



President: 1998-1999

About a rights-based health and safety dispensation to developing the SAMREC code and more

Roger Dixon

'...fatality rates such as those currently prevailing will not be acceptable to investors in deep level mining projects. Not only do mining projects have to be financially viable, they have to conform to acceptable standards of safety risk exposure.'

The SAIMM has seen many turbulent times during its 125 years, and my tenure during 1998-99 was no exception. South Africa's legendary mining house system – in which I had spent most of my career – was being dismantled, with impacts on the SAIMM's membership and role. At the same time, there were positive moves in the industry itself to meet the demands of change: we were applying a new rights-based health and safety dispensation; we were developing our own ore reserve reporting code; and I was building the country's first underground mechanized mine. It was a heady time.

The industry was in the grip of substantially reduced profit margins – as our mining costs increased and the gold price dropped in real terms. South Africa was also facing aggressive competition from gold producers in Australia, Canada, and the United States. From its historic high of about 1 000 ton in 1970, SA's annual gold production had dropped to 621 ton by 1988 and further to just 493 ton in 1997. Staffing at mining house head offices was being cut, and executives were not as readily available to serve in the SAIMM as they had been in the past.

During my term as SAIMM President, I was a consulting engineer at Anglovaal Mining – one of the six large conglomerates that dominated the local mining sector. The foundations of the mining industry were shaking, however, and my role would soon be one of those levels of management that the company was forced to shed in its efforts to cut costs.

Besides my family, there were at least four key responsibilities that occupied my time: the SAIMM, the Mine Health and Safety Act (MHSA), the South African Code for the Reporting of Exploration Results, Mineral Resources and Mineral Reserves (the SAMREC Code), and the development of the ground-breaking Target Mine near Allanridge in the Northern Free State. Each of these in their own way gives a flavour of the challenges and opportunities that were facing the Institute and the industry at that time.

Staying relevant as an institute

In my year as President, we spent a great deal of time in strategic planning to stay relevant to a fast-changing environment. Despite the industry upheaval, the big mining houses were still mainly located in the same area of downtown Johannesburg. When I began my involvement with the SAIMM, the Institute's office was in the old Stock Exchange building in Hollard Street. Staying in touch with the sector was easy; most of the industry representatives on the SAIMM were mining company executives, and you just had to walk up the road to attend meetings.

The contraction of the sector was already taking its toll, though, and we needed to reduce our overheads by moving to cheaper premises. At a Past Presidents lunch – which we used to hold at Gold Reef City – my former boss at Anglo American Gold and Uranium Division George Nisbet (SAIMM President in 1981-82) advised me to consider moving in with the Chamber of Mines, which we did.

To deal with impact that the industry's challenges were having on the SAIMM, I worked closely with my successor Mike Rogers (SAIMM President in 1999-2000) to find a way forward. With the shrinking of the membership of the professional associations related to mining, we had lengthy discussions with organizations like the Association of Mine Managers SA, the Mine Ventilation Society of SA, the Institute of Mine Surveyors of SA, the SA Colliery Managers' Association and the Geological Society of SA. The idea was to group them together under one umbrella to share resources and become more sustainable – speaking with one voice to represent mining professionals.

As it turned out, this did not happen, but the Geological Society did move its premises to join us in the Chamber of Mines building, and we collaborated closely in the formation and operation of the SAMREC Committee – which has been a vital contribution to keeping SA in step with governance standards in the global mining sector.

Now, with the mining house structure all but dismantled, the ranks of the SAIMM executive and council is no longer made up primarily of mining house leadership. Today, there is far more representation from academia and consultancies.

Workers and safety

During my tenure, we had just been through the development of the MHSA of 1996, and I had been on the Chamber of Mines' team negotiating with the Chief Inspector of Mines, and the National Union of Mineworkers. We spent weeks in the portfolio committee in Parliament prior to the publication of the MHSA in June 1996. I was still at that time a member of the tripartite Safety in Mines Research Advisory Council (SIMRAC), where I represented the gold and platinum producers alongside Ian Watson from Gold Fields from its inception in 1992.

The Mine Health and Safety Council (MHSC) was also formed around that time, and we were all coming to terms with the new law – which had introduced safety representatives among workers and gave employees the right to refuse to undertake dangerous work. This was the beginning of a transformation of the safety management culture on mines and, needless to say, there were many of the old-style managers who took some time to come to terms with the new rights-based dispensation.

In my Presidential Address in 1998, I had in fact highlighted the poor safety performance of the gold sector in comparison to our competitors abroad: '... fatality rates such as those currently prevailing will not be acceptable to investors in deep level mining projects. Not only do mining projects have to be financially viable, they have to conform to acceptable standards of safety risk exposure.' This was relevant to the industry's efforts and research into mechanization of mining operations, one key impact of which is to remove personnel from hazardous areas – especially as our mines became deeper and more prone to falls of ground and rockbursts.

Alongside greater productivity, these safety concerns were among the motivators behind the development of the Target mine, to which I shall return later.

The tripartite basis for decision-making was a breakthrough in many respects for the longer-term sustainability of the sector. I noted at the time that this concept seemed to epitomise true democracy, even though

it did mean that many decisions took much longer and thus delayed necessary action. I even expressed concern about whether the industry could afford to use so much of its scarce resources in these time-consuming engagements between stakeholders. Perhaps in retrospect we have not invested enough time, or at least our efforts to foster the tripartite approach have not been as effective as we had hoped.

