

Annual report

FOR THE YEAR ENDED 30 JUNE 2016

Council for 2015/2016

President
R.T. Jones

President-elect
C. Musingwini

Vice-Presidents

Senior
S. Ndlovu

Junior
A.S. Macfarlane

Immediate Past-President
J.L. Porter

Honorary Treasurer
C. Musingwini

Co-opted Member
I.M. Mthenjane

Members of Council

N. Bagirathi	D. Munro
N.A. Barcza	J.C. Ngoma
R.D. Beck	G. Njowa
Z. Botha	S.J. Ramokgopa
J.R. Dixon	M.H. Rogers
V.G. Duke	A.G. Smith
M. Dworzanowski	G.L. Smith
F.M.G. Egerton	M.H. Solomon
I.J. Geldenhuys	J.D. Steenkamp
M.F. Handley	M.R. Tlala
H.E. James	H.J. Tluczek
W.C. Joughin	D. Tudor
G.V.R. Landman	D.J. van Niekerk
T.M. Mmola	W.H. van Niekerk
M. Motukua	

Branch Chairmen

Botswana Branch	L.E. Dimbungu
DRC Branch	S. Maleba
Johannesburg Branch	I. Ashmole
Namibian Branch	N.M. Namate
Northern Cape	C.A. van Wyk
Pretoria Branch	P. Bredell
Western Cape Branch	A. Mainza
Zambian Branch	D. Muma
Zimbabwean Branch	S. Ndiyamba
Zululand Branch	C.W. Mienie

Past-Presidents serving on Council

N.A. Barcza	G.V.R. Landman
R.D. Beck	J.C. Ngoma
J.R. Dixon	S.J. Ramokgopa
M. Dworzanowski	M.H. Rogers
F.M.G. Egerton	G.L. Smith
H.E. James	W.H. van Niekerk

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. Engineering Science and Technology in South Africa
6. State Liaison
7. International Liaison
8. Management and Administration.

1. Interests of Individual Members

Portfolio Holder: J.L. Porter

Last year I made a rather prophetic statement: '*... the Institute has had perhaps one of the more successful years in its 121-year history*'. This, of course, was from the perspective of membership numbers. As at the end of the 2016 year, total membership across all categories stood at 4781 representing a decline of only 0.25% year-on-year (Table I and Figure 1). Of this number, 3258 are based in South Africa and a further 964 from our country branches (Table II). The balance is made up of members scattered across the globe. As last year, we continue to see strong growth in our more established country branches in Zimbabwe and Zambia, with a steady increase of membership in the newer branches in Namibia and Botswana.

Table I

Total SAIMM membership analysis and year-on-year-change

Grade	Number	2016 vs 2015
Fellow	400	-12
Life Fellow	7	-
Honorary Fellow	2	-
Honorary Life Fellow	51	-2
Retired Fellow	148	+9
Member	1657	-45
Life Member	1	-
Retired Member	102	+6
Associate	1090	-86
Retired Associate	12	-
Company Affiliate	123	-1
Student	1188	+119

Annual report

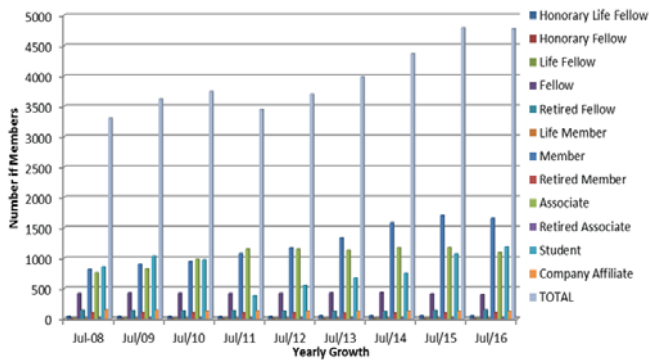


Figure 1—South African membership annual growth

Table II

Country branch membership analysis for 2016

Botswana	62
DRC	28
Namibia	75
Zambia	195
Zimbabwe	604
Total	964

Student membership across the region remains robust at just under 25% of total membership. This significant percentage remains a cornerstone strategy for the long-term health of the Institute.

However, the strong student numbers mask a worrying decline in both Associate and full Members of the Institute (bearing in mind that Students do not contribute towards membership fees.). This clearly reflects the stress that the mining industry has been under for some time, and specifically that many companies are no longer sponsoring their employees' membership of professional bodies such as the SAIMM. Unlike our sister organizations in other geographies, we do not have an industry professional association that requires membership of the Institute – this is managed through ECSA. Therefore, this portfolio has to continually seek ways of growing our membership base (students) as well as offering value for money to our membership – I will comment further on this in a moment. In addition, I am pleased to report that 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 Northern Cape and DRC branches have been affected by the downturn in the mining industry and will continue to need support over the next year or two.

At an SAIMM strategy session earlier in the year we were forced to take a very hard look at the affordability of many of the SAIMM's projects due the constrained revenues from our traditional sources. As mentioned in previous reports, the commitment of the SAIMM to the country branches cannot be compromised due to the longer term damage that would be sustained by the Institute. However, we have decided not to extend the contract of our Country Branch Manager (the post remains vacant). At this stage it would be remiss of me not to

recognize the excellent work that Malcolm Walker has done in this portfolio during his term of office. He should be congratulated by all, specifically for the increase in student membership across the region.

Furthermore, we have reduced the amount of travel required of our branch officials and SAIMM staff. In order to compensate for these decisions, it is envisaged that in the next year we will develop and implement a formal approach to the training of newly elected branch officials. It is anticipated that by structuring this training appropriately, we will be able to maintain our commitment to the branches, facilitate smooth transitions between changes in committee members, and enhance the professionalism of the organization.

The working agenda of the Membership Committee has been modified over the past year. The Secretariat has streamlined the membership application process to the extent that it requires less administrative time. For this we are greatly appreciative of the SAIMM Membership team. This has freed up time to consider other aspects pertaining to the interests of our members. These include the following activities:

- Re-defining membership benefits in conjunction with our sister institutes around the world to ensure that reciprocity is more visible and effective
- Ongoing updates of the by-laws relating to membership
- Actively focusing on upgrading members to higher membership grades
- Maintaining our role within ECSA
- Re-design of the SAIMM website to further improve application and payment efficiency
- Monitoring of the membership 5 Star Incentive Programme
- Recognizing our newly elected Fellows at the annual banquet
- Creating an electronic membership archive to ensure easier access and prevent loss of documentation
- Assisting the Young Professionals Council in the implementation of the Mentorship Programme.

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

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

Deceased members	Election date	Grade
Richard Peter Mohring	4 May 1971	Honorary Life Fellow
David Lester Jackson Lawrence	21 Apr. 1989	Retired Fellow
Thomas Edwin Green	28 Aug. 1967	Retired Member
Andrew Simon Wood	15 Oct. 2004	Fellow
Brian Moore	11 Nov. 1960	Retired Fellow
James Bethel	18 Nov. 1994	Member
Dirk Theunis Fourie	21 Feb. 1968	Retired Fellow
Prince Charingira	16 Jul. 2010	Associate
Gerrit Johannes Cornelius Strydom	19 Apr. 1996	Member
David Rankin	9 Nov. 1956	Retired Fellow
Robin Edmund Robinson	14 Oct. 1960	Honorary Life Fellow
Robert Carruthers Bertram	10 Sep. 1954	Retired Fellow
Benjamin Higginson Leinster Leach	10 Nov. 1950	Retired Fellow

Annual report

There is no doubt that to maintain the twin objectives of membership growth and fee collection in these times is going to be a real challenge for the coming 2017 year. Membership and conference fees are maintained well within inflation parameters to ensure that our members continue to get value for their fees. 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.L. Porter, Chairman

N.A. Barcza

R.D. Beck

J.A. Cruise

J.R. Dixon

A. Garbers-Craig

G.V.R. Landman

R.P. Mohring*

J.C. Ngoma

R.G.B. Pickering

S.J. Ramokgopa

M.H. Rogers

D.A.J. Ross-Watt

G.L. Smith

T.R. Stacey

O.K.H. Steffen

J.N. van der Merwe

D.J. van Niekerk

M. Woodhall

* Deceased

Membership

The SAIMM membership comprises engineers, metallurgists, chemists, physicists, geologists, certificated managers, and technikon diplomates, and 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
- 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 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

Table I

Summary of new applications and membership movements for 2015/2016 and comparison of membership grades and total membership 2015/2016

Membership grade	Members July 2015	New members	Transfers in	Transfers out	Reinstatements	Resignations	Deceased	Struck off	Net gain/ (loss)	Members June 2016
Honorary Life Fellow	53	0	3	0	0	0	-3	0	0	53
Honorary Fellow	2	0	0	0	0	0	0	0	0	2
Life Fellow	7	0	0	0	0	0	0	0	0	7
Fellow	412	0	9	-18	0	-4	-3	-6	-22	390
Retired Fellow	139	0	17	-1	1	0	-1	0	16	155
Life Member	1	0	0	0	0	0	0	0	0	1
Member	1 702	117	30	-11	31	-17	0	-32	118	1 820
Retired Member	96	0	3	0	0	0	-1	0	2	98
Associate	1 176	114	21	-31	2	-14	0	-89	3	1 179
Retired Associate	12	0	0	0	0	0	0	0	0	12
Student	1 075	706	1	-15	1	0	0	-372	321	1 396
Company Affiliate	124	3	0	0	0	-1	0	-6	-4	120
Total	5 233	940	84	-76	35	-36	-8	-505	434	5233

- 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:

Annual report

- ▶ 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 (incorporating the Career Guidance and Education Committee)

T.M. Mmola, Chairman
N. Bagirathi, Vice-Chairman
A.S. Nhleko, Treasurer
V.G. Maseko, Secretary

W. Banda	M.S. Motlhabane
R. Blunden	T. Mulambo
G. Dabula	S. Ndlovu*
D.M. Gama	L. Nene
D.E.P. Klenam	M. Nesor
E.S. Links	K. Ramasia
J.A. Luckmann*	S.M. Rupprecht*
S. Maharajh	C. Setuke
G. Mahlong	A.G. Smith*
M. Malatse	L. Zombene

*Career Guidance and Education Committee members

** SANCOT Observer

With 2015–2016 being the first term of the Young Professionals Council (YPC), the strategy was to direct efforts on building internal systems, processes, and capacity for the YPC. This involved setting up three working groups: Education, Career Guidance, and Enterprise, to manage the activities of the YPC. Each working group identified areas where the YPC could quickly make an impact on the lives of young professionals in the minerals industry.

Career Guidance

It is crucial that learners have access to accurate information and meaningful career guidance so that they can make well-informed career choices. Unfortunately, quality career guidance and information are often not readily available to learners from underprivileged communities. This is a need that the YPC fulfils as part of its community outreach. On 23 April 2016, the YPC gave career guidance to close to 300 grade 9 to 12 learners from one of the most underprivileged communities in Pretoria North (Ga-Rankuwa) on the different career opportunities available in the minerals industry. The YPC also continued to support the Sci-Bono Discovery Centre's initiative to give career guidance to Gauteng learners in grades 9 to 12 by participating in the Engineering Focus Week (24 May 2016).

Education Support

A big challenge for students is meeting the costs of tertiary education. The SAIMM has played an important role in addressing this problem through the Scholarship Trust Fund (STF). In this year, innovative fundraising initiatives by the YPC that included a raffle at the annual gala dinner and an online fundraising campaign led to a greater awareness about the STF and an unprecedented number of individual donations. Unfortunately, the goal of raising R500 000 in the year was not realized, but efforts to support this worthy cause continue.

Job Placement

Unemployment has become the highest concern for young professionals in the minerals industry. In response to the challenge of finding employment in the current environment, the YPC developed a web-based service to connect potential employers with job-seeking graduates. The service consists of a database of graduates to whom the SAIMM is able to send information about work opportunities. Since its inception, three work opportunities have been made available to graduates and interest in the service is growing. Plans are underway to develop an online portal to support this service.

Mentoring

Young professionals face numerous challenges in their careers. Mentoring is recognized as one of the most effective means of developing talent. A mentoring programme has been introduced to link young professionals with experienced and knowledgeable mentors to provide consistent support, guidance, and concrete help on a one-to-one basis to enhance their career development. The programme has 37 registered mentors and 67 registered protégés.

Information Dissemination

The YPC continues the tradition of the SAIMM by organizing informative conferences and colloquia. Successful events held in the year are the revived Career Day and the long-running Student Colloquium, which for the first time was run alongside the Young Professionals Conference. These events, which have in the past been organized by different committees of the SAIMM including the YPC's predecessor, the Career Guidance and Education Committee, have now been consolidated under the YPC portfolio.

Stakeholder Engagement

Although the strategic focus for the YPC was on internal capacity-building, external stakeholders play a critical role in the mission of the YPC. The YPC has been involved in several activities to promote the profession and the SAIMM. The YPC has established strong rapport with the tertiary education institutions, and as such has honoured several invitations to participate in student-organized events. The YPC is also building a good standing with other bodies, such as Engineers Without Borders (EWB-SA), as a leading voice for young professionals in the minerals industry. The YPC regularly publishes a newsletter that goes out to all SAIMM members to share information about the activities of the YPC. These and other initiatives have created a greater awareness of and interest in the SAIMM amongst a younger population base in the minerals industry.



Annual report

1.3 Promotion of the SAIMM

Portfolio holder: R.T. Jones

This year has been an extremely challenging one for the global mining industry, involving job losses, closures, low demand, and low metal prices. The SAIMM has not been alone in feeling the impact of the downturn in the industry. Societies similar to the SAIMM have experienced significant losses, and some have had to retrench staff. At the SAIMM, there has had to be some belt-tightening, but we have continued with all of our core activities and have even been able to provide some additional benefits to our members.

Publications and website

The dissemination of technical information remains central to the activities of the Institute. The SAIMM's policy of providing free and open access to our *Journal* papers and conference proceedings is highly appreciated by users of our website. During the year, the website was upgraded substantially, with the intention of making it more responsive and better formatted when viewed using a wide range of devices including computers, tablets, and cellphones.

The *Journal* has continued to be published monthly. A three-month trial of distributing the *Journal* electronically was undertaken successfully. This has allowed a wider distribution of the *Journal* (now including student members) and has met the requests of numerous members who indicated a preference for electronic distribution. This also allows speedier and more reliable delivery than the postal services are able to provide. We have not done away with printed copies, as we know that a number of members (and some libraries) prefer a paper copy. However, we do hope that partial replacement of print with electronic copies will reduce the cost of printing and postage.

OneMine.org and technical library

Through our participation in the Global Mineral Professionals Alliance (GMPA), together with international societies such as the AusIMM (Australasia), CIM (Canada), IIMP (Peru), IOM3 (UK), and SME (USA), we are able to offer our members free access to the more than 100 000 technical papers that are stored in the OneMine.org repository. This searchable database provides a very significant benefit to our members. The SAIMM has a representative who sits on the board of OneMine.org. During the past year, we have provided our members with the additional new benefit of access to the technical library, which has amalgamated the collections of the former Anglo American and Chamber of Mines libraries. Members are able to receive up to 10 articles per month from the technical library by e-mail at no charge.

Global Mineral Professionals Alliance (GMPA)

Our participation as a founding member of the GMPA enables our members to enjoy reciprocal benefits from the other participating societies, including reduced rates for a number of international conferences. GMPA member societies meet annually to exchange relevant information and to attempt to avoid scheduling conflicts regarding international events. Operating data is exchanged between the societies to allow them to benchmark themselves against their peers.

Technical conferencing

The Mining and Metallurgy Technical Programme Committees

(TPCs) have continued doing a very good job of sourcing and overseeing conferences on a variety of topics of importance to the minerals industry. Events were held in South Africa, Botswana, Zambia, and Zimbabwe. Twelve conferences were held during the past year, and a number of these were joint collaborations between the two TPCs. Communication between these committees was enhanced by holding shared meetings on a quarterly basis. Formal proceedings of high-quality peer-reviewed papers continue to be published for most of the larger conferences; however, electronic copies are now provided to delegates as part of their registration package, and printed copies are printed on demand only.

Unfortunately, there has been a noticeable decrease in the number of conference delegates from mining companies, as a result of the harsh economic conditions causing discretionary spending on conference attendance to be decreased. However, despite the current economic circumstances, a number of companies have continued to provide sponsorship for events, thereby keeping the costs for delegates quite reasonable. The SAIMM is very grateful for the support of these industrial partners.

Membership

Membership of the SAIMM has continued to grow, and during this year reached a peak of 4917. Our members are based in more than 50 countries, although the majority hail from southern Africa. During this past year, a new website-based membership system was introduced to provide greater flexibility and to allow members to check and update their own personal data online. It was recognized that a number of unemployed members required support and, as a caring organization, SAIMM has deferred their membership fees upon request.

