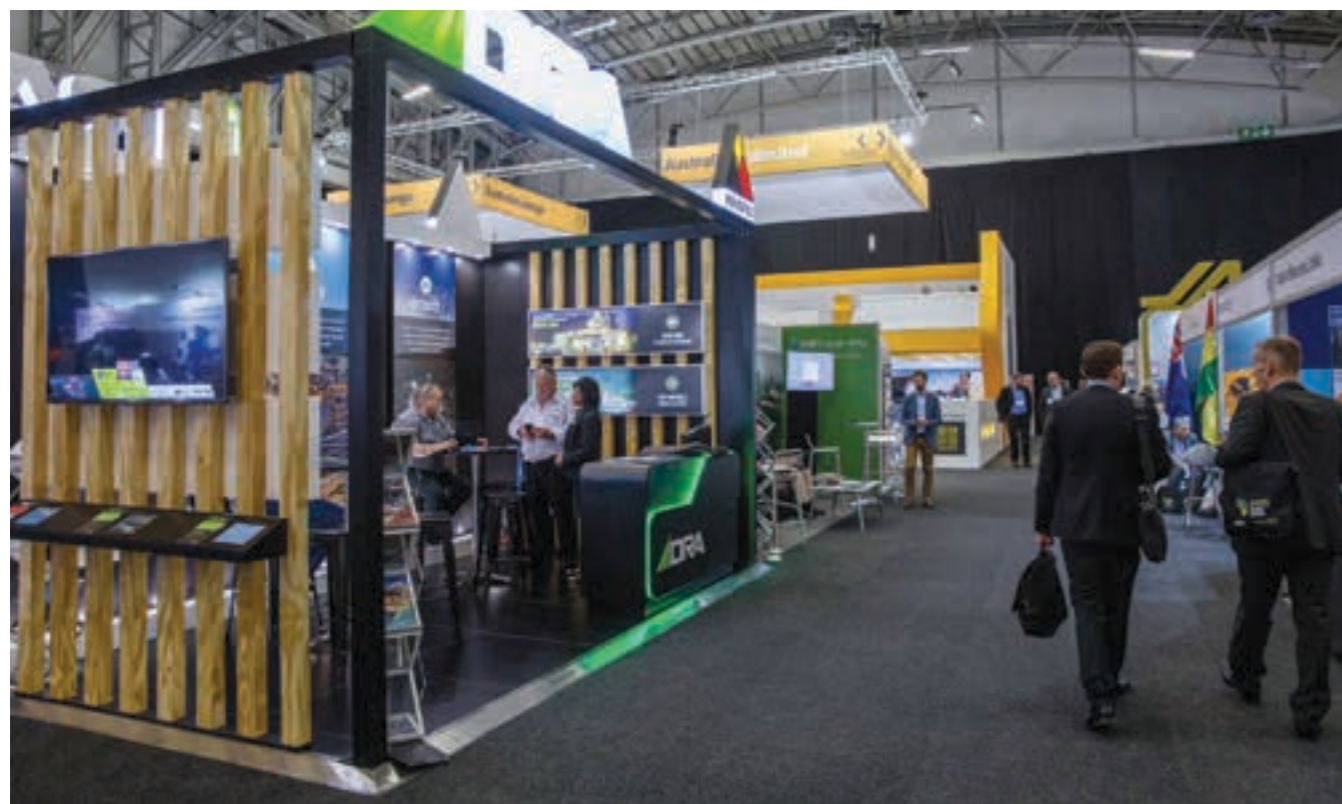


Better mood at Mining Indaba as commodity prices rebound

While it would perhaps be over-stating matters to say that delegates at this year's Mining Indaba, held from 6-9 February in Cape Town, were highly optimistic about prospects for the mining industry, there was clearly a much better mood in evidence than at the 2015 and 2016 events. As **Modern Mining's** Arthur Tassell reports here, the consensus seemed to be that commodity prices were on an upward trend and that a recovery in mining activity was gathering strength.

This was probably not a record-breaking Mining Indaba in terms of attendance and the number of exhibitors (official figures were not yet available as this article was being written) but the show was well organised and the 'quality' of the delegates seemed very high. While almost everyone that *Modern Mining* spoke to expressed broadly positive sentiments about the state of the mining industry in South Africa – and indeed Africa – there was also an acceptance that the levels of activity attained at the height of the resources 'super-cycle' roughly a decade ago were unlikely to be regained.