Raising the bar for reporting SA's mineral resources

It had been suggested in 1994 – at a Council of Mining and Metallurgical Institutes (CMMI) international conference in Sun City – that SA develop its own reporting standards for Mineral Resources and Mineral Reserves. A couple of years later, in a session on reporting standards at the conference of the Prospectors and Developers Association of Canada, I listened to Ken Grace – who used to be with Johannesburg Consolidated Investments (JCI) – who spoke about reporting codes in Canada. It was clear that SA was considered as rather 'second class' for not having its own code, and I made up my mind that this must change.

In conjunction with some of the sector's leading minds, we began the development of the SAMREC Code in 1996. Among those involved were leading geostatisticians Dr Ferdi Camisani, who worked with me at Anglovaal, and the world renowned Dr Danie Krige – also at Anglovaal. It was convenient that Ferdi and I were in the same building; Ferdi and his committee did most of the slog work, and I did the editing! It consumed much of our time for the next few years, but we were finally able to publish the SAMREC Code in April 2000 – giving SA's mining sector a reporting standard for the first time.

By that time, companies like Anglo American were encouraging their relevant professionals to become members of the Australasian Institute of Mining and Metallurgy (AusIMM) so they could follow the Joint Ore Reserves Committee (JORC) code – the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. So, the release of the SAMREC Code was not a moment too soon.

Grasping the nettle of mechanization

A useful marker in the technological evolution of the SA mining sector was Anglovaal's Target Mine – pioneering the

The tripartite basis for decision-making was a breakthrough in many respects for the longer-term sustainability of the sector. I noted at the time that this concept seemed to epitomise true democracy

first mechanized underground mine in the country's long history of mining. SA was certainly out of step with global competitors when it came to mechanization; we had only recently launched the R70 million, three-year 'Deep Mine' research initiative, and I voiced some concern at the time: 'Given the lead times for technology development, it could be too late.'

Mechanization of stoping operations had already been identified by Dr Horst Wagner (SAIMM President in 1986-87) as a prerequisite for successful mining at depth - along with the reduction of heat load using backfill and the effective control of rockbursts. But stoping mechanization remained elusive, as did rockburst control. Technology for mining below 3 000 metres also had to be cost-effective; our main technological achievements as an industry - refrigeration, winding systems, and seismic monitoring - were remarkable forerunners in the field but the first two remained very expensive solutions.

Developing the new technology was a challenge in itself - demanding considerable funding and world-class research expertise. In my Presidential Address, I warned that: 'If sufficient funding is not made available on an ongoing basis, then the chances of any success in development diminishes as the quality of research facilities available deteriorates.' Sadly, that is exactly what has unfolded in the two decades since I wrote those words, notwithstanding the more recent efforts of academic and other institutions to give new impetus to technology-focused mining research.

Be that as it may, the Anglovaal team in the late 1990s - led by the visionary Gerry Robbertze as part of his Phakamisa ('lift up') initiative - had visited leading experts, companies, and mining sites in the UK, Canada, Sweden, Ireland, and Australia to see leading-edge mining technology at work. What we saw was eye-opening, especially in comparison to our conventional mining methods. In 1998; I particularly remember visiting the underground Stobie Mine near Sudbury in Canada, where the Canadian Prime Minister had been able to operate one of the mine's load haul dumpers remotely from Ottawa the day before we visited. We realized we had a long way to go, but the potential for

improvement seemed huge.

Predictably, the development of the new Target mine was a real challenge; as much as the new technology drew the attention of the industry, the novelty of it meant that misgivings abounded among many of the stakeholders - outside and inside the company. Innovations included the first man-riding conveyor in the country, and the replacement of inefficient compressed air with electro-hydraulic and hydropower drilling. All the hard work finally led to production, however, and Target achieved its expected mining rate of 5 000 ton a day in 2001.

Technology as the future of mining?

In 1998, we were beginning to glimpse the possibilities of mechanization. While I was fully committed to the Target project, and am immensely proud of what was achieved, I was also so bold as to opine in my Presidential Address that: 'The South African gold industry's record would suggest that technology is not going to come to the rescue of the deep miner.'

I pointed out that the SA mining industry was spending at the time only about 0.23% of its turnover on research - compared to a nickel mining company like Inco in Canada, which invested 1.18% of its turnover in research to keep it at the cutting edge.

I also highlighted that, for research and technology to be effective, our innovative ideas needed to be actually transferred into the workplace and applied in the operation. For this to happen, I argued, 'the culture of the organization must first be receptive to change and new technology. The challenge in South Africa is to create this climate through the correct use of graduate engineers and in particular mining engineers.'

Today, as then, this remains a pressing priority. The digital revolution now offers even more opportunities for mines to step into a new era of safety and productivity. But they have to want to take that step, and this requires a cultural leap of faith that many mines appear reticent to take. *



SWIM



DIVE

MANAGING RISK.
OPTIMISING OPPORTUNITIES



MINING | ENVIRONMENT | ENERGY | INFRASTRUCTURE | WATER

Call SRK on +27 11 441 - 1111
www.srk.co.za