in the South African mining and metallurgical industry. It gives me great pleasure to announce that the award for 2019 is to be made to David Lancaster Hodgson.

*David Hodgson was nominated by Alan Field, who was unable to attend the presentation. The citation was then read by Alastair Macfarlane:*

David Hodgson was born in 1947 at Premier Diamond Mine in Cullinan, where his father had designed and recommissioned the mine after World War II. His choice of Civil Engineering as a career was influenced by the work done by Professor Jennings, Professor Marais, and his father on designing the valley slimes dam at the mine in the early 1960s.

The tutor for his final-year project at Wits University in 1970 was Oskar Steffen, the topic being the factor of safety of the highwall of the M1 motorway opposite Brenthurst. Amazingly, neither the consultants, nor the provincial roads department, nor the doctorates in the corridors of the CSIR had done actual, specific calculations as they considered the parameters to be within the accepted safety limits. After roadbuilding for C&J Reid and Basil Read, De Beers offered David a scholarship to the Royal School of Mines in London, where he obtained a first class BSc Honours in Mining and the Institute of Mining and Metallurgy, UK awarded him the Charleton Prize.

The commissioning in 1982 of Jwaneng Diamond Mine in Botswana, described by Sir Harry Oppenheimer as the most important primary diamond deposit found anywhere in the world since the Kimberley discovery in 1871, was one of the highlights of his career. His role of production manager was for the start of the open pit, including the first blast, the building of the 400 000 t/month treatment plant, and meeting the commissioning criteria (which had important financial implications for Debswana). Sir Seretse Khama passed away before the final commissioning function, but President Quett Masire and Harry Oppenheimer officiated at the ceremony in 1982. Jwaneng is today considered to be one of the mines with the highest NPVs worldwide.

Vaal Reefs no. 9 Shaft, now Kopanang, was his next commissioning role. As production manager, his responsibilities included the capping of the ventilation shaft, equipping of the 2700 m deep main shaft, and all the infrastructure, comprising some 150 MW of equipment.

From 1990 to 1997 he was based in Welkom, where he filled the roles of mine manager at Western Holdings, President Brand, and then Regional General Manager/Consulting Engineer of the Anglo American operations in Welkom, which entailed responsibility for 23 shafts and some 80 00 employees. As Manager: Services in 1990 he was the project manager for the final sinking and the commissioning of Freddie's no. 1 Shaft, Tsephong. During this time he also attended an Advanced Management Program (AMP) at Harvard University.

As Regional General Manager/Consulting Engineer at Western Deep Levels in 1997–1998 he had the privilege of running the deepest mines in the world, as well as managing the deepening of the shafts at the South Shaft, Mponeng. The commissioning of the surface ice plant with the latest Israeli technology was an especial challenge as the tips of the impellers were moving at the speed of a Stealth bomber's wings and were initially disintegrating.

After 50 years of living on mine sites in South Africa, the UK, Canada, Brazil, Namibia, and Botswana, David was moved

to the corporate office in Johannesburg. As Head of Technology and Innovation at AGA in 1999–2000 he initiated Project Autek with Mintek, with the purpose of enhancing and applying the catalytic properties of gold nanoparticles. The first global conference on this topic was held in Cape Town in 2001, and the delegates included the world's leading researchers in this field. Subsequent conferences were held in Vancouver, Limerick (Eire), and Heidelberg.

At mine level, an implementation project for quieter, lighter electric drills was run with Hilti. He considers his biggest disappointment not being able to get simplified face drill rigs operating in all the underground stopes, as this would have improved safety and productivity. Diamond wire cutters, oscillating disc cutters, rock splitters, and other projects also failed to become continuous operational tools.

From 2001 until his retirement in 2005, David was the Chief Operating Officer and an executive director of AngloGold Ashanti, at that time the biggest gold-producing company in the world with an output of 6 million ounces of gold per annum from 22 operations in 11 countries on four continents. Since his retirement David has served as a non-executive director on the boards of five listed Canadian companies, a London-listed company, and two JSE-listed companies.

One of the most technically interesting roles was that of Chairman of ISSI (Integrated Seismic Systems International) and ISSP (Integrated Seismic Systems Pacific) from 2000 to 2006. These companies were arguably the most advanced in mine seismology worldwide and operated in 25 countries.

*David Hodgson came forward to collect his award from Alastair Macfarlane, and delivered the following acceptance speech:*

### Champions and Centres of Excellence

Mr President, Members of the Council, Members, and Guests ...

It is a great honour for me to be nominated for the prestigious Brigadier Stokes Memorial Award for 2019, and I am suitably humbled to have unexpectedly received this award. When I review the list of previous recipients I feel even more honoured.

I would like today to pay tribute to the Champions, a number of whom are previous recipients, and to the Centres of Excellence which I was fortunate enough to be associated with.

The first recipient of the award, Harry Oppenheimer and another recipient, Ben Alberts, were champions in the leadership and people category. This is an important facet in our industry as people make the difference. They both had ability to give you their full attention and to make you feel important when talking to you. When one became a consulting engineer in the Anglo Group you received a Christmas present from HFO. It was not the champagne nor the whiskey which were important – it was the handwritten note from HFO which was hugely appreciated by all who received the gifts. It was a sad day when this personal touch was lost.

At an SAIMM conference Ben Alberts spoke about the many graduates being mentored in the greater Iscor Group. He made them send quarterly self-appraisals to his secretary and he personally followed up on a few and spoke to them. This inspired me to implement the same system for the graduates I was mentoring at Vaal Reefs, and it worked. I extended this to inviting some for the graduates to our home for dinner. I later enjoyed being on the same small touring group as Ben to the World Cup Rugby in Cardiff in 1999.

We need to encourage and mentor the young graduates and diplomates who are the future of our industry. Any investment that the government can make into old technikons and artisan training centres would be a win-win for our industry and the country.

Bobby Godsell, another recipient and my boss for 10 years, informed me as the head of Technology and Innovation at AngloGold Ashanti in 1999/2000 that I was to take over the confidential Anglo American Research Laboratories (AARL) research project, then in the very early stages, into the catalytic properties of gold. En route from North America early in 1999 I organized lunch in a London pub with a manager from the World Gold Council (WGC) and the two top researchers in the UK in this field. Together with Peter Radcliffe we convened a meeting in Sandton in mid-1999 with these three people plus the Professor of Chemistry at UCT and senior managers of Mintek, which was then, and hopefully still is, a renowned centre of excellence. Despite opposition from the academics I insisted on a conference in Cape Town in February 2000. Professor Masatake Haruta from Japan, the first researcher into the catalytic properties of gold, gave the keynote address. The first five questions were put by researchers from different countries around the world, and this was the first time any of them had met face to face and agreed to share their experiences. After doing some homework into battery development and the catalytic properties of platinum, I realized that it would be necessary to harness the best global brains and commercial capital, such as BASF, if any progress was to be made in this field. Mintek was a founding partner of the project, which was named Autek, and they took over the AARL IP and established a strong research team. Peter, the WGC, and Mintek organized Project Autek conferences in Vancouver in 2003, in Limerick Ireland in 2006, and later on in Heidelberg Germany.

CSIR MiningTek was another Centre of Excellence. In 1999/2000 I was Chairman of the DeepMine project, managed by MiningTek. The challenge was to determine if the Witwatersrand gold deposits could be mined safely down to 4 500 metres below surface to extend the life of the mines. World-class brain power from MiningTek, the mining companies, and equipment providers went into all the aspects of mining safely at great depths. The Social Sciences department at Wits even sent people to live in the hostel at Elandsrand to determine what the mineworkers felt about mining at deeper levels. The answer was 'no problem', just '*Nika lo Mali*'. Technically it is possible to mine safely at 4 500 metres but the economics would likely prevent this becoming a reality. Now that the cost of electricity is around 88 cents per kilowatt-hour and still rising, representing around 23% of total costs, the possibility of mining economically at greater depths is unlikely.

I would like to briefly pay tribute to another two recipients of the Award, namely Oskar Steffen and May Hermanus, for their interest in another world-class centre of excellence, Integrated Seismic Systems International (ISSI). May Hermanus was then the Chief Inspector of Mines and focused on mine safety, and Oskar had established a global consulting company with a solid reputation. (Oskar was one of my Soil Mechanics lecturers at Wits and mentored my final-year laboratory project, which was to establish the factor of safety of the highwall on the M1 opposite Brenthurst). ISSI was undoubtedly the global leader in mining seismology and ran an annual conference and training session in Stellenbosch for their clients, who came from 25 countries.

They both took the trouble to attend and I believe that we

managed to convince May that South Africa was the global leader in deep mining seismicity and that we were open to any new ideas and technologies. Oskar commented that ISSI represented one of the best collections of mathematical research brains that he had encountered, as our team included PhD students in maths, applied maths, and physics in addition to mathematicians from Russia and Hungary.

In conclusion, my challenge to the young professionals and to the industry leaders of today is to turn two of South Africa's technical challenges into opportunities.

Firstly, there are megalitres of polluted underground water flowing from the old Blyvooruitzicht shafts into the Western Deep Level mines, as well as from the old Stilfontein shafts into the deeper Vaal Reefs shafts. South Africa is a water-scarce country and this water needs to be treated and fed back into the grid. A similar project was planned in the Westonia region in late 1990s but never got off the ground. Serious government support for such a project is necessary, but someone needs to act as champion and create a centre of excellence to turn this threat into an opportunity. This is not rocket science, as the coal mines have developed similar projects.

Secondly, South Africa has over 70% of the world's platinum resources and the platinum mines are an important source of employment and government revenue. However, a number of shafts are currently loss-making and the refineries are intensive energy users. Champions and centres of excellence are required to find more efficient ways to refine PGMs and to exploit new technologies to lower the costs of electricity. Bill and Belinda Gates funded an extension of a successful malaria control programme which we initiated in Ghana. Elon Musk has both solar and battery companies, and while I concede that he is otherwise distracted perhaps his companies or similar companies such as Johnson Matthey can be persuaded to become involved in a project to provide cheaper power to the platinum mines. After all, if the President of South Africa can dream about technological cities and bullet trains we can also have aspirations.

In 1973 the Council of the Institute of Mining and Metallurgy in London awarded me the Charleton Prize when I left the Royal School of Mines. This prompted me to join the SAIMM in 1974 after I returned from Canada a few years ago.

Mr President, thank you once again for the honour of this prestigious award. I wish the SAIMM well in the future.

### Presentation of awards, medals and certificates

*Isabel Geldenhuys*: announced the following awards, medals and certificates which were presented by *Alastair Macfarlane*.

### 50-year membership awards

(with effect from 1 July 1968 to 30 June 1969)

Some of these awards may be made to the recipients at their homes.

- George Francis Bainbridge
- Noel Phillip Finkelstein
- Hendrik Albertus Daniel Kirsten
- Ian Connell Robinson
- Desmond Giulio Sacco
- Waldo Edmund Stumpf
- Thomas Keith Whitelock

### Gold and Silver Medals

All Transactions published in the *Journal* from March 2018 to February 2019 by members of the Institute were considered.

# Proceedings, 122<sup>nd</sup> Annual General Meeting 2019

## Gold medals

Gold medals are awarded for papers that are of a world class standard and judged to be publications that will become key reference in their mining or metallurgy field in the future.

Gold medals were awarded to:

De Villiers Groenewald, Lloyd Nelson, Rodney Hundermark, Katlego Phage, Rivashan Sakaran, Quintin van Rooyen, and Angelique Cizek for their transaction paper published in the April 2018 *Journal* entitled: 'Furnace integrity monitoring using principal component analysis: an industrial case study'.

As non-members, De Villiers Groenewald and Angelique Cizek received certificates of merit.

## Silver Medals

Silver medals are awarded for papers which make a major contribution to the professions of mining and metallurgy and to the prestige of the Institute.

Silver medals were awarded to:

Elias Matinde, Geoffrey Simate, and Selo Ndlovu for their transaction paper published in the February 2018 *Journal* entitled: 'Mining and metallurgical wastes: a review of recycling and re-use practices'.

Francois Malan and John Napier for their transaction paper published in the March 2018 *Journal* entitled: 'Reassessing continuous stope closure data using a limit equilibrium displacement discontinuity model'.

Eleanore Forner, Jaco Scheepers, Jaco du Toit, and Graeme Miller, for their transaction paper published in the November 2018 *Journal* entitled: 'Copper electrowinning circuit design: optimized costing as a function of cell arrangement, productivity, rectifier size, and throughput'.

As a non-member, Jaco du Toit received a certificates of merit.

The Awards and Adjudication Committee also requested that special mention be made of the paper that was published in the March 2018 *Journal* entitled: 'Silicomanganese production of Transalloys in the twenty-tens'.



Plant training at Transalloys in eMalahleni, South Africa

It was felt that this paper, authored by Joalet Steenkamp and her team from Mintek, was of significant interest to the broad metallurgical profession for understanding the technology and process issues behind this type of operation.

## Presentation of Student Prizes

Isabel Geldenhuys: announced the student winners of the SAIMM Presitge Prizes and Alastair Macfarlane presented the awards to the students adjudged by their departments to be the best final-year students in 2018.

## University of the Witwatersrand

Mining	K. Kunene
Metallurgy	F. Marais

## University of Pretoria

Mining	J.H. Maritz
Metallurgy	No award

## University of Johannesburg

Mining	No award
Metallurgy	M. Mulaudzi

The following student prizes will be presented at the Western Cape Branch AGM:

## University of Cape Town

Mineral Processing	D. Ssebunnya
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## University of Stellenbosch

Mineral Processing	M-A. Smit
--------------------	-----------

## Cape Peninsula University of Technology

Chemical Engineering	K. Reddy
----------------------	----------

## Student Colloquium

The following students received awards for their presentations in mining and metallurgy at the Student Colloquium held on 24 October 2018.

## Metallurgy Awards

1st Prize:	K.J. Moremi, <i>University of Pretoria</i>
2st Prize:	N. Nxumalo, <i>University of Pretoria</i>
3nd Prize:	L.R. Kanyane, <i>Tshwane University of Technology</i>

## Mining Awards

1st Prize:	J.H. Maritz, <i>University of Pretoria</i>
2st Prize:	Y. Govender, <i>University of Pretoria</i>
3rd Prize:	I. Nday, <i>University of the Witwatersrand</i>

## SAIMM 5 Star Incentive Programme

The SAIMM 5 Star Incentive Programme was introduced in 2015 to thank members who contribute to the growing membership of the SAIMM and to provide additional benefits to Fellows and Members of the SAIMM. The following winners will receive free attendance at the Annual Banquet in 2019.

### The Top 5 proposers are:

Darius Muma, Fabian Nieuwenhuys, Aubrey Mainza, Coenraad Esterhuizen, Didintle Bantobetse.

### The Top 5 referees of papers published in the Journal

Rudra Mitra, Marek Dworzanowski, Markus Erwee, Steven Rupprecht, Declan Vogt.

The authors who submitted and published the greatest number of papers in the *Journal* are:

C. Musingwini, J. van Dyk, C.A. Strydom.

### The top advertiser in the Journal

The award for the most supportive advertiser in the *Journal* was made to Weir Minerals Africa. Hoosen Essack received the award on their behalf.

## Annual Report And Accounts

Alastair Macfarlane presented the Annual Report with highlights of his year.

# Proceedings, 122<sup>nd</sup> Annual General Meeting 2019

## Accounts

The Honorary Treasurer, *Vaughn Duke*, presented the financial statements, which are reproduced in the Annual Report in this edition of the *Journal*.

## Office Bearers and Members Of Council for 2019/2020

*Alastair Macfarlane* announced the Office Bearers for the ensuing year, elected by the retiring Council in accordance with Clause 3.5 of the Constitution, and By-law B5.2 of the Constitution:

President	Mzila Mthenjane
President Elect	Vaughn Duke
Senior Vice President	Isabel Geldenhuys
Junior Vice President	Zelmia Botha
Immediate Past President	Alastair Macfarlane
Honorary Treasurer	Vaughn Duke

In terms of the election of ordinary members of Council (Clause 3.5.7 of the Constitution and By-law B2.1), there were fourteen vacancies and the following members are now declared elected (in alphabetical order):

However, By-law B3 states *Should the list of nominees for 14 (fourteen) members to be elected to the Council not include the names of as many members as are required to fill the vacancies on the incoming Council, the outgoing Council shall, after scrutiny of the ballot list, nominate eligible Corporate members to complete the list and the members thus nominated shall be declared elected at the next AGM.*

The following members have been ratified by the outgoing Council and are now declared elected.

Bekir Genc	Steven Rupprecht
William Joughin	Navin Singh
Gary Lane	Andrew Smith
Elias Matinde	Michael Solomon
Godknows Njowa	Andrew van Zyl
Bongi Ntsoelengoe	Jeanne Walls

In terms of By-law F5.2 and F5.3 of the Constitution, the Chairpersons of the Branches are as follows:

Botswana	Vacant
DRC	Susa Maleba
Johannesburg	Danie Jensen
Namibia	Nikowa Namate
Northern Cape	Fabian Nieuwenhuys
Pretoria	Sezer Uludag
Western Cape	Lawrence Bbosa
Zambia	Darius Muma
Zululand	Christo Mienie
Zimbabwe	Clara Sadomba

The Chairperson of the South African National Council on Tunnelling (SANCOT) is Ron Tluczek.

These Chairpersons will serve as *ex-officio* members of Council.

In terms of By-law I4.4.6 the Young Professionals Council must consist of a minimum of 13 and a maximum of 18 members who are 35 years old and younger. We received the required number of nominations and did not have to conduct a formal voting process. The members of the YPC have been ratified by the outgoing Council.

The Office Bearers of the YPC are:

Chairperson:	Gangatha Dabula
Vice-Chairperson:	Adrian Chinhava

Secretary:	Shepherd Manjengwa
Treasurer:	Antony Mello
Immediate Past Chairperson:	Katlego Letsoalo

The Chairperson and Vice-Chairperson will represent the YPC on the SAIMM Council.

The following Past Presidents have signified their willingness to serve on Council for the ensuing year:

Nic Barcza	Jim Porter
Richard Beck	Rams Ramokgopa
Roger Dixon	Mike Rogers
Henry James	Don Ross-Watt
Rodney Jones	Gordon Smith
Cuthbert Musingwini	Willem van Niekerk
Selo Ndlovu	

*Alastair Macfarlane* thanked those Past Presidents who indicated that they cannot serve on Council for the next year, for all their time, effort, and dedication in the past.

He also thanked the Past Presidents for their continued support. He congratulated all those elected, and thanked those who agreed to serve another term of office.

## Honorary Vice Presidents of the SAIMM for the 2019/2020 Session

The SAIMM has a long-standing arrangement of inviting the Ministers of the Departments of Mineral Resources and Energy, Higher Education, Science and Technology, and Trade and Industry to serve as Honorary Vice Presidents.

These positions are intended to create closer collaboration between our organizations so that we may better serve the needs of our members and the industry.

We will be arranging to meet with these Ministers to foster this collaboration going forward.

## Election of Auditors and Honorary Legal Advisers for the year 2019/2020

*Alastair Macfarlane* proposed, and it was agreed, that Genesis be appointed as Auditors for the coming year and that Scop Incorporated be appointed as Honorary Legal Advisers.

## Outgoing Presidential Award

*Alastair Macfarlane* came forward to accept a commemorative plaque as a memento of his term of office.

## Induction of President

*Alastair Macfarlane* introduced the new President, Mzila Mthenjane, who will be heading up your Institute as we celebrate our 125th Anniversary, and then called upon *Isabel Geldenhuys* to read his *curriculum vitae*.

## Presidential Address

Mzila Mthenjane presented his Presidential Address entitled: *Post-mining use of rehabilitated land – an opportunity for the South African mining industry for sustainable development*, which is reproduced elsewhere in this edition of the *Journal*.

## Vote of Thanks

*Vaughn Duke* gave the the vote of thanks.

## Closure

The meeting closed at 19:00 ◆

## Honorary Life Fellowship Awards



Rodney Jones announcing the award winners



Marek Dworzanowski, receiving his Honorary Life Fellowship from Alastair Macfarlane



Cuthbert Musingwini, receiving his Honorary Life Fellowship from Alastair Macfarlane

## Brigadier Stokes Memorial Award



Alastair Macfarlane reading the citation of David Lancaster Hodgson



David Hodgson, recipient of the Brigadier Stokes Memorial Award, receiving his platinum medal



David Hodgson giving his acceptance speech

## 50-year Membership Award



Hendrik Kirsten, receiving his 50-year Membership lapel badge



Ian Robinson, receiving his 50-year Membership lapel badge



Rodney Jones presenting Desmond Sacco with his 50 Year Membership award, after the AGM

Gold Medal Award Winners



Lloyd Nelson, Rivashan Sakaran, Katlego Phage, Rodney Hundermark, and Angelique Cizek, receiving their Gold Medal Award, for their paper that was published in the *Journal*

Silver Medal Award Winners



Selo Ndlovu, receiving her Silver Medal Award, for their paper that was published in the *Journal*



Francois Malan and John Napier, receiving their Silver Medal Award, for their paper that was published in the *Journal*



Eleanore Forner, receiving her Silver Medal Award, for the paper she co-authored, that was published in the *Journal*

Most Supportive Advertiser in the SAIMM Journal

Student Prizes



Khanyisile Kunene receiving her student prize



Maanda Mulaudzi receiving his student prize



Hoosen Essack receiving the award on behalf of Weir Minerals Africa as the Most Supportive Advertiser in the *Journal*

## Proceedings, 122<sup>nd</sup> Annual General Meeting 2019



Vaughn Duke presenting a summary of the financial statement



Alastair Macfarlane receiving his Commemorative Plaque from Isabel Geldenhuis



Mzila Mthenjane delivering his Presidential Address

### Office Bearers for 2019 / 2020



Office Bearers for 2019 / 2020 — Front row (from left to right): Alastair Macfarlane, Mzila Mthenjane, Vaughn Duke  
Back row (from left to right): Rodney Jones, William Joughin, Isabel Geldenhuis

## Past Presidents



Front row (from left to right): Alastair Macfarlane (2018-2019), Henry James (1985-1986), Alf Brown (1982-1983), Selo Ndlovu (2017-2018), Rams Ramokgopa (2002-2003), Cuthbert Musingwini (2016-2017)  
Back row (from left to right): Joshua Ngoma (2009-2010), Dick Stacey (2003-2004), Rodney Jones (2015-2016), Gys Landman (2010-2011), Marek Dworzanowski (2013-2014)

## Council Members



Front row: (from left to right): Henry James, Bekir Genc, Alastair Macfarlane, Sam Moolla (Manager), Mzila Mthenjane, Rams Ramokgopa, Selo Ndlovu, Jeanne Walls  
Back row: (from left to right): Rodney Jones, Steven Rupprecht, William Joughin, Danie Jensen, Isabel Geldenhuys, Vaughn Duke

Members and their guests at the cocktail party



Tinyiko, Andzani, Linda, Mzila, Bertha and Jimmy Mthenjane



Desh Chetty and Selo Ndllovu



Mbali, Mzila, Lucas, Bertha and Jimmy Mthenjane



Mzila Mthenjane, David Hodgson and Edward Legg



Paul den Hoed, Lloyd and Felicie Nelson and Rodney Hundermark



Marek Dworzanowski, Ian Ralston and Hoosen Essack

Members and their guests at the cocktail party



Kamogelo Manyelo, Nyadzeni Makhado, Mzila Mthenjane, Kelello Chabedi, Cuthbert Musingwini and Ida Motshegoa



David Hodgson, Dick Stacey and Hendrik Kirsten



Some of the SAIMM team: Front row (from left to right)  
Thato Letebele, Sam Moolla, Prudence Ntumeleng  
Back row (from left to right)  
Camielah Jardine, Kea Shumba, Kelly Matthee, Dennis Makondesa



Woody and Hennie Albertyn



David Fleming, Alf Abrown, Peter Radcliffe, David Hodgson

Students





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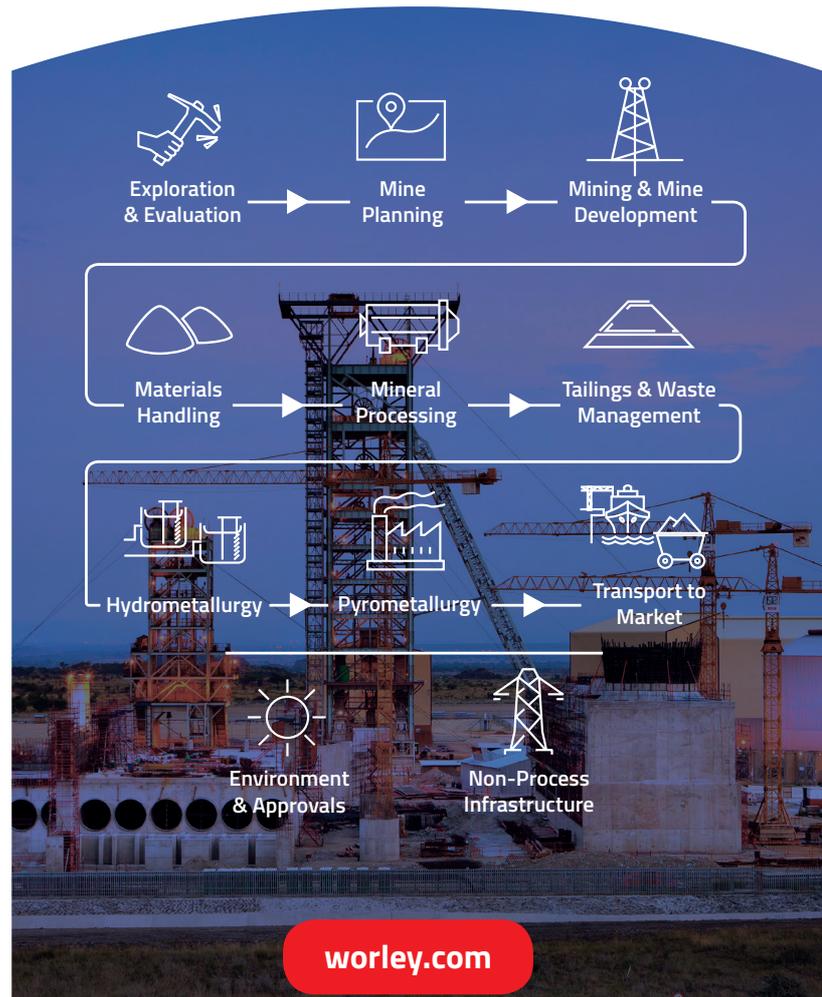
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**Please apply via iRecruitment: <https://irec.wits.ac.za>**

**Closing date:** 18 October 2019

The University is committed to employment equity. Preference may be given to appointable applicants from the under-represented designated groups in terms of the relevant employment equity plans and policies of the University. The University reserves the right to verify all information provided by candidates and to verify credit standing. Please note that correspondence will only be entered into with short-listed candidates. The University reserves the right not to make an appointment or to re-advertise.



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# Annual report

FOR THE YEAR ENDED 30 JUNE 2019

## COUNCIL FOR 2018/2019

### President

A.S. Macfarlane

### President Elect

M.I. Mthenjane

### Vice Presidents

#### Senior

Z. Botha

#### Junior

I.J. Geldenhuys

#### Immediate Past President

S. Ndlovu

#### Honorary Treasurer

V.G. Duke

#### Co-opted Member

R.T. Jones

### Members of Council

C.C. Holtzhausen

N. Singh

W.C. Joughin

A.G. Smith

G.R. Lane

M.H. Solomon

E. Matinde

D. Tudor

H.K. Musiyarira

A.T. van Zyl

G. Njowa

E.J. Walls

S.M. Rupprecht

### Branch Chairpersons

Botswana Branch

Vacant

DRC Branch

S. Maleba

Johannesburg Branch

D.F. Jensen

Namibian Branch

N.M. Namate

Northern Cape

F. Nieuwenhuys

Pretoria Branch

R.J. Mostert

Western Cape Branch

L.S. Bbosa

Zambian Branch

D. Muma

Zimbabwean Branch

C.P. Sadomba

Zululand Branch

C.W. Mienie

### Past Presidents serving on Council

R.D. Beck

J.L. Porter

J.R. Dixon

S.J. Ramokgopa

M. Dworzanowski

M.H. Rogers

H.E. James

D.A.J. Ross-Watt

R.T. Jones

G.L. Smith

G.V.R. Landman

W.H. van Niekerk

C. Musingwini

R.P.H. Willis

### Key objectives of the Institute

To initiate and give effect to the means whereby the requirement for technology and scientific knowledge of the minerals and metals section of the Southern African economy is satisfied; and to represent and promote the interests of its members.

## Arrangement of this report

In accordance with the current management policy, this report on the activities of the Institute is presented under eight main headings:

1. Interests of Individual Members
2. Technical Meetings
3. Publications
4. Regional Development
5. International Liaison
6. Management and Administration.

### 1. Interests of Individual Members

J.R. Dixon, Chairperson

As at the end of the 2019 financial year, total membership across all categories stood at 4792, representing a decrease of 285 on the previous year's figure. Of this number, 3608 are based in South Africa and a further 1004 from our country branches in Southern Africa, where healthy growth was seen in Namibia and Zambia. The balance is made up of members scattered across the globe. The decrease in members is reflective of conditions in the South African mining industry, with more unemployment in technical occupations and people moving either into alternative industries in South Africa or moving internationally.

Student membership again showed growth, increasing by 37 or 2.0% this year with students now making up 38.5% of total membership. The focus on our youth and Young Professionals remains a cornerstone strategy for the long-term health of the Institute. Council continues to encourage the initiative of offering support to our members that are financially stressed, either through deferred fees or in exceptional cases, by waiving the annual fee. The number of people receiving this assistance is 0.2% of membership compared with 1.02% last year, which reflects the continuing pressure facing our membership in the mining industry.

Table 1

### Total SAIMM membership analysis year-on-year

Membership grade	End 2017/2018	End 2018/2019	Net Gain/Loss
Honorary Life Fellow	49	48	-1
Honorary Fellow	2	2	0
Life Fellow	7	7	0
Fellow	351	329	-22
Retired Fellow	172	190	18
Life Member	1	1	0
Member	1 541	1 401	-140
Retired Member	122	122	0
Associate	910	746	-164
Retired Associate	12	12	0
Student	1 810	1 847	37
Company Affiliate	100	87	-13
Total	5 077	4 792	-285

**Table II**  
**Country /Branch membership analysis for 2018/2019**

Country Branches	2017/18	2018/19
Botswana	74	57
Namibia	63	91
Zambia	186	190
Zimbabwe	685	651
Total	1 084	1 004

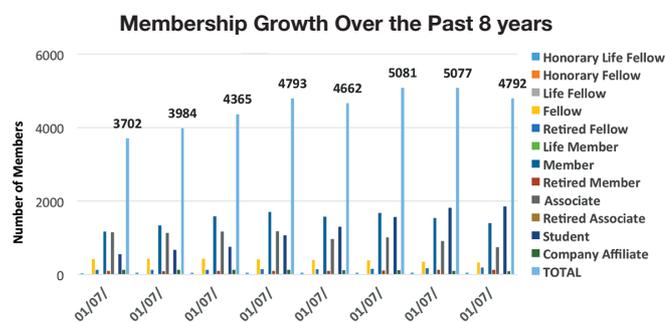


Figure 1—South African membership – annual growth

It is with great sadness that we have to report the passing of some of our members, many whom have played pivotal roles in the Southern African mining and metallurgical industries.