The scene in the exhibition hall at the Mining Indaba.



The positive mood was summed up by Mineral Resources Minister **Mosebenzi Zwane** who noted that a new balance was emerging in the demand and supply of mineral resources.



"There has been a remarkable recovery of prices during the latter part of 2016, more particularly with commodities such as coal, iron, ferromanganese and zinc," he said. "These market dynamics need to be entrenched and supported by stakeholders working in concert to ensure the sustainability and resilience of the industry."

On the subject of the Mineral and Petroleum Resources Development Act (MPRDA), the Minister said amendments to the legislation were being processed and finalised as a matter of urgency. "This process is well underway and public hearings are taking place towards the finalisation of the Bill. We expect it to be concluded by June 2017," he stated. He also told delegates that the revised Mining Charter would be gazetted by March 2017 and would be "reflective of the views of stakeholders."

He added that the government remained committed to enhancing the ease of doing business and retaining the country's reputation as a preferred investment destination. "We have moved to improve regulatory efficiency through the integration of the applications for mining and related rights, water use and environmental permits."

Looking at the future of the mining industry, Zwane said that "a new era of junior to mid-tier sized mines is upon us. The large mining



giants of today had their genesis in the junior mining sector. We further believe that most job opportunities lie with small to medium companies, hence in 2017 we will be focusing on the promotion of investment, with a special focus on junior miners. We will continue to give them the support to enable them to thrive."

Although it was hardly a landmark speech, Zwane's address was generally welcomed by industry commentators. For example, **Andrew Lane**, African Mining Leader for Deloitte, described it as "conciliatory" and "one of the more positive we've had from the ministry in the past few years" while **Jacques Barradas**, Partner and Head of Mining at Grant Thornton, welcomed the urgency with which the MPRDA amendment process was being tackled. As he pointed out, the Bill is regarded as a key factor in determining investment by the mining houses in current and new projects in South Africa.

Also reasonably optimistic on the prospects for mining was Anglo American's Chief Executive, **Mark Cutifani**, who has presided over a remarkable transformation of the 100-year-old group over the past couple of years. Referring to Anglo's performance, he revealed that productivity had improved by around 40% since 2012 while unit costs were more than one-third lower. He noted that while

Above left: South Africa's Mineral Resources Minister, Mosebenzi Zwane, delivers the welcoming address at the Mining Indaba.

Above centre: Anglo American's Chief Executive, Mark Cutifani, at the podium.

Above right: Chamber of Mines President Mike Teke addresses delegates.



Ivanhoe's Robert Friedland presents at the Mining Indaba.

An innovation this year was the Investment Battlefield Competition, which attracted a good audience.

the number of assets in the group had decreased from 68 to 42 during his tenure as CEO, in 2016 Anglo had produced more product than back in 2012. He said critics of his strategy had claimed "we were trying to shrink ourselves to success. They didn't get it: what we were doing was upgrading the quality of our portfolio, shrinking our cost base, and transforming the contribution from our larger scale and more productive assets."

On technology, Cutifani told delegates that

Anglo was making progress in four key areas. Elaborating, he said the first was the concept of 'The Modern Mine', which he described as "a mine where continuous rock cutting machines safely extract the targeted ore – deep underground – without the need for explosive blasting." Second was the concept of 'Concentrate the Mine™', an initiative designed to find efficient ways to mine more metals and minerals and less waste rock. A third initiative was the 'water-less mine' and he noted that in 2015 around 64 % of Anglo's operational water requirements were met by recycling water. Finally, he referred to the 'intelligent mine', a drive to build more connected mines through smart use of data and integrated systems thinking.

Concluding his address, Cutifani sounded a note of caution. "While the worst for the industry may be passing, tough and uncertain times continue to lie ahead. The steep price declines in 2014 and 2015, China's growth slowdown, and the increased volatility of commodity pricing, no longer necessarily driven by supply and demand fundamentals, should be seen as the 'new normal' for mining."

Cutifani was just one of many speakers to address the issue of technology. Another

was Sibanye's **Neal Froneman**, who said at a Chamber of Mines media briefing that the South African mining industry was "one of great contrasts – in some cases having to be dragged, seemingly reluctantly, into the 21st Century and beyond, and in other areas, leading the way."