Professional associations

On the local front, the SAIMM has maintained discussions with a number of organizations related to the minerals industry, by means of attending annual general meetings and other annual functions, as well as by having reciprocal observer status at council meetings. These associations include the:

- ▶ Geological Society of South Africa (GSSA)
- ▶ Association of Mine Managers of South Africa (AMMSA)
- ▶ Mine Metallurgical Managers Association (MMA)
- ▶ Institute of Mine Surveyors of South Africa (IMSSA)
- ▶ Mine Ventilation Society of South Africa (MVSSA)
- ▶ South African Colliery Managers Association (SACMA)
- ▶ Southern African Coal Processing Society (SACPS)
- ▶ Fossil Fuel Foundation (FFF)
- ▶ South African Institution of Chemical Engineers (SAIChE-ICHEME)
- ▶ South African Institute of Electrical Engineers (SAIEE)
- ▶ South African Academy of Engineering (SAAE).

The SAIMM has continued to support the activities of the Engineering Council of South Africa (ECSA) in recognition of the importance of globally recognized professional registration. SAIMM members participate in the Professional Advisory Committees (PACs) for Mining Engineering and Metallurgical Engineering. Discussions are currently underway between ECSA and the voluntary associations (such as the SAIMM) regarding the principles that govern the relationships between

Annual report

these bodies, as well as the recognition of Continuing Professional Development (CPD) that is required for the continued registration of professionals.

Annual Banquet

One of the social highlights of the past year was the Annual Banquet, where our guest speaker was Johnny Clegg. He told something of his own story, and illustrated it with samples of his music and dance that have built bridges across cultures. He left the audience feeling hopeful that our region could become a melting pot of cultures rather than a society that is polarized by race and class. The banquet also provided an opportunity to introduce and recognise new Fellows.

Management, Administration, and Finances

The SAIMM Council (its highest decision-making body) met seven times during the year, with some of these meetings also attended by Branch Chairpersons who are brought in specially. Some of the branches are thriving and holding regular meetings, while others have struggled as a result of the mining downturn in their regions. The SAIMM has supported the branches through its Regional Development function, with the most visible effect being the rapid growth in the number of student members across the southern African region, to the extent that student members now make up 24% of the Institute's membership. The work of the Council is carried out by various committees, the reports of which can be seen elsewhere in this Annual Report. The volunteers serving the SAIMM are very grateful for the wonderful support provided by the dedicated, enthusiastic, and loyal full-time staff.

The SAIMM continues to be financially secure, with well-managed invested funds of approximately R30 million. Despite an operating loss of R7 million during this past year, our substantial reserves from past good years have enabled us to continue with all of our important core activities. Cost-saving measures had to be introduced, but this was able to be done without staff retrenchments or a reduction in the benefits of membership. The annual budgeting process is now carried out with projections over the forthcoming three years, in order to improve planning, and to provide greater visibility of the repeating large conferencing events that take place only every two or three years.

Conclusion

The SAIMM has a proud history of 122 years, and remains vibrant, strong, and active.

1.4 Awards and Adjudication Committees

Awards and Adjudication Committee—Mining

M.H. Rogers, Chairman

M.F. Handleyn	G.L. Smith
R.G.B. Pickering	T.R. Stacey

Awards and Adjudication Committee—Metallurgy

D. Tudor, Chairman

R.D. Beck	R.L. Paul
P. den Hoed	

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
	Jas Gray	S.J. Truscott
	J.V. Muller	G.A. Watermeyer
	John 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	

Annual report

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	
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

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. O'Connor
2011	B.C. Alberts
2012	R.P. Mohring
2013	H.R. Phillips
2014	R.M. Godsell
2015	S.A. Nkosi

This year the award is made to M.A. Hermanus for her 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

Year to	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*

Annual report

1939	A.L.A. Forder* G. Armstrong-Smith* D.E.R. Ayres* E.H.D. Carman W.G.H. Jackson* T.A. Newman	E.W. Thiel* R.S. Pearson* D.C.J. Squirrell* R.F.J. Teichmann* I.S. van Eyssen* S.J. Venning* G.D. Getliffe*	J.J. Blom R. Campbell	R.C. More O'Ferrall N.C. Officer	
1940	L.D.C. Bok* A.W.L. Brereton*	G.G. Stanley* D. de V. Oxford*	1958	J.F. Dear* B.S. Tatterson	
1941	A.H.H. Davison* D.J. Forder A.R.C. Fowler* H.F.W. Ketelbey* J.D. McNamara* T.F. Muller*	E. Pavitt A.C. Petersen* E.R. Rudolph* P.W.J. van Rensburg*	1959	R.H. Swan H.E.K. Allen D.C. Brink G.D. Louw	P.J. van der Walt H.A.G. Slater G.T. Van Rooyen
1942	R.E. Burnton* R.C. Espley-Jones* N.M. Hayne* R.T. Naudé*	O.L. Papendorf* V.O. Steed J.E. van Leeuwen* W.C. Walmsley* R.P. Plewman*	1960	R. Hemp G. Joynt B. Moore R.E. Robinson* C. Roper	C.T. Shaw L.W.P. van den Bosch* H. von Rahden M. Wishart
1943	D.J. Molony* J.D. McMorran*		1961	W.B. Evans R.A. Featherstone I.R.H. Forrest J.S. Freer B.W. Holtshousen	G.S. Lee B.J. Love P.J. Muller G.J.C. Young W.J.G. Young
1944	A.F. Dick R.B. MacGillivray* L.J. Prince* J.F. Reid*	V.M. Reinecke* A.S. Swartz A.H. Taute* P.B. Weehuizen* K.E. Steele*	1962	S.I. Du Preez P.J. Heystek	E. Schmid
1945	J.L. Curtis* E.T. Pinkney*		1963	L. Anderson H.K.R. Cahnbley G.C. Clatworthy R.E.F. Cowley J.A.J. De Cuyper	J.N. Gallie J.J. Geldenhuys T.J. Kotze A.H. Munro A.G. Netto
1946	W.I. Spence		1964	J. Douglas K. Imre	A.W. John A. Simon
1947	G.H. Grange W.B. Howe J. Marr-Levin C.J. Parr*	J.D. Pollard V.C. Robinson* A.N. Shand* G.R. Still J. Pope*	1965	P. Andersson J.A. Cruise F.S.A. De Frey F.M.G. Egerton F.Fenwick M.R. Fuller-Good P.G. Gaylard J.P. Hoffman J.P. Loo	W. Mitchell D.I. Ossin M.H. Rogers E.H.J. Stoyell R.S. Traviss* J.W. Walls I.C. Watson J.C.M. Wethmar
1948	D.F. Foster M.H. Grusd* P.A. Laxen* G.Y. Nisbet	N.A. Stacey J.A. Tyser			
1949	G.P. Bennett* J.F. Curtis* O. Davel	J.P. Hugo D.A. Immelman			
1950	D.F. Grieve B.E. Hersov D.G. Maxwell	R.P. Plasket* V.C. Ward			
1951	D.G. Krige* B.H.L. Leach M.J. Martinson W.D. Ortlepp*	N.C. Pope W.T. Ruhmer T. Zadkin*			
1952	A.N. Brown M.J. Deats W. Lurie* N. Martincevic	E.P. Mortimer D.J. Murphy H.J. Stucke* R.G. Williams			
1953	B.G. Fordyce G. Langton* A.A. Sealey	G.D. Tainton J. Uys* N. Zolezzi			
1954	R.C. Bertram	R.B.W. Wiggill			
1955	R.A.O. Chelius* S.P. Ellis C.T. Fenton	G.R. Parker W.B. Parker			
1956	G.A. Brown D.R. Chelius M.F. Dawson L.M. Falcon	M.A. Madeyski* D. Rankin G.C. Thompson			
1957	K. Babich	A.M. Edwards			

* Deceased since becoming members of the Club

The Danie Krige Memorial Award

Following discussions at Office Bearers and Council during 2013 it was agreed to honour the memory 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 SAJMM Journal of the previous year.

The recipients of the award for their paper published in the June 2015 *Journal* are A. Cornah and E. Machaka.

Gold and Silver Medals

Papers published in the *Journal* from March 2015 to February 2016 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:

L.F. Contreras for his paper published in the July 2015 issue of the *Journal* entitled 'An economic risk evaluation approach for pit slope optimization'.

Annual report

D.K. Chibwe, G. Akdogan, G.A. Bezuidenhout, J.P.T. Kapusta, S. Bradshaw, and J.J. Eksteen for their combined papers published in the May 2015 issue of the *Journal* entitled:

'Sonic injection into a PGM Peirce-Smith converter: CFD modelling and industrial trials'

and

'Modelling of fluid flow phenomena in Peirce-Smith copper converters and analysis of combined blowing concept' by D.K. Chibwe, G. Akdogan, P. Taskinen, and J.J. Eksteen.

As non-members, D.K. Chibwe, G.A. Bezuidenhout, J.P.T. Kapusta, and P. Taskinen, will receive 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:

J. Hager, V.S.S. Yadavalli, and R.C.W. Webber-Youngman for their paper entitled:

'Stochastic simulation for budget prediction for large surface mines in the South African mining industry' published in the June 2015 issue of the *Journal*.

As a non-member, V.S.S. Yadavalli will receive a certificate of merit.

R.H. Matjie, Z. Li, C.R. Ward, J.R. Bunt, and C.A. Strydom for their paper published in the February 2016 issue of the *Journal* entitled: 'Determination of mineral matter and elemental composition of individual macerals in coals from Highveld mines'.

As non-members, R.H. Matjie, Z. Li, C.R. Ward, and C.A. Strydom will receive certificates of merit.

Q.G. Reynolds, for his paper published in the May 2015 issue of the *Journal* entitled: 'Interaction of dust with the DC plasma arc – a computational modelling investigation'.

J.D. Steenkamp, P.C. Pistorius, and M. Tangstad, for their combined papers entitled:

'Chemical wear analysis of a tap-hole on a SiMn production furnace' published in the March 2015 issue of the *Journal*.

and

'Insights into the potential for reduced refractory wear in silicomanganese smelters' by J.D. Steenkamp, P.C. Pistorius, and J. Muller, published in the January 2016 issue of the *Journal*.

As a non-member, M. Tangstad will receive a certificate of merit.

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	G. Sithole
Metallurgical Engineering	J. Malatji

University of Pretoria

Mining Engineering	G. Lindeque
Metallurgical Engineering	N. Snyman

University of Johannesburg

Mining Engineering	A. Ramovha
Metallurgical Engineering	P. Twite

University of Cape Town

Mineral Processing	J.L. Roberston
--------------------	----------------

University of Stellenbosch

Mineral Processing	C. Broeksma
--------------------	-------------

Cape Peninsula University of Technology

Mineral Processing	K.J. Kabamba
--------------------	--------------

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 17 August 2016

In addition, the Western Cape Branch also awards two Outotec Postgraduate Scholarships for students conducting research in the area of sustainable mineral processing.

There was no award this year.

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:

J. Steenkamp
D. Muma
M. Tlala
N. Schoeman
W. Kutekwatekwa.

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

M. Handley
T. Stacey
M. Dworzanowski
S. Rupprecht
G. Lane.

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

J. Bunt
J. Claassen
R. Webber-Youngman.

Top Advertiser in the Journal

The award for the *Most Supportive Advertiser* in the *Journal* is to be made annually by the SAIMM and it 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*.

This year's award winner is Elbroc.

Annual report

1.5 SAIMM Scholarship Trust Fund

J.R. Dixon, Chairman

R. Mohring, Vice-Chairman

F.M.G. Egerton

M.H. Rogers

A.S. Macfarlane

W.H. van Niekerk

T. Mmola (co-opted from YPC)

The Trust Fund was able to distribute a total of R 284 000 between the eight (8) minerals industry related faculties across the country. Contributions to the Trust Fund by individual members and company affiliates are gratefully acknowledged and will be recognized in the *Journal*. The SAIMM continued its support of the Trust Fund with a contribution of R200 000. The funds are allocated based on the number of minerals industry students in the four years of study at each institution as a percentage of the total of 3204 students.

The role of the Scholarship Trust Fund has become even more important as student numbers continue to rise despite the prevailing economic climate.

During the year the Scholarship Trust Fund was made more visible through the SAIMM website and the payment system was made more easily accessible. Thanks to Tshepo Mmola for his contribution in this regard.

Rick Mohring the Vice-Chair and a long-serving trustee passed away during the year. We acknowledge the tremendous contribution he made to the Trust; we will miss his enthusiasm and positive motivation.

Members are reminded that contributions to the Trust Fund are tax-deductible and can be made on line to the Trust Fund's bank account. (SAIMM Trust Fund, FNB, branch code 251705, account number 62227511286)

We look forward to your continued support.

1.6 Banquet Committee

K. Chabedi

S. Ndlovu

R.T. Jones

J.L. Porter

C. Musingwini

The banquet was held on Saturday 5 March 2016 in the Ballroom at the Sandton Convention Centre.

The guest speaker was Mr Johnny Clegg, a South African icon who has recorded and performed with his bands Juluka and Savuka over many decades. Sometimes called *Le Zoulou Blanc* ('The White Zulu'), he is an important figure in South African popular music history, with songs that mix Zulu with English lyrics, and African with various Western European (such as Celtic) music styles.

By combining African music structures with Celtic folk music and international rock sounds, Clegg – together with Juluka and Savuka and as a solo artist – pioneered a new and unique sound, establishing himself as South Africa's biggest musical export, and he gave guests a taste of this at the banquet.

Many favourable comments were received after the function with regard to the entertainment, the food, and the evening in general.

There were three VIP tables and 30 Sponsors' and Members' tables, with 359 guests in total.

2. Technical Meetings

Portfolio Holders: R.T. Jones and C. Musingwini

2.1 Technical Programme Committee—Mining

D.D. Munro, Chairman

Z. Bothas, Metallurgy Representative

A.W. Dougall

S.M. Rupprecht

C.R. Fredericks

R. Sivalingum

W. Joughin

C.B. Smith

D. Limpitlaw

G.L. Smith

J.A. Luckmann

A.G. Smith

A.S. Macfarlane

M.H. Solomon

R.C.A. Minnitt

D. Vogt

C. Musingwini

R.C.W. Webber-Youngman

J.L. Porter

M. Woodhall

S. Pule

The introduction to the Institute on the SAIMM website states: *'The SAIMM is a professional institute with local and international links aimed at assisting members' source news and views about technological developments in the mining, metallurgical and related sectors as well as embracing a professional code of ethics. The SAIMM also attempts to fulfil what it sees as its obligations to the various communities and the environment in terms of the SAIMM's Charter. In addition, the institute is active in bringing together the mining and metallurgical fraternity in terms of research, shared-experiences, education, personnel as well as students.'* (www.saimm.co.za/about-saimm/about-saimm)

The growth of SAIMM exposure is achieved in two main ways:

- ▶ The publishing of the monthly *Journal* (covered elsewhere in the Annual Report).
- ▶ The convening of conferences, colloquia, and schools.

The Mining Technical Programme Committee (TPC) collaborates closely with the Metallurgical TPC. This year has seen us working even closer through joint quarterly meetings in addition to our monthly mining-specific meetings. It is at these meetings that we discuss ideas for new events, address organizational challenges of conferences and in planning, and also reflect on recent events. These meetings are attended on a voluntary basis by individuals who represent tertiary institutions and are industry role-players. The SAIMM is always eager to expand its talks by having new speakers and topics of discussion. These can be presented by either attendance at the meeting or via e-mail, and we invite you to do so through the office of the SAIMM.

This process has enabled us to deliver 12 mining-related conferences over the past year, attracting a total attendance of over 2704 delegates. Of these conferences, six were mining-specific.

The TPC and Conference committees are aware of the tight financial constraints many of our members and non-members are faced with and have carefully chosen venues that are affordable. Topics are of a nature that are relevant and have managed to attract a wide range of authors to present some of the latest cutting-edge subjects.