**Members who sadly passed on during 2018/2019**

Deceased	Election date	Membership Grade
Adriaan Albertus van Jaarsveld	18 September 1998	Associate
Andrew William Jameson	06 March 1975	Associate
Philip John Donne Lloyd	28 August 1968	Retired Fellow
Carel Aron Roode	28 August 1968	Fellow
Kenneth Michael Steenkamp	18 September 1981	Retired Member
Robert Edward Franklin Cowley	10 April 1964	Retired Fellow
Frederick DeVries	24 April 1987	Retired Fellow
Frank Fenwick	03 May 1966	Retired Member
John Arthur Luckmann	20 October 1989	Retired Fellow
Dieter Robert Chelius	10 May 1957	Retired Member
Raymond John Thomas Butler	21 May 1976	Retired Member
Charl Petrus Celliers	19 February 1988	Member

In addition to membership growth, fee collection has remained a focus for the Committee. Maintenance of contact with members remains a challenge. Membership and conference fees have been kept well below inflation parameters to ensure that our members continue to get value for their fees. Unfortunately, it is expected that annual increases will need to be more aligned with cost increases in the coming years.

I wish to extend my personal thanks to the members of the Committee for their commitment and support during the past year.

Maintaining a quorum at the Membership Committee has proved a challenge in the past year, despite teleconferencing. In the coming year thought will be given as to how the process can be further streamlined.

On behalf of the Membership Committee and of this Portfolio, we will strive to support our incoming President and Council in meeting their objectives and seeking new ways to support our Members.

**1.1 Membership Committee**

J.R. Dixon, Chairperson

A.T. Chinhava (YPC)

G.V.R. Landman

K.M. Letsoalo (YPC)

T. Mahomedy (YPC)

T.M. Mmola (YPC)

S. Ndlovu

J.C. Ngoma

S.J. Ramokgopa

M.H. Rogers

D. Ross-Watt

G.L. Smith

T.R. Stacey

W.H. van Niekerk

R.P.H. Willis

**Membership**

The SAIMM membership comprises engineers, metallurgists, chemists, physicists, geologists, certificated managers, and technikon diplomates, as well as other disciplines, all of whom have an interest in the fields of mining, extractive metallurgy, metals technology, and other related areas.

*Requirements for Corporate Membership*

**HONORARY LIFE FELLOW:** An Honorary Life Fellow shall be a person whom the Institute specifically desires to honour in consideration of services rendered to the Institute, to science, or to industry. Honorary Life Fellows shall have all the privileges of Corporate Members.

- The election of an Honorary Life Fellow shall take place at a Council meeting, due notice having been given at the preceding Council meeting of Council's intention to nominate a person as an Honorary Life Fellow. The election shall require the majority vote of Corporate Members of Council present at a Council meeting
- The election of an Honorary Life Fellow shall be announced at the following Annual General Meeting of the Institute
- An Honorary Life Fellow will have all membership fees and subscriptions waived.

**FELLOW:** A candidate for admission to or transfer into the category of Fellow shall:

- Be at least 35 (thirty-five) years of age
- Have, for a period of at least 5 (five) years, been practising in a senior technical position in mining or metallurgical undertakings, or in governmental, educational, or research organizations concerned with those industries, or
- Have, for a period of at least 5 (five) years, been practising as a consultant in the skills of mining and metallurgy, and
- Be practising his/her profession at the time of application, satisfy Council that he/she is a fit and proper person to become a Fellow, and Council shall be satisfied that his/her qualifications, training, and technical experience justify such professional status, and
- Have been a Member of good standing for 5 (five) years and have promoted the interests of the SAIMM through:
  - Serving on committee structures, and/or
  - Publishing in the SAIMM *Journal* or conference proceedings, and/or
  - By other means acceptable to Council.

**MEMBER:** A candidate for admission to or transfer into the category of Member shall:

- Be at least 25 (twenty-five) years of age

## Annual report

- Have, for a period of at least 2 (two) years, been practising in a responsible or senior technical position in minerals and metals industry undertakings or in governmental, service, educational, or research organizations concerned with those industries, or
- Have, for a period of at least 2 (two) years, been practising as a consultant in the minerals and metals industries, and
- Be practising his/her profession at the time of his/her application, satisfy Council that he/she is a fit and proper person to become a Member, and Council shall be satisfied that his/her qualification, training, and technical experience justifies such professional status.

### Requirements for Non-Corporate Membership

**COMPANY AFFILIATE:** Companies involved in or associated with the mining and metallurgical industries are eligible for admission to the category of Company Affiliate.

**HONORARY FELLOW:** Honorary Fellows shall be persons of distinction in public service, science, or the arts and shall be elected or re-elected by Council for the current year. They shall enjoy all the privileges and rights of members, except those of holding office and voting.

**ASSOCIATE:** A candidate for admission into the category of Associate shall:

- Be at least 18 (eighteen) years of age, and
- Be involved in minerals and metals industry undertakings or in governmental, service, educational, or research organizations concerned with those industries, but not meet the requirements to be registered as a Corporate Member
- Satisfy Council that he/she is a fit and proper person to become an Associate Member.

**STUDENT:** A candidate for admission into the category of Student shall:

- Be a person in the third or further year of being educated or trained in a manner approved by Council to occupy a technical position or associated with the minerals or metals industries
- Satisfy Council that he/she is a fit and proper person to become a Student Member
- Remain a Student Member only while he/she is being educated in a manner approved by Council
- Confirm their membership at the beginning of each academic year by submitting proof of registration at their applicable tertiary institution. Failure to submit proof of registration will result in termination of membership
- Not remain a Student Member after the end of the Institute's financial year in which he/she attains the age of 28 (twenty-eight) years. Council may relax the provisions of this clause in such cases as it considers appropriate.

### Membership roll

Members of the Institute are divided into Corporate and Non-Corporate Members, all of whom are entitled to attend and speak at meetings. Only Corporate Members are entitled to vote. All applications for membership or transfer require one proposer and one seconder.

**RESIGNATION:** A Member may resign from the Institute by sending his or her written resignation to the Secretary together with payment of any monies due.

**RETIRED MEMBERSHIP:** A Fellow or Member who has *bona fide* retired from active business may retain membership at a reduced subscription providing he or she has been a member for 20 years. Members can contact the Secretary to establish the number of years of service prior to submitting a written request for Retired Membership to the Institute.

**STUDENTS:** A candidate may remain a Student Member only while he or she is being educated or trained in a manner approved by the Council.

When he or she no longer qualifies as a Student Member, he or she shall automatically be transferred to the category of Associate. Students are reminded to forward a copy of their degree certificates to the Institute on graduation.

A candidate may not remain a Student Member after the end of the Institute's financial year in which he or she attains the age of twenty-eight years, unless the Institute receives written confirmation from the university or technikon that the Student Member is still a full-time student.

**CHANGE OF DETAILS:** It is essential that members contact the Institute without delay about change in designation, change in employer, payment address, or change in postal address. Without this the communication link to members is broken. Also, members must ensure that, where subscriptions are paid by a company, the Institute has on record the correct payment address.

### Benefits of membership

Individuals derive various benefits from membership of the Institute:

- Contact with fellow members
- Special reduced fees when attending congresses, symposia, colloquia, conferences, schools, discussion groups, etc.
- Notices of events promoting technology transfer, which also satisfy the need for continuing education
- A monthly *Journal* with a balanced content and of high technical standard, which serves as a communication medium to keep members informed on matters relating to their professional interests
- Participation in technical excursions, banquets, and other social events, which create further opportunities for professional association and fellowship
- Tax deduction of membership fees in most cases
- Reduced registration fees for professional registration through the Engineering Council of South Africa.

Companies that become Members of the Institute:

- Benefit from the opportunities to exchange knowledge, particularly about new developments and research
- Receive the Institute's publications of international conferences held in South Africa, as well as monographs on a variety of subjects and regular copies of the monthly *Journal*
- Are entitled to send two non-member employees to mining and metallurgical schools, colloquia, congresses, visits, and excursions at member rates
- Receive newsletters and notices about all Institute activities
- Benefit from the fact that Company Affiliateship is tax deductible
- Have ample opportunity to send delegates to attend technical meetings to obtain information and to benefit from the experience of others.

### 1.2 Young Professionals Council

**Portfolio Holder: S. Ndlovu**

K.M. Letsoalo, Vice Chairperson

G. Dabula, Vice Chairperson

A.S. Nhleko, Immediate Past Chairperson

N. Tshiongo-Makgwe, Secretary

A.T. Chinhava, Treasurer

I.J. Geldenhuys\*

K. Mosebi

L.T. Lumbwe

S. Ndlovu\*

T. Mahomedy

G. Nxumalo

S.F. Manjengwa

S.M. Rupperecht\*

T.M. Mmola

C. Setuke

R.P. Molehe

F. Uahengo

\*Observers

#### Strategy Focus for 2018/2019

In the 2018/2019 term the Young Professionals Council (YPC) identified two key performance areas intended to guide each portfolio on its major deliverables. This did not replace the strategy documents but provided guidance to the various teams on what should be achieved to ensure that the long-term objectives of the YPC are attained in future. Part of the focus included initiating YPC activities in Namibia, Botswana, and Zimbabwe. The YPC also strove to ensure that adequate funding is generated to support the planned activities.

#### Namibia

The YPC Namibia Branch started off well in 2018 with a roadshow held in Rosh Pinah on 11 July 2018. A subcommittee of eight members was established after the roadshow. The team assisted in the organizing of a well-attended networking dinner held in Windhoek on 7 May 2019. The objective was to stress the importance of affiliating to a profession body and raise awareness of YPC activities in Namibia. The event also provided the young professionals with information on how to become technically involved through publications. The dinner was attended by approximately 40 young professionals from both mining academic institutions and industries in Namibia. Preparation are underway to host a technical conference in August 2019.

The Branch continues to reach out to all young professionals in the country and aims to have representatives in all the relevant regions to facilitate its activities. Through the leadership of Ms Foibe Uahengo and the YPC-Namibia Branch Champions, presentations to young professional are scheduled to take place in Swakopmund and Karibib.

#### Zimbabwe

The membership recruitment drive targeted students from tertiary institutions offering mining and metallurgy programmes, comprising the University of Zimbabwe, Midlands State University, Manicaland State University, Zimbabwe School of Mines, and Gwanda University. Much effort was concentrated on recruitment at Gwanda University, which is a fairly new institute in the league of universities offering Earth Science programmes. A student leadership committee at each tertiary institution coordinates all the SAIMM activities and recruitment. Further efforts were concentrated on the retention of students and their transition to Associate Membership grade. Total youth membership is currently at 80%, consisting mostly of students.

The SAIMM's influence in institutions improved significantly as a result of improved engagement through the YPC.

Most of the engagement was through partnership with universities concerning the successful launch of the Young Persons' Lecture Competition in Zimbabwe in collaboration with IOM3. The finalists proceeded to represent Zimbabwe and Southern Africa at the world competitions held in Port Elizabeth, South Africa in October 2018.

Furthermore, the Branch facilitated the participation of two young professionals to present technical papers at the Young Professionals Conference held in Johannesburg. In promoting research and development amongst the youth, two research papers were presented by students at the annual Zimbabwe Branch Conference in 2019. The Champion of the YPC-Zimbabwe Branch is Mr Adrian Chinhava.

#### Botswana

The YPC-Botswana was established in 2018/2019 through the Championship of Kabelo Mosebi. The main object of the Branch in the year under review was to recruit young professional in the region and establish communication with the SAIMM Botswana Branch. Over 16 young professionals were identified and recruited to the SAIMM.

#### YPC Activities

The YPC organized several events that are seen as being important in developing young professionals in general and in developing the capacity to deliver on the needs of the young professional members of the Institute.

#### Education Working Group

The YPC continues to support initiatives that focus on attracting learners to fields of study associated with the minerals industry. The YPC participated in the Sci-Bono Career Guidance events giving career guidance to high-school students. The YPC also ran a raffle at the SAIMM Banquet to raise funds for the Scholarship Trust Fund.

The Education Working Group (EWG) was involved in hosting a soft skills workshop at the University of the Witwatersrand (Wits) in April 2019. The workshop was aimed at equipping delegates with curriculum vitae and covering letter writing skills. Other planned workshops for the 2019 academic year include technical writing and entrepreneurship. The purpose of these workshops is to prepare well-rounded graduates for the minerals industry.

On 23 August 2018, mining and metallurgy students from the University of Johannesburg (UJ) and Wits participated in the annual Johannesburg Branch student debate, with the theme of 'Techno-economic discussion on exotic/high-tech metals' with the emphasis on their applications in emerging technologies. Graham Stripp was the debate convenor.

On 4 August 2018 the YPC, in partnership with student bodies from UJ, hosted a Careers and Leadership Conference held at the University of Johannesburg. The event, which was sponsored by PriceWaterhouseCoopers, was attended by students from Wits, UJ, the University of Pretoria (UP), Vaal University of Technology (VUT), and UNISA.

The SAIMM held the 15th Annual Student Colloquium on 24 October 2018 at Mintek in Randburg. The event included mining and metallurgy technical presentations from students across universities in South Africa, Namibia, and Zambia.

### *Career Guidance Working Group*

The YPC concluded developing the graduate development programme for mining and metallurgical graduates, which is aimed at ensuring that young professionals are trained appropriately. The programme has been presented for comments from various role-players. The YPC, in collaboration with Wits University Mining Engineers Association (WUMEA), gave a presentation to young professionals at the launching of WUMEA's Northern Cape Branch. The aim was to inform attendees about the YPC and subsequently start organizing YPC activities in the region.

### *Enterprise Working Group*

The Enterprise Working Group is mainly focused on ensuring that young professional within the SAIMM have a full appreciation of the business opportunities available in the metals sector and possible funding structures. In partnership with Sandvik and Phambili Solutions, a seminar for young professionals was hosted aimed at sharing supplier development opportunities. The seminar was well attended, and a raffle was held at the event to raise funds for the Scholarship Trust Fund. The seminar was also used to market the Entrepreneurship in Mining Conference, which took place at Riversands on 31 July 2019.

### *Mentorship Programme*

The YPC Mentorship Programme, which is in its fourth year of running, received 22 applications in 2019. The protégés and mentors are based in various countries from Zambia to Canada. The programme allows young professionals to build connections with experienced practitioners and to develop into future leaders of the industry. The programme is considered to be one of the most successful initiatives by YPC, with support from the SAIMM members.

### *Graduate Employment Database*

The YPC is sensitive to the challenge faced by young professionals in finding meaningful and gainful employment in the minerals industry. Over 400 SAIMM members have registered on the Graduate Employment Database (GED) and the SAIMM sends out regular communications to these members alerting them on career, internship, or education opportunities. During the 2018-2019 term, information on four internship, career, and education opportunities was e-mailed through the database. Two applicants from the SAIMM database were successful in their quest for employment.

### *Social media activity*

The YPC aims to ensure that its social media presence is increased by 10% on a quarterly basis. The Facebook following increased from 2888 in April 2018 to 4138 in May 2019. The Twitter following has grown from 1635 to 2011 over the past year. Following the establishment of a YPC Instagram account in January 2018, the profile has grown to just over 291 followers. LinkedIn continues to experience the highest growth in followers, with just over one-third (37%) of the followers being engineers in the mining and metals industry. The YPC continues to provide content that is beneficial to members under 35.

### *Funding*

The YPC funding portfolio had set a target of generating R100 000 in funding and finding a partner that would be able to provide annuity funding. Challenges were experienced in finding

annuity funders, and R70 000 in funding was generated in the 2018-2019 term. The main funders were Sandvik and De Beers, with some funding for the Entrepreneurship in Mining lead-up event being provided by Sandvik.

### **1.3 Promotion of the SAIMM**

#### **Portfolio holder: A.S. Macfarlane**

This report covers the activities of the Institute over the 2018/2019 financial year. This has been a difficult year for the Institute, due to the continued contraction of the industry in certain sectors as a result of continued economic challenges in the industry, as well as a cycle in the event calendar where very few large income-generating events were held, resulting in reduced income.

It has also been noticeable that it has been difficult to ensure attendance at Council, TPC, and Subcommittee levels due to the work commitments of our volunteer members.

These indications have influenced our strategic direction, as explained later. However, despite these challenges, the Institute has had an eventful year, with many noteworthy successes as explained in this report.

#### *Strategic Planning for the SAIMM*

During the year, focus was placed on developing the strategies of the previous year, so that a firm strategic plan could be established that would direct the Institute for the next 5 to 10 years. As referred to above, the year witnessed a number of challenges and changes which have emphasized the need for constant reassessment of the direction of the Institute. These include the following:

- A reduction in membership, both individual and corporate
- Reduced attendance at some events, while others still attracted significant audiences when the topic was relevant
- A lack of support at events from operational management from industry
- Shifting sands as far as the state of the industry is concerned, with some sectors such as gold and platinum continuing to experience difficulties and contraction
- Changes in policy and legislation, such as the Mining Charter 3, which impact on the direction of the SAIMM and similar institutions
- The rapid transition of the industry towards Industrial Revolution 4.0
- The ever-increasing need and responsibility of the mining industry to become more inclusive and engaged in matters of communities and society as a whole.

Matters such as these give rise to the question of how the Institute remains relevant to its members as well as to the industry, and how strategy shapes the manner in which the Institute maintains its relevancy.

With this in mind, the Office Bearers developed the following strategies to take the Institute forward.

#### **1. Redefining who we are**

This strategy requires that the Institute critically re-examines its offerings in terms of relevancy, whether this be the events that are held or the activities that the Institute supports and arranges. This fundamental reassessment of activities then will influence the branding and marketing of the Institute to a wider audience.

### 2. Modernizing and extending the reach of the SAIMM

This involves recognition of the ever-changing landscape of the industry and the impact of Industrial Revolution 4.0, which in turn means that new professions should be attracted to the Institute. This area also requires that the Institute continues to grow the activities of the Young Professionals Council and the Committee for Diversity and Inclusion in the Minerals Industry, and that the Institute supports the development of entrepreneurs and localization.

### 3. Keeping in touch with industry

The Institute needs to continue to find ways in which to keep in touch with industry and its changing needs. This will include engagement with industry to develop partnerships that will be of mutual benefit.

### 4. Extending geographical reach

This strategy requires not only that our branches are more effective, but also that the Institute constantly reassesses the opportunities for new branches to be formed, and new relationships to be established, globally. Already, a partnership with the Turkish Chamber of Mining Engineers is being discussed, and discussions have been held with the Minerals Industry Association of Southern Africa.

### 5. Creating platforms for dialogue

In this area the Institute, while continuing to hold high-quality technical events, needs to extend its offerings to include events of a topical nature, to encourage dialogue and collaboration among industry stakeholders. Several highly successful events of this type were held in 2019.

### 6. Strengthening professionalism among members.

The Institute will continue to strengthen professionalism through the enforcement of its Code of Ethics, as well as encouraging professional registration and interaction with other professional bodies.

The development of these strategies into specific action plans has been hampered by the availability of volunteers from Council to meet regularly to progress this initiative. This in itself indicates that a different approach may be necessary to drive these strategies forward in terms of the resources available to do this work.

The SAIMM is not alone in having to address these issues of relevancy and strategy, with the Australian and Canadian institutes having had to deal with the same issues.

In the remainder of the report, under each heading a note describes how the strategic plan will impact in each area.

## Financials

As alluded to above, the 2018/2019 year was a difficult one for the SAIMM from a financial point of view. This was partly due to the slower than expected recovery of the industry and the economic situation in the country, which meant that conference attendance was affected, and that membership decreased. In addition, it so happened that the year was one in which only two international technical events were held, being the Sulphuric Acid and Deep Level Mining conferences. This resulted in TPC income being largely dependant on the local events, which were also affected by the downturn. Additionally, some forward payments for future international events had to be made, with these incomes only accruing in the future.

Thus, a kind of 'perfect storm' was created.

The Institute will end the year with a deficit of R9 881, but this includes drawdowns from the investment account of R3 720 000, which were agreed to through Office Bearers and Council, in order to cover deficits and ongoing expenses. While it is disappointing that these drawdowns had to be made, it is important to remember that one of the purposes of the investment fund is to be able to cover these cyclical downturns that occur from time to time. Nevertheless, the investment fund stands at a balance of R28 489 249, having seen a decline of 10% over the year.

In April, a turnaround strategy was developed to deal with the financial situation, and the following actions were put in place.

- A deep-dive into the financial numbers was conducted by the Secretariat to identify any areas of wasteful or unnecessary expenditure.
- Past events were analysed to identify areas where losses occurred. This revealed that certain venue costs were high, and a survey of possible venues was conducted to develop a listing of cost-effective venues for use by TPCs. This is now in use, and further discounts are being negotiated.
- TPCs now actively manage their event budgets to ensure that events do not make losses.
- Budgets will now be zero-based, meaning that these will be based on projections on actual events as opposed to historical projections.
- TPCs are encouraged to develop three-year plans so that cyclicity in terms of cash flow can be forecast and dealt with.
- Outstanding membership fees of over two years that were deemed irrecoverable were written off, with these members being struck off.
- An aggressive drive by the Secretariat resulted in significant recovery of outstanding membership fees (in the one- to two-year window) and outstanding debtor payments.
- Upfront payments are now required for conference attendance.

In terms of strategy going forward, the financial position of the Institute will be enhanced through the following:

- Developing and implementing the strategic plan referred to above, using the immediate Past President portfolio to drive the strategy forward
- Investigation of industry partnerships to increase membership
- Developing 3-5 year plans for event calendars to ensure an even spread of cash flow
- Embracing digital technology to increase efficiency and delivery from the Secretariat
- Using digital technology to increase reach and provide exciting events.

## Membership

As a result of the write-off of outstanding debt and the striking-off of long-standing non-paying members, as well as resignations during the year, membership dipped below 5000 to 4982.

These members are still spread across 50 countries, and female membership now stands at 19.4%.

Strategically, a drive is required to increase membership through the following activities.

## Annual report

- Re-examining the value proposition for members and ensuring that this is communicated to members
- Developing a strategy to extend membership in our branches, through liaison and collaboration with the Minerals Industry Association of Southern Africa, which represents all of the Chambers of Mines of Southern Africa
- Extending reach to 'new professions' in the minerals industry
- Using digital technology to deliver quality events to branches
- Supporting the YPC and DIMI to increase membership amongst young male and female professionals.

### Publications

Our *Journal* continued to enjoy success as a globally recognized, high-quality publication which disseminates scientific and technical knowledge to the benefit of the minerals industries, as well as to our members.

During the year, our *Journal* had seven themed editions, based on the themes of technical events, with papers from these events being published after peer review. Additionally, the 125th year publication is under preparation for publication, and an edition was published in recognition of the wonderful work done by Professor Richard Minnitt in the area of Mineral Resource evaluation over the many years of his illustrious career.

The student edition continues to showcase the high quality of research work done by our students at the universities, and gives the readers comfort that the future of the industry is in good hands.

During the year the Office Bearers engaged with the Department of Science and Technology to ensure that papers published in the *Journal* are recognized. This was a concern raised by the universities, and the matter was resolved with the DST. Various concerns were raised in communications with the universities, such as the Journal Impact Factor (currently 0.339) and the need to increase the number of international referees and international papers. These are matters for the new Editor of the *Journal* to attend to.

The Institute bids a fond farewell to David Tudor, who has served as the Editor of the *Journal* and Chair of the Publications Committee for the past 11 years. In the words of Professor Rosemary Falcon, who has stepped in to take over the Editorship, 'The SAIMM Journal has achieved great standing in professional and academic circles and his (Dave's) dedication in this role contributed in no small measure to this success.' Strategically, the SAIMM will continue to develop digital means for publication, but the *Journal* will continue to be available in hard copy for those who prefer it that way.

### Technical Conferencing

Technical conferencing continues to be the cornerstone of the offerings of the Institute, in terms of delivery to members and industry, and in terms of income.

The technical conferences are coordinated by the Technical Programme Committees, with a conference committee for each event being made up of TPC and/or industry and academic members and the secretariat. These committees ensure the success of the events, and the secretariat ensures high-quality delivery and organization. Without these dedicated people the events would not be the success that they undoubtedly are.

During the year 2018/2019, there were 22 events, comprising 12 conferences, one workshop, six breakfasts, one

short course, one colloquium, and one seminar. Significantly, delegate attendance decreased from 3246 to 1943, which was due to the fact that there were few large international events, as mentioned earlier. This had a profound effect on income.

Noteworthy among this year's conference were the highly successful Copper and Cobalt conference, which attracted 293 delegates and was held in Zambia.

The Geometallurgical conference was held in Cape Town and attracted an international audience, covering many different aspects of this topic and many different minerals. The success of the event indicates the need for this to be repeated, probably on a biannual basis, with a need to involve more work from the mining part of the value chain.

The MineSafe Conference was held in August 2018 as a joint conference between the SAIMM and MPAS. The event was successful, especially the Industry Awards Day which followed the conference. However, it was felt by the organizers that it was time to revamp the conference proceedings, and in this regard MPAS will be holding separate events in the future. On the basis of this, the SAIMM has decided to continue with an International Mine Health and Safety conference, and this will be held at the end of 2019.

A successful international Sulphuric Acid event was held in Swakopmund in March, with delegates from around the world.

A New Technology conference and trade show was held at Riversands in June, attracting a large audience of delegates, speakers, and exhibitors.

The other international event, which was, as always, highly successful, was the Deep and High Stress Mining Conference held at Misty Hills in June 2019.

A collaborative event was held in February with the Mining Equipment Manufacturers of South Africa (MEMSA), which showcased local mining, mineral processing, and metallurgical equipment and debated the requirements for compliance on localization in the Mining Charter 3. This followed a successful breakfast event which was held earlier in the year. Several other breakfast events were held during the year on topical issues and subjects, often as part of a larger theme of linked conferences.

The Technical Programme Committees met together on a regular basis to ensure that synergies and opportunities for events between mining and metallurgy were realized. These meetings were used to plan events for the future, to ensure that international events were identified, and to ensure cash flow is optimized.

A joint strategy session was also held, which identified a number of issues going forward, to ensure the success of the TPC programme. These included:

- Digital transformation of events
- Planning and budgeting processes
- Venue optimization
- Marketing of events
- Collaboration with other organizations.

Branches continue to be encouraged to hold events in their regions, assisted by the Secretariat and the TPCs. Some of these events were organized this year, including the Rock Engineering event held in the Democratic Republic of Congo, and the Sulphuric Acid event in Namibia.

In order to increase the number of international conferences taking place Southern Africa, dialogue has been opened with the Australian Institute of Mining and Metallurgy. While mutual

## Annual report

agreement on the desirability of closer collaboration was reached, the details will be discussed at the GMPA meeting in Peru in September.

Additionally a collaborative agreement is being developed with the Chamber of Mining Engineers of Turkey, which has reach across North Africa and the Middle East, for a joint event to be planned.

An event is also being planned with the Minerals Association of Southern Africa, on Efficient Energy in the Minerals Industry in Southern Africa.

Strategically, the SAIMM will continue to diversify its offerings to include topical issues where dialogue and collaboration can be encouraged, so that events have tangible outcomes which can influence policy and the mining ecosystem.

### **Global Mining Professionals Alliance (GMPA)**

The SAIMM continues to be a member of the Global Mining Professionals Alliance.

The GMPA is a collaboration between the leading professional bodies representing the minerals industries around the world and comprises the following organizations:

- Australasian Institute of Mining and Metallurgy (AusIMM)
- Canadian Institute of Mining, Metallurgy and Petroleum (CIM)
- Institute of Materials, Mining and Metallurgy (IOM3)
- Southern African Institute of Mining and Metallurgy (SAIMM)
- Society for Mining, Metallurgy and Exploration Inc. (SME)
- Instituto de Ingenieros de Minas del Peru (IIMP).

The objectives of the GMPA members are to work together to identify and deliver collaborative projects that are of mutual benefit, to share knowledge and resources regarding effective ways to support the professional development of institutional members, and to be a partner of (or commit to joining) the OneMine global mining database.

The GMPA is currently undergoing a process to formalize its existence and increase its effectiveness. Specifically, it is in the process of establishing a website so that communication between members becomes more transparent.

It has also resolved to focus on specific topics of a global nature, to foster dialogue, and offer guidance on these topics. The next meeting of the GMPA (which the SAIMM will be attending) will be in Peru in September. The main topic of discussion at this meeting is the management of tailings, with a view to developing guidelines for management and risk assessment of tailings storage facilities.

The SAIMM has agreed to work together with the AusIMM to improve the effectiveness of the GMPA.

### **Global Mining Guidelines Group (GMG)**

This is an international group that was established to develop standards (where appropriate) and guidelines on matters relating to modernization and innovation. These are largely in the areas of digitalization and IR4.0.

The organization has 89 corporate members and 3481 global participants spread across 38 countries, including South Africa. They have thus far produced nine guidelines.

The SAIMM has been a member for some years, but has this year increased its visibility, firstly by holding an event here at Wits Club. Through our representative, Jean-Jacques Verheaghe, the SAIMM will be taking an increasing role in the GMG to represent Southern African interests.

### **Collaboration**

The name of the game for the future of the industry in Southern Africa is collaboration, and the SAIMM has worked hard on collaboration with a number of organizations during 2018/2019, in line with its strategy. Some of these are as follows.

#### *ECSA*

In recent years there have been certain challenges in relation to the Engineering Council of South Africa in terms of the representation of SAIMM on its Council and its various accreditation committees. Various changes that were enacted by ECSA meant that the SAIMM, along with other Learned Societies and Voluntary Organisations (VAs), lost representation on these important committees (that were of interest to members).

A meeting forum for the VAs was established, known as the South African Forum of Engineers (SAFE), of which the SAIMM is a member. It was the purpose of this collective forum to discuss these matters, and to find ways to resolve the apparent impasse.

Recently, ECSA extended invitations to the VAs, including the SAIMM, to participate in certain of these committees, and the SAIMM has nominated two members.

Through SAFE, the SAIMM submitted a list of preferences that SAIMM would want to pursue in future discussions with ECSA. In the meanwhile, ECSA renewed the SAIMM's recognition as a VA.

It is hoped that this represents the start of re-establishing the positive relationship with ECSA that all would want.

#### *Local Professional Organizations*

The SAIMM maintains positive relationships with other like-minded professional organizations, among whom are:

- Association of Mine Managers of South Africa (AMMSA)
- Association of Mine Resident Engineers of South Africa (AMRE)
- Geostatistical Association of Southern Africa (GASA)
- Geological Society of South Africa (GSSA)
- Institute of Mine Surveyors of South Africa (IMSSA)
- Mine Metallurgical Managers Association (MMA)
- Mine Ventilation Society of South Africa (MVSSA)
- South African Colliery Engineers' Association (SACEA)
- South African Colliery Managers Association (SACMA)
- Southern African Coal Processing Society (SACPS)
- South African Institution of Chemical Engineers (SAIChE-ICHEM)
- South African Institute of Electrical Engineers (SAIEE)
- South African National Institute of Rock Engineering (SANIRE).

Additionally, in line with the strategy of extending our reach to new professions in the minerals industry, a collaboration agreement has been signed with the South African Geophysical Association, and a similar agreement is under discussion with the South African Council for Automation and Control (SACAC).