Froneman, who is Vice President of the Chamber, noted that most deep level underground mines were ageing with travel times to the face sometimes reaching an hour-and-a-half or more. "With increasing depth and distance from the shaft, actual drill time at the workplace has contracted, health and safety challenges have increased, production has shrunk and has contributed to burgeoning costs. Volatile price environments, rising costs and decreased productivity have added to our woes."

He told journalists that without a shift in mining methodology, the industry would fail to mine South Africa's deep-level complex orebodies profitably, resulting in the sterilisation of resources, accelerated and premature mine closures, and accelerated job losses. "Research suggests 200 000 job losses by 2025 could affect 2 million people indirectly if we continue on the current trajectory," he added.

Froneman argued that mechanisation of mining operations was needed and noted that the Chamber had identified the products, technologies, people and infrastructure required to mechanise the stoping and development cycle with remotely operated equipment by 2020. Similar requirements had been developed for a 24/7 mechanised mining system that operates without explosives by 2025.

"Looked at as a whole, with conventional mining the industry can look forward to a sharp decline in gold production by 2019-20 and for mining to die out almost completely by 2033," he stated. "The picture changes radically with mechanisation: annual output persists at current levels until at least 2025 and until 2030 or even beyond with 24/7, mechanised operations."

Yet another speaker to highlight the role of technology in mining was Rio Tinto's **Bold Bataar**, Chief Executive Energy & Minerals, who is responsible for the group's African portfolio. He emphasised that Rio was committed to challenging the norm, from mine to market, and by way of illustration cited the group's iron ore operations in Australia. "In Perth, Western Australia, we have people operating drills, trains and trucks at an Operations Centre that is 1 500 km away from the actual mine sites," he told delegates. "That's like one of you in Cape Town operating the train that is going between



the O.R. Tambo airport and the downtown of Johannesburg right now."

Turning to the subject of exploration, he said Rio's exploration team was focused on improving discovery rates through a combination of legacy data and new ideas and technologies. "Each year about 5 % of our annual exploration budget is spent on innovation and development of new technology. Part of this investment includes digitising our large archive of data. We combine this 'big data' with new technologies to identify new opportunities. For example, we

Neal Froneman, VP of the Chamber of Mines, makes a point at the Mining Indaba.

Mark Parker of Andiamo Exploration presents at the Investment Battlefield Competition.





Winner of the Investment Battlefield Competition was Consolidated Nickel Mines (CNM), which is planning to restart the Munali mine in Zambia. The company's CEO, Simon Purkiss (right), is seen here with Harry Chapman, Director of Content for the Mining Indaba.

are using 3D modelling technology with our 'big data' to identify off-hole targets."

On public perception of the mining industry, the President of the Chamber of Mines, **Mike Teke**, acknowledged that the battle for hearts and minds was being lost despite the R2 billion a year that mining companies were channelling into Corporate Social Investment (CSI). He argued that the industry needed a business model that aggressively pursued value creation for all if it wanted to win social legitimacy and he urged mining leaders to engage with stakeholders in an open and honest way. "Engagement involves two-way communication," he maintained. "We need to listen to those who are speaking to us. Where we have had adverse impacts on the lives and livelihoods of stakeholders, let's work out how to avoid doing so in the future, and repair those things that can be repaired."

Teke also pointed out that the mining industry's apartheid history remained a huge obstacle and that it had done itself a disservice by not fully acknowledging this history. "That failure continues to burden the industry and its reputation in the eyes of many of its stakeholders. One of my greatest wishes is that the industry resolves to deal with this. And soon."

The issue of future demand for commodities was addressed by – among many others – **Robert Friedland**, Executive Chairman (and founder) of TSX-listed Ivanhoe Mines, who – in a typically forceful address – said the world's population was growing rapidly and would soon top 8 billion and that this was

driving the phenomenon of urbanisation. He predicted surging demand for copper, which he described as a 'bedrock metal', zinc and platinum as a result of this urbanisation. He also noted that there were specific drivers of demand such as – in the case of platinum – the growing move towards fuel cell vehicles. As he told his audience, fuel cell vehicles can use as much as ten times more platinum as conventional vehicles.

Friedland updated delegates on the progress being made by Ivanhoe at its three African projects – the Platreef project in South Africa, the Kamao/Kakula copper project in the DRC and the Kipushi zinc project, also in the DRC.