- ▶ The year kicked off with the joint hosting of the Copper Cobalt – 8th Base Metals Conference in Zambia, attracting 186 attendees

Annual report

- This was followed by the Virtual Reality in Mining 2015 Conference, hosted in the University of Pretoria's new three-dimensional VR laboratory. Although virtual reality is a relatively new tool in mining, the event attracted 74 delegates and many new applications for the technology were highlighted
- A two day conference on Geostatistics, in memory of Danie Krige, was held in Rosebank in August 2015 and attracted 66 delegates
- MineSafe has evolved into a 'must-attend' event on the mining calendar, and this year saw a total of 1137 people participating over the three days, the bulk of the visitors attending the industry day on the last day. This being an annual event, we look forward to a great attendance again in the coming year
- September saw World Gold returning to South Africa at Misty Hills, with 192 attendees
- Slope Stability 2015 was hosted as part of the international series at the Cape Town Convention Centre in October, attracting 222 international delegates. This was also the best-sponsored event, indicating the value that our generous industry partners see in our conferences
- The SAIMM's focus on the development of young professionals was highlighted in October 2015, with the

- hosting of the Student Colloquium and the Young Professionals Conference, both held at Mintek and attracting 243 and 82 attendees respectively. The Student Colloquium is the Institute's first exposure to the new class of mining and metallurgical professionals entering the industry the following year, who present their final-year projects. The Young Professionals Conference is aimed at the further development of young graduates who have recently entered the industry, focusing on their professional development and giving them an opportunity to present work they are engaged in
- The Mine Planning and Equipment Selection Conference, held at the Sandton Convention Centre, attracted 154 delegates to the four-day event, which focused on the use of technology in mine planning and best practice in the selection of underground and surface mining equipment
 - Strengthening the SAIMM's relationship with the Global Mine Standards Group (GMSG), a two-day conference was held at Emperors Palace in Kempton Park where local industry players were able to interact with other international GMSG members
 - The Diamonds Conference returned to Gaborone in March 2016 and exceeded attendance expectations, with 151 participants in the two-day international event

Schedule of Mining/Metallurgy Technical Conferences, 2015/2016

Type of Event	Date	Title	Convenor	Attendance
Conference	6–8 July 2015	Copper Cobalt Africa In association with The 8th Southern African Base Metals Conferenc 2015	K. Sole	186
Conference	15–16 July 2015	VR Mining and Spatial Information Applications in the Mining Industry Conference 2015	J. Louw	74
Conference	5–7 August 2015	MINPROC 2015: Southern African Mineral Beneficiation and Metallurgy Conference	Western Cape Branch	142
Conference	19–20 August 2015	The Danie Krige Geostatistical Conference 2015	R. Minnitt	66
Conference	26–28 August 2015	MineSAFE 'Sustaining Zero Harm' Conference 2015	T. van den Berg	1137
Conference	28 September–2 October 2015	World Gold Conference 2015 Building a Resilient Gold Mining Industry	A. Swart	192
Symposium	12–14 October 2015	International Symposium on Slope Stability in Open Pit Mining and Civil Engineering 2015	R. Armstrong	222
Colloquium	20 October 2015	The Young Professionals Week 13th Annual Student Colloquium 2015	Z. Botha	243
Conference	21–22 October 2015	2nd Annual Young Professionals Conference 2015	A. La Grange	82
Conference	28–30 October 2015	AMI Nuclear Materials Development Network Conference	J. Nell	86
Symposium	8–13 November 2015	MPES 'Smart Innovation in Mining' 2015	C. Musingwini	154
Workshop	15–16 February 2016	Global Mining Standards and Guidelines Group 'Creating Community to Drive Operational Excellence'	D. Vogt	79
Conference	14–17 March 2016	Diamonds still Sparkling Conference 2016	H. Marsden	151
Conference	17–18 May 2016	The SAMREC/SAMVAL Companion Volume Conference 'An Industry Standard for Mining Professionals in South Africa'	K. Lomberg	133
Colloquium	9–10 June 2016	New Technology and Innovation in the Minerals Industry Colloquium 'Driving Mining and Metallurgical Productivity Improvement through Technology and Innovation'	A. Macfarlane	118
School	27–28 June 2016	The 2nd School on Manganese Ferroalloy Production	J. Steenkamp	74

Annual report

- Closing off the year's conferences was the New Technology and Innovation Conference. This is a new addition to our calendar and, following its success, is sure to be repeated in years to come. In particular, this event was the first to fully embrace social networking and to utilize virtual conferencing. This enabled presenters to partake from almost anywhere in the world.

The Mining TPC thanks all the Conference Committees for the hard work and dedication that they put into the organization of the past financial year's events, and the Secretariat for the endless hours and dedication behind the scenes in preparing for each of the conferences.

We look forward to the next financial year as an opportunity to continue to develop and expand the technical knowledge of the industry, and invite members of the Institute to contact the SAIMM office and volunteer to participate in the organization of conferences.

2.2 Technical Programme Committee—Metallurgy

Z. Botha, Chairperson

M. Dworzanowski, Vice-Chairman

R.T. Jones, Vice-Chairman

N. Blackham

A.F. Mulaba-Bafubiandi

T. Claassens

N. Naude

P. den Hoed

S. Ndlovu

E. Dhlamini

N. Segapela

I. Geldenhuys

H.A. Simonsen

K.J. Hay

A. Sithole

I. King

K.C. Sole

A. La Grange

J. Steenkamp

P. Muthaphuli

P.J. van Staden

J. Mishra

M. Valenta

M. Motuku

The Metallurgy Technical Programme Committee (TPC) supported a good selection of topical technical conferences for the continuing education of metallurgical professionals throughout the year. Among these topics were the very successful Copper Cobalt / 8th Base Metals 2015, World Gold 2015, Young Professionals 2015, AMI Nuclear Metals Development Network, Diamonds 2016, SAMCODE Companion Volume, New Technology & Innovation, and Manganese Ferroalloy School events. The Metallurgy TPC also supported New Technology in Mining, which for the first time included interactive information transfer via social media during the conference, as well as the Manganese Ferroalloy School. Some events were organized in conjunction with the Mining Technical Programme Committee.

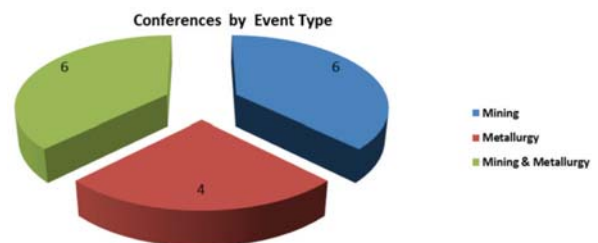
This year, the choice of subject matter for the conferences was more industry-driven, albeit still volunteer-driven. The Metallurgy TPC has focused more on innovation and changes in the mining and metallurgy industry, thereby supporting all SAIMM members during this changing and challenging time. The pioneering and inventive thinking of the TPC and all the conference convenors is highly appreciated. As always, all events provided an important forum for the efficient dissemination of information about new processes and techniques for improvement in the industry, as well as

promoting networking between industry professionals working in the metallurgical field. However, this year the TPC was much more focused on new processes, new techniques, and innovation in the industry. SAIMM conferences are generally accredited for continuing professional development (CPD) purposes as required by the Engineering Council of South Africa (ECSA).

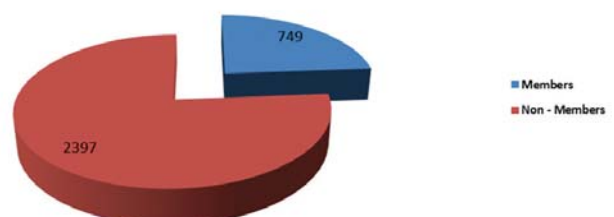
Formal proceedings of high-quality peer-reviewed papers continue to be published for most of the larger conferences; however, electronic copies are now provided to delegates as part of their registration package, and printed copies are produced on demand only. The SAIMM website is in the process of being updated, and conference proceedings are being published in full on the new site in order to make the information searchable and available to as wide an audience as possible. The SAIMM will continue to make their website publications available free of charge (via open access) to the general public, in recognition of the time and effort freely contributed by authors and the organizations where they work.

Attendance figures for this year's metallurgical technical conferences were on average 120, with a maximum of 192 delegates attending the World Gold 2015 conference. Sponsorship from July 2015 to June 2016 was R4 125 535, which is still at a significant level despite the rather poor state of the economy. The continued support of sponsors is highly appreciated.

Conference by event type	
Mining	6
Metallurgy	4
Mining & Metallurgy	6
	16

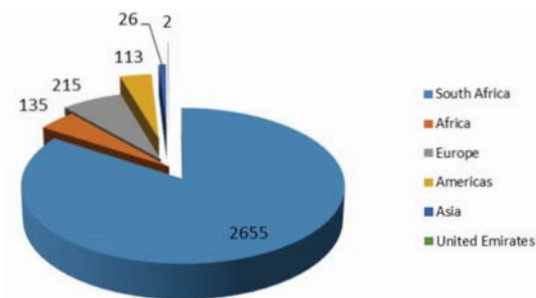


Attendee breakdown	
Members	749
Non-Members	2397
	3146



Annual report

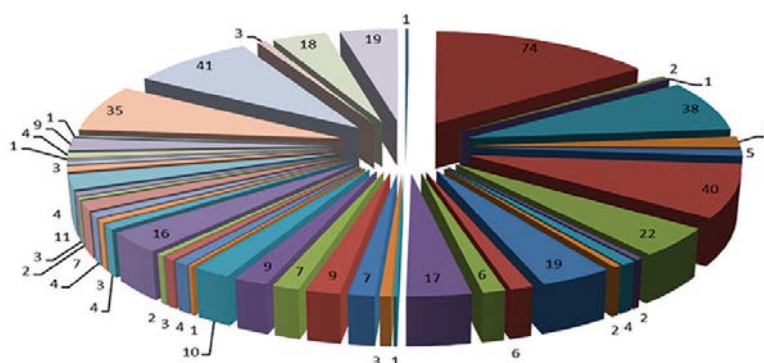
Attendance by continent	
South Africa	2655
Africa	135
Europe	215
Americas	113
Asia	26
United Emirates	2
	3146



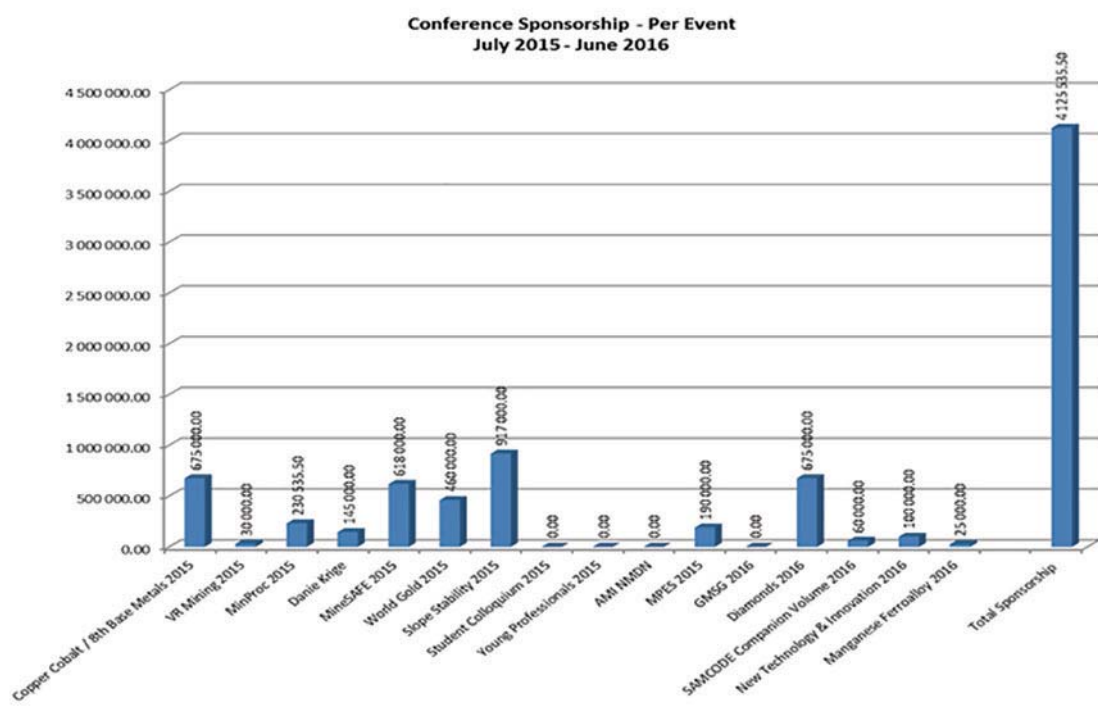
The Metallurgy TPC hosted the inaugural Copper Cobalt Africa Conference, which incorporated the 8th SAIMM Base Metals Conference. The conference was held in Livingstone, Zambia. Interest in the conference was strong; the 54 papers presented represented authors from six continents and fifteen countries. The conference was attended by some 180 delegates from nineteen countries, comprising researchers and academics, mining services professionals, vendors and technology suppliers, operations personnel, and consultants. Tremendous support was also received from sponsors, with demand for sponsorship and exhibition opportunities outstripping availability. The tone of the conference was set by the excellent keynote address by Jackson Sikamo, President of the Zambian Chamber of Mines, who provided an overview of the history of the Zambian mining industry from private ownership, through nationalization, and subsequent reprivatization, and included views on the challenges currently faced and suggestions as to how the industry can be nurtured to continue being a major driver for the Zambian economy and major player in the international copper mining business.

A significant step forward for SAIMM Metallurgy TPC supporting the New Technology in Mining (and metallurgy) Conference. There was a substantial initiative to integrate the

Delegates and Countries in attendance (excl. South Africa)					
Argentina	1	Ghana	1	Saudi Arabia	2
Australia	74	Indonesia	3	Scotland	3
Austria	2	Iran	7	Spain	11
Belgium	1	Italy	9	Sweden	4
Botswana	38	Japan	7	Switzerland	3
Brazil	8	Kazakhstan	9	Tanzania	1
Cameroon	5	Lesotho	10	The Netherlands	4
Canada	40	Madagascar	1	Turkey	9
Chile	22	Mali	4	Ukraine	1
China	2	Mauritius	3	United Kingdom	35
Czech Republic	4	Mexico	2	USA	41
Dominican Republic	2	Namibia	16	Vietnam	3
DRC	19	Nigeria	4	Zambia	18
Finland	6	Norway	3	Zimbabwe	19
France	6	Poland	4		
Germany	17	Russia	7		491



Conference days - per event			
Programme	Days	Programme	Days
Copper Cobalt / 8th Base Metals 2015	3	Young Professionals 2015	2
VR Mining 2015	2	AMI NMDN	3
MinProc 2015	2	MPES 2015	3
Danie Krige	2	GMSG 2016	1
MineSAFE 2015	3	Diamonds 2016	3
World Gold 2015	4	SAMCODE Companion Volume 2016	2
Slope Stability 2015	3	New Technology & Innovation 2016	2
Student Colloquium 2015	1	Manganese Ferroalloy 2016	2
		Total Number of Conference Days	38



technical event with social media and to promote real-time following of the conference on these platforms. The SAIMM Facebook page following increased by 87% and the campaign amounted to a total of 121 042 impressions on SAIMM’s page alone. Live videos, made available during the conference, proved to be the best method for driving engagement, with approximately 6 748 video views across all platforms.

Under the agreement negotiated with the Advanced Metals Initiative (AMI) in 2010, which is endorsed by the Department of Science and Technology, the AMI – Nuclear Metals Development Network 2015 Conference was hosted at the Nelson Mandela Metropolitan University in October 2015, with 86 delegates in attendance. The AMI collaboration is scheduled to continue until 2020, and a special edition of the *Journal* will be published for each event.

The Diamonds 2016 Conference, a two-day international event, returned to Gaborone in March 2016 and exceeded expectations for attendance with 151 participants. The focal

point for this conference was the challenges that this industry will face in the next few years. It was agreed that these challenges make for an exciting future; one that will require the kind of leadership, innovation, and belief in the ‘big picture’ that have sustained this industry for its first 150 years, to ensure that these challenges are overcome and that the diamond industry sparkles, shines, and lives up to its name for the next 150 years.

The SAMCODE Companion Volume Conference, hosted in collaboration with the Geological Society of South Africa (GSSA), was held at the Emperors Palace Convention Centre in May 2016 and attracted 133 delegates. The intention of the Companion Volume is to aid the Competent Person and Competent Mineral Asset Valuator when making Mineral Resource/Reserve and valuation declarations, and the objective of the conference and the Companion Volume is to provide a testimony of current industry benchmarks and best practices to be used or referenced when making a declaration.

Annual report

The annual Student Colloquium was again hosted by Mintek in Randburg. This event is subsidized by the SAIMM from the surplus funds from other events, in support of the various tertiary educational institutions in southern Africa. The Student Colloquium provides a showcase for students to present their final-year projects, and the winning presentations are subsequently published in the SAIMM *Journal*. General feedback this year was that the keynote speaker, Robin Banks, was 'mind-blowing', and that his address expanded what the audience had perceived to be possible in our current reality.

The second Manganese Ferroalloy School was hosted by the SAIMM in June 2016, and a total of 73 delegates attended compared with 83 at the first School in 2012. The event was attended by all four smelter operators – Transalloys, Mogale Alloys, Metalloys, and Assmang. A significant number of universities were represented (WITS, UP, UJ, NWU, VUT), with sponsorship by INFACON 2004 and Elkem Carbon Ferrovel. A post-school workshop was hosted and was very well supported, and a large number of research ideas were generated with the aim of supporting the drive to increase beneficiation of manganese ore in South Africa.

Cooperation continued with various international mining and metallurgical societies, including those based in the USA (SME, TMS, and AIST), Australia (AusIMM), Canada (CIM), and Europe (GDMB). We will continue to liaise closely with these international societies and plan on co-hosting a number of overseas international events, as well as cosponsoring events (which also entails publicizing the events to SAIMM members).

The Metallurgy TCP continues to be supported by a diverse group of highly capable members, who are all committed to innovation, knowledge transfer, and the dissemination of ground-breaking information. SAIMM's conferencing team is to be commended for a very successful year and their highly professional approach in handling conference arrangements, resulting in high-quality technical events and continued support from industry. The combined effort of all these people and the investment and support from industry has resulted, once again, in a successful year and excellent technical events being provided for the benefit of the metallurgical community of southern Africa.