Two meetings have been held this year with the presidents of these organizations. The first was to understand what each organization is doing, and how collaboration could be encouraged. Arising from this meeting was the upcoming event on Exploration in Southern Africa, which is a joint event with the Geological Society.

## Annual report

At the second meeting, it was agreed that more formal Terms of Reference be developed for the formation of an association to be known as the South African Minerals Professionals Alliance. This forum will discuss matters of common interest and provide a conduit to take matters to the GMPA.

### *Minerals Council*

In the line of creating closer contact and dialogue, two meetings were held with the Minerals Council. The first was with the Minerals Council Office Bearers, to establish broad agreement on the need for closer ties. The second was with the Executive of the Council, at which more details were discussed of areas of closer collaboration. These included organizing joint events, working with the YPC, establishing closer ties with industry, and university liaison.

### *Young Professionals Council (YPC)*

The YPC is a vitally important part of the SAIMM. During the year 2018/2019 they have been very active, focusing on strategy, education, enterprise, mentorship, a graduate employment database and social media activity.

In terms of strategy the YPC has concentrated on geographical reach, by starting to establish sub-branches of the YPC in Namibia, Zimbabwe, and Botswana. Some 40 young professionals attended an event in Namibia, aimed at establishing a branch there.

In Zimbabwe, the YPC has engaged with the University of Zimbabwe, Midlands State University, Manicaland State University, Zimbabwe School of Mines, and Gwanda University. These engagements are aimed at recruitment as well as assisting students in presentations at a Young Persons Lecture competition in Zimbabwe, the Student Colloquium in Johannesburg, and the annual Zimbabwe Branch conference.

In Botswana, so far 16 young professionals have been recruited into the Botswana YPC.

In terms of the Education Working Group, the YPC has participated at Sci-Bono, hosted a workshop on soft skills at Wits, assisted with the annual student debate, hosted a leadership conference at UJ, and hosted the annual student colloquium. The Group has also developed a draft graduate development programme, which will be presented to Council and the Minerals Council.

The Enterprise Working Group conducted a seminar on entrepreneurship, as a forerunner to a conference in July.

The mentorship programme continues to operate successfully, with 22 new applicants in 2019.

The YPC continues to assist with the placement of unemployed young professionals, having established a database of some 400 candidates.

Regarding social media, the Facebook following for the YPC increased from 2888 in April 2018 to 4138 in May 2019. Similarly, Twitter following has increased from 1635 to 2011. These forums cover content from the minerals industry that is of interest to members under the age of 35.

The YPC has also set itself a target for self-funding. On a target of R100 000 it has so far raised R70 000.

Strategically, the YPC and its activities are an essential component of shaping the future of the Institute, through career and professional development, attraction of the youth to our industry, university liaison through establishing chapters and branches, and entrepreneurial development.

### *The Committee for Diversity and Inclusion in the Minerals Industry (DIMI)*

The DIMI was established in 2017 under the chairmanship of Professor Ndlovu. This Committee was established to explore ways to encourage awareness on issues of diversity and inclusion in the minerals industry, to engage with SAIMM members to encourage diversity and inclusion in SAIMM activities, and to serve as a forum for discussion and dialogue on issues of diversity and inclusion.

This important committee has organized events and presentations on these matters, including mentorship and retaining women in the minerals industry.

Diversity and Inclusion is critical for the future of the Institute and is fundamental to its strategy.

### *The SAIMM annual banquet*

The banquet was held on Saturday 16 March 2019 in the Ballroom at the Sandton Convention. Sandton.

There were 324 guests in total. There were three VIP tables, which included the SAIMM Office Bearers and presidents of kindred organizations. There were 28 sponsor companies ranging from academia and consulting to operations and young professionals.

The SAIMM presented the first-ever long service award to a Council member, to Mr Dirk van Niekerk, who had been a member of Council for 29 years. Mr van Niekerk was very pleased with his award and gave some insight into his years at the SAIMM during his acceptance speech.

Another key event was the presentation of certificates to Fellows who were elected in the preceding year. This process was instituted in 2016 and has become an important part of the proceedings. Another process that continued this year was the invitation and mention of the top five members in the different categories of the Five Star Incentive Programme. These categories are the top five proposers, *i.e.* members who signed up the most number of members during the year; the top five referees of papers for the *Journal* and the top author, *i.e.*, the author who submitted the most number of papers, and whose papers were published in the year.

Entertainment was provided by renowned ventriloquist Conrad Koch and his puppet Chester Missing, who took a light-hearted look at local and international politics. Attendees enjoyed his humour and there was favourable feedback after the banquet.

Guests were also complimentary about the menu and wine selection.

As always, the SAIMM extends its appreciation to the companies who sponsored the event and we look forward to seeing them all at the next banquet.

### *Scholarship Trust Fund*

The SAIMM continues to support the Scholarship Trust Fund, which is a fund aimed at supporting needy students studying mining and metallurgy subjects at university. An annual contribution is made to the Fund, which currently stands at a value of R255 897. Members and Associates are encouraged to donate to this worthy cause.

### *Staffing matters*

There are currently 15 full-time staff and one contractor employed by the SAIMM. The team continued to provide

## Annual report

extensive and exceptional services in the areas of conferences, membership, publications, and administration. As President of the Institute I extend my utmost gratitude to the team for the exceptionally good work they do for the SAIMM.

During the year the Institute employed Mrs Thato Letebele in the role of communications and marketing liaison.

It is with great sadness that we report the passing on of the previous Accountant, Mr Alf Bettoni, and Mrs Anna Panana, who was the Conference Administrator. Mrs Panana had been with the SAIMM for 30 years on the day she passed on, 30 March 2019.

There were no other major staff changes, and the SAIMM as a whole thanks the team for their continued support and efforts during the year.

### Conclusion

In conclusion, as the outgoing President, I can say that it has been a challenging yet very enjoyable year, and I hope that I have been able to give value to our great Institute. It has been a privilege, and honour and a crowning glory to my career to have served the Institute in this capacity.

There is no doubt that the strategy needs to be developed further so that we can continue to make the Institute strong, sustainable, and valuable to our members, and that our Institute can be the envy of the world.

It is only through the tireless dedication of the staff, the Council, the Office Bearers and the members that this can happen.

### 1.4 Awards and Adjudication Committees

#### Awards and Adjudication Committee—Mining

M.H. Rogers, Chairperson

W.C. Joughin	G.L. Smith
R.G.B. Pickering	T.R. Stacey

#### Awards and Adjudication Committee—Metallurgy

D. Tudor, Chairman

P. den Hoed	R.L. Paul
S. Ndlovu	R. Steward

#### Honorary Life Fellows

Honorary Life Fellowship is awarded by Council to Corporate Members of the Institute who have rendered outstanding service to the industry or to the Institute over a considerable period.

Council has conferred Honorary Life Fellowship on the following persons:

Pre-		
1923	A. Aiken	S.H. Pearce
	A.F. Crosse	J.P. Williams
	J. Littleton	
1923	J. Moir	
1930	H.A. White	
1931	P. Cazalet	J.A. Wilkenson
	A. Whitby	
1932	J.R. Thurlow	
1934	Wm. Cullen	A. McArthur Johnston
	W.R. Feldtmann	G.H. Stanley
	E.H. Johnson	
1938	G. Melvill	F.W. Watson
	S. Newton	
1941	J. Henderson	
1943	Sir R.N. Kotzé	
1946	J. van N. Door	T.K. Prentice

	C.J. Gray	R.S.G. Stokes
	J. Gray	S.J. Truscott
	J.V. Muller	G.A. Watermeyer
	J. Orr	J.A. Woodburn
1951	W.W. Mein	
1953	P.E. Hall	B. St. J. van der Riet
1954	C. Biccard Jeppe	
1955	P.N. Lategan	
1958	R.A.H. Flugge-de-Smidt	
1960	G. Hildick-Smith	A.J. Walton
	A.J. Orenstein	F. Wartenweiler
	H.J. van Eck	
1961	C.S. McLean	
1966	F.G. Hill*	F. Meyer
1970	H.E. Cross*	D.M. Jamieson*
	R.C.J. Goode*	
1974	R.J. Adamson	C.J. Irving
	W. Bleloch*	J.F. Reid*
	H. Britten	
1975	M. Barcza	J.T. McIntyre
	J. de V. Lambrechts	
1976	D.G. Maxwell*	A.R.O. Williams*
1978	J.K.E. Douglas*	V.C. Robinson*
	D.D. Howat*	
1979	J.P. Hugo	P.W.J. van Rensburg*
1980	Hon. S.P. Botha*	R.P. Plewman*
	Hon. P.G.J. Koornhof	R.E. Robinson*
	A. Louw*	
1982	M.G. Atmore*	
1983	C.S. Macphail*	
1985	P.R. Jochens*	M.D.G. Salamon*
	D.G. Malan*	
1986	D.G. Krige*	G.Y. Nisbet
1987	A.N. Brown	
1988	J.D. Austin	D.A. Viljoen*
	R.P. King*	
1989	P.A. von Wielligh*	
1990	S. Budavari*	G.T. van Rooyen
	L.W.P. van den Bosch	
1991	H. Wagner	
1992	J. Lurie*	
1993	No award	
1994	B.C. Alberts*	
1995	R.D. Beck	H.E. James
	P.R. Janisch	
1996	R.J. Dippenaar	H.G. Mosenthal*
	J.S. Freer*	
1997	J.A. Cruise	
1998	D.A.J. Ross-Watt	
1999	No award	
2000	N.A. Barcza	J.R. Dixon
	R.P. Mohring*	
2001	M.H. Rogers	D.J. van Niekerk
2002	L.A. Cramer	R.F. Sandenbergh
	C.T. O'Connor	J.H. Selby
2003	A.A.B. Douglas*	P.J. Knottenbelt
2004	No award	
2005	F.A. Camisani-Calzolari	
2006	T.R. Stacey	
2007	No award	
2008	E.U.H. Sachse	

## Annual report

2009	I. Walton	
2010	R.T. Jones	
2011	No award	
2012	No award	
2013	No award	
2014	G.V.R. Landman	R.G.B. Pickering
	A.S. Macfarlane	
2015	O.K.H. Steffen*	M.F. Handley
2016	R.C.A. Minnitt	S.J. Ramokgopa
	J.L. Porter	G.L. Smith
2017	D. Tudor	
2018	M. Woodhall	
2019	M. Dworzanowski	K.C. Sole
	C. Musingwini	

\*Deceased

### Brigadier Stokes Memorial Award

The Brigadier Stokes Memorial Award, which takes the form of a platinum medal, is awarded to an individual for the very highest achievement in the South African mining and metallurgical industry, and is not necessarily based on technical expertise.

The Award was established in 1980, and the previous recipients were as follows:

1980	H.F. Oppenheimer
1981	W. Bleloch
1982	F.G. Hill
1983	A.W. Whillier (posthumously)
1984	D.G. Krige
1985	R.E. Robinson
1986	M.D.G. Salamon
1987	T.F. Muller
1988	W.J. (Wim) de Villiers
1989	R.A. Plumbridge
1990	W.G. Boustred
1991	P. du P. Kruger
1992	E. Pavitt
1993	D.A. Pretorius
1994	H. Wagner
1995	O.K.H. Steffen
1996	B.E. Hersov
1997	D.W. Horsfall (posthumously)
1998	B.P. Gilbertson
1999	L. Boyd
2000	A.H. Mokken
2001	T.L. Gibbs
2002	J. Ogilvie Thompson
2003	P.V. Cox
2004	H.J. Smith
2005	P. Motsepe
2006	G.T. van Rooyen
2007	D.H. Laubscher
2008	T.R. Stacey
2009	C.J. Fauconnier
2010	C.T. O'Connor
2011	B.C. Alberts
2012	R.P. Mohring
2013	H.R. Phillips
2014	R.M. Godsell
2015	S.A. Nkosi
2016	M.A. Hermanus

2017	R.A. Baxter
2018	M.S. Teke

This year the award is made to David Lancaster Hodgson for his outstanding contribution to the industry over many years.

### SAIMM 50 Year Club

The Institute established the 50 Year Club in 1989 to recognize the faithful and loyal support of its senior members with 50 years' unbroken membership. They become members of the club on the 50th anniversary of their joining the Institute. Their names are published each year in the annual report and they are presented with a gold lapel badge on a suitable occasion. There are no fees, and the only obligation of members is to wear their lapel badges with pride and affection at all meetings of the Institute. The present members of the club are as follows:

Year to

June	Member	
1924	E.C. Polkinghorne*	
1926	R.M. Martin*	
1927	W. Allen*	
1930	E.T. Dunstan* (posthumously)	
	P.L. Ward*	
1931	F. Bowdler*	
1932	J.E. Laschinger*	
1933	F.D. Cartwright*	E.R.C. O'Connor*
	C.H. Coxon*	B.M. Roberts*
	J. Levin*	A.a. von Maltitz*
	D.D. McWilliam*	T. Waterman*
1934	A.C.M. Cornish-Bowden*	J.W.V. Mortleman*
	H.E. Cross*	K. Rood*
	E.F. Laschinger*	A. Siff*
	E. Margo	O. Weiss*
1935	O.B. Swallow*	
1936	O. Deane*	A.H. Mokken*
	T.L. Gibbs*	H.L. Munro*
	R.C.J. Goode*	R.M.F. Seawright*
	F.G. Hill*	A.C. Pigott*
	D.M. Jamieson*	J.S. van Zijl*
	D.J. Rogers*	L. Walter*
1937	W. Bleloch*	J.J. Klein*
	L.A. Bushell*	C.D. Storrar
	K.W. Findlay*	
1938	V.C. Barnes*	C.A. McKechnie*
	E.T.S. Brown*	J.A. Nixon*
	R.S. Cooke*	E. Popplewell*
	J.K.E. Douglas	C.G. Sowry*
	A.L.A. Forder*	E.W. Thiel*
1939	G. Armstrong-Smith*	R.S. Pearson*
	D.E.R. Ayres*	D.C.J. Squirrel*
	E.H.D. Carman*	R.F.J. Teichmann*
	W.G.H. Jackson*	I.S. van Eyssen*
	T.A. Newman*	S.J. Venning*
1940	L.D.C. Bok*	G.D. Gettliffe*
	A.W.L. Brereton*	G.G. Stanley*
1941	A.H.H. Davison*	D. de V. Oxford*
	D.J. Forder*	E. Pavitt
	A.R.C. Fowler*	A.C. Petersen*
	H.F.W. Ketelbey*	E.R. Rudolph*
	J.D. McNamara*	P.W.J. van Rensburg*
	T.F. Muller*	
1942	R.E. Burnton*	O.L. Papendorf*

## Annual report

	R.C. Espley-Jones*	V.O. Steed*
	N.M. Hayne*	J.E. van Leeuwen*
	R.T. Naudé*	W.C. Walmsley*
1943	D.J. Molony*	R.P. Plewman*
	J.D. McMorran*	
1944	A.F. Dick	V.M. Reinecke*
	R.B. MacGillivray*	A.S. Swartz
	L.J. Prince*	A.H. Taute*
	J.F. Reid*	P.B. Weehuizen*
1945	J.L. Curtis*	K.E. Steele*
	E.T. Pinkney*	
1946	W.I. Spence	
1947	G.H. Grange*	J.D. Pollard
	W.B. Howe*	V.C. Robinson*
	J. Marr-Levin	A.N. Shand*
	C.J. Parr*	G.R. Still†
1948	D.F. Foster*	J. Pope*
	M.H. Grusd*	N.A. Stacey
	P.A. Laxen*	J.A. Tyser
	G.Y. Nisbet	
1949	G.P. Bennett*	J.P. Hugo
	J.F. Curtis*	D.A. Immelman
	O. Davel	
1950	D.F. Grieve	R.P. Plasket*
	B.E. Hersov	V.C. Ward
	D.G. Maxwell*	
1951	D.G. Krige*	N.C. Pope
	B.H.L. Leach*	W.T. Ruhmer
	M.J. Martinson	T. Zadkin*
	W.D. Ortlepp*	
1952	A.N. Brown	E.P. Mortimer
	M.J. Deats	D.J. Murphy
	W. Lurie*	H.J. Stucke*
	N. Martincevic	R.G. Williams
1953	B.G. Fordyce	G.D. Tainton
	G. Langton*	J. Uys*
	A.A. Sealey	N. Zolezzi
1954	R.C. Bertram	R.B.W. Wiggill
1955	R.A.O. Chelius*	G.R. Parker
	S.P. Ellis	W.B. Parker
	C.T. Fenton	
1956	G.A. Brown	M.A. Madeyski*
	D.R. Chelius	D. Rankin
	M.F. Dawson	G.C. Thompson
	L.M. Falcon	
1957	K. Babich	A.M. Edwards
	J.J. Blom	R.C. More O'Ferrall
	R. Campbell	N.C. Officer
1958	J.F. Dear*	B.S. Tatterson
	R.H. Swan	P.J. van der Walt
1959	H.E.K. Allen	H.A.G. Slater
	D.C. Brink	G.T. Van Rooyen
	G.D. Louw	
1960	R. Hemp	C.T. Shaw*
	G. Joynt	L.W.P. van den Bosch*
	B. Moore	H. von Rahden
	R.E. Robinson*	M. Wishart
	C. Roper	
1961	W.B. Evans	G.S. Lee
	R.A. Featherstone	B.J. Love

	I.R.H. Forrest	P.J. Muller
	J.S. Freer*	G.J.C. Young
	B.W. Holtshousen	W.J.G. Young
1962	S.I. Du Preez	E. Schmid
	P.J. Heystek	
1963	L. Anderson	J.N. Gallie
	H.K.R. Cahnbley*	J.J. Geldenhuys
	G.C. Clatworthy	T.J. Kotze
	R.E.F. Cowley	A.H. Munro
	J.A.J. De Cuyper	A.G. Netto
1964	J. Douglas	A.W. John
	K. Imre	A. Simon
1965	P. Andersson	W. Mitchell
	J.A. Cruise	D.I. Ossin
	F.S.A. De Frey	M.H. Rogers
	F.M.G. Egerton	E.H.J. Stoyell
	F. Fenwick*	R.S. Traviss*
	M.R. Fuller-Good	J.W. Walls
	P.G. Gaylard	I.C. Watson
	J.P. Hoffman*	J.C.M. Wethmar
	J.P. Loo	
1966	D.A. Arnold	N.F. Peverett
	C. Fauconnier	J.C. Simms
	D.R. Fleming	P.J.C. Smith
	E. Fletcher	O.K.H. Steffen*
	P.G.P. Mrkusic	D.J. van Niekerk
1967	H.G. Albertyn	H.E. Lombard
	N.A. Barcza	M.C.W. Morris
	A.G.C. Merson	W.A. Nairn
	P.J. Cook	A.D. Ochse
	C.V.B. Cunningham	M.v.R. Steyn
	N.C. Joughin	P.S. Wentworth
1968	H.A.D. Kirsten	N.P. Finkelstein
	D.G. Sacco	
1969	I.C. Robinson	G.F. Bainbridge
	W.E. Stumpf	T.K. Whitelock

\*Deceased since becoming members of the Club  
†Resigned

### The Danie Krige Memorial Award

Following discussions at Office Bearers and Council during 2013 it was agreed to honour the memory of and contribution to the minerals industry made by the late Professor Danie Krige.

It was agreed, amongst other activities, to make an annual award of a Danie Krige medal for a qualifying geostatistics paper published in the *SAIMM Journal* of the previous year.

There is no award this year.

### Gold and Silver Medals

Papers published in the *Journal* from March 2018 to February 2019 by members of the Institute were considered for medals.

### Gold Medals

Gold medals are awarded for papers that are of a world-class standard, and judged to be publications that will become key references in their mining or metallurgical field in the future.

Gold Medals were awarded to:

J.W.D. Groenewald, L.R. Nelson, R.J. Hundermark, K. Phage, R.L. Sakaran, Q. van Rooyen, and A. Cizek, for their paper

## Annual report

published in the April 2018 issue of the *Journal* entitled: 'Furnace integrity monitoring using principal component analysis: an industrial case study'.

As non-members, J.W.D. Groenewald and A. Cizek received certificates of merit.

### *Silver Medals*

Silver medals are awarded for papers that make a major contribution to the professions of mining and metallurgy and to the prestige of the Institute.

Silver Medals were awarded to:

E. Matinde, G.S. Simate, and S. Ndlovu, for their paper published in the August 2018 issue of the *Journal* entitled: 'Mining and metallurgical wastes: a review of recycling and re-use practices'.

E.L. Forner, J. Scheepers, A.J. du Toit, and G.M. Miller, for their paper published in the November 2018 issue of the *Journal* entitled: 'Copper electrowinning circuit design: optimized costing as a function of cell arrangement, productivity, rectifier size, and throughput'.

and

D.F. Malan and J.A.L. Napier, for their paper published in the March 2018 issue of the *Journal* entitled: 'Reassessing continuous stope closure data using a limit equilibrium displacement discontinuity model'.

### *Student Prizes*

Prizes were awarded to the following students and were presented at faculty prizegiving ceremonies held at the respective universities.

The prize winners were as follows:

#### *University of the Witwatersrand*

Mining Engineering	K. Kunene
Metallurgical Engineering	F.P. Marais

#### *University of Pretoria*

Mining Engineering	J.H. Maritz
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#### *University of Johannesburg*

Extractive Metallurgy	M. Mulaudzi
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#### *University of Cape Town*

Mineral Processing	D. Ssebunnya
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#### *University of Stellenbosch*

Mineral Processing	M-A. Smit
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#### *Cape Peninsula University of Technology*

Chemical Engineering	K. Reddy
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The prizes for the universities of Cape Town and Stellenbosch and the Cape Peninsula University of Technology will be awarded at the Western Cape Branch Annual General Meeting on 4 September 2019.

### *SAIMM 5 Star Incentive Programme*

The SAIMM 5 Star Incentive Programme was introduced in 2015 to thank members who contribute to the growing membership of the SAIMM and to provide additional benefits to Fellows and Members of the SAIMM.

The top 5 proposers are:

D. Muma  
F.C. Nieuwenhuys  
A.N. Mainza  
C.H. Esterhuizen  
D.L. Bantobetse

The top 5 referees of papers published in the *Journal* are:

R. Mitra  
M. Dworzanowski  
M. Erwee  
S.M. Rupprecht  
D. Vogt

The authors who has submitted and published the most number of papers in the *Journal* are:

C. Musingwini  
J. van Dyk  
C.A. Strydom

### *Top Advertiser in the Journal*

The award for the Most Supportive Advertiser in the *Journal* is to be made annually by the SAIMM and is the Institute's way of recognizing the continued and loyal support of those companies that advertise in our *Journal*. The award is made not only on the strength of the amount of money spent by an advertiser, but also on factors like general cooperation, meeting of deadlines, and the timely settling of accounts. Our advertisers make a major contribution to the Institute's ability to provide our members and associates with a quality *Journal*.

The Most Supportive Advertiser for 2018/2019 is Weir Minerals.

### **1.5 SAIMM Scholarship Trust Fund**

J.R. Dixon, Chairperson

A.S. Macfarlane	M.H. Rogers
T.M. Mmola	W.H. van Niekerk

The Trust Fund was able to distribute a total of R240 425 between the eight minerals-industry-related faculties across the country. The SAIMM continued its support of the Trust Fund with a contribution of R220 000. The funds are allocated based on the number of minerals industry students in the four years at each institution as a percentage of the total of 2517 students.

The Young Professionals Council (YPC) has taken the lead in encouraging funding by arranging a drive for donations at the SAIMM Annual Banquet. This has proven to be successful.

The review of the Trust Deed is due to commence to ensure that the SAIMM and the Trustees comply with the relevant legislation applicable to charitable trusts such as ours.

### **1.6 Complaints Committee**

R.C.D. Phillis, Chairperson

M. Dworzanowski	A.J. McDonald
A. Garbers-Craig	

Nothing to report this year.

### **1.7 Ethics Committee**

J.A. Cruise, Chairperson

G.C. Butler	D. Porter
A. Kinghorn	M.R. Tlala

Nothing to report this year.

### 1.8 The Committee for Diversity and Inclusion in the Minerals Industry Report (DIMI)

Professor S. Ndlovu, Chairperson

The SAIMM established the Committee for Diversity and Inclusion in the Minerals Industry (DIMI) in 2017. The Committee is made up of male and female, emerging and experienced professionals from both industry and academia, who are all passionate about seeing positive changes in the minerals industry.

The terms of reference for the Committee were presented and ratified at the Council meeting in May 2019. The Committee will:

- Actively explore ways that can encourage awareness on issues of diversity and inclusion in the minerals industry
- Engage with SAIMM members to encourage diversity and inclusion in SAIMM activities
- Serve as a forum for the discussion of specific issues facing diversity and inclusion in the minerals industry.

A dedicated web page specifically for the DIMI Committee and its activities will be available on the SAIMM website.

Events planned for the rest of the year include:

- Presentations to final-year university students on the potential challenges of diversity, gender, and inclusion in industry and how to negotiate the workplace in such an environment. These presentations will be done over the course of the second half of the year
- Mentoring workshop with the theme of 'Mentoring beyond exclusivity'. The workshop will focus on how to derive maximum benefits of mentorship for the career advancement of women and persons of diverse social identities. This is scheduled for July 2019
- Breakfast session on retaining of women in the minerals industry. This is scheduled for August 2019
- Presentation of a paper at the International Mine Health and Safety Conference scheduled for October 2019. The focus of the presentation is a look at our sister bodies, the Canadian Institute of Mining (CIM) and the Australian Institute of Mining and Metallurgy (AusIMM) for insights, inspiration, and benchmarks for promoting the interests of diverse inclusivity in the mining workspace. The intended outcome is to select examples that we feel willing and inspired to embrace, ethically and positively, in order to reject or improve on areas that we feel would be more fitting to our own unique challenges, as South Africans and Africans at large.

### 1.9 Banquet Committee

Z. Botha	A.S. Macfarlane
V.G. Duke	M.I. Mthenjane
I.J. Geldenhuys	S. Ndlovu
R.T. Jones	

The banquet was held on Saturday 16 March 2019 in the Ballroom at the Sandton Convention Centre, Sandton.

There were 324 guests in total. Three VIP tables hosted the SAIMM Office Bearers, and Presidents of kindred organizations. The guests included representatives from 28 sponsor companies ranging from academia, consulting, operations, and young professionals.

The SAIMM presented the first-ever long service award to a Council member, to Mr Dirk van Niekerk, who has been a member of Council for 29 years. Mr van Niekerk was overjoyed with his

award and gave some insight into his years at the SAIMM during his acceptance speech.

Another major event was the presentation of certificates to Fellows who were elected in the preceding year. This process was instituted in 2016 and has become an important part of the proceedings. Another tradition that continued this year was the invitation and acknowledgement of the top five members in the different categories of the Five Star Incentive Programme. These categories comprise the top five proposers, *i.e.* members who introduced the greatest number of new members during the year, the top five referees of papers for the *Journal*, and the top author, *i.e.* the author who submitted the greatest number of papers and whose papers were published during the year.

Entertainment was provided by renowned ventriloquist Conrad Koch and his puppet, Chester Missing, who provided a light-hearted look at local and international politics. Attendees enjoyed his humour and there was favourable feedback after the banquet.

Guests were also complimentary about the menu and wine selection.

As always, the SAIMM extends its appreciation to the companies who sponsored the event and we look forward to seeing them all at the next banquet.

## 2. Technical meetings

### Portfolio Holders: A.S. Macfarlane and Z. Botha

The mining and metallurgy TPCs are managed as two separate committees and, in the previous year, we have been working more closely together and integrating mining and metallurgy in our industry programmes. The report is therefore combined again.

Our thanks to the members of the respective committees for their contributions to a full programme this year.

### 2.1 Technical Programme Committee – Mining

G.R. Lane, Chairperson

Z. Botha, Metallurgy Representative

R. Armstrong	B. Morena
L. Dimbunu	D. Muma
N. Dirande	C. Musingwini
N. Diyambas	N.M. Namate
W.C. Joughin	A. S. Nhleko
D. Limpitlaw	J.L. Porter
A.S. Macfarlane	S. Pule
A. Mainza	S. Rungan
S. Maleba	S. Rupprecht
H. Marsden	C.B. Smith
S. Matutu	M.H. Solomon
C.W. Mienie	A.L. Swart
R.C.A. Minnitt	M. Woodhall
T.M. Mmola	

\*Deceased

### 2.2 Technical Programme Committee – Metallurgy

Z. Botha, Chairperson

I.J. Geldenhuys, Co-chairperson

G.R. Lane, Mining Representative

R.D. Beck	M. Motuku
T. Claassens	A. Mulaba-Bafubiandi
P. den Hoed	D. Muma

N. Dirande	N.M. Namate
N. Diyambas	N. Naude
M. Dworzanowski	S. Ndlovu
D. Groot	A.S. Nhleko
R.T. Jones	N. Segapela
A. Mainza	J.H. Selby
S. Maleba	H.A. Simonsen
E. Matinde	K.C. Sole
S. Matutu	J.D. Steenkamp
C. Mienie	P.J. van Staden
T.M. Mmola	

The approved mandate for 2019 remained unchanged and is as follows:

- Innovate
- Facilitate the dissemination of relevant knowledge and experience to the benefit of all SAIMM members and stakeholders
- Facilitate independent fact-based discussion of topics of relevance to SAIMM members and stakeholders
- Foster collaboration in the interests of all our members and global stakeholders
- Encourage SAIMM members and our stakeholders to propose topics of interest for conferences or other events, and provide an independent platform for these events to be held
- Coordinate and support the events programme to ensure overall financial sustainability of the SAIMM.

The past 12 months have been challenging, with a decline in revenue from conferences and events. This is partly due to a drop in the number of large international conferences in this last 12-month period, and to low attendance at other events, which had to be financially supported.

In response to the changing needs of the industry, fewer personnel based at head office, production priorities of operations-based personnel, Generation Z (and now Y) and the digital revolution, the TPC has implemented its 2018 strategy of business breakfasts, forums, smaller events, and digital streaming.

The aim is to have relevant topics to drive thought leadership and collaboration, but with less time commitment required of attendees from industry. This is in response to feedback from industry due to the changing demands on staff.

The business breakfasts have been very popular with delegates as they are topical, feature one or two relevant quality speakers, and require only two hours of time commitment. The aim of these meetings is to drive relevant discussions and collaboration in the industry, and to promote a larger conference on the topic if relevant. Some of the topics addressed this past year have been:

1. **Local is lekker Breakfast**—local supply chain development with regards to Mining Charter 3. This business breakfast led into a 2-day conference, sponsored by MEMSA and the Mandela Mining Precinct, on the development of the local supply chain, which attracted 120 delegates.
2. **PGMS into the Future Breakfast**—the opportunity that fuel cells offer South Africa and the industry. This is part of a series to bring industry, fuel cell development, and government together to drive the development of the PGM market.

3. **Renewable Energy Breakfast**—a follow-on conference event will be held in June 2020 focusing on renewable solutions for an energy-intensive industry.

The move to multiple smaller events has placed additional workload on the SAIMM conference organizing team as well on a few committed volunteers for the organizing committees. A strategic review workshop has identified the following matters for consideration going forward.