Discussing Platreef, he said it would eventually be the biggest platinum mine in the world and that even in phase 1 – a 4 Mt/a operation – would rank as the third biggest in the world. He noted that Shaft 1, currently being sunk, was 210 m down and that Shaft 2, which will go into construction later this year, would be – with a hoisting capacity of 6 Mt/a, a diameter of 10 m and a depth of 1 100 m – the largest shaft on the African continent.

Moving to the DRC projects, he described Kamao/Kakula as the "discovery of the century" in Africa and expressed the view that the mining complex that would be established at the site would ultimately challenge Escondida in Chile as a copper producer. Regarding Kipushi, he said its Big Zinc zone offered a spectacularly high zinc grade of over 35 % and told his audience that work was advancing rapidly on the refurbishment of the mine, which is involving the upgrading and modernisation of the shafts, pumping stations and underground infrastructure.

While most of the speakers mentioned above were 'main stage' presenters, there was plenty going on elsewhere at the Cape Town International Convention Centre and the neighbouring Westin Hotel, including the always popular African Ministerial Forum, with many mining ministers from around the continent in attendance, the Investment Discovery Forum, designed to bring together investors and mining companies, and a host of workshops, special information sessions, roundtable discussions and the like.

An innovation this year that *Modern Mining* particularly liked was the Investment Battlefield Competition, supported by the newly launched JSS Empowerment Mining Fund. This gave a platform to a number of low-cap junior miners to present their projects to a panel of investors. Among the companies presenting were Mustang Resources, which

has ruby and graphite projects in Mozambique, Andiamo Exploration, which is exploring for gold, copper and VMS deposits in Eritrea, Lake Victoria Gold, which has multiple licences in the Lake Victoria goldfield, and Sula Iron & Gold, focused on gold in Sierra Leone.

The company to take top honours was Consolidated Nickel Mines (CNM), which is planning to restart the Munali underground nickel mine located south-west of Lusaka in Zambia. The mine has been on care and maintenance since 2011. Originally commissioned in 2007 by Australian company Albidon, its facilities include a crush, mill, float plant with a capacity of 80 kt/month. According to CNM, the mine is dewatered and ready to operate with the infrastructure in good working order. The company hopes to have Munali up and running within 12 months and will target a production of 30 to 40 kt/a Ni

concentrate over a seven-year life of mine.

The Investment Battlefield Competition was a big success and one hopes that it will be retained at future events. It does, after all, typify what the Mining Indaba is all about – putting aspirant miners in touch with potential investors. This was the motivation for the original event held in the mid-1990s and the competition was just one of a number of innovations at this year's Mining Indaba which suggest that the organisers are determined to return the event to its roots and thus maintain its status as Africa's premier mining convention.

Editor's note: In reporting above on some of the presentations at the Mining Indaba, we are relying in some cases on the written versions of the presentations which might have varied slightly from the as-delivered versions.

Photos courtesy of Investing in African Mining Indaba

Cutting edge mining technology ready for roll out

In a launch held at the Mining Indaba, JSE-listed Master Drilling unveiled the latest version of its Horizontal Raise Boring (HRB) technology and announced that the technology was ready for international roll-out after a successful pilot test at the Cullinan Diamond Mine.

HRB can replace conventional drill-and-blast mining and promises to increase mining productivity thanks to its continuous process of rock boring, and in addition offers significant safety benefits. According to Master Drilling, this will enable more mining construction projects to meet the required hurdle and feasibility rates towards becoming producing mines. Projects with less safe access, such as deeper mining operations and higher stress zones, are also more likely to pass feasibility tests thanks

to the safety improvements that HRB brings.

"HRB is a locally developed, world-first technology that promises to change the very fundamentals of the global mining industry," said Danie Pretorius, CEO of Master Drilling. "The feedback from our multinational business partners from Southern Africa and Latin America on visits to the actual technology has been highly encouraging."

HRB will provide the mining industry with an excavation and construction tunnelling tool for the mechanical excavation of

a tunnel between two existing access points, very similar to the standard form of raise boring. The steady progress of



Koos Jordaan, Executive Director of Master Drilling, at the unveiling of the HRB.

the reamer makes it possible to excavate an average 6 m per day, compared to 2 m in conventional drill-and-blast cycles. ■

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