2.3 South African National Committee on Tunnelling (SANCOT)

H.J. (Ron) Tluczek, Chairman

C. Viljoen, Vice Chairman

L. Nene, Chairman: Young Members Group

G.A. Davis

F.B. Stevens

P.H. Ferreira

D. Vogt

M. Lebitsa

J.W. Walls

J.L. Porter

M. Walnstein

D. Roos

J. van der Westhuizen

T.R. Stacey

The International Tunnelling and Underground Space Association (ITA) held its 42nd General Assembly together with the 2016 World Tunnel Congress (WTC) in San Francisco, USA from 22 to 28 April 2016. 2319 delegates participated in the conference. Chris Viljoen, Vice-Chairman of SANCOT, represented South Africa at the General Assembly on behalf of the SANCOT Committee.

South African representatives participate in four working groups. Ron Tluczek participates in WG 2 (Research), Chris Viljoen in WG 12 (Sprayed Concrete Use), and Monica Walnstein in WG 21 (Life Cycle Asset Management). Although Ron Tluczek (Chairman of SANCOT) was unable to participate in San Francisco, he was nevertheless voted in as Vice-Animateur for WG2.

Six reports were published in the previous year, three from ITA working groups and two from ITA tech activity groups, namely:

- ▶ WG2: Twenty Years of FCR Tunnel Segments Practice: Lessons Learnt and Proposed Design Principles
- ▶ WG11: Owners Guide to Immersed Tunnels
- ▶ WG14/19: Recommendations on the Development of Underground Projects with respect to Tunnelling Methods
- ▶ Guidance for Precast Fibre Reinforced Concrete Segments – Volume 1: Design Aspects
- ▶ Guideline for Good Practice of Fibre Reinforced Concrete Precast Segments
- ▶ Vibration Control in Urban Drill & Blast Tunnelling.

All these documents are available free of charge on the ITA website and available for comments.

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

Bergen, Norway: from 9–16 June 2017, during the ITA-AITES WTC 2017 'Surface Problems – Underground Solutions'.

Dubai, UAE: from 20–26 April 2018, during the ITA-AITES WTC 2018 'Smart Cities: Managing the Use of Underground Space to Enhance Quality of Life'

Naples, Italy: from 2–9 May 2019, during the ITA-AITES WTC 2019 'Tunnels and Underground Cities: Engineering and Innovation meet Archaeology, Architecture and Art'.

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.

In the civil engineering sector, due to the global increase in urbanization, pressure is being placed on governments and the public sector to provide expanded services such as safe and reliable public transport, electricity, gas, water, and sewage facilities. This results in further development of road, rail, and metro infrastructure. However, the availability of space for this necessary infrastructure in the urban environment is becoming a major challenge. In order to keep up with this increasing demand, civil designers and contractors are having to resort to tunnelling more than ever before, and in order to deliver these services timeously, mechanized underground excavation and support installation is proving to be cost-effective.

In the mining sector, the fast, efficient, and safe abstraction of raw mineral reserves is of strategic importance for leading mineral producers. However, rising labour costs, coupled with labour unrest, impact heavily on the ability of companies to achieve these goals. The South African mining sector needs to mechanize at a faster pace in order to remain globally competitive. This is particularly true when developing stopes and vertical shafts, since a typical deep-level mine has a life of 30 to 40 years, meaning that shafts are not sunk regularly and the specialized expertise may not be readily available.

Annual report

With the prospect of several major tunnelling projects on the horizon, the active SANCOT membership is increasing. Two major projects which are imminent are:

- (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 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 will augment the water supply to the area under the jurisdiction of the Umgeni Water Board.

Four working groups are active within SANCOT:

WG 12: Sprayed Concrete Use

WG 14: Vertical Tunnelling

WG 21: Life Cycle Asset Management.

There is also a working group that is looking at hosting the ITA World Tunnelling Congress in South Africa in 2020. This is as a result of numerous enquiries that Ron Tluczek received at recent ITA World Tunnelling Congresses, and there would appear to be a lot of international support to hold a WTC in Africa, and specifically in South Africa.

3. Publications

Portfolio Holder: S. Ndlovu

D. Tudor, Chairman

R.D. Beck

J. Beukes

P. den Hoed

M. Dworzanowski

B. Genc

M.F. Handley

R.T. Jones

W.C. Joughin

J.A. Luckmann

C. Musingwini

H. Potgieter

T.R. Stacey

D. Vogt

3.1 Journal

The Publications Committee acknowledges the tremendous contribution that Professor R.E. (Robbie) Robinson made to the fortunes of the *Journal* over many years. Sadly, Robbie passed away in January 2016. His obituary was published in the February 2016 edition of the *Journal*.

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

Year	Mining	Metallurgy	Other	Total
2014	43	41	13	97
2015	75	49	4	128
2016	59	76	2	137

Of the 137 papers published in 2015/16, 47 were from outside South Africa. The rejection rate of papers received was 26%.

The average monthly print run during the year was 3 000 copies.

Advertising revenue for the year totaled R1 561 219 which was some 7% below last year's figure.

In response to the call from Office Bearers to critically examine the Publications budget with a view to cost savings, a strategy session was held at the beginning of June 2016. An output from this exercise was a decision to implement the sending of an electronic copy of the *Journal* to every member, including student members. This required a substantial reduction of the file size that an electronic copy of the *Journal* took up to meet the distributor's target of 4MB per issue. The initiative commenced with the e-mailing of the April *Journal*, closely followed by the May *Journal*. The initial response from members has been positive and a survey will be conducted early in the new financial year to ascertain the level of satisfaction with the electronic copy of the *Journal* and to establish the number of members who no longer require a hard copy.

It is proposed to reduce the print run to 1500 copies during the next financial year, which will realize an estimated saving on printing and mailing costs of some R830 000 per annum.

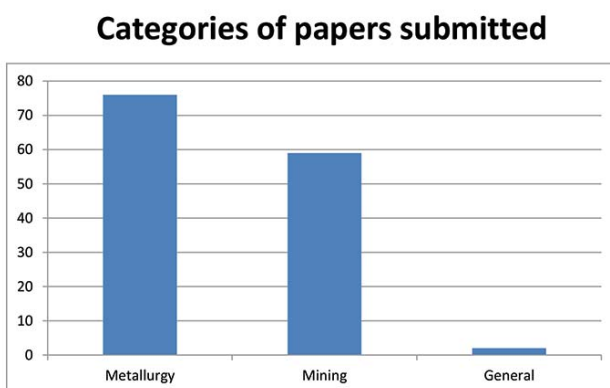
The Most Supportive Advertiser for the year is Elbroc Mining Products. The award will be given at the AGM

Investigations were conducted into plagiarism as well as editorial management software packages that the Publications Committee would like to have introduced to provide the publications team with tools to assist in streamlining the production of the *Journal*. Financial constraints have necessitated that this initiative be postponed to the next budget cycle.

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*.

The publications team of Dawn van der Walt, Zulaikha Malgas, and Kelly Mathee has continued its good work in producing the *Journal*.

Metallurgy	76
Mining	59
General	2



Papers submitted by Country

Australia	2	Russia	2
Austria	1	South Africa	44
Azerbaijan	1	Slovakia	1
Botswana	1	South Korea	1
Chile	7	Spain	1
China	70	Sweden	3
Czech Republic	3	Switzerland	1
Egypt	1	Thailand	1
Germany	2	Turkey	14
Ghana	5	Ukraine	1
India	24	Usa	3
Iran	18	Zambia	5
Malaysia	3	Zimbabwe	4
Nigeria	2		227
Poland	6		

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
- Co-operates 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

L.E. Dimbungu, Chairman

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

4.1.2 DRC Branch

S. Maleba, Chairman

K. Banika D. Sambwa
F. Lubala D. Tshibanda

The following activities took place during the year.

- A technical site visit to Tenke Fungurume Mining took place on 4 December 2015. The visit covered the entire project, from mining to copper cathode and cobalt salt production, and was attended by 23 professionals
- A professional development workshop, organized by ITASCA, from 6–7 of June 2016 at the Grand Karavia Hotel in Lubumbashi on the theme ‘Current Geomechanical and Hydrogeologic Trends in Open Pit Design, Analysis and Implementation’. DRC Branch members were invited to participate at a reduced rate
- CSI of South Africa and INPPAMET Anodos of Chile organized an electrowinning anode conference from 6–7

May 2016 at the Grand Karavia Hotel in Lubumbashi.

The DRC Branch members of the SAIMM were invited to attend the workshop for free

- The Branch was invited to participate in the Mining Week Conference, held from 8–9 June 2016 at the Grand Karavia Hotel in Lubumbashi. Susa Maleba, the Branch Chairman and Roger Dixon of SRK Consulting were members of the panel on the Commodities focus session. The SAIMM was also represented on the panel of judges for the DRC Mining Industry Awards, which nominated the best mining companies’ performers for different categories. Roger Dixon gave a presentation on the recent trends in Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves.

4.1.3 Johannesburg Branch

I. Ashmole, Chairman

B.P. Abilliera D. Jensen
I. Ashmole M. Mostert
J. Clarke S. Nhleko
G. Dellas D. Porter
C. Heili J. Ruddy
R. Heins G. Stripp
H. Jantzen M. Tlala

Introduction

The Johannesburg Branch’s main activity is to organize technical presentations on a monthly basis between February and November each year. These are generally held on the third Thursday of each month, and are traditionally followed by a cocktail party which gives attendees a chance to network with their peers. The costs of the venue hire and cocktail party have in the past been covered by sponsorships, either directly from the company presenting or from third parties with an interest in promoting their businesses to the audience.

In recent years as a result of the economic situation facing the mining industry, we have struggled to obtain sufficient sponsorship to fully cover the costs of these events, and thus since June 2014 we have held the presentations at the premises of Worley Parsons (who have kindly provided the venue at no

Annual report

Referees of papers submitted during 2016

Farzaan Abbasy	Willie Du Preez	Jean Malupo	Roelf Sandenbergh
Marat Abzalov	Marek Dworzanowski	Jannie Maree	Ewan Sellers
Catalina Alvarez	Markus Erwee	John Marriott	Glenn Sharrock
Neil Andersen	Essie Esterhuizen	Wynand Marx	Vusumuzi Sibanda
Ochieng Aoyi	Rosemary Falcon	Edward Mavhungu	Mark Silverwood
Robert Armstrong	Iain Farmer	Allan McCracken	Navin Singh
Winfred Assibey-Bonsu	Pete Ferreira	Norman McGeorge	Gordon Smith
Lidia Auret	Terrance Frangakis	Jeanette McGill	Janet Smith
Mark Austin	Peter Fraser	Bill McKechnie	Qurtus Snyman
Samson Bada	Murray Fredlund	Cor Meyer	Kathy Sole
Alex Bals	Bekir Genc	Bertie Meyer	Michael Solomon
Nicholas Barcza	Mugera Gitari	Graeme Miller	William Spiteri
Ian Barker	Olaf Goldbach	Doug Milne	Julie Stacey
Hugh Bartlett	Modreck Gomo	David Ming	Thomas Stacey
Hakan Basarir	Johan Gous	Dave Minney	Joalet Steenkamp
Carl Bergmann	Vasu Govindsammy	Richard Minnitt	Oskar Steffen
Marnus Bester	Dick Groot	Hani Mitri	Gerhard Stenzel
Johan Beukes	Alan Guest	Sofya Mitropolskaya	Jacobus Strauss
Marco Biffi	Daniel Guibal	Tshepo Mmola	Waldo Stumpf
Clinton Birch	Matthew Handley	Desmond Mossop	Ernst Swart
Steven Bluhm	Hu Hanrahan	Michael Moys	Marcelo Tavares
Tom Bookless	Kathleen Hansmann	Shaun Murphy	Peter Terbrugge
Gavin Brown	Harverson Robert	Cuthbert Musingwini	Andrew Thatcher
Jon Buckley	Kevin Hay	Alain Mwamba	Mpilo Thethwayo
Mark Burnett	Russell Heins	Oomeshni Naiker	Christine Thiar
Frank Calixto	Christian Holland	Alan Naismith	George Alex Thopil
Ismet Canbulat	Kevin Holley	John Napier	Tholana Tinashe
Frederick Cawood	John James	Andre Nel	Ron Tluczek
Kelello Chabedi	Willem Jordaan	Johan Nel	David Tudor
Vaughn Chamberlain	William Joughin	Michael Nicol	Hugo Tukker
Peter Chileshe	Robin Kear	Godknows Njowa	Sezer Uludag
Lesley Chown	Vladislav Kecojevic	Mark Noppe	Hakan Urcan
Johan Claassen	Danny Kentwell	Freeman Ntuli	Pieter Van Aswegen
Isobel Clark	Alan King	Seth Opoku	Bart Van de Steen
Andy Clay	Hendrik Kirsten	Julian Ortiz	Nielen Van der Merwe
Theresa Coetsee	Ekin Kis	Sam Palaniandy	Dirk Van Niekerk
Peter Cole	Peter Knottenbelt	John Parker	Petrus Van Staden
Nigel Coni	Dragan Komljenovic	Roger Paul	Pieter Gabriel Van Zyl
Luis Contreras	Geoff Krige	Richard Peattie	Julian Venter
Alan Cook	Jan Kuijpers	Arthur Pelton	Andrew Vietti
Herman Cornelissen	Jorg Lalk	Jochen Petersen	Fanus Viljoen
Lesley Cornish	Gys Landman	Pascale Petit	Jurgens Visser
John Cowan	Gary Lane	Lesley Petrik	Declan Vogt
Larry Cramer	Tony Leach	Huw Phillips	Kobus Vreugdenburg
Robert Cromarty	Paseka Leeuw	Rod Pickering	Nicola Wagner
Frank Crundwell	Oy Leuangthong	Matt Pierce	Diane Walker
Claude Cunningham	Daniel Limpitlaw	Pundy Pillay	Mark Wanless
Jane Danoczi	Philip Lloyd	Herman Potgieter	Ingrid Watson
Wolter De Graaf	Ken Lomborg	David Power	Dion Weatherley
Johan De Korte	Brian Loveday	Graham Priest	Nicholas Welham
Paul Den Hoed	John Luckmann	Chris Prins	Ivan Wermuth
Jared Deutsch	Ronald Machaka	Peter Radcliffe	Marcin Wertz
Roussos Dimitrakopoulos	Christopher Machio	Ganesh Rathod	John Whitall
Roger Dixon	Bernard Madden	Brad Rip	Rod Whyte
Christina Dohm	Aubrey Mainza	Dave Roberts	Mike Woodhall
Martin Dohm	Francois Malan	Dave Robinson	Mohsen Yahyaei
Andre Dougall	Ros Malloch	Marc Ruest	Lindiwe Zungu
Nicholas Du Preez	Dmitry Malovichko	Steven Rupprecht	Caliphs Zvinowanda

Johannesburg Branch of the SAIMM: technical presentations 2015/2016					
Date	Title	Presenter	Sponsor	Responsibility	Venue
16 July 2015	Update SAMREC / SAMVAL Codes	A. Kinghorn	Coffey Mining SA	I. Ashmole	Worely Parsons
20 August 2015	Student Debate: The New Neo-colonialism in Africa - Pros and Cons for the Mining Industry?	J. Luckmann and R. Heins	None	J. Luckmann and R. Heins	Worely Parsons
17 September 2015	Ivanhoe Mines first phase of the platreef project	G. Mouton	Ivanhoe	M. Walker	Worely Parsons
14 October 2015	Rock Hawg – the Tesmec way to surface mining	S. Fiorini	None	J. Luckmann	Worely Parsons
25 February 2016	New Gloria Ventilation Shaft: Success where Geoscience meets Engineering	N. Steenkamp	None	D. Munro	Worely Parsons
19 May 2016	Realizing the Productivity Potential of Joy Continuous Miners in Underground South African Coal Mines	D. Hoare	Joy Mining Global	G. Stripp	Worely Parsons

cost) at Melrose Arch. We have also taken measures to reduce the cost of the snacks in particular, and to reduce the drinks consumption by providing a limited number of vouchers to student attendees.

During the year under review, we struggled to secure high-quality presentations that were fully sponsored, and indeed we had several events where we were unable to raise any sponsorship above the venue provided by Worley Parsons. As a result, we held only six technical presentations (another was cancelled at the last minute as only three attendees had confirmed 24 hours prior to the presentation) for the year, down from the eight held in 2014/2015.

The student attendance at these events has been maintained, and we have also over the past year managed to get participation at one event from the University of Johannesburg's Metallurgy Department students, rounding out the attendance from UJ Mining and Wits Mining and Metallurgy students reported in previous years.

We kicked off the year in July 2015 with a presentation on the updated SAMREC/SAMVAL Codes by Ken Lomborg and Kelly Redman. This was followed in August by what has now become our annual student debate, with the topic 'The New Neo-colonialism in Africa – Good or Bad for the Mining Industry?' Once again, the debate was lively, and the students well prepared.

In September, Gerrick Mouton and his team from Ivanhoe Mining gave a very interesting presentation on their Platreef project. In October Simone Fiorini of Tesmec presented on their mechanized surface continuous miners and their applications in the mining industry. A planned event from Saveway Technologies on furnace protection was cancelled, as 24 hours before the presentation was due to take place, we had only received three RSVPs from attendees.