1. Volunteers' time is becoming limited and the workload is falling on a few committed individuals – how do we attract the young professionals and future leaders?
2. Focus on relevant topics for one large conference per year
3. Formulate a standard blueprint for breakfasts and smaller events to reduce the workload on volunteers and the secretariat
4. Marketing focus to attract delegates, advertising the relevant topic and speaker list
5. Addition of an annual SAIMM Summit starting in Q1 2020 – this will be a large conference for all members to collaborate, drive the SAIMM's strategic direction and industry needs, and will culminate with the SAIMM banquet.

The SAIMM relies on its members and industry leaders to volunteer their time to sit on the TPC Committees and be involved in conference organizing committees. The changing industry and demands on individuals have seen a decline in participation and a few individuals are now carrying most of the load. We do recognize that time commitment is a challenge and are streamlining the secretariat's role, using digital meeting formats and event planning blueprints to leverage the hours that people can commit to more effectively. These meetings offer a great opportunity to network with leaders in the industry, make oneself known, and make a difference.

The TPCs host all committee and organizing committee meeting via Digital Zoom meetings. Therefore, you can contribute and get involved with event committees from remote locations globally – please reach out to the SAIMM and become involved.

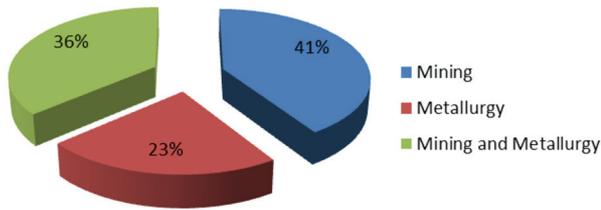
Unfortunately, we still see most conference delegates being from consulting companies, vendors, OEMs, and academics. We therefore appeal to our corporate members and company affiliates to please support the TPC conference programme, as a quality programme can be offered only through the support of members and industry.

You will also see big drive on the SAIMM social media channels (LinkedIn, Facebook, and Instagram), each targeting different member age segments and driving thought leadership, event awareness, and industry dialogue. We appeal to all our members to please 'like' or follow the social media channel appropriate to you and engage and share the content with your network. Engage also with any of the TPC Committee members to collaborate if you wish to host a sponsored business breakfast, mini-forum on a specific topic, or to share leading-edge work being done in the industry.

A total of 22 events were held in the last financial year, totalling 34½ conference days. With the focus on integration of the full mining value stream, eight of these conferences combined mining and metallurgy.

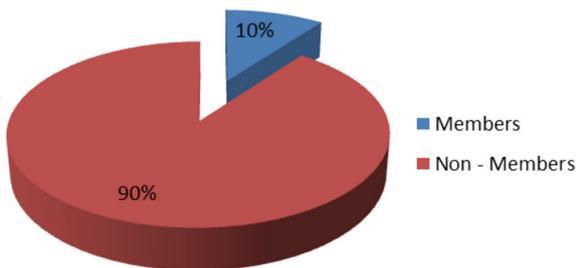
The TPCs fulfil a critical role to members and global stakeholders by providing a platform for innovation, facilitation, and coordination and collaboration regarding industry knowledge. The delivery of this also ensures the financial

### Conference by Event Type



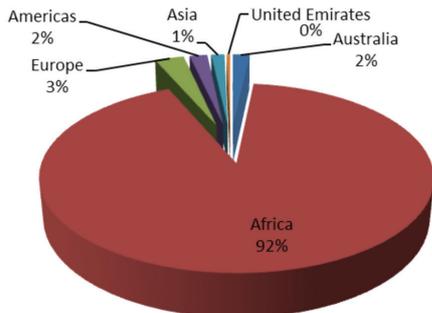
Delegate numbers decreased from 3246 to 2237 for the last financial year, with 90% of the attendees being non-SAIMM members

### Attendee Breakdown



The great majority (92%) of the delegates were from South Africa

### Attendance by Continent



What is really great to see is the diverse spread of countries that support our conferences

sustainability of the SAIMM, and we are grateful for the industry's willingness to sponsor events to the total of R 4 256 250 during the period.

Thank you to all our members, company affiliates, and other stakeholders for their participation and support during this last financial year.

### 2.3 South African National Committee on Tunnelling (SANCOT)

H.J. (Ron) Tluczek, Chairperson

C. Viljoen, Vice Chairperson

L. Nene, Chairperson: Young Members Group

G.A. Davis

D. Roos

P.H. Ferreira

T.R. Stacey

I. Jacobs

F.B. Stevens

J. Jansen

J.W. Walls

K. Jordaan

M. Walnstein

M. Lebitsa

A. Widlake

J. Porter

H. Wolfgang

### International Tunnelling Association (ITA) News

The International Tunnelling and Underground Space Association (ITA) held its 45th General Assembly along with the 2019 World Tunnel Congress (WTC) in Naples, Italy from 3 to 9 May 2018. Seventy-eight member nations participated in the conference, with Albania, Kenya, and Lebanon becoming the latest member nations. The Congress was attended by over 2500 delegates comprising experts, academics, and civil and tunnel engineers.

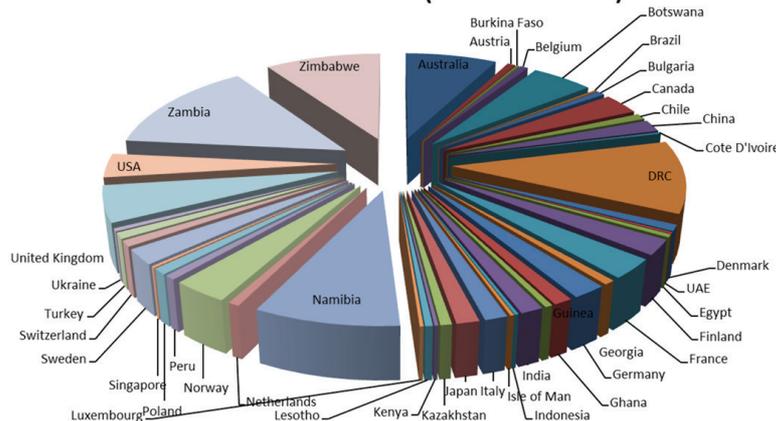
Jinxiu Yan (Jenny) from China was voted in as the new ITA President. She is the first female President of the ITA and she succeeds Professor Tarcisio Celestino from Brazil.

South African representatives participate in three of the ITA Working Groups. Ron Tluczek is Vice-Animateur of WG 2 (Research), Chris Viljoen participates in WG 12 (Sprayed Concrete Use), and Monica Wainstein in Working Group 21 (Life Cycle Asset Management). Ron Tluczek, as Chairman of SANCOT, represents South Africa at the General Assembly.

Several reports were published in the previous year from ITA Working Groups, notably:

- ▶ WG 2: Guidelines for Design of Segmental Tunnel Linings
- ▶ WG 3 in liaison with FIDIC: The Emerald Book – Conditions of Contract for Underground Works

### Countries in Attendance (excl. South Africa)



The conference programme for the last financial year is shown below

Schedule of Mining/Metallurgy Technical Conferences, 2018/2019			
Type of Event	Date	Title	Convenor
Conference	9-12 July 2018	Copper Cobalt / Base Metals 2018	K.C. Sole
Conference	6-8 August 2018	Geometallurgy Conference 2018	M. Becker
Conference	29-31 August 2018	MineSafe 2018	T. van der Berg
Conference	18-19 September 2018	Young Professionals Conference 2018	S. Nhleko
Conference	10-11 September 2018	Artisinal Small Scale Mining Conference	S.M. Rupprecht
Conference	15-17 October 2018	Furnace Tapping 2018	J.D. Steenkamp
Colloquium	25 October 2018	Student Colloquium 2018	N. Segapela
Short Course	30 October 2018	Short Course: Hydrometallurgical Processing of Cobalt	K.C. Sole
Breakfast	7 November 2018	Renewable Energy Breakfast	I.J. Geldenhuys
Conference	28-30 November 2018	Zimbabwe Branch Event	C. Sadomba
Breakfast	14 February 2019	Local is Lekker Breakfast (Mining Charter)	A.S. Macfarlane
Breakfast	18 February 2019	ASM Breakfast	S.M. Rupprecht
Breakfast	21 February 2019	Electric Vehicles Breakfast with Lara Smith	K.C. Sole
Breakfast	27 February 2019	Fuel Cells Breakfast	I. Geldenhuys
Conference	11-12 March 2019	Sulphuric Acid 2019	T. Claassens
Seminar	2-3 April 2019	GMG Seminar	J.J. Verhaeghe
Colloquium	22-23 May 2019	Mine Planners Colloquium 2019	M. Woodhall
Conference	22-23 May 2019	Local Southern African Manufacturing Expo	A.S. Macfarlane
Breakfast	31 May 2019	Entrepreneurship Pre-conference Dialogue	K. Letsoalo
Conference	5-6 June 2019	New Technology Conference and Tradeshow	A.S. Macfarlane
Conference	24-25 June 2019	Deep Level Mining 2019	W.C. Joughin/P Couto
Conference	26 June 2019	SARES Conference 2019	P. Couto

- WG5: Client's Guide for High Pressure Compressed Air Work
- WG14/15: Handling, Treatment and Disposal of Tunnel Spoil Materials
- ITAtech: Practical Approach for Controlling Blasting Vibration and Optimizing Advance in Tunnelling
- ITAtech Rebuild: Guidelines on Rebuilds of Machinery for Mechanized Tunnel Excavation
- ITA COSUF: Current Practice on Cross-Passage Design to Support Safety in Rail and Metro Tunnels.

These documents are available free of charge on the ITA website for perusal and comment.

The next annual meetings of the ITA General Assembly will be held at the following venues:

**Kuala Lumpur, Malaysia, from 15 to 21 May, 2020**, during the ITA-AITES WTC 2020 '*Innovation and sustainable Underground – Serving Global Connectivity*'.

**Copenhagen, Denmark, from 14 to 20 May, 2021** during the ITA-AITES WTC 2021 '*Underground Solutions for a World in Change*'.

**Cancun, Mexico, from 22 to 28 April 2022.**

#### **SANCOT News**

One of the main focus areas for SANCOT is to promote interaction and closer communication between personnel and companies in the mining and civil industries, and to create a platform where expertise and experience gained in underground excavation can be shared.

To this end, an initiative was implemented in September 2017 where a breakfast talk is given prior to the regular SANCOT committee meetings. The talk is given at the offices of GIBB Engineering and Architecture, who also sponsor the breakfast.

The breakfast talks are held every two months and anyone is welcome to attend. Topics over the last year have included:

- New developments in shaft sinking: Alan Widlake (M&R)
- Completion of a large ocean outfall tunnel in Africa: Mark Woolstencroft (Coleman Tunnelling)
- Geotechnical considerations in recent Scandinavian tunnelling projects: Kari Bro (ROCKMA Systems AB, Sweden)
- Pre-excavation injection for tunnels and shaft sinking: Nick Chittenden (BASF)
- Experiences of a tunnelling engineer – a light-hearted review: Ron Tluczek (GIBB and SANCOT Chairman)
- The use and benefits of utility tunnelling in Durban and Cape Town using recent projects as examples: Frank Stevens (Herrenknecht)
- Horizontal raisebore technology for mining and civil engineering applications: William Roothman (Master Drilling).

Future talks will include topics such as:

- i. Virtual training and assessment of sprayed concrete nozzle men
- ii. Mechanized shaft sinking – latest technology
- iii. The new FIDIC conditions of contract for underground works – the Emerald Book.

The talks have been well received and are attended by consultants, contractors, academics, students, managers, financiers, and sales personnel.

With several major tunnelling projects on the horizon, SANCOT is looking to increasing its membership and becoming more prominent in the tunnelling/underground industry. Major projects which are either current or imminent are:

## Annual report

- (a) The Lesotho Highlands Water Scheme, Phase II, which will incorporate the Polihali dam, the extension of the Muela hydroelectric complex, and the construction of 38 km of water transfer tunnel. This scheme is current and will augment the water supply to the Gauteng area.
- (b) The uMkhomazi Water Transfer Scheme, which will incorporate the Smithfield dam and 34 km of water transfer tunnel. This scheme is imminent and will augment the water supply to the area under the jurisdiction of the Umgeni Water Board.
- (c) Remedial works to the Mohale tunnel, which links the Mohale and Katse reservoirs. This scheme is current and will entail reinstating the grouted annulus behind the tunnel segmental lining.

Three Working Groups are active within SANCOT:

- WG 14: Vertical Tunnelling
- WG 21: Life Cycle Asset Management
- A third Working Group is looking at hosting the ITA WTC in Cape Town, South Africa in 2024. This is as a result of numerous enquiries that Ron Tluczek received at recent ITA World Tunnel Congresses, and there would appear to be a lot of international support to hold a WTC in Africa, and specifically in South Africa.

Currently, SANCOT is looking to prepare a publication that will highlight the various topics that have been presented and discussed at the SANCOT breakfast talks.

### 3. Publications

D. Tudor, Chairperson

R.D. Beck	C. Musingwini
P. den Hoed	S. Ndlovu
M. Dworzanowski	P. Neingo
B. Genc	H. Potgieter
W.C. Joughin	N. Rampersad
H. Lodewijks	T.R. Stacey
R. Mitra	M.R. Tlala

#### 3.1. Journal

The breakdown of papers published during the year and previous years is as follows:

Year	Mining	Metallurgy	Other	Total
2017	87	41	7	135
2018	64	72	5	141
2019	62	67	0	129

Of the 129 papers published in 2018/2019, 53 were from outside South Africa. The rejection rate of papers received was 28%.

There were eight themed editions of the *Journal* during the year.

Advertising revenue for the year was some 13% below last year's figure. The continuing decline in advertising revenue is a direct reflection of the challenges that face the mining industry as a whole.

A gradual reduction of the monthly print run from 1775 to 1000 copies was achieved during the year. This was as a result of more members opting to receive an electronic copy of the *Journal* and a conscious effort to reduce the mailing of the *Journal* to overseas members.

The potential publication of a number of books covering a range of topics remains in the early stages of production. '*Johannesburg and its Holey Mining Heritage*' and the 2nd

edition of '*Minerals and Metal Extraction*' were well advanced at year-end.

The award for the Most Supportive Advertiser in the *Journal* for the year 2018/2019 is to be made to Weir Minerals

The introduction of the Open Journal System (OJS), which can be viewed at <https://saimmjournal.co.za>, has been well received by both authors and referees. Authors and reviewers are required to register on the OJS and this has enabled a substantially paper-free process to manage the progress of a paper from submission to publication. There are encouraging signs that the time between submission of a paper and publication is getting shorter. Refining of the system to suit all the needs of the *Journal* continues.

We are indebted to our members who undertake the onerous task of refereeing papers. The meaningful feedback that the referees provide to the authors of papers has contributed enormously to maintaining the standard of the content of the *Journal*.

With Dave Tudor's imminent relocation to the UK, the position of Editorial Consultant to the *Journal* is to be filled by Professor Rosemary Falcon.

The publications team of Kelly Matthee and Zuliakha Malgas, with occasional input from Dawn van der Walt, has continued its good work in producing the *Journal*.

## 4. Regional Development

### Key Performance Areas

To promote the interests of members based in different regions, the SAIMM:

- Supports the establishment and maintenance of branches to satisfy the local needs of its members for professional association and the exchange of technical information
- Cooperates with other member societies of AS&TS and with associations and interest groups that have close ties with operating mines and metallurgical plants by holding joint technical meetings and collaborating in the field of publication.

#### 4.1 SAIMM Branches

##### 4.1.1 Botswana

No report was available at the time of going to print.

##### 4.1.2 DRC Branch

S. Maleba, Chairperson

No report was available at the time of going to print.

##### 4.1.3 Johannesburg Branch

D.F. Jensen, Chairperson

R. Heins, Vice Chairperson

K. Clarke, Secretary

G. Dellas	D. Porter
D. de Wit	D. Powell
M.F. Handley	N. Rampersad
C. Heili	S.M. Rupprecht
H. Jantzen	G. Stripp
A. Kinghorn	R. Tluczek
M. Mtetwa	B. van Houten
S. Nhleko	

I am pleased to report on the activities of the Johannesburg Branch of the SAIMM for the period from 1 July 2018 to 30 June 2019.

## Journal List of Referees

Mitra, Rudra	Den Hoed, Paul	Linzer, Lindsay	Rampersad, Nirvana
Dworzanowski, Marek	Deng, Juishuai	Lodewijks, Henk	Rider, Phillip
Erwee, Markus	Dimitrakopolous, Roussos	Lomberg, Ken	Ross, Victor
Rupprecht, Steven	Dingemans, Dave	Lorig, Loren	Sandenbergh, Roelf
Vogt, Declan	Dixon, Roger	Lubbe, Salmon	Saungweme, Willis
Abbasy, Farzaan	Dohm, Christina	Madani, Nasser	Shackleton, Natalie
Akdogan, Guven	Dougherty, Heather	Malan, Francois	Shava, Privilege
Aldrich, Chris	Dreyer, CJ	Maritz, Jannie	Snyders, Cornelius
Anthonisen, Chris	Du Plessis, Karl	Martin, Derek	Snyders, Neil
Baartjes, Neale	Durrheim, Ray	Marx, Wynand	Sole, Kathy
Bada, Samson	Edwards, Anita	Matinde, Elias	Spiteri, William
Bahrami, Davood	Erasmus, Lourens	McGeorge, Norman	Stacey, Thomas
Bals, Alexander	Esterhuizen, Essie	Michael, Nicol	Steenkamp, Joalet
Ban Beek, Burger	Falcon, Rosemary	Michell, Karen	Stenzel, Gerhard
Barakos, Georgios	Feroze, Tariq	Miller, Graeme	Stripp, Graham
Barcza, Nic	Fillion, Marie-Helene	Minnitt, Richard	Swanepoel, Stefan
Barker, Ian	Fornasiero, Daniel	Mmola, Tshepo	Tanner, Phil
Bartlett, Hujgh	Fourie, Phillip	Mohamed, Khaled	Terbrugge, Peter
Beck, Richard	Furtney, Jason	Morris, Dave	Thakurdin, Sudhir
Bergmann, Carl	Gamal, Rashed	Motsa, Bongani	Thomas, Huw
Birtles, Andrew	Garbers-Craig Andrie	Moult, Steve	Tlala, Mpho
Blackham, Norman	Genc Bekir	Mousset-Jones Pierre	Tudor, David
Bluhm, Steven	Gomez, Patricio	Mtegga, Hudson	Turton, Anthony
Bosman, Jeremy	Goodall, Craig	Mulenga, Francois	Uludag, Erhan
Bradshaw, Steven	Grobler, Hendrik	Musingwini, Cuthbert	Van Drunick, Wayne
Brake, Rick	Hammerschmidt, Joerg	Napier, John	Van Dyk, JC
Brown, Michael	Handley, Matthew	Ndlovu, Selo	Van Niekerk, Dirk
Bryson, Leslie	Hattingh, Teresa	Njowa, Godknows	Van Wyk, Etienne
Button, Mark	Hewson, Robert	Nolet, Isabelle	Vander Merwe, Josias
Cadden, Alastair	Hinde, Adrian	O'connor, Donald	Vander Merwe, Nielen
Canbulat, Ismet	Hockaday, Lina	Olivier, George	Velasquez, Raul
Carmichael, David	Holtzhausen, Cornelia	Parker, John	Vos, Cornelius
Carstens, Riaan	Hundermark, Rodney	Paterson, Tony	Vreugdenburg, Kobus
Clausen, Elisabeth	Jenks, Patrick	Peattie, Richard	Wagner, Nicola
Cole, Peter	Jones, Rodney	Petersen, Jochen	Walls, Jeane
Corin, Kirsten	Joughin, William	Phillips, Huw	Wanless, Mark
Crundwell, Frank	Kalala, Johnny	Pistorius, Chris	Watkins, Eric
Cunningham, Claude	Kapageridis, Ioannis	Pistorius, Pieter	Watson, Bryan
Cunningham, Gordon	Katakwa, Tawedzegwa	Potgieter, Herman	Webber-Youngman, Ronny
De Graaf, Wolter	Kotze Hanlie	Power, David	Wermuth, Ivan
De Jager, Kobus	Lane, Gary	Priest, Graham	Whitefield, David
De Korte, Johan	Lars, Lindstad	Radcliffe, Peter	Woodhall, Mike
Deglon, David	Limpitlaw, Daniel	Ram, Rahul	Yahyaee, Mohsen
		Ramontja, Thibedi	Yilmaz, Halil

## Annual report

Firstly, I am devastated to have to report that the SAIMM Johannesburg Branch suffered the brutal loss of our Friend, Colleague and Chairperson – the late John Luckmann on 27 December 2018. Our SAIMM Chairman - Alastair Macfarlane delivered a very well received speech at the funeral, which was very well attended by SAIMM colleagues. Danie Jensen was elected as follow-up Branch Chairperson.

The Johannesburg Branch's main activity was to organize technical presentations on a monthly basis from July 2018 to June 2019, excluding the December – January holidays. These technical presentations were generally held on the third Thursday of each month, at the premises of Worley in Melrose Arch. During the period under review, the Branch Committee succeeded in securing six high-profile technical presentations, plus one students' debate which was held on 23 August 2018, at which record attendance was recorded.

The Johannesburg Branch is proud to report membership totalling 1846 – consisting of 1387 branch and 459 student members. During the past year we lost 150 branch and no student members. On the positive side, we gained 40 branch and 17 student members.

The Branch greatly values students' involvement in its presentations, and notes that many of those attending, have chosen to become Student Members of the Institute, with a good conversion ratio to Associate Membership after graduation. Student attendance was understandably constrained over the current session by external events influencing transport, and is of course subject to academic commitments.

The challenging economic situation continues to put pressure on sponsorship received, whilst the Branch's success in encouraging student participation may be expected to impact on the costs associated with the technical presentations and associated networking events. The Committee has therefore endeavoured to continue to control costs, with the most significant measure being the change in approach to sponsorship undertaken by the late John Luckmann, as well as the rest of the active Johannesburg Branch Committee as a very close-knit team, under the leadership of the current Chairperson.

We are proud to advise that the Johannesburg Branch Technical Presentation register is already fully committed up to 16 March 2020.

### Events

The Branch Committee has been able to secure 16 sponsors to support the SAIMM Johannesburg Branch events in the 2018/2019 session. The sponsorships received and accounted for, thus ensured that the cost of the full programme of technical presentations held between July 2018 and June 2019 was fully funded.

The Branch commenced the 2018/2019 session on 19 July 2018 with a technical presentation entitled 'The Industrial Energy Efficiency Project South Africa, with South African Case Studies' presented by Alfred Hartzenburg, Project Manager: Energy Systems Optimisation, from National Cleaning Production Centre (NCPC - CSIR) and fully sponsored by NCPC - CSIR.

The Johannesburg Branch Annual Student Debate 2018, entitled 'Battle of the new technology metals', followed this on 23 August 2018. The Wits & UJ Students were clearly well prepared, which resulted in a lively and interesting debate, led by Dr Graham Stripp with Elias, Sihe, Tshepo, and John. The event was fully sponsored by Anglo Operations, Wits University, University of Johannesburg, DetNet, SRK, Shaft Sinkers, Consulmet, BSM Black, Traxys Africa, and Deloitte.

On 18 October 2018, Jacques van Wyngaard from Woodgrove Technologies Inc. addressed the Branch on the subject of 'Staged Flotation Reactor (SFR) Technology'. Woodgrove Technologies Inc. provided full sponsorship for this event.

We commenced the SAIMM Johannesburg Branch New Year on 14 March 2019 with a presentation entitled 'From Feasibility Study to Project Execution and everything in-between' given by Chris van der Merwe, Director: Mineral Resource Management & Technical Services of PCBS Resource Solutions – Klerksdorp, fully sponsored by PCBS Resource Solutions.

Following this, on 18 April 2019, Murray Jooste, Consultant at WEIR Minerals Africa (Pty) Ltd spoke on the subject of 'In the mining industry, mineral process specialists identify the root cause of plant failures to be the centrifugal slurry pumps'. WEIR Minerals Africa (Pty) Ltd provided full sponsorship on this occasion.

On 16 May 2019, Alastair Macfarlane - Director at Mandela Mining Precinct – CSIR spoke on the subject of 'Development and activities of the Mandela Mining Precinct'. Mandela Mining Precinct – CSIR committed for full sponsorship on this occasion.



From left: Johannesburg Branch Committee: Adam Wilkinson, Meshack Mtetwa, Andrew Kinghorn, Kelly Clarke (*Branch Secretary*), Danie Jensen (*Chairperson*), Russel Heins (*Vice Chairperson*), Nirvana Rampersad, Graham Stripp, George Dellas, Sihesenkosi Nhleko. Insert pictures from left: Heinrich Jantzen, David Porter, Steven Rupprecht

## Annual report

The last technical presentation for the year held on Thursday 20 June 2019, considered the topical issue of 'The Digitalisation of the Drill and Blast process for Surface mines' with Gideon Slabbert - BlastLogic Product Manager - Africa from MAPTEK. MAPTEK provided full sponsorship on this occasion.

### Finance

The Committee reports that for the year ending 30 June 2019 we succeeded in achieving our objective of fully funding the planned twelve-month programme of Branch activities, with a modest surplus of 21 905.42 with two Invoices of 22 869.57 still outstanding, from a total invoiced amount of R124 931.31.

### AGM

The Johannesburg Branch AGM was held on 25 July 2019, immediately following the conclusion of the final Branch meeting of the 2018 -2019 session.

The current Chairperson welcomed Branch Members and guests.

After confirmation of a valid quorum, eleven members of the Branch who had been nominated to serve on the Branch Committee for 2019/2020 were duly elected by a show of hands. This brings the total Johannesburg Branch Committee members to thirteen taking into account the new Chairperson and Branch Secretary, elected earlier this year after the passing away of previous Chairperson.

### Johannesburg Branch Committee 2019/2020

Danie Jensen and Kelly Clarke were confirmed in their positions to serve as Branch Chairperson and Branch Secretary, respectively. Russell Heins was elected as Branch Vice Chairperson.

Adam Wilkinson was welcomed as a new member of the Committee for 2019/2020 session, while the Chairperson said farewell to Barris van Houten, Christian Heili, Derick de Wit, Matthew Handley, David Powell, and Ron Tluczek as members and co-opted members, most of whom emigrated during the past year from the Johannesburg Branch constituency. He went on to thank them for their invaluable contribution to the outgoing Committee. He also expressed his appreciation of the role of the SAIMM Secretariat, including Sam Moolla, Kea Shumba, Dennis Makondesa, Prudence Ntumeleng, and Portia Malatji, in the co-ordination and administration of Branch events.

A very successful AGM concluded with welcome words of encouragement from the Chairperson stating the importance of the current Committee as a knowledgeable and steadfast team, taking the Johannesburg Branch of the SAIMM to the next level in future development.

#### 4.1.4 Namibian Branch

N.M. Namate, Chairperson

B. Sililo

F. Uahengo (YPC Coordinator)

The year 2019 has seen various outputs in terms of success and challenges.

The Young Professionals Council (YPC) has been a tremendous success and is the most active organ of the Branch. Participation at the Mine Expo was the high point and the YPC hosted a networking dinner on 7 May 2019, which was well attended and well supported by various companies.

Generally, the year has seen enthusiasm grow and many members now are keen to participate in Branch activities.

### Membership Recruitment

The Branch received increased interest from potential members, but as is usually the case, all interest was from the young.

The SAIMM YPC Namibia promoted their activities well with the support of the Branch among students and staff at various locations in the country. Plans are at an advanced stage to hold an exhibition and an AGM in August to renew the YPC Executive Committee. This is also proposed to be an annual event. Participation by young professionals has greatly improved and the roadshows have borne fruit

### Events

#### Mining Expo

The Branch participation at the Mine Expo at the Windhoek Show Grounds from 7 May to 8 May 2019 was a success.

Participation was, as is usual, under the auspices of the Namibia University of Science and Technology (NUST) and the Branch was hosted at their Chamber of Mines complimentary booth. This event was used as an opportunity to network with the young professionals.

The roadshows to increase membership concluded with presentations in the south of Namibia at Rosh Pinah. The current Chair, Ms F. Uahengo, did a fantastic job encouraging potential members to join. A reasonable number of application forms were completed and returned to her for further processing.

It is worth noting that there is a parallel organization competing for membership with the SAIMM, but the Branch has responded well to this challenge.

#### 4.1.5 Northern Cape

F. Nieuwenhuys, Chairperson

I. Lute, Vice Chairperson

N. Buthelezi\*, Secretary

D. Batobetse†

W.J. Mans

M. Luther

A. Scullard

\*Relocated

†Resigned

### Branch Strategy

The main focus is on creating awareness of the SAIMM and encouraging membership through the running of events.

#### Increase SAIMM awareness (Marketing)

- Word of mouth (inter-organization)
- Facebook page
- Internet
- Local newspapers
- Posters/gazebos/banners
- Magazine articles

#### Sponsored evening events

- Supplier marketing
- Technical knowledge sharing
- Benchmarking

#### Site visits

- Technical knowledge sharing
- Benchmarking

## Annual report

### Networking/socializing platforms

- Educational-social events
- Networking events

### Technical presentations

- Technical knowledge sharing
- Innovation/collaboration
- Brainstorming
- Technical library tour/demonstration

### KPI tracking (NC Branch)

- Membership numbers
- Events execution
- Marketing activities

### Mining Expo participation (Northern Cape)

- SAIMM promotional stand
- SAIMM exposure/marketing

### NCMMA alignment

- Management team support
- Keeping abreast of shared technical issues.

### Membership

The Northern Cape Branch currently has a total of 51 registered delegates/members (as per updated list), 51% of which are Members, 27% are Associates, 20% are Students. and 2% are Retired Members. Female representation is 12% of total.

A concerted effort is required to improve both female and student representation.

It should be noted, however, that new applications are not taken into account and as such the total number of members is being under-reported. The addition of new applicants to the list should be reflected by the time of the NC Branch AGM.

### Events

#### Annual General Meeting

The 2017/2018 Annual General Meeting was sponsored by Assmang Khumani Iron Ore Mine and held on 3 August 2018 at the Uitkoms guest house in Kathu.

The Annual General Meeting for the 2018/2019 year will be held on Friday 23 August at Namakwari Lodge and will again be sponsored by Assmang Khumani.

#### Sponsored evening events

Three evening events were held, sponsored by:

- Mine RP: 19 September 2018
- Applied Vehicle Analysis (AVA): 17 April 2019
- RPM Global: 15 May 2019.

#### Site Visits

Unfortunately, no site visits were possible due to lack of support from mining companies in the region.

#### Educational-social events

Unfortunately, no events were held due to lack of sponsorship.

#### Non-SAIMM events

A Mining Expo was held in June 2019 at the Kathu Public High School. The organizers remain willing to provide the SAIMM with a stand in exchange for Branch support through member attendance. Promotional material and support was provided by the SAIMM secretariat.

### Major Challenges

- Member accessibility to events – the Northern Cape covers a large geographical area
- Member engagement/involvement. To be addressed through more frequent events and contact opportunities
- Minimal support from mining management teams. To be addressed by closer alignment with the NCMMA
- Lack of an official venue for committee meetings.

### Financial

The costs for events run to date remain fully covered by the sponsors, although events are not yet generating income.

### General

The 2018/2019 year has been one of the most, if not the most, successful years for the Northern Cape Branch to date, as regards the number of events held. We have seen an increase in attendance at the events as well as in applications for membership received at or after events. The forthcoming year will see the Branch strategy remaining similar to that during 2018/2019. However, more effort will be put into organizing events outside of the Kathu region in order to increase awareness of the SAIMM and encourage membership. A specific focus on female and student membership is expected to influence the selection of events for the coming year.

#### 4.1.6 Pretoria Branch

R.J. Mostert, Chairperson

G. Ngema, Secretary

W.W. de Graaf

N. Naudé

The primary focus areas this year was to attract new membership from students and other interested parties. The previous SAIMM President, Professor Selo Ndlovu, was therefore invited to present a talk to mining and metallurgical engineering students at the University of Pretoria, elucidating the benefits of student membership. The talk was held and good interest generated. In two other events, a previous SAIMM President, Professor Rodney Jones, presented papers to metallurgical students from junior to senior levels. These events were again used to attract new student members.



The speaker at the 19 September 2018 evening meeting on 'Additive manufacturing of advanced metallic components and the Fourth Industrial Revolution', Ms Malika Kodja and the SAIMM Pretoria Branch Chairman, Professor Roelf Mostert.

## Annual report

An evening meeting was held which dealt with the Fourth Industrial Revolution in metallurgy and materials engineering, with a special emphasis on additive manufacturing through metal 3D printing. The Department of Metallurgical Engineering of the University of Pretoria sponsored the social part of the event. The event was well attended (approximately 40) and new members were attracted to the SAIMM.

### 4.1.7 Western Cape Branch

L.S. Bbosa, Chairperson

A. Nesbitt, Vice Chairperson

M. Tadie, Treasurer

C. Pomario, Secretary

M. Winter, Finance

R.D. Beck

M. Becker

J.A. Cruise

D. Deglon

C. Dorfling

A. Mainza

T. Ojumu

J. Petersen

C. Sweet

J. Sweet

M. Solomon

### Geometallurgy Conference

The main activity of the WC Branch in 2018 was the Geometallurgy Conference. The organizing committee was chaired by Adjunct Professor Megan Becker and coordinated by the SAIMM WC Branch together with the Geological Society of South Africa (GSSA) and the Mineralogical Association of South Africa (MINSA). The event was very successful, drawing a wide range of papers from within and outside South Africa. An interactive workshop, led by presenters from Outotec, preceded the conference and attracted 38 people. The main conference was attended by 90 delegates from 13 different countries. Five keynote addresses, 19 papers, and a panel discussion covered the two days.

### Students Evening

The WC Branch organized the annual Student Evening 2018, an opportunity for final-year undergraduates to learn about the activities of the SAIMM and engage with seasoned members. Students from the Cape Peninsula University of Technology (CPUT), University of Stellenbosch (SUN), and University of Cape Town (UCT) attended the evening, which included a prizegiving and a keynote talk from SAIMM President Alastair Macfarlane. Following the event, several students from all three institutions completed application forms to join the SAIMM as Student Members.

### Minerals Research Showcase 2019

In 2019, the WC branch will be organizing a second Minerals Research Showcase, primarily aimed at providing postgraduate students at Western Cape institutions with an opportunity to present their work. This event is planned to coincide with a visit from the International Minerals Processing Congress (IMPC) Council members such that several can attend. In addition, the annual Student Evening is planned for September 2019.

### IMPC 2020

Plans are ongoing for the 2020 International Mineral Processing Conference, which is a major event on the international calendar. The call for papers will begin in August 2019.

### Thanks

My thanks to all Branch Committee members, particularly Margreth Tadie, for their efforts during the year.

### 4.1.8 Zambian Branch

D. Muma, Chairperson

C. Mwale, Vice Chairperson

W. Munalula, Treasurer

C. Ngulube

H. Zimba

There has been considerable membership growth in the past eight months at the levels of Associate Member and full Member, despite of a number of challenges facing the mining industry in Zambia. From August 2018 to July 2019 about 12 new members were recruited from mining companies and academia.

### Activities

Few activities were held in the 2018/2019 year apart from the joint SAIMM /Deswik Copperbelt Conference and Workshops, which took place on 21 and 22 November 2018 in Chingola. This event resulted in the direct recruitment of six mining professional members. The planned activities for 2019/2020 will be finalized at the branch AGM, which has been rescheduled to 2 August 2019, to be held at the Copperbelt University in Kitwe.

An awareness campaign on the objectives of the SAIMM Young Professionals Council (YPC) commenced in May 2018 and continued into early 2019. Mr Gabriel Luzendu (senior process metallurgist at Mufulira Copper Refinery) has taken on the role of Branch representative. The paper for the 2019 YPC Student Colloquium is scheduled to be submitted by end of July 2019.

### 4.1.9 Zimbabwean Branch

C.P. Sadomba, Chairperson

S. Matutu, Outgoing Chairperson

O. Zvarevashe, Secretary

W. Kutekwatekwa, Treasurer

M. Hungwe, Youth Development

A. Chinhava, Youth Development

Professor Dzinomwa

S. Ndiyamba

S. Gaihai

C. Tahwa

Professor Ityokumbul

### Membership

The membership recruitment drive targeted students from tertiary institutions offering mining and metallurgy programmes, comprising the University of Zimbabwe, Midlands State University, Manicaland State University, Zimbabwe School of Mines, and Gwanda University. Much effort was concentrated on recruitment at Gwanda University, which is a fairly new institute in the league of universities offering Earth Sciences. A student leadership committee at each tertiary institution coordinates all the SAIMM activities and recruitment. Focus was concentrated on retention of members as it was very difficult to recruit new members due to the harsh economic situation in Zimbabwe. Total membership is currently at 676.

Year-on-year distribution of membership is tabulated below:

Membership type	2017/2018	2018/2019	Change
Fellow	5	4	-1
Life fellow	-	1	+1
Associate	88	87	-1
Corporate	128	127	-1
Retired	-	1	+1
Student	455	456	+1
Total	676	676	-

### Conference

An international conference on The Future of Mining in Zimbabwe – Expectations and Opportunities was successfully held from 28 to 30 November 2018 at Harare Cresta Lodge. The conference was well attended throughout the three days, with 102 delegates, 36 of whom were complimentary from sponsoring companies, service providers, and dignitaries from the Ministry and the President's Office. Forty-four delegates were selected from five major institutions. There were 38 presenters and thematic chairs, giving a total attendance of 220. The Arcadia lithium project tour attracted 86 delegates on the third and final day of the conference. The conference offered an opportunity to network and interact on different platforms, with a cocktail evening on the first day and a question-and-answer session with the Minister of Mines and Mining Development, the Hon. Winston Chitando, on the second day.

### Youth Development

The SAIMM's influence in institutions improved significantly as a result of the activities of the Young Professionals Council (YPC). Branch activities included the successful launch of the Young Persons Lecture Competition in Zimbabwe in collaboration with IOM3. The finalists proceeded to represent Zimbabwe and Southern Africa at the world competitions held in October 2018 in Port Elizabeth, South Africa. Furthermore, the Branch facilitated the participation of two young professionals to present technical papers at the Young Professionals Conference held in Johannesburg. In promoting research and development amongst the youth, two research papers were presented by students at the annual Zimbabwe Branch Conference.

### Finance

There were dramatic changes to the prices charged by service providers due to changes in the economic environment, where the US dollar traded at an average of 1:3 to the RTGS or bond on the parallel market. The total revenue for the period to December 2018 was RTGS\$47 500.00 against total expenses of RTGS\$43 180.00, leaving us with a balance of RTGS\$4 320.00. The expenses for the year spiked from \$21 029.56 in 2017 in response to the parallel money market changes. No changes were made to the expected income from sponsors and delegates as the packages and delegate fees were the same as 2017, in line with the official money market rate of 1:1 to the local currency. This left the Branch financially strained. For the period January to April 2019 the Branch expenses were RTGS\$4 154.87, leaving a balance of RTGS\$165.13.

The government authorized foreign currency accounts to use US dollars separate from the RTGS/Bond towards the end of 2018, and members started paying the rand equivalent for membership fees in US dollars during the period March 2019 to June 2019. Members started paying into the FCA Nostro account and the total balance as at 30 April 2019 was US\$484.00.

The closing balances as at 30 April 2019 were as follows:  
RTGS account – \$165.13  
FCA USD account – \$484.00.

Effective 24 June 2019, the government of Zimbabwe banned the use of multiple currencies for local transactions and legislated that with immediate effect, the Zimbabwe dollar would be the only legal tender to be used in the country. The Branch is struggling to keep up with the changes in the economic environment, which have eroded all the savings, and has requested permission to use membership fees trickling in to

remain operational. The Branch continues to operate an account under the Chamber of Mines of Zimbabwe as it could not meet all the requirements for opening an independent bank account. The implications of the latest change to the financial environment are still being evaluated countrywide and the Branch will give an update on the operational modalities in due course

### Branch Events

The Branch planned three technical visits for the year 2019.

The first was held at Zimasco's Mutorashanga Mining operations, located about 117 km from Harare, on 7 June 2019. Twenty members took the opportunity to attend the visit, which consisted of a technical presentation on the mining and processing of eluvial chromite.

The next Branch technical visit will be to the Mupani project – the newly commissioned portal at Zimbabwe Platinum Mines in Selous – where delegates will tour both surface and underground operations. This is scheduled for 23 August 2019. The final technical visit for 2019 will be to Mimosa Platinum Mine on 25 October 2019.

#### 4.1.10 Zululand Branch

C. Mienie, Chairperson

E. Clare	R. Kutama
W. Jordaan	P. Strydom

The Branch was not active during the first quarter 2019 and is going through a process of rebuilding, starting with a new Committee. Only the Chairman and one member are left from the previous Committee – the others were either transferred, re-employed elsewhere in South Africa or abroad, or have retired. The selection of Committee members (bringing in younger blood) is taking longer than anticipated but should be complete by end July-August.

### News/Conferences

The Zululand Branch is represented on the organizing committee for the 11th International Heavy Minerals Conference, which is scheduled for 5–7 August in Cape Town.

### Branch Activities

#### Branch Committee meetings

- The Branch Committee meeting was held on 26 June 2019.

#### Technical meetings/events

- No technical meetings were held during the period under review.

#### Activities planned for the year ahead

- Finalization of Committee – end August
- Third quarter technical presentation
- Fourth quarter technical presentation / plant visit
- Social – end of year wine or whiskey tasting.

## 5. International liaison

Portfolio Holder: S. Ndlovu

There is nothing to report this year.

### Key Performance Areas

To achieve its objectives, the SAIMM

- Participates in and represents South Africa on bodies such as the Mining, Metals & Minerals Society (TMS), and together with Mintek on Infacon

- *Appoints corresponding members in areas such as Australasia, Botswana, Brazil, Canada, Chile, Europe, the Far East, Ghana, New Zealand, the UK, and the USA, and interacts with sister institutions in other countries to promote the international exchange of scientific and technical information.*

### 5.1 APCOM

C. Musingwini, Chairperson

In 1961, four American universities – the University of Stanford, the University of Arizona, Pennsylvania State University, and the Colorado School of Mines – started the APCOM series of conferences. APCOM's main focus is to promote the application of computers and operations research in the minerals industry. APCOM has evolved to become an international forum for presenting, discussing, and examining state-of-the-art and emerging technologies in the minerals industry. The international APCOM symposia are run every second year at different locations around the world. APCOM has become a major driver of innovation in the minerals industry, facilitating the advancement of computer applications and operations research techniques in solving complex problems. Improved mineral resources estimation (and geostatistics by extension) and process optimization have been major themes in APCOM.

Since its inception, APCOM has introduced *inter alia*, investment planning, project evaluation, and management, as well as mining 'process optimization' to achieve higher productivity, including other key operational aspects such as optimization of material flow, equipment utilization and dispatch, and real-time monitoring. Now 'digitalization' in mining expands this technology trend by the use of information technology, 'big data', and communications in order to improve coverage of all the phases in mining projects, project developments, and operations along the mining value chain. This spans the entire spectrum from mineral resource estimation, mine planning and optimization, through to mineral processing. APCOM also recognizes the need for mining companies to better understand how digital technologies, including autonomous vehicles, drones, and the Internet of Things (IoT), may influence the way they do business.

The success of the APCOM symposia has been made possible by the ever-growing contributions and cooperation from its members and supporters from both academia and industry. Consequently, several breakthrough innovations in mining have originated from the sharing of ideas at APCOM conferences. These include geostatistics and mining process optimization. As highlighted above, another key role of APCOM is its promotion of in-depth dialogue and collaboration between industry and academia.

***The International APCOM Council consists of the following members:***

Professor Kadri Dagdelen (Colorado School of Mines, USA)  
Professor Sukumar Bandopadhyay (Society for Mining, Metallurgy and Exploration, Inc., USA)  
Dr Ernest Baafi (Australasian Institute of Mining and Metallurgy, Australia)  
Dr Winfred Assibey-Bonsu (Gold Fields Ltd, Australia), International APCOM Council Chairperson  
Dr Julian Ortiz (Universidad de Chile, Chile)  
Dipl. Ing. Christoph Mueller (Minerals Tech Industry, Europe)

Professor Antonio Nieto (University of the Witwatersrand, South Africa)

Professor Cuthbert Musingwini (Southern African Institute of Mining and Metallurgy, South Africa)

Professor Roussos Dimitrakopoulos (Canadian Institute of Mining, Metallurgy and Petroleum, Canada)

Professor Dr.-Ing. Oliver Langefeld (TU Clausthal, Germany).

### ***The 39th APCOM Symposium***

The 39th International Symposium on the Application of Computers and Operations Research in the Mineral Industry (APCOM) was organized by the Wrocław University of Technology, and took place from 3 to 7 June 2019 in Wrocław, Poland. About 200 delegates participated in the conference. The 39th APCOM covered several technology topics grouped in the following five streams:

1. **Geostatistics and Resource Estimation**—A stream focused on mineral resources characterization and Mineral Reserve estimation, providing several leading-edge and peer-reviewed papers by world-class practitioners from leading mining companies and research institutes.
2. **Mine Planning**—Focused on the latest IT-supported techniques in mine planning, uncertainty reduction, geomechanics, modelling, simulation, and the most recent software technology.
3. **Scheduling and Dispatch**—A stream focused on long- and short-term scheduling optimization, the application of neural networks and genetic algorithms as well as risk mitigation, and related software systems. The theme also covered the impact of IoT, big data, and 'gamification' on mining fleet scheduling.
4. **Mine Operation in Digital Transformation**—This stream covered mining equipment-related topics in the area of LHD transport, drilling, and longwall operations, underground communications, and new digital technologies in mine safety, as well as product quality optimization.
5. **Emerging Technologies and Robotics in Mining**—A technical stream focused on the use of unmanned aerial vehicles (UAVs) in mining, the benefits of upcoming technology in robotics, mechatronics, and communications, as well as changes in machine design through digital transformation.

The APCOM Executive Committee confirmed their support for organizing the 40th APCOM 2021 in South Africa, hosted by the SAIMM in conjunction with the School of Mining Engineering at the University of the Witwatersrand. The theme of the 40th APCOM 2021 is 'Minerals Industry 4.0: The Next Digital Transformation in Mining'.

### ***APCOM host cities since the 1980s***

1986 University Park, Pennsylvania, USA  
1987 Johannesburg, South Africa  
1989 Littleton, Colorado, USA  
1990 Berlin, West Germany  
1992 The University of Arizona, USA  
1993 Montreal, Quebec, Canada  
1995 Brisbane, Australia  
1996 University Park, Pennsylvania, USA  
1997 Moscow, Russia  
1998 London, UK

## Annual report

1999	Colorado School of Mines, Golden, USA
2001	Beijing, China
2003	Cape Town, South Africa
2005	Tucson, USA
2007	Santiago, Chile
2009	Vancouver, Canada
2011	Wollongong, Australia
2013	Porto Allegre, Brazil
2015	Fairbanks, Alaska, USA
2017	Golden, Colorado, USA
2019	Wroclaw, Poland
2021	Johannesburg, South Africa

### 5.2 INFACON

R.T. Jones, Chairperson

I.J. Geldenhuys, Secretary General

The International Ferro-Alloys Congress (Infacon) was founded in South Africa in 1974 by the SAIMM, NIM (now Mintek), and the Ferro-Alloys Producers' Association (FAPA) when the first Infacon was held in Johannesburg. Infacon events are overseen by an international governance structure that is now known as the International Committee on Ferro-Alloys (ICFA), which has representation from major countries that produce and consume ferro-alloys. ICFA has the primary objectives of promoting the holding of the International Ferro-Alloys Congress every three years in appropriate locations around the world, and ensuring that the high technical standard of papers and presentations is maintained. Mintek provides the secretariat for ICFA.

Infacon is known as the premier technical conference serving the international ferro-alloys industry. Congresses have been held in twelve different countries around the world. Previous events have taken place in the following locations:

1974:	Infacon I – Johannesburg, South Africa
1980:	Infacon II – Lausanne, Switzerland
1983:	Infacon III – Tokyo, Japan
1986:	Infacon IV – Rio de Janeiro, Brazil
1989:	Infacon V – New Orleans, USA
1992:	Infacon VI – Cape Town, South Africa
1995:	Infacon VII – Trondheim, Norway
1998:	Infacon VIII – Beijing, China
2001:	Infacon IX – Quebec City, Canada
2004:	Infacon X – Cape Town, South Africa
2007:	Infacon XI – New Delhi, India
2010:	Infacon XII – Helsinki, Finland
2013:	Infacon XIII – Almaty, Kazakhstan
2015:	Infacon XIV – Kyiv, Ukraine
2018:	Infacon XV – Cape Town, South Africa

The next congress, Infacon XVI, will be held in Trondheim, Norway from 6–9 June 2021, and will be chaired by Aud Nina Wærnes. The planning and organization of the conference is already underway, and a meeting was held with the local organizing committee in May 2019, including a site visit to the Clarion Hotel and Congress venue located adjacent to the harbour in Trondheim. Post-congress visits to various ferro-alloy smelters and places of cultural and scenic interest will be held. Further details are available from the conference website at <http://infacon16.com>.

Infacon is set up on the principle that the sharing of technical information benefits the industry greatly. The publication of scientific and engineering work is vital. The Infacon series of congresses is well known for the quality of its papers, due largely to the considerable work that is put into reviewing papers. ICFA has a policy of making papers from all Infacon events, current and past, freely available *via* open access, and these are available online.

ICFA Contacts:

**Chairperson:** Professor Rodney Jones [rtjones@global.co.za](mailto:rtjones@global.co.za)

**Secretary General:** Isabel Geldenhuys [IsabelG@mintek.co.za](mailto:IsabelG@mintek.co.za)

**Infacon website:** <http://www.pyrometallurgy.co.za/Infacon/>

### 5.3 SAMCODES Standards Committee (SSC)

S.M. Rupprecht	Chair
T. Marshall	Deputy Chair
M. Mullins	Past Chair
S. Moolla	Administrator
M. Engelbrecht	Scribe
K. Lomborg	SAMREC/CRIRSCO
A. Van Zyl	SAMVAL
P. Dekker	SAMOG
T. Steele-Schober	SAMESG
R.J. Dixon	SAIMM/ CRIRSCO
S. Siwela	GSSA
A. de Bruyn	JSE
R. Ingram (Solid Minerals)	Readers Panel
A. Clay (Oil & Gas)	
A. Bals	SAGC
L. Koorsse	IMSSA
N. Kramer	SAOGA
C. Dohm	GASA
M. Booysen	Law Societies of South Africa
K. Davies	SAICA
B. Williamson	IASSA
M. Tsanwani	Council for Geoscience
S. Mabaso	DMR
O. Moumakwa	
C. Teffo	Minerals Council South Africa

#### Observer Organizations

P. Rampersadh	SACNASP
G. Botha	
ECSCA	
M. Kabai	Financial Sector Conduct Authority (FCSA)
K. Motjale	
G. Grobler	General Council of the Bar

The SSC continues to build on the excellent foundation that has been laid over the past decade, and particularly under the leadership of the immediate past Chair, Tania Marshall.

The SSC has strengthened its relationship with our Patrons, with our extended Institutes, and with Securities Exchanges in South Africa and abroad. We have built on our foundation through continuing our strong education and promotion portfolio, through ensuring that our governance procedures are in place and working smoothly, and through promoting the SAMCODES Way both in South Africa and abroad.

## Annual report

Our relationship with the JSE has been strengthened, particularly through the Readers Panel new mandate, and through co-branding with the JSE wherever possible.

### SAMCODES Committee Activities

Ken Lomberg, Andrew van Zyl, and Teresa Steele-Schober are the Chairs of the SAMREC and SAMVAL Code Committees and the SAMESG Guideline Committee respectively. Peter Dekker is the Chair of the SAMOG Committee.

#### SAMREC Committee

- The Committee continues to engage with the South African Bureau of Standards (SABS) to assist in updating SANS 10320:2004, which is now out of date and out of step with both SAMREC and with international developments. The final draft is nearly complete and will soon go out to all interested and affected parties for comment.
- The SAMREC Group is making good progress towards completing the SAMCODES app. The app should be ready for roll-out by the end of 2019.
- The Committee continues to promote the SAMREC Code through various public educational and promotional events, as discussed further in this report. A conference is scheduled for 2019 which will address new reporting issues such as graphite, tailings dams, rare earths, *etc.*

#### SAMVAL Committee

- The Committee continues with the work on registration with statutory bodies
- IMVAL issues.

#### SAMESG Guideline Committee

- The main focus for SAMESG for 2019 is to socialize our guideline and reach as many CPs and contributors to CPRs as possible.
- The SSC has held discussions with the SAMVAL Chairperson to ensure that SAMESG remains a guideline for consideration in valuations and not a requisite.

#### SAMOG Committee

- The newly issued PRMS (2018) will require the SAMOG code to be updated, which will be done this year.
- The SAMOG Readers Panel reviewed one Competent Person's Report. This resulted in significant challenges and differences in opinion between the issuer and the Panel. A post-mortem review between the readers and the Chairman of the Readers Panel will be held soon to discuss how to handle these challenges in the future.
- The Committee continues to conduct short courses on the reporting systems and SAMOG Code.

### Education and Promotion

The SSC continues its high level of Code education and promotion, focusing equally on students, young professionals, and experienced practitioners. Where possible these events are being organized through the Patrons, and are held either in conjunction with existing conferences or as stand-alone events.

Educational events continue to be organized for interested parties, such as the JSE, the Institute of Directors of SA, the Council for Geoscience, the DMR, and others.

The Squirrel Awards, through the Investment Analysts Society of South Africa, for the best Public Reporting are the premier promotion activity on the SSC calendar. This year's winners were Impala Platinum and Harmony Gold Mine.

### Main Activities: 2018–2019

- April 2018 – Global Mineral Resource and Valuation Reporting Standards: Their evolution, convergence and effectiveness (Minex Asia, Kazakhstan)
- 11 June 2018 – Diamond Reporting Workshop (Tania Marshall)
- June 2018 – Junior Indaba (panel discussion – (Matt Mullins)
- 28–29 June 2018 – GSSA/SAMCODES/JSE Reporting Workshop (Tania Marshall)
- 9 July 2018 – Copper Cobalt Conference (Steven Rupprecht)
- 17 July 2018 – SAMCODES Workshop at Geocongress
- 16–17 August 2018 – SAMREC/SAMVAL Advanced Training Workshop.
- 5–6 September 2018 – SAMVAL for non-Technical Professionals – SAMVAL Committee/JSE
- 4–7 November 2018 – SAMOG Workshop at AAPG Conference (Peter Dekker)
- 31 January 2019 – MIASA Presentation (Ken Lomberg)
- 31 January 2019 – Zimbabwe Gold Conference (Tania Marshall)
- 28 March 2019 – SAMOG Workshop (Peter Dekker)
- 16–17 May 2019 – GSSA/SAMCODES/JSE Reporting Workshop (Tania Marshall).

### Organized and Proposed

- 21 September 2018 – SAMREC/SAMVAL for young professionals (Steven Rupprecht)
- 25–26 February 2020 – SAMCODES Conference (Ken Lomberg and Tania Marshall)
- 25–26 June 2019 – Mineral Project Valuation School (TBA).

### International Developments

#### CRIRSCO

This year the Patrons will send only Ken Lomberg to the Annual General Meeting in Washington DC in an attempt to reduce expenditure in response to the over-expenditure (R159 000) on the Chinese delegation's visit to South Africa. Roger Dixon will participate via skype or other conference call service to provide his input to the meeting.

It is expected that the 2020 CRIRSCO AGM will be held in South Africa. After 2020, it is proposed that the Patrons send only one representative to the AGM and promote the use of video conferencing for the second CRIRSCO representative

#### IMVAL

IMVAL is developing into a global forum for international coordination and direction of Valuation reporting. SAMOG has been given Observer status, with Peter Dekker sitting on the Committee.

The third edition of the IMVAL template has been circulated. Although comments regarding the template have been made there has been no material progress in this area.

#### The UNFC

The UNFC continues to drive the evolution of national reporting for governmental inventory, with Roger Dixon representing CRIRSCO as an observer member. No substantial updates have been received.

#### FCM

*FMC contract dispute regarding the 2018 Chinese delegation to South Africa*

## Annual report

The FCM 2018 invoice of R159 250.99 was paid in full by the Patrons. A dispute was raised when translation services were not properly provided by FCM's subcontractor Lingua-World. It has been recommended that the Patrons consider whether we have a claim against Lingua-World – this matter is outstanding.

A number of learnings have emerged from hosting this event. Matt Mullins highlighted the following:

1. The original amount budgeted, R1.2 million, was 27% lower than the actual expenditure. While this was largely due to the changes to the translation services mentioned above, no contingency was allowed for.
2. The fixed and inflexible budget was dictated by the MRREC. Although they did contribute an extra R180 180 (in US dollars cash), this did not fully cover the shortfall. In retrospect we should have pushed back more strongly on this.
3. The understanding of what was required for simultaneous translation was inadequate. We should have done more research in this area.

The above comments are noteworthy and should be considered for any future foreign training involving the SAMCODES.

### Review of JSE Readers Panel

On 26 June Rob Ingram (Chair of the JSE Readers Panel), Steve Rupprecht (SSC Chairperson), and Ken Lomborg (SAMREC Working Group Chairman) met with Annalie de Bruyn of the Johannesburg Stock Exchange to discuss the JSE Readers Panel List to ensure that the Panel members have the necessary skills to support the review of Competent Person Reports requiring review by the JSE. It was found that the panel had sufficient CPs; however, it was recognized that additional Competent Valuers (CVs) were required. As Minxcon had requested to become more involved with the JSE Readers Panel it was decided that Rob Ingram would approach Minxcon to put forward names to join the panel as CVs.

### Chamber of Mines Turkey

The Chamber of Mines Turkey would like to conduct a workshop in Turkey on the SAMREC Codes and Qualified (Competent) Persons. This was discussed in Antalya during IMCET. The SSC will follow up on this request, liaising with the CRIRSCO representative as Turkey is a member.

## 6. Management and Administration

### Portfolio Holder: A.S. Macfarlane

The Secretariat consists of:

Sam Moolla (Manager)  
Gugu Charlie (Conference Coordinator)  
Camielah Jardine (Head of Conferencing)  
Tshepiso Letlhaku (Conference Secretary)  
Dennis Makondesa (Accountant)  
Portia Malatji (Accounts Assistant)  
Zuliakha Malgas (DTP Operator)  
Nazli Mamdoo (Conference Publications Coordinator)  
Kelly Matthee (Journal Coordinator)  
Yolanda Ndimande (Conference Coordinator)  
Prudence Ntumeleng (Membership Assistant)  
Aphathia Sello (Administration Clerk)  
Keabetswe Shumba (Membership and Branch Liaison Administrator)

Tsholo Sole (Receptionist and Assistant to the Manager)

Thato Letebele (Communications Coordinator)

The SAIMM, Office Bearers, and Council record their appreciation to the above for their service.

## 6.1 Finance

### Portfolio Holder: V.G. Duke

#### Overview

The past year has been very challenging for your Institute, which relies on profits from conferences to break even. The magnitude of the challenge is clear if one looks at our financials over the past six years and excludes the impact of the work of our TPCs.

Area	Revenue Rm	Cost Rm
Membership & admin	~3.9	~6.0
Journal & advertising	~1.5	~3.0
Annual Banquet	~0.3	~0.4
Branch activities	~0.3	~0.5

We raise around R6 million each year without income from the work of our TPCs, but spend in the order of R10 million on maintaining our international influence and on the interests of our members.

These non-TPC expenditures include, but are not limited to:

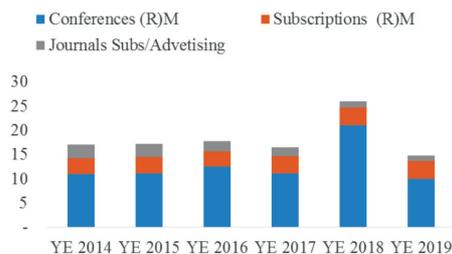
- Subscription to the Technical Library
- Subscription to OneMine Org
- Sponsorship of the Student Colloquium
- SAMREC/SAMVAL.

This average deficit of R10 million is covered by profits from our TPC-related activities when times are good but, as evidenced over the past year, significantly erodes our reserves when times are bad:

- Income down by 43% year on year
- Expenditure down by 23% year on year
- Reserves down by 10% year on year.
- A net deficit of R3.7 million was recorded for the year.

#### Income

Our annual income dropped from a previous high of R26 million, where we benefited from international conferences (*i.e.* Copper-Cobalt, Infacon, and AfriROCK), to a new six-year low of R15 million for the year ended 2019.



We generally experienced poor attendance at our conferences over the past twelve months, and revenues from our monthly *Journal* were also lower.

We are able to report a slight increase (approx. 1%) in income from subscriptions, with the number of paying members now at 4837. A total of 240 members were removed from our membership register due to non-payment. You will notice that

## Annual report

we have limited increases in our membership fees to below the inflation rate in this difficult economic climate.

Your administrative staff have worked hard and succeeded in reducing the debtor's book. Total trade and other receivables stand at R2.9 million, which is a helpful improvement on last year's R4.1 million.

### Expenditure

The decrease in the cost of sales, of R6 million (approx. 33%), was unfortunately also less than the decrease in the associated income.



Operating expenses were down by R154 000 from the previous period, with the more material expenses being attributable to:

- R191 000 to the Scholarship Trust Fund
- R4.3 million on salaries
- A R0.5 million write-off of bad debts, mostly due to non-payment of membership fees.

### Investment Portfolio

Your investment portfolio performed adequately, despite market volatility over the past year. The year-end 2019 closing balance was R28.5 million, an overall net decrease of R3.2 million after:

- A fair value adjustment of R60 000
- Income from dividends of R0.9 million
- Income from interest of R0.2 million
- A drawdown of R3.7 million.



These reserves have been key to ensuring both short-term stability and the long-term sustainability of your Institute. We have had to draw down a total of R14 million over the past six financial years. This is against an initial investment of R6 million, which has enjoyed consistent positive growth even during recent difficult financial periods.

The latest drawdown included R0.5 million which was the second and final half of an Infacon research fund commitment.