2016 began in February with a presentation by Dr Nicholaas Steenkamp on novel approaches to the ventilation shaft at Black Rock. We were unable to secure quality sponsored presentations for March and April, but returned in May with a presentation from Deane Hoare of Joy Global on efforts to enhance the productivity of continuous miners in the South African context. We were again, however, unable to secure a presentation for June.

In terms of finances, we ran at a deficit of R43 453 for the financial year, while in total 596 members attended the six events held.

Going forward, we have presentations secured for July and August (the student debate), as well as several other possible presentations in the pipeline – these will, however, be dictated by affordability in the current economic climate.

I would like to thank the Committee for their support and efforts over the past year, and Jacqui E'Silva for the secretarial and organizational duties.

AGM

The Branch AGM was held on 23 June 2016.

Committee

We welcome Nhleko Sihesenkosi as a new member of the Committee, while we say farewell to Russell Heins and George Dellas. We wish Russell and George well, and thank them for their hard work on the Committee. In addition, Ian Ashmole resigned as Chairman due to work commitments, but will remain as a member of the Committee. John Luckmann was elected as the new Chairman, having ably assisted as Vice-Chairman for the past two years, and we wish him well in his new role.

4.1.4 Namibian Branch

N.M. Namate, Chairman

T. Ipinge	E. Shiningayamwe
T. Ipangelwa	B. Sililo
P. Kapitango	G. Ockhuizen
R. Shilongo	

Generally the year has been a success. Professionals in the industry are appreciating and becoming more aware of SAIMM activities and the benefits to individuals and the industry in general.

The organizational structure of the Branch has been reinvigorated to strategically position it for growth. Membership recruitment continues. The Branch expects to be able to participate in the activities of the Engineering Council of Namibia by end of 2016/2017.

The Namibian Branch participated at the Mine Expo in Windhoek towards the end of April, 2016.

Events planning continues, with one major international event on the cards and another local event to take place in mid-August 2016.

Annual report

Membership

The Branch membership drive is continuing. Recruitment has been taken to all levels of management, with the result that more professionals are able to participate in Branch events. A case in point is the last technical event, hosted by the Namibian Uranium Association (NUA) in Swakopmund, which was well attended by representatives of various companies. This is in contrast to the earlier event where only one mine attended. It is possible that attendance might have been higher if the topics for presentation had covered mining as well (the main topic was uranium processing). The Branch Chairman visited a number of mines between February and May to promote the SAIMM as a viable professional organization that all professionals are encouraged to join. A number of student members (working in industry) were issued with forms to convert their Student membership to Associate membership, and a few members who had discontinued their subscriptions were encouraged to reactivate their membership. The new mining companies now in production (Swakop Uranium and B2 Gold) are a particular focus of the membership drive. The Chairman has successfully put forward the image that SAIMM membership is about realization of value through professional development. Membership is expected to continue to grow.

Events

The Namibian Branch planned a number of technical events around the country.

1. On 20 November 2015 a technical presentation was planned at Tsumeb, which houses the copper smelter owned by Dundee Precious and is located in the vicinity of B2Gold's Oshikoto mine and Ohorongo Cement in Otavi. The objective was to bring together professionals, recruit new members, and introduce the plans of the Branch to members
2. On the 19 February 2016 an event was planned for Rosh Pinah in the south of Namibia, about 700 km from Windhoek. This town is located in the vicinity of three mines; the Rosh Pinah lead-zinc mine, Skorpion Zinc, and the Namdeb group of diamond mines. The main objectives were to bring together professionals, recruit new members, and also introduce Branch plans to members
3. On 11 March 2016 a presentation was planned for Windhoek, the capital city. The timing was intended to accommodate final-year students' project presentations for assessment with industry captains in attendance, to let the students showcase their capabilities and sell themselves to possible employers, and finally introduce the Young Professionals Council (YPC) to students and new entrants to the industry for support and guidance. Given the audience expected, this was also an opportune event for recruiting new members
4. On the 20th May 2016 an event was planned for the coastal town of Swakopmund, which is in the vicinity of all currently operating uranium mines, one lead mine, and a number of exploration projects. The objective was, as usual, to bring professionals together and recruit new members while introducing the Branch activities to members.

5. The Branch Annual General Meeting was planned for 24 June 2016, in Windhoek, with the aim of putting together all the year's efforts and programmes.

Unfortunately, out of the five planned events, only the technical event in Swakopmund did take place. The main presentation at the event was given by Dr Kathy Sole. The event was zero cost, but registration was mandatory. The venue (the NUA auditorium) for this event was filled to slightly beyond capacity. SAIMM staff (Sam Moolla and Jacqui E'Silva) attended the event and will bear testimony that a good cross-section of industry was in attendance. The event was co-sponsored by Namibia University of Science and Technology (NUST), the Namibian Uranium Association (NUA), and the Namibia Uranium Institute (NUI). The event provided an opportunity for networking and consultation among various attendees, and was a great success.

The Branch participated in the annual Mine Expo at the Windhoek Showgrounds from 27–28 April 2016, as part of the NUST contingent. The university has a complementary stand each year, where it showcases its programmes and activities. The SAIMM is hosted by NUST, and that collaboration is what makes the operations of the Namibia Branch logistically possible. However, since the stand is shared, activities were limited to membership promotion and explanation of the SAIMM's objectives and activities. A reasonable amount of interest was shown by visitors to the stand.

The rest of the planned events were either postponed to a later date (Rosh Pinah) or cancelled altogether in order to streamline resources and to make sure the objectives set are achieved.

The Branch is now looking at organizing an international event (a uranium conference) and is in the process of establishing its viability through consultations and assessments of needs. This is being done in conjunction with NUST and the Namibian Uranium Institute, as well as possibly overseas partner organizations.

Challenges

A large part of the Branch membership seems to remember the SAIMM only when their subscription is due, or when the monthly e-mail publication arrives. This does not lend our membership experience the value that the organization has to offer. To counter this, the Branch has embarked on zero-cost interactions close to members' locations and dealing with issues right within their work confines. These proceedings are proving a good incentive, as there are a good number of professionals who would like to present their work at a wider forum than only inside their boardroom.

There is a vacuum within the engineering profession in general, and mining-related professions in particular, related to professional bodies and regulation. The Branch intends to support the existing professional organizations, and plans to join such organizations as the Engineering Council and the Geological Society in order to articulate the interests of members as well as offer advice on these bodies where necessary.

The administration of Branch affairs needs to be examined in order to ensure that some activities can be funded through subscriptions or some other means of support, to alleviate the personal cost burden on members.

Annual report

The student branch has taken a deliberate step to enhance value for young professionals by aligning itself with the activities and objectives of the SAIMM YPC. The contact person is a young female engineer who is working with Rio Tinto Rössing Uranium.

Finally, the new committee is strategically placed to take the Branch to higher levels, and we anticipate that it will be a great success.

4.1.5 Northern Cape

C. van Wyk, Chairman
T. du Toit, Vice-Chairman
B. Basson, Secretary
I. Lute, Treasurer

A. April M. Luther
J. Leader F. Nieuwenhuys

The Northern Cape Branch Committee was inaugurated on 7 October 2014. Two of the members resigned since they relocated nationally and internationally respectively, and two new members (Marius Luther and Fabian Nieuwenhuys) were elected. Charmelle Kearns is the latest member leaving the province. The Committee thanks her for the time and effort committed during her tenure.

The strategy for 2016 was influenced by the current economic climate in the province. Branch activities were scaled down considerably. A decision was made to focus mainly on the operations surviving the current commodity slump, and to hold only technical discussion sessions and recruitment sessions. Three sessions are planned in July 2016 and August 2016:

Venue	Date	Focus
Aggenuys	22 July 2016	Zinc, diamonds
Kathu	19 August 2016	Iron ore, manganese
Danielskuil	To be confirmed	Diamonds, lime

The AGM is planned for 19 August 2016 and will coincide with the recruitment session to take place in Kathu.

New members have joined the Institute this year. The Branch Secretary will assist with the control and management of new applications to keep track of potential new members and the current membership. A database of all professionals in the province had been developed and is being maintained. The database contains currently more than 60 individuals, who will be contacted on an individual basis.

Prices for bulk commodities decreased significantly in 2014/2015 to their lowest levels in recent times. Most of the Northern Cape mining companies are affected and are currently focused on mitigating the impact of the reduced prices. Securing company sponsorships of activities and events is challenging at present. Long distances between the different centres are also an obstacle to members gathering on a frequent basis.

Discussions were held with regard to strategic collaboration with the Northern Cape Mine Managers Association. Discussions around maintaining the SAIMM brand and identity took place. It was agreed that collaboration could have a positive influence on the sharing of technical knowledge in the Northern Cape.

4.1.6 Pretoria Branch

P. Bredell, Chairman

W.W. de Graaf N. Naude
K. de Wet D. Powell
R. Mabapa C. Siyasiya

The activities of the Branch continued with the format of previous years. An attempt was made to set up a video conferencing facility between the Pretoria and Johannesburg branches, but this was not successful. The idea was to enable the sharing of speakers between the two branches initially, but to set it up to be rolled out to other, more remote locations. The problems experienced are solvable and this will be attempted again in the coming year. Improved bandwidth for data transfer over the internet is required.

One seminar was organized in conjunction with the Department of Mining Engineering and the Department of Material Science and Metallurgical Engineering at the University of Pretoria's main campus.

On 13 June 2016 Professor Roger Reed, University of Oxford, gave a guest lecture on 'Some recent research on nickel-based superalloys for high-temperature systems'. The event was very well attended.

One of the core functions of the Pretoria Branch is to grow the SAIMM membership numbers through student membership. This was achieved this year through an event held on the Hatfield campus of the University of Pretoria, where all final-year students of Mining Engineering and Metallurgy were present to listen to Malcolm Walker. This was a very well-attended and successful meeting.

The Branch is currently in the process of drastically increasing the number of committee members in an attempt to plan for more events during the coming year. Already Kumba Resources has nominated a representative to serve on the Committee and more institutions located in the Pretoria area are being contacted. The Committee aims to host at least eight events over the coming year. The idea is to have the events coincide with the monthly social events of the Mining Alumni Society of the University of Pretoria (MASUP), to enable members to participate in the MASUP event after the technical talks. The events will be planned for the last Thursday of every month.

Finally, thanks to the Committee, the SAIMM Secretariat, and lastly a special word of thanks to Daleen Gudmanz and Gabi Ngema for playing a key role in making sure that all the events ran smoothly.

4.1.7 Western Cape Branch

A. Mainza, Chairman

L. Auret, Treasurer
L. Bbosa T. Ojumu
R.D. Beck J. Petersen
J.A. Cruise C. Sweet
D. Deglon J. Sweet
A. Nesbitt

Academic personnel and students from the three main tertiary education institutions in the Western Cape (Cape Peninsula University of Technology, Stellenbosch University, and University of Cape Town) represent the majority of the members of the Western Cape Branch. The Branch events are therefore mainly aimed at providing students with information

Annual report

about mineral processing career options and at creating a platform for students and academics to discuss their research. A number of retired members that have moved to Cape Town are also active in the Branch

The annual Southern African Mineral Beneficiation and Metallurgy Conference (Minproc) was held at the Vineyard Hotel in Claremont on 6 and 7 August 2015. Two plenary presentations were given at the conference. The first was delivered by Professor Magnus Evertsson from Chalmers University of Technology and focused on cone crusher modelling and simulation. Dr Rodney Jones presented on the theme 'DC arc furnaces - the story of a successful South African technology'. A total of 38 full oral presentations, 29 short poster presentations, and 13 posters without presentations were delivered over the course of two days. A total of 142 delegates attended the conference.

Several student prizes were awarded at the conference dinner, including the conference poster prizes which were won by Johannes Rabie (first prize) and Stefan Geldenhuys from the University of Cape Town (second prize). The Outotec Sustainability poster prize was won by Mpendulo Ncongwane from the University of Cape Town for a project entitled 'A feasibility study of the mineral carbonation of PGM tailings'. The second prize went to Bridgette Fundikwa for her project on the environmental assessment on the use of flotation for coal recovery and sulphur removal from fine coal. The President-elect of the SAIMM, Rodney Jones, presented SAIMM prizes to the best final-year students in Mineral Processing at the three main Western Cape tertiary education institutions in 2015. The recipients were James Brassell from Cape Peninsula University of Technology, Adriaan Henning from Stellenbosch University, and Daryl Brown from the University of Cape Town.

The conference dinner was preceded by the Branch AGM, at which the outgoing Chairperson, Christie Dolfing, presented his report and the new committee was elected. Aubrey Mainza was elected as Chairperson, Craig Sweet as Vice-Chairperson, and Lidia Auret as treasurer.

The conference was preceded by a one-day workshop that covered concentrator operations – crushing/screening, grinding, classification, and flotation/separation (including reagents, machines, and circuits). The workshop was practical; focusing on what technical people on site can do and should be doing to ensure that they get the most out of their plants in these lean times. The deliverable was a priority list of interventions and opportunity areas for each topic as a target value point. Magnus Evertsson (Chalmers University of Technology, Sweden), Elizma Ford (Mintek), Klaus Schommarz, (independent consultant), Mike Valenta (Metalicon), Martin Harris (University of Cape Town), and Ravesh Sogan (Hatch) presented material and Craig Sweet was the facilitator.

Given the Western Cape Branch's commitment to supporting student activities and through generous sponsorship from Outotec, the Outotec Travel Grant was awarded Brian Lindner in 2016.

The Branch finances are in good order. The Minproc Conference was not held in 2016 so as to allow the Hydromet conference to be managed by the secretariat with full involvement by the Branch. The Minproc Conference for 2017 will take place at the Vineyard Hotel in Claremont, and the dates will be decided at the AGM on 17 August 2016.

4.1.8 *Zambian Branch*

D. Muma, Chairman
C.M. Walubita, Vice-Chairman
A. Mhone, Secretary
W. Munalula, Treasurer
C. Ngulube H. Zimba
S. Sondashi

The recruitment of new members has continued, with specific focus on corporate membership. There was a remarkable increase in student membership in the last financial year. This could be attributed mainly to the engagement of the two largest Zambian public universities – the University of Zambia, Lusaka and the Copperbelt University, Kitwe – in the Branch's activities. The Branch is also considering extending collaboration with government departments and organizations such as the Chamber of Mines and the Mines and Safety Department under the Ministry of Mines and Mineral Development.

Activities

A Branch technical event took place on 31 October 2014 at Chingola Protea Hotel; this was coupled with a technical site visit to Lubambe Copper Mines in Chililabombwe. The theme of the event was 'The role of engineers in the extractive industry'. Two technical papers were presented.

The first annual Zambian Mining Student Colloquium was held at the Copperbelt University in Kitwe on 11 June 2015, with the theme 'The future of the mining industry in Zambia and the roles of the SAIMM and the universities'. This was the first student colloquium hosted by SAIMM in Zambia and was attended by more than 140 students. Representatives of the Chambers of Mines of Zambia and the SAIMM Secretariat also attended.

The Copper-Cobalt Conference, in association with the 8th Southern African Base Metals Conference, took place from 6-8 July 2015 at Zambezi Sun Hotel, Victoria Falls. This conference, which was jointly hosted by the Mining and Metallurgy Technical Committees of the SAIMM, aimed to:

Zambian Branch Membership from 2011–2016						
Year	Members	Fellows	Associates	Students	Company Affiliates	Total
2015/2016	6	0	8	120	0	134
2014/2015	7	0	4	1	0	12
2013/2014	10	0	5	0	0	15
2012/2013	5	0	4	0	0	9
2011/2012	3	0	25	0	0	28

Annual report

- ▶ Promote dialogue between the mining and metallurgical disciplines on common challenges facing the industry
- ▶ Encourage participation and build capacity amongst young and emerging professionals from the Copperbelt region
- ▶ Improve understanding of new and existing technologies, leading to safe and optimal resource utilization.

The Zambian Branch was coopted to organize this great event, which attracted participants from all over the southern African region and beyond.

The Copperbelt Mining Trade Exposition & Conference (CBM-Tec) was held from 12–13 May 2016. The Branch presented a technical paper entitled 'Cost optimization strategies and technologies in the Zambian copper mines'. The event recorded the highest number of delegates, many of whom visited the SAIMM Zambian stand, and a good number of applications for membership were registered.

On 27 July 2016, Specialised Exhibitions Montgomery (SEM), in conjunction with Electra Mining of South Africa, entered into an agreement with the Branch to collaborate on the trade and mining exhibition in the Copperbelt region. SEM agreed to:

- ▶ Carry the SAIMM logo as an Endorsing Association on all collateral moving forward
- ▶ Include the SAIMM logo on the CBM Tec website
- ▶ Provide any collateral needed to market the show
- ▶ Provide a 9 m² outdoor stand (floor space only) to SAIMM at CBM-Tec free of charge.