### Closing Comments

In summary, the total loss for the year amounted to R3.7 million, a significant reversal on last year's profit of R5.0 million. Other key metrics from the 2018 and 2019 Financial Statements are provided below.

Heading	2019	2018	%
Assets	R34.4m	R38.9m	-11.6
Equity	R31.7m	R36.0m	-11.9
Liabilities	R2.6m	R2.9m	-10.3
Revenue	R14.7m	R26.0m	-43.5
Cost of sales	R12.2m	R18.0m	-32.2
Operating exp.	R8.4m	R8.6m	-2.3
<b>Gross Margin</b>	<b>-R4.8m</b>	<b>R 0.1m</b>	
<b>Net Margin</b>	<b>-R3.7m</b>	<b>R 5.0m</b>	

On behalf of the Institute, I wish to thank Sam Moolla your Office Manager, her accountant, Dennis Makondesa, and all of the SAIMM staff for their hard work while having to deal with budget constraints, and for assisting me with the responsibility of Honorary Treasurer.

I also appreciate the contribution of our Auditor, Genesis Chartered Accountants and thank them for their services over the past twelve months.

Finally, we must not forget the very important part that Dee Campouoglou (AFC Account Manager) has played in not only preserving, but significantly growing, your investment portfolio over the years, and we thank her for this.

### New Members

#### Fellows

A. Ramcharan

#### Members

E. Addo Jr, J.M. Akande, D.C. Alexander, C.W. Baleti, D.L., Bantobetse, N. Beenzu, S. Bhattacharya, E. Bird, A. Burger, H.G. Burnett, R.A. Daffue, J. de Meyer, G.H. du Plessis, R.A. Els, J. Festus, J. Gasitene, T.B. Hendricks, Y. Huang, S.M. Jeyarajan, H.K. Kondolo Bananga, S. Kumawat, S.R. Madzivha, P.M.Y. Mahamba, T. Mangole, G.V. Marsden, I.M. Matheson, R.S. Meyer, J.W. Miller, S. Mitropolskaya, K.G. Moloko, E.L. Moolman, P. Mostert, K.K. Motsumi, S. Moyo, T. Munenerwa, D.A. Muridili, F.D. Musuka, O. Mutapanduwa, W. Mutematsaka, A.K. Nalwaya, A. Nieto, L.I. Nsenga, G. Rakhunwana, I.P. Saker, A.E. Senga, S. Sinha, J.M. Steyn, B.B. Swartz, W. Swartz, M.S. Szpak, H. Thomoli, M. van der Bank, S.E. van der Westhuizen, W. van Zweel, D.L. Venter, V. Verengera, G.K.W. Wilson, N. Zimba

#### Associates

T.S. Andrew, L. Chanderman, L.P. Cogang, A. Costa Silva, A. Dubula, J.A. Gwarada, D. Hove, B. Khumalo, K. Kunda, N.R. Kunene, T.B. Mabe, S.O. Makinana, O. Malaolo, M.K.S. Mangoma, T. Mapeta, S.T. Mapheto, T.S. Masikhwa, L.M. Mnisi, T.H. Mohlahlo, L.A. Mokoatsi, H.C. Muyemeki, R. Ndimande, E.L. Ndzumeni, P. Ngobeni, S.T. Ngwenya, P.T. Ntuli, M.C. Ramushu, A.C. Scullard, M. Tsitywa, S. Tyalibongo

#### Associates from Conferences

G.O. Akintola, T. Chima-Mwale, R.M. Flanagan, K.R. Gwandu, H.P. Kapolo, T.A. Mabela, N. Madani, R.S. Magwaneng, N.A. Mahlaule, S.G. Makganye, T. Mazorodze, T. Nyamagudza, B.Y. Tichoue.

#### Students

D.A. Baloyi, A. Barnard, O.S. Beyi, U.E. Bezuidenhout, N. Bokola, G.T. Chibamu, A. Dondo, S.J. Dube, T. Hailaula, M. Hlongwane, J.C. Jacobs, K. James, R.K. Juala, T. Khoboko, P.O. Kolapo,

## Annual report

A. Kuhl, N.P. Malahlela, T. Mampuru, C.K. Manthata, P. Maphatsoe, A.L. Maselepo, S.D.N. Mariwande, A.N. Mathevela, K.M. Mathipe, C.R. Matsimela, N. Mautsa, C.T. McQuade, T.J. Mfune, M.C. Mhlanga, M. Mokgalaka, K. Moloi, M.M. Moosa Bhura, L.P. Morena, M. Mthombeni, K.L. Mtokwana, N. Muavhi, M.T. Munda, T.D. Murova, V. Musapingura, N. Ncube, I.N.M. Nday, P.W. Netshitumbu, S. Ngomane, T. Ngwenya, P. Nondonga, N.P. Nxumalo, S.N. Nyoni, M.F. Phuthehang, L. Ponto, K.P. Rahube, T.C.N. Rungani, S.M. Sheikh, V.N. Shumbambiri, S.Y. Sigauke, V. Spencer, J.M.S. Strauss, P. Tejane, G.K. Teme, M.P. Tomas, D. Tshoma, A. Wali.

### *Company Affiliates*

Acid Plant Management Services (Pty) Ltd, ASPASA, Ingwenya Mineral Processing, Micromine Africa (Pty) Ltd, Opermin, OPTRON, Ramika Projects, Verni Speciality Construction Products (Pty) Ltd.

### *Resignations*

#### *Fellows*

H.E. Bartlett, N.F. Nicolau, R. Schindler, N.W. Searle.

#### *Members*

R.J.W. Bold, D.F. Botha, K.T. Broekman, N.A. Chapman, P.J. de Garis, J. de Hill, D.E. Erasmus, O. Fenn, P.D. Finney, N.P.C. Fox, W. Gabryk, C.G. Higgins, R. Huygen, H.J. Ilgner, V.R. Jewaskiewitz, B.J. Krause, G.H. Lind, J.H. Maartens, F.D. Manini, D.Y. Matthews, R. Mhlari, E. Mwampokota, I. Naidoo, M.H. Rakale, J.L. Schoeman, W.E. Stumpf, M. Tacke, J.C. Terblanche, N.S. Tshiloane, J.P.A. van der Heever, D.J. van Wyk, R. Visser, T.J. Willemse.

#### *Associates*

J.F. Costa, T.L. de Vries, A.I. Dennis, H.M. Ereche, J.P. Labuschagne, K.P. Lebopa, M.M.A. Lelope, K. Lombard, H.D. Mabunda, S. Macdonald, S. Maharajh, P. Mare, L.J. McEwan, T.T. Musikavanhu, N.I. Nhlengethwa, C.S. van Aswegen, H.J. van Velze, M.F. Whitter.

#### *Students*

J.A. du Plessis.

#### *Retired Members*

D.F. Grieve.

### *Company Affiliates*

DMS Powders, Department of Water Affairs and Forestry, Technology Innovation Agency.

### *Members transferred to Higher Grade*

#### *Transfer from Member to Fellow*

B.P.S. Pelli, E. Kirby, A.T. van Zyl.

#### *Transfer from Associate to Member*

P.J. Coetzer, A. Fletcher, L.P. Hoffmann, X. Liu, K.G. Lomborg, G.M. Makatong, B.K. Maputla, E. Maringe, T. Mutezo, E. Nel, H.S. Nyakunhwa, M. Onifade, A.D. Reddy, Z. Smith, A.I. Stoker, A.L. van Wyk, P. van Wyk.

#### *Transfer from Student to Associate*

T. Chikomo, M.I. Kulula, R.J. Kunatu, T.B. Mapaire, A.W. Meek,

K.A. Moganedi, T.E. Mokoqama, N. Moyo, K. Munyai, M.L. Musariri, S.G. Ndhrazi, N.C. Nkhi, C.T. Nyahwai, T.G. Nyambuya, T. Panganayi, P.J. Selepe, T. Shandirwa, J. Silinda, C.T. Simelane, A. van Wyngaardt.

### *Members who retired*

#### *Fellows*

S.J.M. Caddy, G.K. Chunnnett, D.D.J. Clemente, A.R. Formanowicz, N. Green, W.P. Imrie, G.J. Jonck, H.E. Lombard, J.A. Luckmann, M.R. Mortlock, M.S. Mulder, V.P. Pillay, D.J. Stanton, W.M. Stear, M.V. Steyn, H. Strauss, J.R. Walklate.

#### *Members*

A.C.C. du Preez, E.K. Harvey, C.J. Hattingh, J.D. Kirkman, L.C.K. Tolmay, T. Zaniewski.

### *Members who were re-admitted*

#### *Re-admitted as a Member*

K.K.T. Avia, D.M. Bukunkwe, F. Chinyakata, J.A. Fourie, N.P. Glossoti, M.E. Lekota, M.B.W. Mabaso, M.S. Malebana, K. Mandanji, M. Maoketsa, D.N. Nyungu R.P. Zindoga.

#### *Re-admitted as an Associate*

M.T. Malisa, M.O. Maotoe, M.S. Seabela, L.A.E. Tukula, A. van Wyngaard, Y. Zhou.

### *Members who were re-instated*

#### *Re-instated as a Member*

C.A. Biley, G. Dzinomwa, V. Maronga, A. Shumba, T. Sisy, G. Togara.

#### *Re-instated as an Associate*

M.S. Babusi, N. Buthelezi, R. Kamba, R.F. Maluleke, A.W. Meek, N. Molapisi, B.T. Motlagodi, J.T. Samuels, A.P. van der Westhuizen.

### *Deceased*

#### *Retired Fellows*

R.E.F. Cowley, F. DeVries, P.J.D. Lloyd, J.A. Luckmann.

#### *Retired Members*

R.J.T. Butler, D.R. Chelius, F. Fenwick, K.M. Steenkamp.

#### *Fellows*

C.A. Roode.

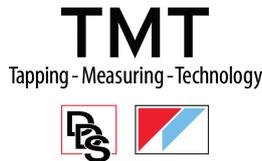
#### *Members*

C.P. Celliers.

#### *Associates*

A.W. Jameson, A.A. van Jaarsveld. ◆

Annual report







Faculty of Engineering,  
Built Environment and  
Information Technology

Fakulteit Ingenieurswese, Bou-omgewing en  
Inligtingtegnologie / Lefapha la Boetšenere,  
Tikologo ya Kago le Theknološhi ya Tshedimošo

Mining Engineering



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# Valuation of Mineral Assets

**Dates:** 2 – 5 December 2019  
**Venue:** Holiday Inn, Sandton,  
Johannesburg  
**Course Fee:** R10800.00

This course is designed to equip participants with advanced skills regarding the valuation and reporting of a range of mineral assets and to bridge the gap that exists in South Africa between the regulated property valuation profession and the professional practice of mineral asset valuation as led by the engineering, geology and surveying professions. This course will be of benefit to all who are concerned with the valuation and investment analysis of mining assets.

For further information and registration details, please visit the website: [www.cpd.uct.ac.za](http://www.cpd.uct.ac.za)

**THE SOUTHERN AFRICAN INSTITUTE OF MINING AND METALLURGY**  
ANNUAL FINANCIAL STATEMENTS  
FOR THE YEAR ENDED 30 JUNE 2019

## Annual Financial Statements

### General Information

<b>Country of incorporation and domicile</b>	South Africa
<b>Nature of business and principal activities</b>	The Southern African Institute of Mining and Metallurgy is a professional institute with local and international links aimed at assisting members to source information about technological developments in the mining, metallurgy, and related sectors. This non-profit entity operates in South Africa.
<b>Office Bearers</b>	Professor S. Ndlovu V.G. Duke A.S. Macfarlane M.I. Mthenjane Z. Botha I.J. Geldenhuys Professor R.T. Jones
<b>Registered office</b>	5 Hollard Street Marshalltown Minerals Council South Africa Johannesburg 2001
<b>Postal address</b>	PO Box 61127 Marshalltown Johannesburg 2107
<b>Auditors</b>	Genesis Chartered Accountants Chartered Accountants (SA) Registered Auditors
<b>Level of assurance</b>	These annual financial statements have been audited in compliance with the applicable requirements of the Companies Act 71 of 2008.
<b>Preparer</b>	The annual financial statements were independently compiled by: J. Den Drijver CA(SA)

## Annual Financial Statements

### Contents

The reports and statements set out below comprise the annual financial statements presented to the members:

	Page
Statement of Office Bearers' responsibilities and approval	746
Office Bearers' Report	747
Independent Auditor's Report	748-749
Statement of Financial Position	750
Statement of Comprehensive Income	750
Statement of Changes in Equity	751
Statement of Cash Flows	751
Accounting Policies	752-753
Notes to the Annual Financial Statements	754-756
The following supplementary information does not form part of the annual financial statements and is unaudited: Detailed Income Statement	757-758

### Statement of Office Bearers' responsibilities and approval

The Office Bearers are required by the Companies Act 71 of 2008, to maintain adequate accounting records and are responsible for the content and integrity of the annual financial statements and related financial information included in this report. It is their responsibility to ensure that the annual financial statements fairly present the state of affairs of the company as at the end of the financial year and the results of its operations and cash flows for the period then ended, in conformity with the International Financial Reporting Standard for Small and Medium-sized Entities. The external auditors are engaged to express an independent opinion on the annual financial statements.

The annual financial statements are prepared in accordance with the International Financial Reporting Standard for Small and Medium-sized Entities and are based upon appropriate accounting policies consistently applied and supported by reasonable and prudent judgements and estimates.

The Office Bearers acknowledge that they are ultimately responsible for the system of internal financial control established by the company and place considerable importance on maintaining a strong control environment. To enable the directors to meet these responsibilities, the members sets standards for internal control aimed at reducing the risk of error or loss in a cost effective manner. The standards include the proper delegation of responsibilities within a clearly defined framework, effective accounting procedures and adequate segregation of duties to ensure an acceptable level of risk. These controls are monitored throughout the company and all employees are required to maintain the highest ethical standards in ensuring the company's business is conducted in a manner that in all reasonable circumstances is above reproach. The focus of risk management in the company is on identifying, assessing, managing and monitoring all known forms of risk across the company. While operating risk cannot be fully eliminated, the company endeavours to minimize it by ensuring that appropriate infrastructure, controls, systems and ethical behaviour are applied and managed within predetermined procedures and constraints.

The Office Bearers are of the opinion, based on the information and explanations given by management, that the system of internal control provides reasonable assurance that the financial records may be relied on for the preparation of the annual financial statements. However, any system of internal financial control can provide only reasonable, and not absolute, assurance against material misstatement or loss.

The Office Bearers have reviewed the company's cash flow forecast for the year to 30 June 2020 and, in the light of this review and the current financial position, they are satisfied that the company has or has access to adequate resources to continue in operational existence for the foreseeable future.

The external auditors are responsible for independently auditing and reporting on the company's annual financial statements. The annual financial statements have been examined by the company's external auditors and their report is presented on page 748–749.

The annual financial statements set out on page 750–758, which have been prepared on the going concern basis, were approved by the Office Bearers on 12 August 2019 and were signed on their behalf by:



A.S. Macfarlane



V.G. Duke

### Office Bearers' Report

The Office Bearers have pleasure in submitting their report on the annual financial statements of The Southern African Institute of Mining and Metallurgy for the year ended 30 June 2019.

#### 1. Nature of business

The Southern African Institute of Mining and Metallurgy was incorporated in South Africa with interests in the industry. The company operates in South Africa.

There have been no material changes to the nature of the company's business from the prior year.

#### 2. Review of financial results and activities

The annual financial statements have been prepared in accordance with International Financial Reporting Standard for Small and Medium-sized Entities and the requirements of the Companies Act 71 of 2008. The accounting policies have been applied consistently compared to the prior year.

Full details of the financial position, results of operations and cash flows of the company are set out in these annual financial statements.

#### 3. Office Bearers

The Office Bearers in office at the date of this report are as follows:

##### Office Bearers

A.S. Macfarlane

M.I. Mthenjane

Z. Botha

I.J. Geldenhuys

Professor S. Ndlovu

V.G. Duke

Professor R.T. Jones

#### 4. Events after the reporting period

The Office Bearers are not aware of any material event which occurred after the reporting date and up to the date of this report.

#### 5. Going concern

The Office Bearers believe that the company has adequate financial resources to continue in operation for the foreseeable future and accordingly the annual financial statements have been prepared on a going concern basis. The Office Bearers have satisfied themselves that the company is in a sound financial position and that it has access to sufficient borrowing facilities to meet its foreseeable cash requirements. The Office Bearers are not aware of any new material changes that may adversely impact the company. The Office Bearers are also not aware of any material noncompliance with statutory or regulatory requirements or of any pending changes to legislation which may affect the company.

#### 6. Auditors

Genesis Chartered Accountants will continue in office in accordance with Section 90(1) of the Companies Act 71 of 2008.

#### 7. Secretary

The company had no Secretary during the year.

### Independent Auditor's Report

To the members of The Southern African Institute of Mining and Metallurgy

#### Opinion

We have audited the annual financial statements of The Southern African Institute of Mining and Metallurgy (the company) set out on pages 750–756, which comprise the statement of financial position as at 30 June 2019, and the statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, and notes to the annual financial statements, including a summary of significant accounting policies.

In our opinion, the annual financial statements present fairly, in all material respects, the financial position of The Southern African Institute of Mining and Metallurgy as at 30 June 2019, and its financial performance and cash flows for the year then ended in accordance with International Financial Reporting Standard for Small and Medium-sized Entities and the requirements of the Companies Act 71 of 2008.

#### Basis for opinion

We conducted our audit in accordance with International Standards on Auditing. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the annual financial statements section of our report. We are independent of the company in accordance with the sections 290 and 291 of the Independent Regulatory Board for Auditors' Code of Professional Conduct for Registered Auditors (Revised January 2018), parts 1 and 3 of the Independent Regulatory Board for Auditors' Code of Professional Conduct for Registered Auditors (Revised November 2018) (together the IRBA Codes) and other independence requirements applicable to performing audits of annual financial statements in South Africa. We have fulfilled our other ethical responsibilities, as applicable, in accordance with the IRBA Codes and in accordance with other ethical requirements applicable to performing audits in South Africa. The IRBA Codes are consistent with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants and the International Ethics Standards Board for Accountants' International Code of Ethics for Professional Accountants (including International Independence Standards) respectively. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

#### Office Bearers' responsibilities for the Annual Financial Statements

The Institutes' Office Bearers are responsible for the preparation and fair presentation of the annual financial statements in accordance with International Financial Reporting Standard for Small and Medium-sized Entities and the requirements of the Companies Act 71 of 2008, and for such internal control as the council members determine is necessary to enable the preparation of annual financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the annual financial statements, the Office Bearers are responsible for assessing the company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Office Bearers either intend to liquidate the company or to cease operations, or have no realistic alternative but to do so.

### Independent Auditor's Report

#### Auditor's responsibilities for the audit of the Annual Financial Statements

Our objectives are to obtain reasonable assurance about whether the annual financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with International Standards on Auditing will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these annual financial statements.

As part of an audit in accordance with International Standards on Auditing, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the annual financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Office Bearers.
- Conclude on the appropriateness of the Office Bearers' use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the annual financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the annual financial statements, including the disclosures, and whether the annual financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the Office Bearers regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.



Genesis Chartered Accountants  
Registered Auditor  
CWB White CA(SA)  
Partner

12 August 2019  
Johannesburg

## Annual Financial Statements

### Statement of Financial Position as at 30 June 2019

	<i>Note(s)</i>	2019 R	2018 R
<b>Assets</b>			
<b>Non-Current Assets</b>			
Property, plant and equipment	2	355 324	317 704
Other financial assets	3	25 876 749	30 166 984
		<b>26 232 073</b>	<b>30 484 688</b>
<b>Current Assets</b>			
Inventories	4	729 587	650 565
Trade and other receivables	5	2 917 673	4 132 362
Prepayments		–	233 747
Cash and cash equivalents	6	4 526 727	3 375 635
		<b>8 173 987</b>	<b>8 392 309</b>
<b>Total Assets</b>		<b>34 406 060</b>	<b>38 876 997</b>
<b>Equity and Liabilities</b>			
<b>Equity</b>			
Reserves		4 458 977	4 958 977
Retained income		27 265 388	30 995 269
		<b>31 724 365</b>	<b>35 954 246</b>
<b>Liabilities</b>			
<b>Current Liabilities</b>			
Trade and other payables	8	2 613 012	2 842 979
Provisions		68 683	79 772
		<b>2 681 695</b>	<b>2 922 751</b>
<b>Total Equity and Liabilities</b>		<b>34 406 060</b>	<b>38 876 997</b>

### Statement of Comprehensive Income

	<i>Note(s)</i>	2019 R	2018 R
Revenue	9	14 786 494	25 995 485
Cost of sales		(12 169 964)	(18 081 252)
<b>Gross profit</b>		<b>2 616 530</b>	<b>7 914 233</b>
Other income		964 555	809 062
Operating expenses		(8 425 395)	(8 580 276)
<b>Operating profit (loss)</b>		<b>(4 844 310)</b>	<b>143 019</b>
Investment revenue	10	1 174 166	960 157
Fair value adjustments	11	(59 737)	3 921 619
Finance costs	12	–	(6 442)
<b>Profit (loss) for the year</b>		<b>(3 729 881)</b>	<b>5 018 353</b>

## Annual Financial Statements

### Statement of Changes in Equity

	Funds	Accumulated funds R	Total equity R
<b>Balance at 1 July 2017</b>	<b>5 458 977</b>	<b>25 976 916</b>	<b>31 435 893</b>
<b>Profit for the year</b>	–	<b>5 018 353</b>	<b>5 018 353</b>
Fund donation	(500 000)	–	(500 000)
Total changes	(500 000)	–	(500 000)
<b>Balance at 1 July 2018</b>	<b>4 958 977</b>	<b>30 995 269</b>	<b>35 954 246</b>
<b>Loss for the year</b>	–	<b>(3 729 881)</b>	<b>(3 729 881)</b>
Fund donation	(500 000)	–	(500 000)
Total changes	(500 000)	–	(500 000)
<b>Balance at 30 June 2019</b>	<b>4 458 977</b>	<b>27 265 388</b>	<b>31 724 365</b>

### Statement of Cash Flows

	<i>Note(s)</i>	2019 R	2018 R
<b>Cash flows from operating activities</b>			
Cash used in operations	14	(3 927 823)	(2 312 016)
Interest income		229 030	126 286
Dividends		945 136	833 871
Finance costs		–	(6 442)
<b>Net cash from operating activities</b>		<b>(2 753 657)</b>	<b>(1 358 301)</b>
<b>Cash flows from investing activities</b>			
Purchase of property, plant and equipment	2	(133 367)	(194 683)
Loans to group companies		–	452 918
Sale of financial assets		4 038 116	566 012
<b>Net cash from investing activities</b>		<b>3 904 749</b>	<b>824 247</b>
<b>Total cash movement for the year</b>		<b>1 151 092</b>	<b>(534 054)</b>
Cash at the beginning of the year		3 375 635	3 909 689
Total cash at end of the year	6	4 526 727	3 375 635

## Annual Financial Statements

### Accounting Policies

#### 1. Basis of preparation and summary of significant accounting policies

The annual financial statements have been prepared on a going concern basis in accordance with International Financial Reporting Standard for Small and Medium-sized Entities, and the Companies Act 71 of 2008. The annual financial statements have been prepared on the historical cost basis, and incorporate the principal accounting policies set out below. They are presented in South African rands.

These accounting policies are consistent with the previous period.

#### 1.1 Significant judgements and sources of estimation uncertainty

##### *Critical judgements in applying accounting policies*

Management did not make critical judgements in the application of accounting policies, apart from those involving estimations, which would significantly affect the annual financial statements.

##### *Key sources of estimation uncertainty*

The financial statements do not include assets or liabilities whose carrying amounts were determined based on estimations for which there is a significant risk of material adjustments in the following financial year as a result of the key estimation assumptions.

#### 1.2 Property, plant and equipment

Property, plant and equipment are tangible assets which the company holds for its own use or for rental to others and which are expected to be used for more than one period.

Property, plant and equipment is initially measured at cost.

Cost includes costs incurred initially to acquire or construct an item of property, plant and equipment and costs incurred subsequently to add to, replace part of, or service it. If a replacement cost is recognized in the carrying amount of an item of property, plant and equipment, the carrying amount of the replaced part is derecognized.

Expenditure incurred subsequently for major services, additions to or replacements of parts of property, plant and equipment are capitalized if it is probable that future economic benefits associated with the expenditure will flow to the company and the cost can be measured reliably. Day-to-day servicing costs are included in profit or loss in the period in which they are incurred.

Property, plant and equipment is subsequently stated at cost less accumulated depreciation and any accumulated impairment losses, except for land which is stated at cost less any accumulated impairment losses.

Depreciation of an asset commences when the asset is available for use as intended by management. Depreciation is charged to write off the asset's carrying amount over its estimated useful life to its estimated residual value, using a method that best reflects the pattern in which the asset's economic benefits are consumed by the entity.

The useful lives of items of property, plant and equipment have been assessed as follows:

Item	Depreciation method	Average useful life
Furniture and fixtures	Straight line	10 years
Office equipment	Straight line	6 years
IT equipment	Straight line	3 years

The depreciation charge for each period is recognized in profit or loss unless it is included in the carrying amount of another asset.

Impairment tests are performed on property, plant and equipment when there is an indicator that they may be impaired. When the carrying amount of an item of property, plant and equipment is assessed to be higher than the estimated recoverable amount, an impairment loss is recognized immediately in profit or loss to bring the carrying amount in line with the recoverable amount.

### Accounting Policies

#### 1.3 Financial instruments

##### Initial measurement

Financial instruments are initially measured at the transaction price (including transaction costs except in the initial measurement of financial assets and liabilities that are measured at fair value through profit or loss) unless the arrangement constitutes, in effect, a financing transaction in which case it is measured at the present value of the future payments discounted at a market rate of interest for a similar debt instrument.

##### *Financial instruments at amortized cost*

These include loans, trade receivables and trade payables. Those debt instruments which meet the criteria in section 11.8(b) of the standard, are subsequently measured at amortized cost using the effective interest method. Debt instruments which are classified as current assets or current liabilities are measured at the undiscounted amount of the cash expected to be received or paid, unless the arrangement effectively constitutes a financing transaction.

At each reporting date, the carrying amounts of assets held in this category are reviewed to determine whether there is any objective evidence of impairment. If there is objective evidence, the recoverable amount is estimated and compared with the carrying amount. If the estimated recoverable amount is lower, the carrying amount is reduced to its estimated recoverable amount, and an impairment loss is recognized immediately in profit or loss.

##### *Financial instruments at cost*

Commitments to receive a loan are measured at cost less impairment.

Equity instruments that are not publicly traded and whose fair value cannot otherwise be measured reliably without undue cost or effort are measured at cost less impairment.

##### *Financial instruments at fair value*

All other financial instruments, including equity instruments that are publicly traded or whose fair value can otherwise be measured reliably, without undue cost or effort, are measured at fair value through profit and loss.

If a reliable measure of fair value is no longer available without undue cost or effort, then the fair value at the last date that such a reliable measure was available is treated as the cost of the instrument. The instrument is then measured at cost less impairment until management are able to measure fair value without undue cost or effort.

#### 1.4 Inventories

Inventories are measured at the lower of cost and estimated selling price less costs to complete and sell, on the weighted average cost basis.

#### 1.5 Impairment of assets

The company assesses at each reporting date whether there is any indication that property, plant and equipment or intangible assets or goodwill may be impaired.

If there is any such indication, the recoverable amount of any affected asset (or group of related assets) is estimated and compared with its carrying amount. If the estimated recoverable amount is lower, the carrying amount is reduced to its estimated recoverable amount, and an impairment loss is recognized immediately in profit or loss.

#### 1.6 Provisions and contingencies

Provisions are recognized when the Institute has an obligation at the reporting date as a result of a past event; it is probable that the Institute will be required to transfer economic benefits in settlement; and the amount of the obligation can be estimated reliably.

Provisions are measured at the present value of the amount expected to be required to settle the obligation using a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the obligation. The increase in the provision due to the passage of time is recognized as interest expense.

Provisions are not recognized for future operating losses.

#### 1.7 Revenue

Revenue is recognized to the extent that the company has transferred the significant risks and rewards of ownership of goods to the buyer, or has rendered services under an agreement provided the amount of revenue can be measured reliably and it is probable that economic benefits associated with the transaction will flow to the company. Revenue is measured at the fair value of the consideration received or receivable, excluding sales taxes and discounts.

Interest is recognized, in profit or loss, using the effective interest rate method.

Dividends are recognized, in profit or loss, when the company's right to receive payment has been established.