The SAIMM will:

- ▶ Endorse CBM-Tec
- ▶ Assist in marketing CBM-Tec to its members in Zambia via functions, mailers, website etc.
- ▶ Include the CBM-Tec logo on the SAIMM website

4.1.9 Zimbabwean Branch

S. Ndiyamba, Chairman

Membership

The Zimbabwe Branch membership continues to grow through networking and awareness events targeted at engaging potential member's particularly tertiary institutions students. A number of meetings some of which were facilitated by the Regional Development Manager were held with various tertiary institutions. This has certainly increased awareness of SAIMM and its activities among the students.

Networking events

The Branch successfully organized networking and technical events and a Conference held in Bulawayo during the MINETRA exhibition. The conference theme was Innovation in Mining.

Branch Elections

A Branch Committee was elected during the year and the members are as follows:

S. Matutu	Chairman	Zimplats
M. Gumbie	Secretary/Vice Chairman	ZIMASCO
S. Sadomba	Immediate Past Chairman	ZMDC
O. Zvarevashe	Committee Member	Zimplats
M. Mariah	Committee Member	Virimayi Projects

C. Sadomba	Treasurer	ZIMASCO
C. Tahwa	Committee Member	Paasol Resources
E. Hove	Committee Member	Freda Rebecca
S. Gaihai	Past Chairman	ZMDC
W. Kutekwatekwa	Past Chairman	Wirimayi
S. Ndiyamba	Past Chairman	MIMOSA.

4.1.10 Zululand Branch

C. Mienie, Chairman

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

Brett Cox resigned from the Committee. He was seconded within his company to an overseas operation.

Due to severe pressure from low product demand and commodity prices, most of the mines in the area are operating at 50% of normal capacity, and cost-cutting programmes are being implemented throughout the industry. Tata Steel SA, a ferrochrome smelting operation in Richards Bay, was liquidated during the latter half of 2015 after a failed business rescue attempt.

The Zululand Branch is working closely with the SAIMM office in Johannesburg with regards to the Heavy Minerals Conference (HMC 2016) which is being held from 16–18 August at Sun City.

Eriez / Macsalab (Pty) Ltd hosted a very enjoyable and well-presented technical meeting on laboratory and sample preparation equipment on 17 February. The event was attended by 18 people, the highest number in long time. This presentation is recommended to other SAIMM branches.

The following activities are planned for the year ahead:

- ▶ *Plant visit*—BHP Billiton Hillside (South32 aluminium smelter)
- ▶ *Social*—birdwatching event with family braai
- ▶ *Social*—end-of-year wine or whiskey tasting
- ▶ *Other*—financial / investments.

5. Engineering Council of South Africa (ECSA)

Professional Advisory Committees

PAC Mining

M.H. Rogers, Chairman
R.P. Mohring*, Vice-Chairman

M.J. Motomogolo	V.P. Tobias
C. Musingwini	D.J. van Niekerk
J.C. Ngoma	S. Uludag
R.C.D. Phillis	R.C.W. Webber-Youngman
V.O. Seboni	L. Zindi
G.L. Smith	S. Zitha

* Deceased

PAC Metallurgy

M. Dworzanowski, Chairman
K.C. Mistry, Vice-Chairman

R.H. Eric	K. Poonan
I.J. Geldenhuys	R.F. Sandenbergh
R.T. Jones	M.D. Seke
S.M. Naik	M. Vermaak
J. Phiri	

Annual report

PAC Mining

Rick Mohring, who served on a number of ECSA's committees and Council for many years and with great distinction, sadly passed away during the year. His sage guidance and advice will be missed.

The SAIMM has been associated with ECSA and its forerunner, the South African Council for Professional Engineers (SACPE), as a founding Voluntary Association since their inception. The SAIMM provides input into the ECSA committees by nominating members to serve on those committees.

The Committee continued to review and recommend applicants for registration as Professional Engineers. The SAIMM continued to arrange peer reviews of candidate professional mining engineers, which assistance is appreciated.

The impasse between ECSA and the Council for the Built Environment in respect of the 'Identification of Engineering Work' continues, with little progress having been made. No input was required from the Committee

The 'New Registration System' (NRS) for the online application for registration by Candidate Professional Engineers went live on 1 April 2016.

It is pleasing to note the increasing number of women applying for registration. It is expected that the number will continue to grow with increasing numbers graduating.

Five members of the current Committee with more than twelve years' service will no longer be eligible to serve after July 2016 and will resign. While it will be reasonably easy to appoint a more racially balanced Committee, this is not the case for women. The incoming Chairman and Committee will have to fill the vacancies with assistance from the SAIMM. It is noted that 57 per cent of the Committee are black or coloured, and 14 per cent are women. The emphasis for the incoming Committee will be gender equality.

PAC Metallurgy

The mission of ECSA is to ensure, through a cooperative process of quality assurance, that persons entering the profession are educated and trained according to widely accepted standards, so as to be able to render a professional service for the benefit of the public and the country as a whole. The Professional Advisory Committees (PACs) of ECSA contribute to this mission by considering matters specific to the discipline and also contribute to wider policy matters as required.

During 2015/2016 the PAC Metallurgical Engineering again considered applicants for registration as Professional Engineers by means of paper evaluations and interviews, in which volunteers from the SAIMM participated. The requirement for Continuing Professional Development (CPD) of Professional Engineers for all registered persons opens up opportunities for the SAIMM to support the profession by the offering of seminars and conferences. This contributes to the CPD category 1, developmental activities. The SAIMM also supports the CPD process in category 3, individual activities, in which membership of the SAIMM, presenting papers at SAIMM conferences, and participating in SAIMM committees all contribute to CPD credits. The Committee wishes to record its thanks to the organizing committees and the Secretariat of the SAIMM for the issuing of CPD certificates.

During 2015/2016 no new members to the Committee were appointed. During 2016, ECSA introduced a new registration

system. All the committee members have received training in how the new system functions. The main difference with the new system is that it is structured around the assessment of the 11 competencies required of a Professional Engineer.

6. State Liaison

Portfolio Holder: R.T. Jones

6.1 Outcomes-based Education and Training (OBET)

Portfolio Holder: D.J. van Niekerk

Compulsory Registration with the Engineering Council of SA (ECSA)

- The registration of persons currently performing Identified Engineering Work (IEW) is currently voluntary
- The promulgation and implementation of the proposed Identification of Engineering Work (IDoEW) Regulations will make registration with the Engineering Council of SA (ECSA) compulsory for Engineering Practitioners who perform IEW and take responsibility for such work
- The Competition Commission (CC), with the support of ECSA, has consulted all the interested and affected parties who submitted comments and who have raised concerns regarding the proposed IDoEW Regulations (CBE Board Notice)
- The CC has rejected the Council for the Built Environment (CBE) and ECSA's Exemption Application to publish the proposed IDoEW Regulations. The CC also rejected the exemption applications of all five of the other Professional Councils resorting under the CBE
- The CBE, in collaboration with the said six Professional Councils, is busy preparing appropriate appeals against the said ruling of the CC.

Engineering Candidature

- ECSA is investigating an appropriate approach/model that will enable employers who train Candidate Engineering Practitioners under ECSA's Commitment and Undertaking (C&U) to claim some of the education and training expenditure from the relevant Education and Training Quality Assurer (ETQA)
- ECSA has established task teams to investigate and advise in respect of the preferred model for the funding of the Stage 2 training and experience of Candidate Engineering Practitioners.

New Registration System (NRS)

- The NRS departs from the legacy registration system in that ECSA has decided to adopt an *Outcomes-based Education and Training (OBET)*-compliant competency standards and assessment model which is internationally benchmarked and recognized
- ECSA undertook a most successful NRS public consultation process during March 2015 in the main centres across South Africa. The outcomes will be published on the ECSA website in the form of appropriate frequently asked questions (FAQs)
- Applicants will continue to submit their applications to register with ECSA in paper-based format until the online NRS becomes operational. An appropriate phasing-out period of 12 months will be observed for paper-based applications.

Focus for the SA Mining and Minerals Sector

IEW in the SA Mining and Minerals Sector (SAM&MS)

- ▶ Engineering Practitioners in the SAM&MS who perform IEW and take responsibility for such work will need to become registered in the appropriate category with ECSA
- ▶ The Engineering Practitioners in the SAM&MS who will be most affected by the proposed IDoEW Regulations include Engineers, Engineering Technologists, Certificated Engineers, and Engineering Technicians in the relevant engineering disciplines and/or vocational practitioners
- ▶ The level descriptors in the proposed IDoEW Regulations make an unambiguous distinction between the levels of engineering practice *vis-a-vis* 'complex' (Pr.Eng.), 'broadly-defined' (Pr.Eng.Tech. and Pr.Cert.Eng.), and 'well-defined' (Pr.Eng.Techn.)
- ▶ Numerous discussions held between the Mine Health and Safety Council (MHSC), the Mining Regulations Advisory Committee (MRAC)'s Task Team dealing with Mandatory Licensing in the SAM&MS, and ECSA, have led to a joint agreement to investigate the possibility of instituting some form of exemption for Competent Persons who perform and take responsibility for IEW
- ▶ ECSA has also consulted with PLATO, SACNASP/GSSA, and the SAIMM and its associated Recognized Voluntary Associations (VAs) in respect of overlaps between the Identified Work for the different professions/occupations in the SAM&MS. The agreed way forward in regard to the said overlaps that was proposed to the CC is the incorporation of an appropriate 'exemption clause' to the proposed IDoEW Regulations as well as the establishment of joint IDoW committees that will deal with specific overlaps between registration categories, persons registered with other statutory bodies, and relevant practice areas.

Cheadle, Thompson and Haysom (CTH) Report

- ▶ The Cheadle, Thompson and Haysom (CTH) Report dealing with certificates of competency (CoCs) in the SAM&MS was approved by a Stakeholder Consultative Workshop arranged by the Mining Qualifications Authority (MQA) held on 20 July 2012
 - The work relating to the implementation of the recommendations of the said Report was subsequently temporarily suspended until the completion of the Classification of Mines Project. To date the work relating to the said issue has not commenced
- ▶ The said CTH Report was referred for implementation to the Mining Regulations Advisory Committee (MRAC). To date the implementation of the recommendations of the said Report has not commenced.

Statutory Licensing in the SAM&MS

- ▶ The Department of Mineral Resources (DMR) undertook to expedite the implementation of the 'Report: Reverting back to the Blasting Certificate' which was approved by the Board of the MQA. To date, the work relating to this crucial issue has NOT recommenced
- ▶ The Inspectorate: Mineral Resources holds the

view/position that Certificates of Competency (CoCs) issued by the DMR are NOT qualifications and may therefore be withdrawn or suspended. Legal counsel considers the use of CoCs for the purposes of a Licence to Practice (LtP) as unconstitutional

- ▶ The DMR undertook to publish a draft list of occupations in the SAM&MS that would be subject to statutory licensing, (*the Big Five appointments*). The work relating to this crucial issue has not been completed.

Poor Examination Results : Government Certificates of Competency (GCCs)

- ▶ The draft, final 'Report: Poor Examination Results of Government Certificates of Competency (GCCs)' compiled by a University of Johannesburg (UJ) team, was approved at a Stakeholder Industry Workshop held on 22 August 2014
- ▶ The MQA Board approved the said Report and forwarded it for consideration and implementation to the MHSC. To date the work relating to this crucial issue has NOT commenced.

The 'New Model for CEs'

- ▶ An ECSA Standards Generation Group (SGG) developed a 'New Model for Certificated Engineers (CEs)' which proposes that the GCCs (seven in total) for Managers and Engineers in South Africa be replaced by registration with ECSA in the appropriate category of Pr. Cert. Eng.
- ▶ ECSA has agreed to establish a high-level Joint Steering Committee composed of representatives from the DMR, Department of Labour, Department of Transport, Department of Public Works, and ECSA to address the inappropriate duplication of requirements for CEs found in the different sets of legislation. Progress with this initiative is, regrettably, unsatisfactory.

Implementation of an OBET-compliant dispensation in the SAM&MS

The finalization/implementation of numerous Quality Council for Trades and Occupations (QCTO)-compliant qualifications for the SAM&MS has been derailed/delayed/suspended as a result of the re-introduction of the Blasting Certificate issued by the DMR.

7. International liaison

Portfolio Holder: R.T. Jones

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 United Kingdom, and the United States of America, and interacts with sister institutions in other countries to promote international exchange of scientific and technical information.

Annual report

7.1 INFACON

R.T. Jones, Chairman

I. Geldenhuys, Secretary General

The International Ferro-Alloys Congress (INFACON) was founded in South Africa in 1974 by the SAIMM, Mintek, and the Ferro-Alloys Producers' Association (FAPA) when the first INFACON was held in Johannesburg. The most recent Congress, INFACON XIV, was held in Kyiv, Ukraine in June 2015.

The International Committee on Ferro-Alloys (ICFA) was formed by the SAIMM, FAPA, and Mintek with the primary objectives being to promote the holding of the International Ferro-Alloys Congress every three years in appropriate locations, and to ensure that the high technical standard of papers and presentations is maintained. ICFA has representatives from the major ferro-alloy producing and consuming countries. Mintek provides the secretariat for ICFA.

INFACON has previously been held in the following countries and 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.

The next congress, INFACON XV, will be held in South Africa in 2018, and will be co-chaired by Dr Rodney Jones and Professor Hurman Eric. The Organizing and Technical Committees are currently being convened. Companies wishing to sponsor the upcoming Congress should contact the organizers. The website for Infacon XV is <http://www.infacon15.com>

The SAIMM has an INFACON Fund that was established from the surplus generated by the last Congress that was held in South Africa, INFACON X. In the past year, this fund has supported a postgraduate bursary for one student doing pyrometallurgical research in ferro-alloys. Funds were also provided in support of the lecturing costs for two prominent overseas speakers at the SAIMM School on Manganese Ferro-alloy Production held in June 2016, and the attendance fees of a number of students were also sponsored by this fund.

Details will be made available on the INFACON website: <http://www.pyrometallurgy.co.za/Infacon/>

7.2 SAMREC/SAMVAL

T.R. Marshall, Chairperson

F. Cawood, Deputy Chair

A. Bals, SAGC

M. Booysen, Assoc. Law Society

A. Clay, SAMOG

K. Davies, SAICA

R. Dixon, SAIMM/CRIRSCO

S. Foya, Council for Geoscience

R. Ingram, Reader Panel

K. Lomborg, SAMREC/CRIRSCO

Adv. C. Loxton, Gen. Council for the Bar

S. Magnus, SAMESG

P. Rampersadh, SACNASP

K. Redman, SAMVAL

E. Swindell, GSSA

J. Visser, IMSSA

The SAMCODES Standards Committee (SSC) operates under the auspices of the Geological Society of South Africa (GSSA) and the Southern African Institute of Mining and Metallurgy (SAIMM). Its primary purpose is to develop, maintain, administer, ensure compliance with, and promote the South African Mineral Codes, collectively known as the SAMCODES, which is a collective acronym for the following documents:

- a. SAMREC: The South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves
- b. SAMVAL: The South African Code for the Reporting of Mineral Asset Valuation
- c. SAMOG: The South African Code for the Reporting of Oil and Gas Resources
- d. Commodity- or subject-specific guidelines:
 - i. *SAMESG Guideline*: The South African Guideline for the Reporting of Environmental, Social and Governance Parameters within the Mining and Oil and Gas Industries
 - ii. *SAMREC Diamond Guidelines*: SAMREC Guideline Document for the Reporting of Diamond Exploration Results, Diamond Resources and Diamond Reserves (and other Gemstones, where Relevant).

In view of the fact that the SSC now deals with more than simply the SAMREC and SAMVAL Codes, a change of name was approved in August 2015 from the SAMREC/SAMVAL Committee to the SAMCODES Standards Committee.

As at November, 2015 the member organizations are:

- Law Society of South Africa
- Chamber of Mines of South Africa (COM)
- Council for Geoscience (CGS)
- South African Geomatics Council (SAGC)
- Institute of Mine Surveyors of Southern Africa (IMSSA)
- Department of Mineral Resources (including the Minerals Bureau) (DMR)
- Engineering Council of South Africa (ECSA)
- Geological Society of South Africa (GSSA)
- Geostatistical Association of South Africa (GASA)
- General Council of the Bar of South Africa
- Investment Analysts Society (IASSA)
- JSE Limited (including the Chairs of the relevant Readers Panels)
- South African Council for Natural Scientific Professions (SACNASP)
- Southern African Institute of Mining and Metallurgy (SAIMM)
- SA Institute of Chartered Accountants (SAICA).

Annual report

In April 2016, letters were sent to each of these organizations requesting confirmation of membership and their respective representatives, to be ratified at the August meeting of the SSC. In view of the lack of oil and gas skills among the current members, it was unanimously decided that the South African Oil and Gas Agency (SAOGA) would be invited to become a member of the SSC, and they readily accepted.

The SSC continues to meet quarterly. Key issues and events influencing the business of the SSC during the period under review are as follows.