Notes to the Annual Financial Statements

2. Property, plant and equipment

	2019			2018		
	Cost or revaluation	Accumulated depreciation	Carry value	Cost or revaluation	Accumulated depreciation	Carry value
Furniture and fixtures	419 017	(372 785)	46 232	395 554	(368 810)	26 744
Office equipment	136 418	(21 162)	115 256	127 725	(16 784)	110 941
IT equipment	1 508 876	(1 315 040)	193 836	1 407 666	(1 227 647)	180 019
<b>Total</b>	<b>2 064 311</b>	<b>(1 708 987)</b>	<b>355 324</b>	<b>1 930 945</b>	<b>(1 613 241)</b>	<b>317 704</b>

Reconciliation of property, plant and equipment- 2019

	Opening balance	Additions	Depreciation	Closing balance
Furniture and fixtures	26 744	23 463	(3 975)	46 232
Office equipment	110 941	8 694	(4 379)	115 256
IT equipment	180 091	101 210	(87 393)	193 836
	<b>317 704</b>	<b>133 367</b>	<b>(95 747)</b>	<b>355 324</b>

Reconciliation of property, plant and equipment- 2018

	Opening balance	Additions	Depreciation balance	Closing balance
Furniture and fixtures	29 389	-	(2 645)	26 744
Office equipment	15 191	99 499	(3 749)	110 941
IT equipment	149 246	95 184	(64 411)	180 019
	<b>193 826</b>	<b>194 683</b>	<b>(70 805)</b>	<b>317 704</b>

3. Other financial assets

At fair value

Listed shares/bonds - Appleton AFC	25 876 749	30 166 984
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Non-current assets

At fair value	25 876 749	30 166 984
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4. Inventories

Merchandise	729 587	650 565
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5. Trade and other receivables

Trade receivables	2 651 930	3 834 913
VAT	254 967	286 673
Franking machine deposit	10 776	10 776
	<b>2 917 673</b>	<b>4 132 362</b>

## Annual Financial Statements

### Notes to the Annual Financial Statements

	2019 R	2018 R
<b>6. Cash and cash equivalents</b>		
Cash and cash equivalents consist of:		
Cash on hand	120 749	36 938
Bank balances	1 088 449	1 209 746
Short-term deposits	2 589 387	1 510 824
Preference shares purchased three months prior to redemption	23 114	21 191
Other cash and cash equivalents	705 028	596 936
	<b>4 526 727</b>	<b>3 375 635</b>
<b>7. Funds</b>		
<b>Balance at beginning of the year</b>	4 958 977	5 458 977
Withdrawal for the year	(500 000)	(500 000)
	<b>4 458 977</b>	<b>4 958 977</b>
<b>Professor R.E. Robinson Fund (Book Publication Fund)</b>	883 177	883 177
<b>Brigadier Stokes Memorial Fund</b>	8 048	8 048
<b>P.W.J. van Rensburg Memorial Fund (Education Fund)</b>	1 339 909	1 339 909
<b>MacArthur Forest Memorial Fund (Awards Fund)</b>	563 974	563 974
<b>Infacon X Research Fund</b>	1 922 094	1 922 094
Withdrawal	(500 000)	–
	<b>1 422 094</b>	<b>1 922 094</b>
<b>SANCOT Fund</b>	153 694	153 694
<b>The Dave Ortlepp Fund</b>	88 081	88 081
<b>8. Trade and other payables</b>		
Trade payables	45	544 970
Amounts received in advance	2 529 467	1 847 383
Provision for credit notes	–	450 626
Accruals	10 000	–
Provision for audit fees	73 500	–
	<b>2 613 012</b>	<b>2 842 979</b>
<b>9. Revenue</b>		
Rendering of services	14 786 494	25 995 485

Notes to the Annual Financial Statements

	2019 R	2018 R
<b>10. Investment revenue</b>		
<b>Dividend revenue</b>		
Dividends - Argon	945 136	833 871
<b>Interest revenue</b>		
Interest received	186 790	48 610
Other interest	42 240	77 676
	<b>229 030</b>	<b>126 286</b>
	<b>1 174 166</b>	<b>960 157</b>
<b>11. Fair value adjustments</b>		
Other financial assets	(59 737)	3 921 619
<b>12. Finance costs</b>		
Late payment of tax	-	6 442
<b>13. Auditor's remuneration</b>		
Fees	144 600	81 750
<b>14. Cash used in operations</b>		
Profit (loss) before taxation	(3 729 881)	5 018 353
<b>Adjustments for:</b>		
Depreciation and amortization	95 747	70 805
Loss (profit) on sale of assets	192 382	204 916
Dividends received	(945 136)	(833 871)
Interest received	(229 030)	(126 286)
Finance costs	-	6 442
Fair value adjustments	59 737	(3 921 619)
Movements in provisions	(11 089)	(142 343)
Withdrawal from investment	(500 000)	(500 000)
<b>Changes in working capital:</b>		
Inventories	(79 022)	(89 199)
Trade and other receivables	1 214 689	(2 860 106)
Prepayments	233 747	(233 747)
Trade and other payables	(229 967)	1 094 639
	<b>(3 927 823)</b>	<b>(2 312 016)</b>

## Annual Financial Statements

### Detailed Income Statements

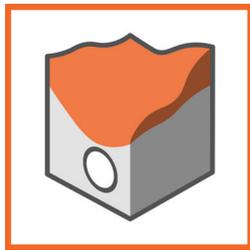
	<i>Notes</i>	2019 R	2018 R
<b>Revenue</b>			
Rendering of services		14 786 494	25 995 485
<b>Cost of sales</b>			
Opening stock		(650 565)	(227 295)
Purchases		(12 248 986)	(18 504 522)
Closing stock		729 587	650 565
		<b>(12 169 964)</b>	<b>(18 081 252)</b>
<b>Gross profit</b>		<b>2 616 530</b>	<b>7 914 233</b>
<b>Other income</b>			
Administration fees recovered		307 628	720 585
Dividends revenue	10	945 136	833 871
Fair value adjustments	11	–	3 921 619
Interest received	10	229 030	126 286
Miscellaneous sales		125 425	31 342
Royalties OneMine		512 577	–
SAMREC/SAMVAL contribution		–	57 135
Scholarship Trust Fund income		18 925	–
		<b>2 138 721</b>	<b>5 690 838</b>
<b>Expenses (refer to page 758)</b>		<b>(8 425 395)</b>	<b>(8 580 276)</b>
<b>Operating profit (loss)</b>		<b>(3 670 144)</b>	<b>5 024 795</b>
Finance costs	12	–	(6 442)
Fair value adjustments	11	(59 737)	–
		<b>(59 737)</b>	<b>(6 442)</b>
<b>Profit (loss) for the year</b>		<b>(3 729 881)</b>	<b>5 018 353</b>

## Annual Financial Statements

### Detailed Income Statement

	<i>Note(s)</i>	2019 R	2018 R
<b>Operating expenses</b>			
Annual General Meeting		309 252	104 781
Annual General Meeting medals		85 990	148 860
Auditors remuneration	13	144 600	81 750
Bad debts		501 463	830 989
Bank charges		64 541	52 713
Cleaning		3 340	1 154
Computer expenses		217 340	202 644
Consulting and professional fees		44 739	163 768
Council dinner		31 315	53 678
Credit card charges		66 513	126 211
Delivery expenses		20 430	19 070
Depreciation, amortization and impairments		95 747	70 805
Donations		–	6 000
Employee costs		4 328 771	3 595 462
Flowers, plants and decor		–	143 510
General expenses		3 325	579
Gifts		11 638	5 764
Insurance		60 551	59 615
Internet charges		89 714	151 229
Lease rentals on operating lease		234 395	253 689
Legal expenses		14 060	24 950
Library services		–	2 250
Loss on exchange differences		53 838	38 328
Loss on sale of investments		192 382	204 916
Management fees - investment		231 882	237 174
Meeting expenses		39 014	22 830
Office Bearers/Council expenses		43 368	62 610
Parking expenses		96 106	104 181
Photocopier expenses		446 485	394 960
President's expenses		3 514	7 196
Printing and stationery		32 952	52 103
Repairs and maintenance		29 966	30 886
Scholarship Trust Fund donations - current year		191 715	242 000
Scholarship Trust Fund donations - prior year		–	458 768
Secretarial fees		47 578	45 660
Setcom/paygate charges		9 703	12 008
Software expenses		51 146	115 360
Staff expenses		15 093	7 201
Staff welfare		54 821	36 899
Student prizes		15 000	5 500
Subscriptions		349 404	355 221
Training		42 835	8 740
Website development/maintenance		148 094	35 749
Website hosting		2 775	2 515
		8 425 395	8 580 276

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## ELBROC TEMPORARY SUPPORT PROP

### APPLICATIONS

- Installed as a temporary support in all areas before work commences
- Tunnels, portals, stoping, development ends, ore passes, roadways and conveyor beltways

### BENEFITS

- Installed at 2-3 tonnes
- Lightweight and easy to use
- Modular unit and cost effective to repair
- Various foot plate sizes available
- Simple cam and handle to activate

- Removal from a safe distance
- Available from 0.9m to 5.3m

### FEATURES

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- Lifting handle attached
- Comprehensive training provided on site as standard



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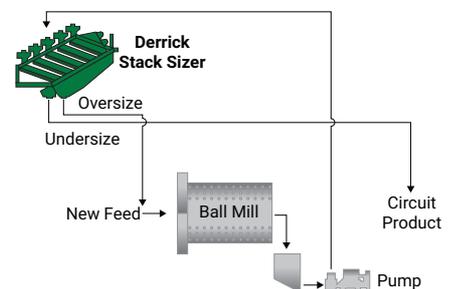
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**THE SOUTHERN AFRICAN INSTITUTE OF MINING AND METALLURGY  
WESTERN CAPE BRANCH**  
ANNUAL FINANCIAL STATEMENTS  
FOR THE YEAR ENDED 30 JUNE 2019

## The SAIMM Western Cape Branch

Annual Financial Statements for the year ended 30 June 2019

### General Information

<b>Country of incorporation and domicile</b>	South Africa
<b>Nature of business and principal activities</b>	The Southern African Institute of Mining and Metallurgy is a professional institute with local and international links aimed at assisting members to source information about technological developments in the mining, metallurgy, and related sectors. This non-profit entity operates in South Africa.
<b>Office Bearers</b>	Professor S. Ndlovu A.S. Macfarlane M.I. Mthenjane Z. Botha I.J. Geldenhuys V.G. Duke Professor R.T. Jones
<b>Registered office</b>	University of Cape Town Private Bag X3 Rondebosch 7701
<b>Postal address</b>	PO Box 61127 Marshalltown 2107
<b>Bankers</b>	Standard Bank of South Africa
<b>Auditors</b>	Genesis Chartered Accountants Chartered Accountants (SA) Registered Auditors
<b>Preparer</b>	The annual financial statements were independently compiled by: J. Den Drijver CA(SA)

# The SAIMM Western Cape Branch

Annual Financial Statements for the year ended 30 June 2019

## Index

The reports and statements set out below comprise the annual financial statements presented to the Office Bearers:

	Page
Office Bearers' Responsibilities and Approval	762
Office Bearers' Report	763
Independent Auditor's Report	764–765
Statement of Financial Position	766
Statement of Comprehensive Income	766
Statement of Changes in Equity	767
Statement of Cash Flows	767
Accounting Policies	768
Notes to the Annual Financial Statements	769
The following supplementary information does not form part of the annual financial statements and is unaudited: Detailed Income Statement	770

## The SAIMM Western Cape Branch

Annual Financial Statements for the year ended 30 June 2019

### Office Bearers' responsibilities and approval

The Office Bearers are required to maintain adequate accounting records and are responsible for the content and integrity of the annual financial statements and related financial information included in this report. It is their responsibility to ensure that the annual financial statements fairly present the state of affairs of The Southern African Institute of Mining and Metallurgy Western Cape Branch as at the end of the financial year and the results of its operations and cash flows for the period then ended, in conformity with the International Financial Reporting Standard for Small and Medium-sized Entities. The external auditors are engaged to express an independent opinion on the annual financial statements.

The annual financial statements are prepared in accordance with the International Financial Reporting Standard for Small and Medium-sized Entities and are based upon appropriate accounting policies consistently applied and supported by reasonable and prudent judgements and estimates.

The Office Bearers acknowledge that they are ultimately responsible for the system of internal financial control established by the Branch and place considerable importance on maintaining a strong control environment. To enable the Office Bearers to meet these responsibilities, the Office Bearers sets standards for internal control aimed at reducing the risk of error or loss in a cost effective manner. The standards include the proper delegation of responsibilities within a clearly defined framework, effective accounting procedures and adequate segregation of duties to ensure an acceptable level of risk. These controls are monitored throughout the Branch and all employees are required to maintain the highest ethical standards in ensuring the Branch's business is conducted in a manner that in all reasonable circumstances is above reproach. The focus of risk management in the Branch is on identifying, assessing, managing and monitoring all known forms of risk across the Branch. While operating risk cannot be fully eliminated, the branch endeavours to minimize it by ensuring that appropriate infrastructure, controls, systems and ethical behaviour are applied and managed within predetermined procedures and constraints.

The Office Bearers are of the opinion, based on the information and explanations given by management, that the system of internal control provides reasonable assurance that the financial records may be relied on for the preparation of the annual financial statements. However, any system of internal financial control can provide only reasonable, and not absolute, assurance against material misstatement or loss.

The Office Bearers have reviewed the Institute's cash flow forecast for the year to 30 June 2020 and, in the light of this review and the current financial position, they are satisfied that the Branch has or has access to adequate resources to continue in operational existence for the foreseeable future.

The external auditors are responsible for independently auditing and reporting on the Institute's annual financial statements. The annual financial statements have been examined by the Branch's external auditors and their report is presented on pages 764–765.

The annual financial statements set out on pages 766–770, which have been prepared on the going concern basis, were approved by the Office Bearers on 13 August 2019 and are signed on their behalf by:



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A.S. Macfarlane



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V.G. Duke

# The SAIMM Western Cape Branch

Annual Financial Statements for the year ended 30 June 2019

## Office Bearers' Report

The Office Bearers have pleasure in submitting their report on the annual financial statements of The Southern African Institute of Mining and Metallurgy Western Cape Branch for the year ended 30 June 2019.

### 1. Nature of business

The Southern African Institute of Mining and Metallurgy is a professional institute with local and international links aimed at assisting members to source information about technological developments in the mining, metallurgy, and related sectors.

There have been no material changes to the nature of the company's business from the prior year.

### 2. Review of financial results and activities

The annual financial statements have been prepared in accordance with International Financial Reporting Standard for Small and Medium-sized Entities and the accounting policies for this Institute. The accounting policies have been applied consistently compared to the prior year.

Full details of the financial position, results of operations and cash flows of the Southern African Institute of Mining and Metallurgy Western Cape branch are set out in these annual financial statements.

### 3. Office Bearers

The Office Bearers in office at the date of this report are as follows:

#### Office Bearers

A.S. Macfarlane

M.I. Mthenjane

Z. Botha

I.J. Geldenhuys

Professor S. Ndlovu

V.G. Duke

Professor R.T. Jones

There have been no changes to the abovementioned structure for the period under review.

### 4. Events after the reporting period

The Office Bearers are not aware of any material event which occurred after the reporting date and up to the date of this report.

### 5. Going concern

The Office Bearers believe that the Branch has adequate financial resources to continue in operation for the foreseeable future and accordingly the annual financial statements have been prepared on a going concern basis. The Office Bearers have satisfied themselves that the Branch is in a sound financial position and that it has access to sufficient borrowing facilities to meet its foreseeable cash requirements. The Office Bearers are not aware of any new material changes that may adversely impact the Branch. The Office Bearers are also not aware of any material noncompliance with statutory or regulatory requirements or of any pending changes to legislation which may affect the Branch.

### 6. Auditors

Genesis Chartered Accountants will continue in office.

### Independent Auditor's Report

To the Office Bearers of The Southern African Institute of Mining and Metallurgy Western Cape Branch.

#### Opinion

We have audited the annual financial statements of The Southern African Institute of Mining and Metallurgy Western Cape Branch (the Branch) set out on pages 766–769, which comprise the statement of financial position as at 30 June 2019, and the statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, and notes to the annual financial statements, including a summary of significant accounting policies.

In our opinion, the annual financial statements present fairly, in all material respects, the financial position of The Southern African Institute of Mining and Metallurgy Western Cape Branch as at 30 June 2019, and its financial performance and cash flows for the year then ended in accordance with International Financial Reporting Standard for Small and Medium -sized Entities and the requirements of the Companies Act 71 of 2008.

#### Basis for opinion

We conducted our audit in accordance with International Standards on Auditing. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the annual financial statements section of our report. We are independent of the company in accordance with the sections 290 and 291 of the Independent Regulatory Board for Auditors' Code of Professional Conduct for Registered Auditors (Revised January 2018), parts 1 and 3 of the Independent Regulatory Board for Auditors' Code of Professional Conduct for Registered Auditors (Revised November 2018) (together the IRBA Codes) and other independence requirements applicable to performing audits of annual financial statements in South Africa. We have fulfilled our other ethical responsibilities, as applicable, in accordance with the IRBA Codes and in accordance with other ethical requirements applicable to performing audits in South Africa. The IRBA Codes are consistent with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants and the International Ethics Standards Board for Accountants' International Code of Ethics for Professional Accountants (including International Independence Standards) respectively. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

#### Other information

The Office Bearers are responsible for the other information. The other information comprises the information included in the document titled 'The Southern African Institute of Mining and Metallurgy Western Cape Branch annual financial statements for the year ended 30 June 2019', which includes the Office Bearers' Report as required by the Companies Act 71 of 2008 and the Detailed Income Statement, which we obtained prior to the date of this report. The other information does not include the annual financial statements and our auditor's report thereon.

Our opinion on the annual financial statements does not cover the other information and we do not express an audit opinion or any form of assurance conclusion thereon.

In connection with our audit of the annual financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the annual financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If, based on the work we have performed on the other information obtained prior to the date of this auditor's report, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

#### Responsibilities of the Office Bearers for the Annual Financial Statements

The Office Bearers are responsible for the preparation and fair presentation of the annual financial statements in accordance with International Financial Reporting Standard for Small and Medium-sized Entities and the requirements of the Companies Act 71 of 2008, and for such internal control as the office bearers determine is necessary to enable the preparation of annual financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the annual financial statements, the Office Bearers are responsible for assessing the Branch's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Office Bearers either intend to liquidate the branch or to cease operations, or have no realistic alternative but to do so.

### Independent Auditor's Report

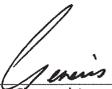
#### Auditor's responsibilities for the audit of the Annual Financial Statements

Our objectives are to obtain reasonable assurance about whether the annual financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with International Standards on Auditing will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these annual financial statements.

As part of an audit in accordance with International Standards on Auditing, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the annual financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.
- Conclude on the appropriateness of the Office Bearers' use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the annual financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the annual financial statements, including the disclosures, and whether the annual financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.



Genesis Chartered Accountants  
Registered Auditor  
CWB White CA(SA)  
Partner

13 August 2019  
Johannesburg

## The SAIMM Western Cape Branch

Annual Financial Statements for the year ended 30 June 2019

### Statement of Financial Position as at 30 June 2019

	<i>Note(s)</i>	2019 R	2018 R
<b>Assets</b>			
<b>Non-Current Assets</b>			
Other financial assets	2	705 028	683 156
<b>Current Assets</b>			
Trade and other receivables	3	311	18 462
Cash and cash equivalents	4	548 657	558 313
		<b>548 968</b>	<b>576 775</b>
<b>Total Assets</b>		<b>1 253 996</b>	<b>1 259 931</b>
<b>Equity and Liabilities</b>			
<b>Equity</b>			
Accumulated Funds		1 154 097	1 155 609
<b>Liabilities</b>			
<b>Current Liabilities</b>			
Trade and other payables	5	99 899	104 322
<b>Total Equity and Liabilities</b>		<b>1 253 996</b>	<b>1 259 931</b>

### Statement of Comprehensive Income

	<i>Note(s)</i>	2019 R	2018 R
Revenue	6	–	178 700
Cost of sales		–	(190 390)
Gross loss		–	(11 690)
Other income	7	–	223 351
Operating expenses		(48 521)	(17 933)
<b>Operating loss (profit)</b>		<b>(48 521)</b>	<b>193 728</b>
Investment revenue	8	25 137	21 729
Fair value adjustments		21 872	86 220
<b>(Loss) profit for the year</b>		<b>(1 512)</b>	<b>301 677</b>

## The SAIMM Western Cape Branch

Annual Financial Statements for the year ended 30 June 2019

### Statement of Changes in Equity

	Accumulated Funds R	Total equity R
Balance at 1 July 2017	853 032	853 932
Profit for the year	301 677	301 677
Balance at 1 July 2018	1 155 609	1 155 609
Loss for the year	(1 512)	(1 512)
Balance at 30 June 2019	1 154 097	1 154 097

### Statement of Cash Flows

	Note(s)	2019 R	2018 R
<b>Cash flows from operating activities</b>			
Cash (used in) generated from operations	9	(34 793)	245 012
Interest income		25 137	21 729
<b>Net cash from operating activities</b>		<b>(9 656)</b>	<b>266 741</b>
<b>Cash flows from investing activities</b>			
Decrease in financial assets		(21 872)	(86 220)
<b>Net cash from investing activities</b>		<b>(21 872)</b>	<b>(86 220)</b>
<b>Cash flows from financing activities</b>			
Repayment of other financial liabilities		21 872	(137 131)
<b>Net cash from financing activities</b>		<b>21 872</b>	<b>(137 131)</b>
<b>Total cash movement for the year</b>		<b>(9 656)</b>	<b>43 390</b>
Cash at the beginning of the year		558 313	514 922
<b>Total cash at end of the year</b>	4	<b>548 657</b>	<b>558 312</b>

## Accounting Policies

### 1. Basis of preparation and summary of significant accounting policies

The annual financial statements have been prepared on a going concern basis in accordance with the International Financial Reporting Standard for Small and Medium-sized Entities. The annual financial statements have been prepared on the historical cost basis, and incorporate the principal accounting policies set out below. They are presented in South African rands.

These accounting policies are consistent with the previous period.

#### 1.1 Significant judgements and sources of estimation uncertainty

##### *Critical judgements in applying accounting policies*

The Office Bearers did not make critical judgements in the application of accounting policies, apart from those involving estimations, which would significantly affect the annual financial statements.

##### *Key sources of estimation uncertainty*

The financial statements do not include assets or liabilities whose carrying amounts were determined based on estimations for which there is a significant risk of material adjustments in the following financial year as a result of the key estimation assumptions.

#### 1.2 Financial instruments

##### *Initial measurement*

Financial instruments are initially measured at the transaction price (including transaction costs except in the initial measurement of financial assets and liabilities that are measured at fair value through profit or loss) unless the arrangement constitutes, in effect, a financing transaction in which case it is measured at the present value of the future payments discounted at a market rate of interest for a similar debt instrument.

##### *Financial instruments at fair value*

All other financial instruments, including equity instruments that are publicly traded or whose fair value can otherwise be measured reliably, without undue cost or effort, are measured at fair value through profit and loss.

If a reliable measure of fair value is no longer available without undue cost or effort, then the fair value at the last date that such a reliable measure was available is treated as the cost of the instrument. The instrument is then measured at cost less impairment until management are able to measure fair value without undue cost or effort.

#### 1.3 Impairment of assets

The Branch assesses at each reporting date whether there is any indication that property, plant and equipment or intangible assets or goodwill may be impaired.

If there is any such indication, the recoverable amount of any affected asset (or group of related assets) is estimated and compared with its carrying amount. If the estimated recoverable amount is lower, the carrying amount is reduced to its estimated recoverable amount, and an impairment loss is recognized immediately in profit or loss.

If an impairment loss subsequently reverses, the carrying amount of the asset (or group of related assets) is increased to the revised estimate of its recoverable amount, but not in excess of the amount that would have been determined had no impairment loss been recognized for the asset (or group of assets) in prior years. A reversal of impairment is recognized immediately in profit or loss.

#### 1.4 Revenue

Revenue is recognized to the extent that the Branch has transferred the significant risks and rewards of ownership of goods to the buyer, or has rendered services under an agreement provided the amount of revenue can be measured reliably and it is probable that economic benefits associated with the transaction will flow to the Branch. Revenue is measured at the fair value of the consideration received or receivable, excluding sales taxes and discounts.

Interest is recognized, in profit or loss, using the effective interest rate method.

## The SAIMM Western Cape Branch

Annual Financial Statements for the year ended 30 June 2019

### Notes to the Annual Financial Statements

	2019 R	2018 R
<b>2. Other financial assets</b>		
<b>At fair value</b>		
Listed shares	705 028	683 156
<b>Non-current assets</b>		
At fair value	705 028	683 156
<b>3. Trade and other receivables</b>		
Trade receivables	(1)	18 462
UCT Fund	312	–
	<b>311</b>	<b>18 462</b>
<b>4. Cash and cash equivalents</b>		
Cash and cash equivalents consist of:		
Bank balances	5 459	25 132
Short-term deposits	543 198	533 181
	<b>548 657</b>	<b>588 313</b>
<b>5. Other financial liabilities</b>		
Trade debtors in credit	84 700	84 700
UCT fund	6 748	6 171
Accruals	8 451	8 451
Accrued audit fees	–	5 000
	<b>99 899</b>	<b>104 322</b>
<b>6. Revenue</b>		
Rendering of services	–	178 700
<b>7. Other income</b>		
Write-off of loan account	–	223 351
<b>8. Investment revenue</b>		
<b>Interest revenue</b>		
Bank	25 137	21 729
<b>9. Cash (used in) generated from operations</b>		
Loss before taxation	(1 512)	301 677
<b>Adjustment for:</b>		
Interest received	(25 137)	(21 729)
Fair value adjustments	(21 872)	(86 220)
<b>Changes in working capital</b>		
Trade and other receivables	18 151	(18 463)
Trade and other payables	(4 423)	69 747
	<b>(34 793)</b>	<b>245 012</b>

## The SAIMM Western Cape Branch

Annual Financial Statements for the year ended 30 June 2019

### Detailed Income Statements

	<i>Notes</i>	2019 R	2018 R
<b>Revenue</b>			
Conference fees		–	178 7000
<b>Cost of sales</b>			
Conference costs		–	(190 390)
<b>Gross loss</b>		–	<b>(11 690)</b>
<b>Other income</b>			
Write-off of loan account		–	223 351
Fair value adjustments		21 872	86 220
Interest received	8	25 137	21 729
		47 009	331 300
<b>Operating expenses</b>			
AGM expenses		10 430	850
Bad debts		18 463	–
Bank charges		1 746	2 475
Catering - Meetings		2 864	–
Committee dinner		7 714	5 781
Computer expenses		–	699
Printing and stationery		–	250
Reviewer's remuneration		(5 000)	–
Subscriptions		12 000	–
Student evenings		–	6 180
Telephone and fax		304	1 698
		48 521	17 933
(Loss) profit for the year		(1 512)	301 677

## Erratum

It has come to our attention that some text in the Contents page in the SAIMM *Journal* vol. 119, no. 7 was omitted. 'Optimization of the cycle time to increase productivity at Ruashi Mining, by I.N.M. Nday and H. Thomas' should have been listed.

We apologise to the authors for this oversight.

## **THE SAIMM SCHOLARSHIP FUND**

(REGISTRATION NUMBER IT 6837/02)  
ANNUAL FINANCIAL STATEMENTS  
FOR THE YEAR ENDED 30 JUNE 2019

# The SAIMM Scholarship Fund

(Registration number: IT 6837/02)

Annual Financial Statements for the year ended 30 June 2019

## General Information

<b>Country of incorporation and domicile</b>	South Africa
<b>Trustees</b>	Dr L.A. Cramer R.D. Beck R.P. Mohring (deceased 14/03/2016) M.H. Rogers J.R. Dixon
<b>Business address</b>	5 Hollard Street Marshalltown 2001
<b>Postal address</b>	PO Box 61127 Marshalltown 2107
<b>Auditors</b>	Genesis Chartered Accountants Chartered Accountants (SA) Registered Auditors
<b>Trust registration number</b>	IT 6837/02
<b>Level of assurance</b>	These annual financial statements have been audited in compliance with the applicable requirements of the Trust Property Control Act 57 of 1988.
<b>Preparer</b>	The annual financial statements were independently compiled by: J. Den Drijver CA(SA)

# The SAIMM Scholarship Fund

(Registration number: IT 6837/02)

Annual Financial Statements for the year ended 30 June 2019

## Index

The reports and statements set out below comprise the annual financial statements presented to the Trustees:

	Page
Trustees' Responsibilities and Approval	774
Trustees' Report	775
Independent Auditor's Report	776-777
Statement of Financial Position	778
Statement of Comprehensive Income	778
Statement of Changes in Equity	779
Statement of Cash Flows	779
Accounting Policies	780
Notes to the Annual Financial Statements	781

## The SAIMM Scholarship Fund

(Registration number: IT 6837/02)

Annual Financial Statements for the year ended 30 June 2019

### Trustees' responsibilities and approval

The Trustees are required to maintain adequate accounting records and are responsible for the content and integrity of the annual financial statements and related financial information included in this report. It is their responsibility to ensure that the annual financial statements fairly present the state of affairs of the Trust as at the end of the financial year and the results of its operations and cash flows for the period then ended, in conformity with the International Financial Reporting Standard for Small and Medium-sized Entities.

The annual financial statements are prepared in accordance with the International Financial Reporting Standard for Small and Medium-sized Entities and are based upon appropriate accounting policies consistently applied and supported by reasonable and prudent judgments and estimates.

The Trustees acknowledge that they are ultimately responsible for the system of internal financial control established by the Trust and place considerable importance on maintaining a strong control environment. To enable the Trustees to meet these responsibilities, the Trustees sets standards for internal control aimed at reducing the risk of error or loss in a cost-effective manner. The standards include the proper delegation of responsibilities within a clearly defined framework, effective accounting procedures and adequate segregation of duties to ensure an acceptable level of risk. These controls are monitored throughout the Trust and all employees are required to maintain the highest ethical standards in ensuring the Trust's business is conducted in a manner that in all reasonable circumstances is above reproach. The focus of risk management in the Trust is on identifying, assessing, managing and monitoring all known forms of risk across the Trust. While operating risk cannot be fully eliminated, the Trust endeavours to minimize it by ensuring that appropriate infrastructure, controls, systems and ethical behaviour are applied and managed within predetermined procedures and constraints.

The Trustees are of the opinion, based on the information and explanations given by management, that the system of internal control provides reasonable assurance that the financial records may be relied on for the preparation of the annual financial statements. However, any system of internal financial control can provide only reasonable, and not absolute, assurance against material misstatement or loss.

The Trustees have reviewed the Trust's cash flow forecast for the year to 30 June 2020 and, in the light of this review and the current financial position, they are satisfied that the Trust has or has access to adequate resources to continue in operational existence for the foreseeable future.

The external auditors are responsible for independently auditing and reporting on the Trust's annual financial statements. The annual financial statements have been examined by the Trust's external auditors and their report is presented on page 776-777.

The annual financial statements set out on pages 775-781, which have been prepared on the going concern basis, were approved by the Trustees on 26 August 2019 and were signed on its behalf by:



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Chairperson: J.R. Dixon

# The SAIMM Scholarship Fund

(Registration number: IT 6837/02)

Annual Financial Statements for the year ended 30 June 2019

## Trustees' Report

The Trustees have pleasure in submitting their report on the annual financial statements of The SAIMM Scholarship Fund for the year ended 30 June 2019.

### 1. The Trust

The Trust was registered on 11 November 2002 with a registration number IT 6837/02. The fund can sue and be sued in its own name. The objective of the Trust is to promote, foster and advance the interest of minerals industry by providing the beneficiaries with funds to be used to support the education of student in the minerals industry.

### 2. Nature of business

The SAIMM Scholarship Fund was formed in South Africa with interests in the non-profit industry. The Trust operates in South Africa.

The objective of the Trust is to promote, foster and advance the interest of the minerals industry by providing the beneficiaries with funds to be used to support the education of students in the minerals industry and to collect monies and accept contributions in monies or otherwise by way of donations, bequests, or otherwise and to apply the same or the income therefrom for all or any object as set out.

The Fund has no full-time employees and is administered by The Southern African Institute of Mining and Metallurgy.

There have been no material changes to the nature of the Trust's business from the prior year.

### 3. Review of financial results and activities

The annual financial statements have been prepared in accordance with International Financial Reporting Standard for Small and Medium-sized Entities. The accounting policies have been applied consistently compared to the prior year.

Full details of the financial position, results of operations and cash flows of the Trust are set out in these annual financial statements.

### 4. Beneficiaries

The beneficiaries of the Trust are the minerals education departments of those universities and technikons in South Africa as determined by the Trustees.

### 5. Trustees

The Trustees in office at the date of this report are as follows:

Dr L.A. Cramer

R.D. Beck

M.H. Rogers

J.R. Dixon

### 6. Borrowing powers

In terms of the Trust Deed, the borrowing powers of the Trust are unlimited. However, all borrowings by the Trust are subject to Board approval as required by the Board delegation of authority.

### 7. Events after the reporting period

The Trustees are not aware of any material event which occurred after the reporting date and up to the date of this report.

### 8. Going concern

The Trustees believe that the Trust has adequate financial resources to continue in operation for the foreseeable future and accordingly the annual financial statements have been prepared on the going concern basis. The Trustees have satisfied themselves that the Trust is in a sound financial position and that it has access to sufficient borrowing facilities to meet its foreseeable cash requirements. The Trustees are not aware of any material changes that may adversely impact the Trust. The Trustees are also not aware of any material non-compliance with statutory or regulatory requirements or of any pending changes to legislation which may affect the Trust.

### 9. Auditors

Genesis Chartered Accountants will continue in office.