SAMREC and SAMVAL

The first half of 2016 was a very busy time for both the SAMREC and SAMVAL Committees (in late 2015 it was agreed to change the names of the Working Groups to Committees). The SAMREC and SAMVAL Codes (2016 edition) were reviewed by the Financial Services Board and published in the Government Gazette, along with the new JSE Listing Rules. No comments were received back from this process, so the relevant Committees proceeded with the launch of the Codes. Although all Competent Persons (CPs) and Competent Valuators (CVs) are encouraged to use the 2016 versions of the Codes with immediate effect, they will be mandatory for JSE-listed companies (for CPRs and Annual Reports) only from 1 January 2017.

The Codes were implemented at the SAMREC/SAMVAL Companion Volume Conference held at Emperors Palace during May 2016, and subsequently launched at a function held at the JSE and celebrated by the blowing of the Kudu Horn.

- ▶ The 2016 versions of the SAMCODES were compiled into an A4 document comprising the SAMREC, SAMVAL, and SAMOG Codes. All Codes are available on the SAMCODES website (and have been sent to the SAIMM and GSSA for inclusion on their websites as well)
- ▶ In addition to the three Codes, two Guideline documents were also completed – the SAMESG and the Diamond Guidelines. The latter is simply part of the SAMREC Code, but can also be used as a stand-alone guide to the compilation of diamond-specific Competent Persons Reports (CPRs). Both documents have both been incorporated into the Companion Volume and also appear on the SAMCODES website
- ▶ The SAMREC/SAMVAL Companion Volume Conference was well attended, with about 130 people attending. Many of these were senior members of the industry and there was a good dynamic as a result. Some 61 papers were submitted and 32 were published. The general consensus from the delegates was that the papers and conference were of very high quality. The Conference Committee and the SSC would like to acknowledge the SAIMM conference team – particularly Sam Moolla, Raymond van der Berg, Camielah Jardine, and Nazli Mamdoo for their assistance in organizing the conference and the Companion Volume publication.

Minor administrative issues with the finalization of the Codes remain – mostly with updating the SAMCODES website postings and the organization of formal training programmes. Furthermore, the SAMVAL Committee will now concentrate on the fundamental issue of registration of CVs.

A short synopsis introducing the updated Codes (including a link to the SAMCODES website) has been compiled and sent to all of the member organizations of the SSC for inclusion on their websites.

SAMOG

The SAMOG Code was tested within the context of the JSE Listing Requirements with the listing of an unconventional gas project. As a result of this listing, the SAMOG Committee and the Oil and Gas Readers Panel collaborated to identify potential modifications to the Listing Requirements and the Code. This was mainly because, in the international O&G community, the filing of a FORM 1 Report, as defined in the Code, was undertaken with the submission of comprehensive Qualified Reserves Evaluator (QRE) reports, which were not made available to the public but only to the regulator. The SAMOG Committee has, subsequently, identified items that needed to be lifted from the QRE report and included in the FORM 1 filing to eliminate the need for two reports. These are being deliberated upon with reference to an update of the Code.

SAMESG

The 2015 SAMESG edition was officially launched on 19 May 2016, together with the 2016 editions of the SAMREC and SAMVAL Codes. The intention of the guideline is to assist reporting entities in providing adequate information on ESG matters that relate to their influence on the reasonable and realistic prospects for eventual economic extraction of the specific commodity being reported.

The SAMESG principles were presented at the 2015 CRIRSCO conference, through Ken Lomberg and Roger Dixon. It is understood that the principles have been accepted by the CRIRSCO Committee, and will be incorporated into the CRIRSCO template in the coming year. The SAMESG Committee has also initiated discussions with a number of individuals and institutions (including the JSE SRI Committee) regarding the broader application of the Environmental, Social and Governance parameters.

Revision of SSC Terms of Reference

The SSC Terms of Reference document revision was initiated under Professor Fred Cawood in early 2015 and was finally completed in February 2016. It was implemented at the end of March 2016, after approval by the GSSA and SAIMM Councils. The main issues have all been addressed, including the finalization of the Complaints Procedure. The JSE Readers Panels' mandates are still outstanding, but good progress is being made toward completion.

IDoEW Board Notice - CBE Notice on the Imminent Regulation of the Engineering Profession

Building on the work done by Professor Cawood in 2015, this issue had progressed significantly to the stage where it has been agreed that a Joint Working Committee (comprised of all of the interested and affected parties) should be established to address overlaps and develop appropriate legal text.

CRIRSCO

The annual CRIRSCO meeting was held in November 2015 in Brasilia, Brazil. It was attended by Roger Dixon and Ken Lomberg. The salient points of the meeting were:

Annual report

- Ken Lomborg had been appointed as Secretary
- Brazil joined CRIRSCO in November 2015 and Kazakhstan would be joining in mid-2016
- Detailed discussions were being held with India and the Peoples' Republic of China regarding their becoming members of CRIRSCO
- CRIRSCO would attend the UN Economic Commission for Europe (UNECE) meeting in Geneva in April, and the two organizations were holding regular discussions.
- A debate had been held on whether CRIRSCO should adopt or align with ISO Standards, and it had been decided not to go that route
- Marine mining had also been discussed at length with the Seabed Authority
- A working group had been formed to update the template for international reporting. The item on Exploration Results was a cause for concern as the JORC Code and the CIM Standards seemed to differ on the definitions
- The ICMM relationship was still good, but the budget had been reduced significantly, so CRIRSCO would be looking to the professional bodies and NRO's for financial support.

IMVAL

Limited progress has been made within IMVAL during 2015/2016. The IMVAL template remains unchanged. Feedback has been received from some organizations (including SAMVAL and SAMOG) and this is being addressed. A scheduled meeting was postponed as some comments still needed to be added and addressed.

Awards

On Tuesday 21 June, at the 31st Annual (Squirrel) Awards Ceremony of the Investment Analysts Society of South Africa held at the JSE in Sandton, the SAMREC/IASSA award for 2016 went to AngloGold Ashanti. This accolade is given for the Annual Integrated Report adjudicated best in terms of compliance with the JSE Listing Requirements and the SAMREC Code.

35th International Geological Congress

A number of papers are being prepared under the auspices of CRIRSCO by K. Lomborg and R. Dixon for presentation at the Congress.

In conclusion, I should like to thank the GSSA, SAIMM, and all of the members of the SAMCODES Standards Committee for their voluntary time and effort. There is so much that the SSC can contribute to the minerals industry and it is their support, hard work, and passion that make it all possible.

8. Management and Administration

Portfolio Holder: M. Dworzanowski

The Secretariat consists of:

Miss Sam Moolla (Manager)

Mr Alf Bettoni (Accountant)

Miss Jacqui E'Silva (Head of Membership and Branch administrator)

Mrs Camielah Jardine (Conference Co-ordinator)

Miss Portia Malatji (Accounts Assistant)

Mrs Zuliakha Malgas (DTP Operator)

Miss Nazli Mamdoo (Conference Publications Co-ordinator)

Miss Kelly Matthee (Journal and Subscriptions Co-ordinator)

Miss Prudence Ntumeleng (Switchboard/Recept. & Asst. to Manager)

Mrs Anna Panana (Conference Assistant)

Mrs Apathia Sello (Administration Clerk)

Miss Keabetswe Shumba (Membership Application Processor)

Mr Raymond van der Berg (Head of Conferencing)

Mrs Dawn van der Walt (Head of Publications)

Miss Naomi Wernecke (Membership Application Processor)

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

8.1 Finance

C. Musingwini

For the past few years we have been cautiously indicating that the finances in the years ahead would face different challenges to those of the past, and that the surpluses of former years invested with AFC would be under more pressure to assist in balancing our cash flow budgets.

The annual surpluses in the past dozen years have declined from a high of R5.9 million in 2011 to just R13.2 thousand in 2015, and this year to a deficit of R6.034 million, only the second time that a yearly deficit has been recorded since 2005.

We are all too aware that the environment in which we operate has not been the best on record. We can assure members that every effort was made to reduce and contain cost of sales and overheads. Our conference venue hire rates are constantly under review and other operating expenses are monitored with savings in mind. The reviews have been done without compromising the high professional standards synonymous with the SAIMM's pedigree.

Our bad debt write-off was R674 953, mainly in membership fees.

Indeed, in order to obtain a better picture of what the next few years might look like, budgets have been projected for the forthcoming and the following two year financial years, that is a three-year budget outlook.

Among the special projects this past financial year were:

➤ Scholarship Trust Fund donation	R220 000
➤ DTP Apple Mac upgrades	R125 372
➤ Global Mining Standards Group/CMMS	R52 517
➤ Infacon expenses	R19 452
➤ Membership Incentive Programme	R51 854
➤ Regional Development expenses	R457 093
➤ Technical library	R60 000
➤ Website development	R93 754
➤ Young Professionals Council	R26 685

Asset Values over the past 8 years were:

	R million
2008	17.9
2009	16.7
2010	20.3
2011	27.1
2012	26.7
2013	32.3
2014	38.9
2015	37.8
2016	32.8

Financial Statistics	Revenue	Cost of Sales	Operating Surplus/Deficit	Surplus/Deficit for year
2016	17 827 688	-18 104 388	-7 075 974	-6 034 222
2015	17 308 745	-13 263 913	-1 398 103	13 265
2014	17 102 755	-12 736 233	200 817	5 535 504
2013	18 236 500	-11 645 372	2 532 983	5 593 549
2012	15 791 264	-13 242 684	-2 094 409	46 709
2011	21 062 185	-13 723 262	2 515 452	5 900 497
2010	9 913 241	-8 234 553	89 725	2 564 365
2009	12 617 408	-12 104 395	513 013	-799 647
2008	5 063 861	-4 972 725	91 944	1 568 699
2007	3 348 192	-2 015 334	1 332 858	4 165 927
2006	3 303 914	-2 814 380	489 534	3 738 041
2005	2 063 715	-2 662 841	-599 126	1 352 537

AFC Investment Fund

During the course of the year we have had to draw down from the AFC Investment Fund a total of R 5.750 million in order to support cash requirements.

The value of the fund at the beginning of the financial year was R34 457 678 (including the Western Cape Branch investment) and it closed at the end of June at R29 967 321, a decline of R4 490 357 which includes the draw-down mentioned above. It is forecast that a further draw-down of R2.5 million might be needed to tide us over this coming year. No further draw-downs are anticipated after this.

As outgoing Treasurer, I would like to sincerely thank the SAIMM Secretariat for their support.

New Members

Members

L. Adu-Nyamekye, B. Amisi Buuse, K.A. Annan, O.M. Barei, F.G. Beier, A.P. Boaduo, M. Bouhsane, R.J.R. Brito, A.M. Burger, E. Chanda, S. Chauraya, C. Chidziva, L. Chihota, S.B. Chinosengwa, F. Chiramba, K.A. Cooper, M. Danganeni, D.J.J. du Pisani, S. Fashu, P.D. Fick, W. Gabryk, L.Z. Gallant, M. Gautam, R.M. Genga, M.S. Gumbie, J.J. Helling, T. Hollenberg, I.Z. Jeremia, P. Kalota, G. Kapeso, J.N. Kayombo, B.J. Kloppers, I.A. Kola, D. Lipenege, M. Lombaard, L. Madziwa, F. Magweregwe, P.T. Makuvise, A. Mamuse, F.D. Manini, W.J. Mans, G.J.G. Marshall, L.M. Moagi, T. Moeti, B.L. Mona, T.O. Moore, L.K. Mpinare, N.C. Mpinga, E.S. Mtibilo, T.W. Mubvakure, M.N. Muguti, A. Mukuya, P. Munemo, C.F. Mutevhe, W. Mutsata, M. Muzima, M. Ncube, F.J. Ndaro, N.P. Nelwamondo, N.L. Nene, P. Ngwerume, K. Nkole, L. Ntombela, S. Nyamhandu, T. Nyirenda, A.M. Olivier, D.N.C. Phillpotts, R.W. Ruziwa, S.S. Schwartz, T.J. Sekoere, J. Sikamo, L. Silomba, S. Singh, A.J. Smit, P.A. Tanda, T.E. Tanyane, Z. Tembo, K.C. Teme, A. Tjock, V. Tsoyio, K. Tumagole, J.K. Vermaak, C. Whall, G.R.S. Wookey, Y. Zhang.

Associates

S.J. Baumgartner, M. Bekker, D.I. Bennie, B. Bhila, T.S. Bvirakare, T. Chagwiza, K. Chisanga, M. De Freitas Silva, M. Hungwe, M.C.E. Jacobs, C.M. Kagarbi, F. Kaniki, P.T. Karembere, M.J. Kretzinger, A. Mabensela, A. Mabiza, H.D. Mabunda, D. Maikhudumu, T.A. Makhadimele, N.T. Makhalemele, E.T. Makopa, H. Maleka, L.L. Mankge,

K. Marira, M.G. Maruma, N.M. Mathebula, F.I. Matorofa, N.M. Matsokotere, M.E. Matsunyane, L.J. McEwan, A.A. Mkonde, P.V. Mokoena, E. Moonde, R.T. Muzambi, B.S. Mwashu, P. Naran, D.W. Nel, B.P. Nkosi, M.J. Nong, M.N. Pitja, S.L. Rabie, T.R. Radebe, M.C. Sehloha, M.M. Shoroma, Z.S. Sibanda, S.R.N. Staera, J.A. Strauss, C.M. Tamba, R. Tesa, J.S. Theron, I.C. Thobadi, T.T. Tiani, C. Tshuma, N. Uys, D.F. Verwey.

Associates from Conferences

J.B. Agenbag, M.K. Alain, B.A.B. Alawad, D. Banerjee, J.L.V. Bazan, A.V. Bergh, G. Bhuvaneswaran, W.F. Boshoff, W. Bouwer, F.J.N. Bruwer, A.J. Carracedo Diez, T. Chagwiza, T. Chitindingu, B.S. Clapham, E.A. Clapham, D.C. Da Veiga, E. de Klerk, N.K. Didier, S. Dube, S.E. Ergün, N.M. Ernest, L. Fick, E.M. Ford, A.B. Gardiner, S. Garoeb, N. Gode, K. Hansmann, E.A.P. Hinojosa, S. Janse van Rensburg, M.K. Jules, T.G. Kakono, E.K. Kamuchele, L. Kawali, L.L. Kekana, A. Krassnokustki, M.G. Letlatsa, C. Lottering, M.R. Makgato, B. Manyike, J.O.H. Martin, L. Mokgalaka, B.T. Motilhogodi, P.M. Munsamba Lubaya, B. Muoneka, L. Murove, M.K. Muthathi, T. Mutongoreya, K. Mwaba, S. Naidoo, S. Nel, S.E. Ngubane, P.M. Nkulu, L.M. Omari, E. Özkan, P.J. Perold, S.P. Pillay, G. Priest, P.E. Ramashau, F.M. Ramsden, A. Rogers, M. Rohwer, H.Z. Schnetler, M. Seidu, I.A.D.M. Souza, K. Tlhagadi, T. Tshkiso, C.S. Ulansky, L.J. van Driel, A. Wolter.