# The SAIMM Scholarship Fund

(Registration number: IT 6837/02)

Annual Financial Statements for the year ended 30 June 2019

## Independent Auditor's Report

To the Trustees of The SAIMM Scholarship Fund

### Opinion

We have audited the annual financial statements of The SAIMM Scholarship Fund set out on pages 778–781, which comprise the statement of financial position as at 30 June 2019, and the statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, and notes to the annual financial statements, including a summary of significant accounting policies.

In our opinion, the annual financial statements present fairly, in all material respects, the financial position of The SAIMM Scholarship Fund as at 30 June 2019, and its financial performance and cash flows for the year then ended in accordance with International Financial Reporting Standard for Small and Medium-sized Entities and the requirements of the Trust Property Control Act 57 of 1988.

### Basis for opinion

We conducted our audit in accordance with International Standards on Auditing. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the annual financial statements section of our report. We are independent of the Trust in accordance with the sections 290 and 291 of the Independent Regulatory Board for Auditors' Code of Professional Conduct for Registered Auditors (Revised January 2018), parts 1 and 3 of the Independent Regulatory Board for Auditors' Code of Professional Conduct for Registered Auditors (Revised November 2018) (together the IRBA Codes) and other independence requirements applicable to performing audits of annual financial statements in South Africa. We have fulfilled our other ethical responsibilities, as applicable, in accordance with the IRBA Codes and in accordance with other ethical requirements applicable to performing audits in South Africa. The IRBA Codes are consistent with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants and the International Ethics Standards Board for Accountants' International Code of Ethics for Professional Accountants (including International Independence Standards) respectively. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

### Other information

The Trustees are responsible for the other information. The other information comprises the information included in the document titled 'The SAIMM Scholarship Fund annual financial statements for the year ended 30 June 2019, which includes the Trustees' Report as required by the Trust Property Control Act 57 of 1988 and the Statement of Comprehensive Income, which we obtained prior to the date of this report. The other information does not include the annual financial statements and our auditor's report thereon.

Our opinion on the annual financial statements does not cover the other information and we do not express an audit opinion or any form of assurance conclusion thereon.

In connection with our audit of the annual financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the annual financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work we have performed on the other information obtained prior to the date of this auditor's report, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

## Independent Auditor's Report

### Responsibilities of the Trustees for the Annual Financial Statements

The Trustees are responsible for the preparation and fair presentation of the annual financial statements in accordance with the International Financial Reporting Standard for Small and Medium-sized Entities and the requirements of the Trust Property Control Act 57 of 1988, and for such internal control as the Trustees determine is necessary to enable the preparation of annual financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the annual financial statements, the Trustees are responsible for assessing the Trust's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Trustees either intend to liquidate the Trust or to cease operations, or have no realistic alternative but to do so.

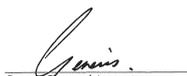
### Auditor's responsibilities for the audit of the Annual Financial Statements

Our objectives are to obtain reasonable assurance about whether the annual financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with International Standards on Auditing will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these annual financial statements.

As part of an audit in accordance with International Standards on Auditing, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the annual financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Trust's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the Trustees.
- Conclude on the appropriateness of the Trustees' use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Trust's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the annual financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Trust to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the annual financial statements, including the disclosures, and whether the annual financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the Trustees regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

  
Genesis Chartered Accountants  
Registered Auditor  
CWB White CA(SA)  
Partner

29 August 2019  
Johannesburg

# The SAIMM Scholarship Fund

(Registration number: IT 6837/02)

Annual Financial Statements for the year ended 30 June 2019

## Statement of Financial Position as at 30 June 2019

	<i>Note(s)</i>	2019 R	2018 R
<b>Assets</b>			
<b>Current Assets</b>			
Loans and related parties	2	18 925	–
Cash and cash equivalents	3	20 469	20 492
		<b>39 394</b>	<b>20 492</b>
<b>Total Assets</b>		<b>39 394</b>	<b>20 492</b>
<b>Equity and Liabilities</b>			
<b>Equity</b>			
Trust capital		1 000	1 000
Accumulated surplus		38 394	19 492
		<b>39 394</b>	<b>20 492</b>
<b>Total Equity and Liabilities</b>		<b>39 394</b>	<b>20 492</b>

## Statement of Comprehensive Income

	<i>Note(s)</i>	2019 R	2018 R
<b>Revenue</b>			
Donations received - prior years		–	458 768
Donations received - current year		210 640	242 000
	4	<b>210 640</b>	<b>700 768</b>
<b>Cost of revenue</b>			
Donations paid		(191 715)	(242 000)
<b>Gross surplus</b>		<b>18 925</b>	<b>458 768</b>
<b>Other income</b>			
Annual Banquet raffle		–	3 000
Interest received	6	1 120	1 171
		<b>1 120</b>	<b>4 171</b>
<b>Operating expenses</b>			
Bank charges		1 143	1 115
Annual Banquet raffle		–	8 850
		<b>1 143</b>	<b>9 965</b>
<b>Surplus (deficit) for the year</b>		<b>18 902</b>	<b>452 974</b>

## The SAIMM Scholarship Fund

(Registration number: IT 6837/02)

Annual Financial Statements for the year ended 30 June 2019

### Statement of Changes in Equity

	Trust capital	Accumulated Funds R	Total equity R
Balance at 1 July 2017	1 000	(433 482)	(432 482)
Surplus for the year	-	452 974	452 974
Balance at 1 July 2018	1000	19 492	20 492
Surplus for the year	-	18 902	18 902
Balance at 30 June 2019	1 000	38 394	39 394

### Statement of Cash Flows

	Note(s)	2019 R	2018 R
<b>Cash flows from operating activities</b>			
Cash generated from (used in) operations	7	17 782	451 803
Interest income		1 120	1 171
<b>Net cash from operating activities</b>		<b>18 902</b>	<b>452 974</b>
<b>Cash flows from investing activities</b>			
Net movement in loans with related parties		(18 925)	(452 918)
<b>Net cash from investing activities</b>		<b>(18 925)</b>	<b>(452 918)</b>
<b>Total cash movement for the year</b>		<b>(23)</b>	<b>56</b>
Cash at the beginning of the year		20 492	20 436
<b>Total cash at end of the year</b>	3	<b>20 469</b>	<b>20 492</b>

## Accounting Policies

### 1. Basis of preparation and summary of significant accounting policies

The annual financial statements have been prepared on the going concern basis in accordance with the International Financial Reporting Standard for Small and Medium-sized Entities. The annual financial statements have been prepared on the historical cost basis, except for biological assets at fair value less point of sale costs, and incorporate the principal accounting policies set out below. They are presented in South African rands.

These accounting policies are consistent with the previous period.

#### 1.1 Significant judgements and sources of estimation uncertainty

##### *Critical judgements in applying accounting policies*

Management did not make critical judgements in the application of accounting policies, apart from those involving estimations, which would significantly affect the annual financial statements.

##### *Key sources of estimation uncertainty*

The financial statements do not include assets or liabilities whose carrying amounts were determined based on estimations for which there is a significant risk of material adjustments in the following financial year as a result of the key estimation assumptions.

#### 1.2 Financial instruments

##### *Initial measurement*

Financial instruments are initially measured at the transaction price (including transaction costs except in the initial measurement of financial assets and liabilities that are measured at fair value through surplus or deficit) unless the arrangement constitutes, in effect, a financing transaction in which case it is measured at the present value of the future payments discounted at a market rate of interest for a similar debt instrument.

##### *Financial instruments at amortized cost*

These include loans, trade receivables and trade payables. Those debt instruments which meet the criteria in section 11.8(b) of the standard are subsequently measured at amortized cost using the effective interest method. Debt instruments which are classified as current assets or current liabilities are measured at the undiscounted amount of the cash expected to be received or paid, unless the arrangement effectively constitutes a financing transaction.

At each reporting date, the carrying amounts of assets held in this category are reviewed to determine whether there is any objective evidence of impairment. If there is objective evidence, the recoverable amount is estimated and compared with the carrying amount. If the estimated recoverable amount is lower, the carrying amount is reduced to its estimated recoverable amount, and an impairment loss is recognized immediately in surplus or deficit.

##### *Financial instruments at cost*

Commitments to receive a loan are measured at cost less impairment.

Equity instruments that are not publicly traded and whose fair value cannot otherwise be measured reliably without undue cost or effort are measured at cost less impairment.

##### *Financial instruments at fair value*

All other financial instruments, including equity instruments that are publicly traded or whose fair value can otherwise be measured reliably, without undue cost or effort, are measured at fair value through surplus and deficit.

If a reliable measure of fair value is no longer available without undue cost or effort, then the fair value at the last date that such a reliable measure was available is treated as the cost of the instrument. The instrument is then measured at cost less impairment until management are able to measure fair value without undue cost or effort.

#### 1.3 Tax

##### *Current tax assets and liabilities*

The Fund is exempt from taxation in terms of Section 18A of the Income Tax Act.

#### 1.4 Revenue

Revenue comprises contribution received from donors and is recognized on receipt.

Interest is recognized, in surplus or deficit, using the effective interest rate method.

#### 1.5 Borrowing costs

Borrowing costs are recognized as an expense in the period in which they are incurred.

# The SAIMM Scholarship Fund

(Registration number: IT 6837/02)

Annual Financial Statements for the year ended 30 June 2019

## Notes to the Annual Financial Statements

	2019 R	2018 R
<b>2. Loans to related parties</b>		
<b>At amortized cost</b>		
The Southern African Institute of Mining and Metallurgy	18 925	–
The loan is unsecured, bears no interest and has no specified terms of repayment.		
<b>Current assets</b>		
At amortized cost	18 925	–
<b>3. Cash and cash equivalents</b>		
Cash and cash equivalents consist of:		
Bank balances	20 469	20 492
<b>4. Revenue</b>		
Donations received - prior year	–	458 768
Donations received - current year	210 640	242 000
	<b>210 640</b>	<b>700 786</b>
<b>5. Other income</b>		
Annual Banquet raffle	–	3 000
<b>6. Investment revenue</b>		
<b>Interest revenue</b>		
Bank	1 120	1 171
<b>7. Cash generated from operations</b>		
Surplus before taxation	18 902	452 974
<b>Adjustment for:</b>		
Interest received	(1 120)	(1 171)
	<b>17 782</b>	<b>451 803</b>

# INTERNATIONAL **MiNE** HEALTH AND SAFETY CONFERENCE 2019

## **OBJECTIVES**

The conference will focus on improvement in health and safety, as well as the environmental impact the mining and metallurgy industries have on the local communities they serve while highlighting actions to be taken.

It will be a learning platform, allowing people to share ideas on health and safety, the environmental aspects which local communities' need to be aware of, concerning the industry and its relationships with them.

This conference aims to bring together management, DMR, Minerals Council South Africa, Unions, Health and Safety practitioners at all levels from the industry.

Sharing best practice and successful strategies for zero harm and a value-based approach to health and safety. With the purpose of addressing the main challenges in the mining industry such as logistics, energy, employee safety, contractors and the communities at large.

## **31 OCT - 1 NOV**

**Misty Hills Country Hotel & Conference Centre, Muldersdrift, Johannesburg**

## **SPONSORSHIP**

Sponsorship opportunities are available. Companies wishing to sponsor or exhibit should contact the Conference Coordinator.

## **WHO SHOULD ATTEND**

The conference should be of value to:

- Safety practitioners
- Mine management
- Mine health and safety officials
- Engineering managers
- Underground production supervisors
- Surface production supervisors
- Environmental scientists
- Minimizing of waste
- Operations manager
- Processing manager
- Contractors (mining)
- Including mining consultants, suppliers & manufacturers
- Education and training
- Energy solving projects
- Water solving projects
- Unions
- Academics and students
- DMR.

### **For further information contact:**

Head of Conferencing  
Camielah Jardine, SAIMM

Tel: +27 11 834-1273/7

Fax: +27 11 833-8156 or +27 11 838-5923

E-mail: [camielah@saimm.co.za](mailto:camielah@saimm.co.za)

Website: <http://www.saimm.co.za>



**SAIMM**  
THE SOUTHERN AFRICAN INSTITUTE  
OF MINING AND METALLURGY





# OHMS



Agents for:



JBlock

SBlock

Open House Management Solutions (OHMS) is an international geotechnical service provider. Our services are focused on geotechnical consulting, on-site rock engineering, instrumentation and training in the various aspects of geotechnical engineering.

## Consulting Services

- Feasibility studies
- Stable slope design
- Underground excavation design
- Numerical modelling
- Geotechnical modelling
- Geotechnical risk assessment

## On-site Rock Engineering

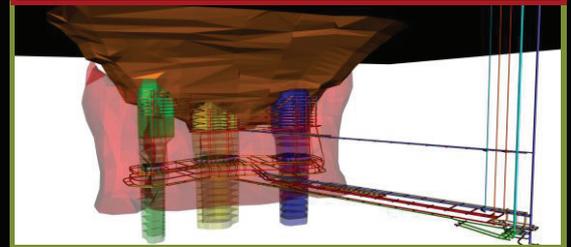
- Macro mine design and planning
- Support design
- Local excavation design
- Code of practice and legislation
- Quality control

## Monitoring and Instrumentation

- Seismic and vibration monitoring
- Strain and deformation measurements
- Stress measurements
- Cave monitoring and profiling
- Slope stability monitoring

## OHMS Innovations

- Product development and testing
- Research and development
- New mining methods and techniques



+27 (18) 293 1940

[info@ohms.co.za](mailto:info@ohms.co.za)

[www.ohms.co.za](http://www.ohms.co.za)

## NATIONAL & INTERNATIONAL ACTIVITIES

### 2019

#### 16 October 2019 — 16th Annual Student Colloquium 2019

*'Embracing Technology and Innovation in the Minerals Industry'*

The Canvas Riversands, Fourways, Johannesburg

Contact: Gugu Charlie

Tel: +27 11 834-1273/7

Fax: +27 11 838-5923/833-8156

E-mail: [gugu@saimm.co.za](mailto:gugu@saimm.co.za)

Website: <http://www.saimm.co.za>

#### 31 October–1 November 2019 — International Mine Health and Safety Conference 2019

Misty Hills Country Hotel & Conference Centre,

Muldersdrift, Johannesburg

Contact: Camielah Jardine

Tel: +27 11 834-1273/7

Fax: +27 11 838-5923/833-8156

E-mail: [camielah@saimm.co.za](mailto:camielah@saimm.co.za)

Website: <http://www.saimm.co.za>

#### 1 November 2019 — SAIMM YPC Namibia Technical Conference 2019

Roof of Africa Hotel and Conference Centre, Namibia

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E-mail: [camielah@saimm.co.za](mailto:camielah@saimm.co.za)

Website: <http://www.saimm.co.za>

#### 13–15 November 2019 — XIX International Coal Preparation Congress & Expo 2019

New Delhi, India

Contact: Coal Preparation Society of India

Tel/Fax: +91-11-26136416, 4166 1820

E-mail: [cpsideli.india@gmail.com](mailto:cpsideli.india@gmail.com)

[president@cpsl.org](mailto:president@cpsl.org)

[inrksachdev01@gmail.com](mailto:inrksachdev01@gmail.com)

[hi.sapru@monnetgroup.com](mailto:hi.sapru@monnetgroup.com)

### 2020

#### 3–6 February 2020 — Investing in African Mining Indaba

Cape Town International Convention Centre, Cape Town

E-mail: [info@miningindaba.com](mailto:info@miningindaba.com)

Website: <https://miningindaba.com>

#### 5–6 February 2020 — Beyond Digital Transformation Conference 2020

Greater Sudbury, Canada

Website: <https://beyonddigitaltransformation.com>

#### 12–13 February 2020 — Tailing Storage Conference 2020

*'Investing in a Sustainable Future'*

The Birchwood Hotel & OR Tambo Conference Centre, Johannesburg

Contact: Camielah Jardine

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Fax: +27 11 838-5923/833-8156

E-mail: [camielah@saimm.co.za](mailto:camielah@saimm.co.za)

Website: <http://www.saimm.co.za>

#### 23–26 February — 2020 SME Annual Conference & Expo

Phoenix, Arizona, USA

Website: <http://www.smeannualconference.com>

#### 25–26 February 2020 — SAMCODES Conference 2020

*'Good Practice and Lessons Learnt'*

Industry Reporting Standards

The Birchwood Hotel & OR Tambo Conference Centre, Johannesburg

Contact: Camielah Jardine

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E-mail: [camielah@saimm.co.za](mailto:camielah@saimm.co.za)

Website: <http://www.saimm.co.za>

#### 1–4 March 2020 — PDAC 2020 Convention

Metro Toronto Convention Centre, Toronto, Canada

Contact: [info@pdac.ca](mailto:info@pdac.ca) / [convention@pdac.ca](mailto:convention@pdac.ca)

Website: <https://www.pdac.ca/convention>

#### 8 March 2020 — International Womens Day Luncheon Series 2020

Sydney Australia

Website: <https://www.internationalwomensday.com>

#### 10–14 March 2020 — CONEXPO 2020

Las Vegas, NV

Website: <https://www.conexpoconagg.com>

#### 17–18 March 2020 — 5th Young Professionals Conference 2020

*'A showcase of emerging research and innovation in the minerals industry'*

The Canvas, Riversands, Fourways

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Website: <http://www.saimm.co.za>

#### 25–27 March 2020 — Underground Operations 2020

Perth Convention and Exhibition Centre, Perth Western Australia

Website: <https://undergroundoperators.ausimm.com>

## NATIONAL & INTERNATIONAL ACTIVITIES

### 1–2 April 2020 — Mines and Money Asia 2020

Hong Kong Convention & Exhibition Centre,  
Hong Kong  
E-mail: [asia@minesandmoney.com](mailto:asia@minesandmoney.com)  
Website: <https://asia.minesandmoney.com>

### 21–23 April 2020 — MiningWorld Russia 24th International exhibition of machines and equipment for mining, processing and transportation of minerals

Crocus Expo, Moscow, Russia  
Website: <https://www.miningworld.ru/en-GB/>

### 3–6 May 2020 — CIM Convention and Expo

Vancouver, Canada  
Website: <https://convention.cim.org>

### 10–13 May 2020 — Uranium 2020

Saskatoon, Canada  
Website: <https://u2020.metsoc.org>

### 10–13 May 2020 — 8th Annual Current Trends in Mining Finance (CTMF) Conference 2020

New York  
Website: <https://community.smenet.org>

### 25–29 May 2020 — The 11th International Conference on Molten Slags, Fluxes and Salts 2020

The Westin Chosun Seoul Hotel, Seoul, Korea  
Website: <http://www.molten2020.org>

### 27–28 May 2020 — Revitalising Exploration Activity in Southern Africa 2020

*'Potential for Exploration'*  
Glenhove Events Hub, Melrose Estate, Johannesburg  
Contact: Camielah Jardine  
Tel: +27 11 834-1273/7  
Fax: +27 11 838-5923/833-8156  
E-mail: [camielah@saimm.co.za](mailto:camielah@saimm.co.za)  
Website: <http://www.saimm.co.za>

### 3–5 June 2020 — ROLLS6 2020

London, UK  
Website: <http://www.rolls6.org/home>

### 7–11 June 2020 — NAT2020 North American Tunneling Conference

Nashville, Tennessee  
Website: <http://www.natconference.com>

### 9–11 June 2020 — Diamonds – Source to Use — 2020 Conference

*'Innovation and Technology'*  
The Birchwood Hotel & OR Tambo Conference Centre,  
Johannesburg

Contact: Camielah Jardine

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E-mail: [camielah@saimm.co.za](mailto:camielah@saimm.co.za)

Website: <http://www.saimm.co.za>

### 14–17 June 2020 — 2nd European Mineral Processing and Recycling Congress – EMPRC 2020

Aachen, Germany  
Contact: Jürgen Zuchowski  
Email: [gdm@gdm.de](mailto:gdm@gdm.de)  
Website: <https://emprc.gdm.de>

### 22 June 2020 — Renewable Solutions for Energy Intensive Industry Colloquium 2020

Kathu, Northern Cape  
Contact: Camielah Jardine  
Tel: +27 11 834-1273/7  
Fax: +27 11 838-5923/833-8156  
E-mail: [camielah@saimm.co.za](mailto:camielah@saimm.co.za)  
Website: <http://www.saimm.co.za>

### 24–25 June 2020 — 3rd School on Manganese Ferroalloy Production 2020

Kathu, Northern Cape  
Contact: Gugu Charlie  
Tel: +27 11 834-1273/7  
Fax: +27 11 838-5923/833-8156  
E-mail: [gugu@saimm.co.za](mailto:gugu@saimm.co.za)  
Website: <http://www.saimm.co.za>

### 4–7 October 2020 — Massmin 2020 Eight International Conference on Mass Mining

Santiago, Chile  
Contact: J.O. Gutiérrez  
Tel: (56-2) 2978 4476,  
Website: [www.minas.uchile.cl](http://www.minas.uchile.cl)

### 18–22 October 2020 — IMPC XXX International Mineral Processing Congress 2020

Cape Town International Convention Centre,  
Cape Town  
Contact: Camielah Jardine  
Tel: +27 11 834-1273/7  
Fax: +27 11 838-5923/833-8156  
E-mail: [camielah@saimm.co.za](mailto:camielah@saimm.co.za)  
Website: <http://www.saimm.co.za>

## Company affiliates

The following organizations have been admitted to the Institute as Company Affiliates

3M South Africa (Pty) Limited	Exxaro Coal (Pty) Ltd	Nalco Africa (Pty) Ltd
AECOM SA (Pty) Ltd	Exxaro Resources Limited	Namakwa Sands(Pty) Ltd
AEL Mining Services Limited	Filtaquip (Pty) Ltd	Ncamiso Trading (Pty) Ltd
Air Liquide (PTY) Ltd	FLSmith Minerals (Pty) Ltd	New Concept Mining (Pty) Limited
Alexander Proudfoot Africa (Pty) Ltd	Fluor Daniel SA ( Pty) Ltd	Northam Platinum Ltd - Zondereinde
AMEC Foster Wheeler	Franki Africa (Pty) Ltd-JHB	Opermin Operational Excellence
AMIRA International Africa (Pty) Ltd	Fraser Alexander (Pty) Ltd	Optron (Pty) Ltd
ANDRITZ Delkor(pty) Ltd	G H H Mining Machines (Pty) Ltd	PANalytical (Pty) Ltd
Anglo Operations Proprietary Limited	Geobruigg Southern Africa (Pty) Ltd	Paterson & Cooke Consulting Engineers (Pty) Ltd
Anglogold Ashanti Ltd	Glencore	Perkinelmer
Arcus Gibb (Pty) Ltd	Hall Core Drilling (Pty) Ltd	Polysius A Division of Thyssenkrupp Industrial Sol
ASPASA	Hatch (Pty) Ltd	Precious Metals Refiners
Atlas Copco Holdings South Africa (Pty) Limited	Herrenknecht AG	Ramika Projects (Pty) Ltd
Aurecon South Africa (Pty) Ltd	HPE Hydro Power Equipment (Pty) Ltd	Rand Refinery Limited
Aveng Engineering	Immersive Technologies	Redpath Mining (South Africa) (Pty) Ltd
Aveng Mining Shafts and Underground	IMS Engineering (Pty) Ltd	Rocbolt Technologies
Axis House Pty Ltd	Ingwenya Mineral Processing	Rosond (Pty) Ltd
Bafokeng Rasimone Platinum Mine	Ivanhoe Mines SA	Royal Bafokeng Platinum
Barloworld Equipment -Mining	Joy Global Inc.(Africa)	Roytec Global (Pty) Ltd
BASF Holdings SA (Pty) Ltd	Kudumane Manganese Resources	RungePincocKMinarco Limited
BCL Limited	Leco Africa (Pty) Limited	Rustenburg Platinum Mines Limited
Becker Mining (Pty) Ltd	Longyear South Africa (Pty) Ltd	Salene Mining (Pty) Ltd
BedRock Mining Support Pty Ltd	Lull Storm Trading (Pty) Ltd	Sandvik Mining and Construction Delmas (Pty) Ltd
BHP Billiton Energy Coal SA Ltd	Maccaferri SA (Pty) Ltd	Sandvik Mining and Construction RSA (Pty) Ltd
Blue Cube Systems (Pty) Ltd	Magnetech (Pty) Ltd	SANIRE
Bluhm Burton Engineering Pty Ltd	Magotteaux (Pty) Ltd	Schauenburg (Pty) Ltd
Bouygues Travaux Publics	Maptek (Pty) Ltd	Sebilo Resources (Pty) Ltd
CDM Group	MBE Minerals SA Pty Ltd	SENET (Pty) Ltd
CGG Services SA	MCC Contracts (Pty) Ltd	Senmin International (Pty) Ltd
Coalmin Process Technologies CC	MD Mineral Technologies SA (Pty) Ltd	Smec South Africa
Concor Opencast Mining	MDM Technical Africa (Pty) Ltd	Sound Mining Solution (Pty) Ltd
Concor Technicrete	Metalock Engineering RSA (Pty)Ltd	Speciality Construction Products (Pty) Ltd
Council for Geoscience Library	Metorex Limited	SRK Consulting SA (Pty) Ltd
CRONIMET Mining Processing SA Pty Ltd	Metso Minerals (South Africa) Pty Ltd	Time Mining and Processing (Pty) Ltd
CSIR Natural Resources and the Environment (NRE)	Micromine Africa (Pty) Ltd	Timrite Pty Ltd
Data Mine SA	MineARC South Africa (Pty) Ltd	Tomra (Pty) Ltd
Digby Wells and Associates	Minerals Council of South Africa	Ukwazi Mining Solutions (Pty) Ltd
DRA Mineral Projects (Pty) Ltd	Minerals Operations Executive (Pty) Ltd	Umgeni Water
DTP Mining - Bouygues Construction	MineRP Holding (Pty) Ltd	Webber Wentzel
Duraset	Mintek	Weir Minerals Africa
Elbroc Mining Products (Pty) Ltd	MIP Process Technologies (Pty) Limited	Welding Alloys South Africa
eThekwini Municipality	Modular Mining Systems Africa (Pty) Ltd	Worley
Expectra 2004 (Pty) Ltd	MSA Group (Pty) Ltd	
	Multotec (Pty) Ltd	
	Murray and Roberts Cementation	

# SAMCODES CONFERENCE 2020

## Good Practice and Lessons Learnt Industry Reporting Standards

25–26 February 2020

The Birchwood Hotel & OR Tambo Conference Centre, Johannesburg

2 ECSA CPD points  
2 SACNASP CPD points or  
16 GSSA CPD points  
will be allocated to all  
attending delegates

### OBJECTIVES

The conference provides Competent Persons and Competent Valuators the opportunity to prepare and present details of recognised standards and industry benchmarks as well as relate lessons learnt in relation to the declaration of Mineral Resources and Mineral Reserves and the preparation of valuations.

In addition to providing contributions in respect of good practices and recognised standards and industry benchmarks, the conference aims to provide guidance on the complex issues in grey areas of the Codes.

The SAMCODES conference will incorporate issues such as the implementation of the Codes by The JSE • the relevance of the Codes • some of the lessons learnt since the implementation of the Codes in 2016 • address aspects of SANS 10320 for the declaration of Coal Resources and Coal Reserves • the application of the various methods of valuation and where and when they should be applied in accordance with the SAMVAL Code.

### The importance and relevance of the SAMCODES: Part of a Global Family Topics to be presented

#### SAMREC CODE

##### Exploration Targets

Reporting of Exploration Results: What to report  
Exploration Targets: The use and misuse

##### Mineral Resources

Geological data  
Use of Historical data  
In Situ Bulk density  
Sampling theory  
Drilling density  
Sample collection  
Sampling and analysis protocols  
QA/QC  
Geological interpretation and geological model  
Conditional simulation  
Mineral Resource estimation  
Classification and reporting  
Drilling techniques and drilling  
Role of technology in data capture and Mineral Resource estimation  
Reasonable Prospects of Eventual Economic Extraction (RPEEE)

##### Mineral Reserves

The modifying factors - specifics  
Is capital funding required?  
Selecting a mining method  
Importance of Scoping and Pre-feasibility Studies  
Metal Markets: Consensus views  
Optimal mine scheduling  
Cut-off grades  
Feasibility studies  
Risk assessment in Mineral Resource and Mineral Reserve estimation  
Classification and reporting  
Grade reconciliation

##### Other Aspects

The JSE listing Rules  
Lessons learnt from the Readers Panel  
CPRs: Use and Abuse.  
What Legal aspects are required?  
Environmental Sustainability issues  
Social and labour planning

#### SAMVAL CODE

##### Cost Approach

Valuation of exploration properties using the cost approach

##### Market Approach

A review of market-based approaches  
Valuation of mineral properties without Mineral Resources  
Valuation methods for exploration properties and undeveloped Mineral Resources

##### Income Approach – Acc to Samval Code

A Review of cash flow approaches  
Discounted cash flow analysis: input parameters and sensitivity  
Discounted cash flow analysis: methodology and discount rates  
The valuation of advanced mining projects and operating mines  
Valuing mineral opportunities as options  
Audits and reviews  
Deleterious elements/minerals

#### Sponsors



#### SAMCODE Guidelines

##### SAMESG Guideline

Impacts of ESG considerations on RPEEE  
Reporting lessons learnt

##### Diamond Resource and Reserve Reporting

##### Coal Resource and Reserve Reporting

How does SANS10320 compare with other coal reporting guidelines?

How applicable to other southern African coal deposits is SANS10320?

What impact does using the in situ moisture and in situ density have on South African thermal Coal Resource estimates?



# TAILING STORAGE CONFERENCE 2020

Investing in a Sustainable Future

12–13 February 2020

Birchwood Hotel & OR Tambo Conference Centre  
Johannesburg, South Africa



## BACKGROUND

Engineers designing tailing storage facilities are faced with a number of new challenges resulting from the encroachment of both formal and informal housing projects, legislation pertaining to water usage and pollution control, shortages of water for processing, and the requirements for tailing dam closure.

This has resulted in the introduction of new designs for construction of more stable dams, alternative deposition methods, the introduction of non-permeable linings, and the capping of dams to encourage rehabilitation and minimize dust pollution. The shortage of water in Southern Africa has necessitated changes in dam design to minimize water usage by either reducing the amount of water to the dam or increasing the amount of water recovered.

Understandably, new legislation has been passed to regulate the construction and operation of tailing storage facilities. This knowledge resides with few specialists in the industry, and the operators on the mines are sometimes unaware of the consequences of these changes for their operations. In many cases the operations engineer has been misinformed and the need has arisen to get the parties together to discuss the implications of the changes.

Reprocessing of existing tailings adds to the complexity of operating a tailing storage facility, and many new operators have little or no reference material to assist them when planning a retreatment project.

Ultimately, the design must be focused on the future closure of the facility, and this has been further complicated by changes in the minimum environmental requirements.

Industry has requested a tailing seminar for interested and affected parties to share ideas and solutions with their peers. We invite all operations, designers, technology providers, and legislators to get together for what could be a very informative and successful event.

## WHO SHOULD ATTEND

- Senior and operational management of mines
- Engineers responsible for tailing facility management
- Regional and national officials from DoE, DMR, DWA, and DEA
- Companies and individuals offering tailings processing solutions
- Researchers
- Environmentalists and NGO's
- Legal representatives from mining companies

Sponsor



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