Students

S. Abass, I. Abdallah, J.A. Adams, E.A. Addae, S. Adjapong, G. Adjei, S.A. Adu Marfo, A.E. Adzigbli, S. Agyare, F. Agyemang, M.A. Al Mandalawi, E.I. Ali, M.P. Amini, I. Anafo, P. Antwi, H. Appiah-Twum, T.I. Armando, H. Ashraf, A.P. Atule, L.D. Ayedzi, C. Ayensu, N.E. Baloyi, T.D. Baloyi, A. Banda, G. Banda, H. Banda, L. Banda, P. Banda, V.K. Bashukwa, T. Batanidzo, D.A. Beke, M. Besa, H.S. Bezuidenhout, F. Bhachi, K. Bisseru, M.S. Bkioni-Machawira, R.A. Blunden, E.A.N. Boadi, A. Boateng, A.B. Boateng, M.K. Bobbert, G.K. Bobo, L. Bokwe, D.L. Botha, M.N. Bow, A.B. Buabeng, T. Bvunzawabaya, T.M. Chakawa, P. Chanda, W. Chanda, B. Chandi, I.M. Changwe, N.T. Chapi, F.A. Charakupa, C.K. Charumbira, R. Chauke, E. Chaushi, C. Chemo, C. Chewe, Q. Chibesa, R.A. Chidedza, W.E. Chigadza, T. Chigava, K.C. Chigondo, C.A. Chiguware, V.A. Chigwendere, K.F. Chigweshe, T.C. Chihombori,

Annual report

- B.B. Chikasha, W. Chikola, M. Chikonkoto, S. Chikuni, K. Chikwanha, C. Chikwekwe, M. Chilekwa, J. Chilomo, L. Chilufya, R.F. Chimbunde, T.L. Chimeramombe, B. Chimuka, K. Chinaka, A.T. Chinhava, B.T. Chinheya, A. Chinyama, T.V. Chinyani, W. Chipangura, K. Chipembele, N. Chipomho, T.T. Chirara, K. Chiriga, C.T. Chirigo, I. Chirongoma, V. Chirozvani, T.M. Chisangowerota, T. Chisenga, C.M. Chisha, B.T. Chitapa, T. Chitengi, E. Chitiza, S. Chittigadu, S. Chiuyu, T. Chivanga, F.S. Chivende, T.B. Chivhima, T.E. Chivige, K.S. Chiwocha, K. Chiyimbi, N.C. Chokuda, N.L. Chola, T. Chombe, C.K. Chota, J.J.C. Christie, G. Chulu, R.E. Chuma, M. Dabishi, S.P. Dagbui, B. Daka, A. Dambudzo, N.D. Dandi, F.T. Danha, P.A. Darko, R. Das, D.E. De Beer, D. Deka, K.R. Dengure, V. Dhlumo, K.P. Dibodu, N. Dingani, P.A. Dinginya, H. Diop, N.S. Dlamini, W.J. Dobola, C. Dube, M. Dube, V. Dube, U. Dumela, T.I. Duri, J.H. Dusterwald, F. Dzapasi, B.T. Dzobo, J. Ferreira, P. Forson, V. Fosu, R.R. Friedland, T. Fusire, D. Gandawa, O.N. Garbah, J. Gardzielewicz, L. Gengezha, M.M. George, N.M. Gerema, F. Gombami, N.B. Gondo, K. Gorejena, R.M.N. Goremushandu, R.D. Govender, T.F. Gumbo, M. Gumbu, N.A. Gumpo, T. Gupta, L. Gurure, B.T. Gwenzi, B. Gyapong, G.A.F.S. Gyasi Agyem-Frempong, I. Hambombe, A. Hammond, F. Handireki, A.G. Harrison, T. Harrison, A. Hlati, B.B. Hlophe, N.F. Hobyani, T.H. Homera, A.I. Hove, N.V. Hove, T.T. Hove, N. Hughes, S.A. Isa, K. Issac, L. Jairos, A.R. Jarvis, T.D. Jawah, K.M. Jiho, C. Jirira, A.O. Junias, S.F. Jussa, E. Kabamba, D. Kabanga, F. Kabaso, S.T. Kabera, S. Kachusha, M. Kadango, B. Kafitwe, K. Kafwala, K.N. Kahondo, J. Kaluba, A. Kalusha, D. Kambangu, K. Kangwa, L. Kangwa, K. Kantonga, M.T. Kanyemba, O.N. Kanyiri, P. Kapembwa, B.T. Kapfumvuti, T.V. Kaponda, Y.S. Karikari, K.A. Kaseka, S. Kasekera, M.M. Kasoma, S. Katebe, P.K. Katele, M. Katongo, M. Katontoka, R.V. Katsande, N. Kennedy, K. Kevin, H. Khan, C. Khumalo, S.D. Kombe, E. Konadu-Yiadam, E. Koomson, E.T. Kore, W.R. Kudyanemba, D. Kunda, A.J. Kuubetersob, J. Kwiri, T. Lamani, M. Lambakasa, C.T. Lekesi, Y. Lilanda, T.L. Liswaniso, G. Lukwesa, M. Lukwesa, M. Lungu, S. Mabanja, T.S. Mabaya, I.D. Mabena, M.K. Mabika, S.S. Mabitla, N.D. Mabunda, O.S. MacGregor, J. Machona, T. Madade, R. Madamombe, L.P. Madera, T. Mafarachisi, W. Mafuriraraniwa, A.P. Mafuta, M.V. Magama, K. Maganga, L. Magombedze, P.C. Magorokosho, M. Magubane, A.N. Magumise, T. Magumise, T. Magure, L.N. Magwaza, R.M. Magwenzi, J. Mahembe, K. Mahlane, T.A. Mahlangu, V.V. Mahlangu, M.J. Mahlasela, N. Mahomed, M. Maimela, N. Maistry, A.J. Majaka, J.J. Majera, G.L. Makalela, N. Makhoba, N. Makoba, T.H. Makoena, N.R. Makoloane, P.J. Makono, T. Makopa, M.B. Makore, R.H. Makura, B. Makuza, L. Malama, M.M. Malatji, V. Manasoe, V.T. Mandabva, J. Mandaza, L.V. Mangena, T. Mangeya, P.P. Mangunda, A. Mangwanya, L. Mangwende, K.M. Mangwengwende, O.T. Manne, T. Manyanga, K.B. Manyenga, B. Mapako, L.T. Mapako, F. Mapasure, M.T. Mapheto, T. Maphinda, S.J. Maphosa, T. Mapooze, B. Maposa, B.T. Mapurisa, T. Marambi, C. Marashe, C. Maredi, O. Marekwa, L. Marongere, I. Marozva, M. Marulane, M.J. Maseko, J.C. Masetlwa, G.Z. Mashabane, S.M. Mashabela, P.R. Mashiri, S. Mashoko, S. Masilinge, N. Masimba, S.T. Masina, S.L. Masiyandima, P. Matanga, T.F. Mateko, B. Matewere, N.E. Mathebula, M.R.C. Mathipa, B.Z. Matika, D.T. Matika, M.P. Matlhwana, S. Matsika, T.A. Matumbura, T. Mavi, P. Mavurume, M.M. Mawere, N. Mawungwe, L. Mayovu, M.A. Mazai, N.A. Mazhunga, N. Mazodze, T. Mazonde, S. Mbatha, E.M.Y. Mbewe, W.R. Mbewe, M. A Mbongo, E. Mbwewe, D.L. McKay, O.N. Mekgoe, F.K. Mensah, M. Mensah, R. Mensah, S. Mensah, M. Mfula, N.P. Mguni, R. Mhaka, S.A. Mhangani, O.M. Mhasho, N. Mhere, T. Mhungu, M. Miselo, M.A. Mkaratigwa, E.G. Mkutchwa, N. Mlalazi, K. Mlauzi, O.O. Mlauzi, K.E.J. Mnguni, T. Modikwane, U. Moharsingh, M. Mokeba, M.M. Mokhoboana, K.C. Mokoena, S.S. Mokoena, J.M. Mokou, M.S. Molaba, T. Molefe, R.P. Molehe, M.E. Molote, M.C. Monteiro, C. Monze, T.E. Moongo, L. Morgan, K. Moro, T.S. Moropa, T.N. Moshabi, N. Motanyane, D.L. Motlakase, E.M. Mould, A.T. Moyo, B.S. Moyo, G.D. Moyo, S.M. Moyo, S. Mozah, P.J. Mpesi, C.M. Mphahlele, A. Mpofo, N.M. Mpofo, C. Mpoli, M. Mpundu, P. Mtero, F.C. Mthembu, K.C. Mthembu, K. Mubanga, I.T. Mubiana, C.M. Mubuzani, C.M. Muchinau, V. Mudau, J. Mudavanhu, C. Mudenda, P. Mudenda, R. Mudengezerwa, C.I. Mudimu, P. Muduzu, T.M. Mudyandadzo, S.P. Mueza, K.R. Mugabe, R.T.K. Mugabe, Y.C. Mugandani, O. Mugangavari, D.M. Munganhu, E. Mugari, R. Mugezi, S. Mujakachi, T.R. Mujakachi, A.L. Mukatuni, M. Mukonyora, T. Mukupa, T.A. Mukwazhi, S. Mulauzi, L.C. Mulenga, M. Mulenga, R.C. Mulenga, T. Mulenga, M. Mulongo, C. Mumba, C.P. Mumba, S. Mumbela, L. Munarini, M. Munene, C.P. Mungwari, L. Munkhoyo, A.K. Munyanyi, R. Munyanyi, D.T. Mupanduki, P.S. Mupedzi, M.W. Mupfunya, L.T. Mupingo, T. Muqedani, M.S. Murakwani, N. Muranda, P.R. Muravugwa, A. Murevanhema, A.L. Murima, N. Murombo, T.G. Murwisi, V. Musengezi, L.T. Museza, D. Mushimbalume, E.C. Musikanyangwe, D. Musimbirachako, F. Musimeki, P. Musoko, D. Musonda, M. Musonda, K. Mutale, C. Mutale, M. Mutelo, B. Mutemererwa, J.B.F. Mutetwa, J.T. Mutungwazi, S. Muwongo, E. Muzamhindo, T. Muzangwa, K.T. Muzenda, B.T. Muzhingi, T.A. Muzidziwa, M. Mwaba, V. Mwaba, C. Mwachikorera, C. Mwale, H. Mwale, J.C. Mwangulu, E. Mwanja, C. Mwansa, A. Mwanza, A. Mwape, C. Mweemba, I.C. Mwrwa, T. Nachalwe, V. Nadasen, M. Namadandla, F. Namwila, J. Nanyangwe, A. Ncube, B.I. Ncube, B.M. Ncube, M.G. Ncube, M.J. Ncube, N. Ncube, C. Ndhlovu, L. Ndhlovu, G.S. Ndllovu, H. Ndllovu, I. Ndllovu, K. Ndilla, T.F. Nemandire, T. Nematadzira, N.L. Nene, G.V. Netshivhangoni, F. Ngambi, A.N. Ng'Andu, H. Ng'andu, T. Ng'Andwe, B.V. Ngirandi, T.J. Ngobeni, L. Ngono, B.P. Ngorima, A. Ng'uni, K. Ngweni, C. Ngwenya, O.P. Nhambe, A. Nhambura, A.T. Nhapi, C. Njekwa, M. Njili, L.A. Nkomo, M. Nkomo, M. Nkomo, J. Nkosi, S.G. Nkwanyana, B.M. Nocanda, L. Nsalala, B. Nsontaulwa, E.M. Nxumalo, L. Nyabezi, T. Nyagumbo, T.G. Nyambuya, C.R. Nyamupfukudza, F. Nyarugwe, G.T. Nyashanu, C.N. Nyathi, D. Nyathi, J.A. Nyathi, M. Nyathi, L.T. Nyatsanga, M. Nyoni, N.L. Nyoni, A. Nyumbu, N. Nzyenga, D.O. Okanigbe, N.M. Oppong, P. Osei, P. Otu, B. Owusu Boamah, N. Pasha, R.P. Passano, L. Pather, C. Pedzayi, M.P. Pelo, V.M. Penduka, P.L. Pete, P.L. Phetoe, B. Phiri, F. Phiri, M. Phiri, P. Phiri, S. Phiri, T.B. Phiri, P. Phiri Mkumba, J.S. Pienaar, S. Pieterse, V.K. Pillay, W. Potgieter, S.L. Pretorius, E.A. Quansah, T.R. Radebe, T.F. Ramathaga, M.D. Ramovha, T.M. Ramuhulu, B.S. Roche-Kelly, L.G. Rosaesoe, T.K. Rubaba, P. Ruduvo, S.N. Safo Kantanka, N. Saidi, I.T. Sakabuya, N. Sakalunda, B. Samatamba, T. Sandu, M. Satambo, T.E. Sebati, R. Sekgabi, T.R. Selota, T.A. Sethu, S. Shaikh, A. Shanzambwa, T. Shawa,

Annual report

L. Shayahama, K.M. Shayanowako, L.P. Shigwedha, J.M. Shikafwi, A.C. Shingange, L.K. Shixuanda, S.M. Sholande, C. Shumba, G. Shumba, O. Shumba, T.J. Shumba, A. Siamulonga, A.F. Siaw, A. Sibanda, N. Sibanda, P. Sibasa, S. Sibasa-Sibanda, A.M. Sichula, C. Sikazwe, F. Sikhosana, T. Simbanegavi, W. Simukoko, T. Simwambana, B. Sindane, A. Singh, G. Sinkamba, M. Sitali, E. Sithole, G.S. Sithole, V. Sithole, C. Siwale, M. Siwella, K.K. Sobiya, C.E. Sokotela, M.A.K. Suddoo, S. Surajew, W. Tafura, N.A. Tagara, W.E. Takawira, V. Takawira, L.C. Tamakloe, P. Tanganyika, T. Tarwirei, V.T. Tavaziah, T.C. Tavedza, M. Tembani, A. Tembo, C.J. Tembo, F. Tenkorang, A.V. Tezha, K.C.A. Thari, A. Tigere, M.J. Tjale, C. Truter, N.K. Tshabangu, T. Tsidzinye, D. Tugli, E.J. van der Merwe, C. Veremu, N.V. Wara, E.S. Wilson-Sowah, J.N. Yeboah, D. Zaba, M.G. Zholomi, B.K. Zhou, S. Zhou, L.N. Zietsman, C. Zimba, N. Zimba, T. Zimunya, A. Zindava, S.A. Zingoma, T. J Ziro, T.B. Zisunge, K. Zizhou, J.C. Zombe, K. Zondi, B. Zulu, O. Zvavanhu, S.T. Zvavashe, W. Zvingana.

Company Affiliates

3M South Africa, Croniment Mining Processing SA (Pty) Ltd, Geobrug Southern Africa, Ivanhoe Mines SA, Kudumane Manganese Resources, Perkinelmer.

Resignations

Fellows

P.K. Van der Heever.

Members

L. Andrews, M.J. Andrews, P. Dokie, R. Du Plessis, A. Du Toit, D.T. Foley, T. Gazis, C. Green, G.M. Greenway, N.A. Groenewald, G.C. Kraft, Q. Kruger, A. Lachman, J.M. Lloyd, J.A. Mackay, L. Matthysen, S. Mudaly, L.L. Muller, D.P.R. Munro, C.L. Reichardt, P.G. Van der Walt.

Associates

J. de Klerk, S. Gemmell, A.M. Harris, D.J. Jacobs, F. R. Koen, TE Kosana, J. Le Roux, T.A. Mokebe, P.R. Nieuwoudt, P.A. Schoeman, M.V. Surmon, J.R. Town.

Company Affiliates

Deutsche Securities (Pty) Ltd, Ludowici Africa (Pty) Ltd, Osborn Engineered Products SA (Pty) Ltd, Scanmin Africa (Pty) Ltd, SNC Lavalin (Pty) Ltd.

Members transferred to Higher Grade

Transfer from Member to Fellow

S.Y. Eshun, K.J. Richardson, S.S.J. Tose, L.J. Van Wyngaard, J. Venter.

Transfer from Associate to Member

C.P. Boonzaier, D.A. Christie, L.C. Coetzee, S.J.J. Grimbeek, A.A. Mhlongo, T.M. Mmola, P.N. Neingo, H.M. Nel, J.S. Ntsoelongoe, F.C. Passarelli, M.J. Robertson, L.K.O. Romano, S. Rusere, T. Tholana, P.B. Sagwette, M.M. Salamba, A.J. Scholtz, I. Serepa L. Seshibe, A. Shereni, H.B.M. Silva, M.A. Wailesi, O.W. Warschkuhl.

Transfer from Member to Student

A.R. Jarvis.

Transfer from Student to Associate

D. Kunda, K. Letsoalo, N.B.S. Magagula, F.J. Malatji,

G.T.M. Mohale, N.R. Molele, D.F. Muendane, N.Q. Ngwenya, M.S. Rasetlola, V.T.M. Tsotsotso.

Members who retired

Fellows

C.E. Alvey, G.F. Bainbridge, E.J. De Jager, A.G. Du Plessis, F.M.G. Egerton, P.G. Gaylard, B.E. G. Johansson, C.G. Knobbs, G.H. Lawrie, I.A. MacFarlane, A.M. Marsh, B. Metcalfe, G.C. Oldroyd, J.N. Van der Merwe, J.A. Wells.

Members

P.D. Bates, P.W. Davey, R.E. Jennings, H. Mtegha, G. Nicholson, K.M. Steenkamp, I.R. Wermuth.

Deceased

Honorary Life Fellows

R.P. Mohring, R.E. Robinson.

Fellows

A.S. Wood

Retired Fellows

R.C. Bertram, D.T. Fourie, D.L.J. Lawrence, B.H.L. Leach, B. Moore, D. Rankin.

Retired Members

T.E. Green

Members

J.D. Bethel, G.J.C. Strydom.

Associate

P. Charingira.

Members who were reinstated

Reinstated as a Member

M.J. Andrews, P.N. Chavunduka, S. Chitambo, H.J. B. Combrink, L.I. Isaiah Marumole, R.B. Lechuti-Tlharerwa, G.C. Madzima, R.V.M. Mbhele, F.C. Ng'ona, H. Urcan.

Reinstated as Associates

E. Fouche, A.Y. Kipayko, C.B. Musimhi, C.F. Nkomba

Members who were re-admitted

Re-admitted as a Retired Member

I. Corrans.

Re-admitted as a Member

M.A. Bantshi, D.J. Bradshaw, T.N.C. Chitah, Z.E. Cindi, R.D. Horne, B. Jirah, S. Kalombo, G. Kotze, F.N.F. Le Roux, P. Lugisani, E.C. Luyke, M.L. Mabotja, S.H. Mapheto, G. Marape, D.M. Marekwa, D.M. Mashile, K. Mutombo, I.O. Ogunniyi, T. Randima, O.V. Thobela, R.F. van Schalkwyk, C. Walubita, N.P. Zondi.

Re-admitted as a Associate

T.D. Lekoko.

Re-admitted as a Student

N. Baloyi, A.D. Biya, M.E. Khonothi, K.M. Khosana, E.L.J. Kleynhans, M.D. Kyembo, M.P. Mametja, S.R.A. Mashimbye, N.T. Mkhawana, Z.F. Mulaudzi, P.L. Ngwenyama, R.I. Sekabate, B.M. Thethwayo, L. Zombene. ♦