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Mining Industry Skills  
Another R9 billion needed for artisan training  
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The mining industry has met many of the employment equity and skills development challenges it has faced over the past few years and far exceeds other industries in its commitment to training.

This is the finding of mining research carried out by executive search firm, Landelahni Business Leaders. Says CEO Sandra Burmeister: "The mining industry has been sorely challenged, and it has responded positively."



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In 2006, revenue of the top 40 global mining industry players increased by 37%. Globally the industry is struggling to meet demand, as the number of mining development projects soars.

Constraints include regulatory controls, procurement delays, increased risk and a shortage of skills, with engineers and artisans in particular in short supply. Such pressures, says Burmeister, have made this country a poaching ground for Australian and Canadian companies.

South Africa is renowned for its mining expertise, and the industry is competing for skills in the global resourcing market. It is also competing for scarce skills with infrastructure, construction, manufacturing and other industry sectors, while facing pressure for upping the pace of transformation.

The 2008 Landelahni Mining Survey researched 12 of the 18 main participants in the gold, coal, diamond, platinum and uranium mining sectors in South Africa, representing a sample of 177 491 permanent employees (56,1% of total permanent employees).

### Employment and gender equity

The survey shows that Black representation in the mining industry at top management level more than doubled from 12,5% in 2001 to 30,6% in 2006, ahead

of the all industry average of 22,2%.

The single biggest shift occurred at non-executive director level – from 0,5% to 37%.

However, in management, professional, skilled and semi-skilled categories, mining lags behind the industry average.

The mining industry has made some strides in terms of gender equity, with women in top management increasing from 0.01% to 9,3% between 2001 and 2006, women in senior management increasing from 0,03% to 10,1%, and those in mid management and professional positions increasing from 5,4% to 18,3%. However, across all levels, mining lags behind the all industry average.



"These findings must be seen in context," says Burmeister. "Mining by its nature is a maleorientated industry with a large proportion of operational teams on remote sites. This influences the number of women in the sector. For similar reasons, there are still significantly fewer women in technical and engineering across all industries.

"What is encouraging, however, is a fundamental shift of blacks and women into core operational positions in the mining sector. This demonstrates a massive commitment to change on the part of mining houses.

"Whereas past surveys indicated that as many as 80% of blacks and females were employed in human resources, finance, marketing and other support roles, the 2006 data shows the proportion has now dropped to 65%, with a substantial increase of black and female employees in core business and mining operations."

The question has been raised in the media and other forums as to whether the industry should be concerned about EE numbers when the skills shortage is so dire. In Burmeister's view, employment equity is integral to ongoing transformation, and most sectors, including mining, have addressed employment equity in some form or another.

However, she believes that the focus should be on training and development from graduate, through middle and professional levels, and by virtue of numbers, equity concerns will automatically be addressed. "It's not about the importance of one aspect versus the other," she says. "Skills development and employment equity are both fundamental to corporate success."

### **Skills development: Graduates**

Because mining includes a large component of technical and professional staffing, "it is critical," says Burmeister, "that, apart from developing leadership and management as most organisations would do, mining should place additional emphasis on graduates, professionals and skilled workers.

University and technikon graduation across engineering disciplines was flat between 1998 and 2004, with a significant increase of close to 1 000 engineering graduates year-on-year in 2005 and 2006. This is a step in the right direction, says Burmeister. "However, low actual graduation numbers as a proportion of enrolments is a cause for concern." Only 11,5% of enrolments actually graduated between 1998 and 2006.

So while total enrolments over the period numbered 304 240, graduates amounted to only 35 511.

To compound the matter, the numbers entering mining specific disciplines such as mining engineering and metallurgical engineering are low. Some 337 mining engineers graduated in 2003, rising to 428 in 2006. Metallurgical engineering boasted 165 graduates in 2003 rising to 263 in 2006.

"Clearly," says Burmeister, "mining is starting to be considered as an attractive industry in which to work. Efforts by the sector to increase numbers of bursaries and attract students to the sector have borne fruit.

"However, one must question whether the industry can support its growth objectives on 428 mining graduates a year. The answer clearly is: 'No'. While some progress has been made, an increase in effort is required."

### **Skills development: Artisans**

According to the Joint Initiative for Priority Skills Acquisition (JIPSA), at least 12 500 artisans should be produced each year over the next four years to meet demand. However, South Africa continues to suffer a severe shortage of qualified, competent and experienced artisans.

The number of artisans tested across all trades increased from 15 000 in 1970 to 26 500 in 1986, while those who passed trade tests increased from 6 000 to 13 500. From 1986, however, the numbers tested dropped to 9 041, and those who passed dropped to a low 3 222, or 42%.

The Mining Qualifications Authority (MQA) target registration for artisans in 2008 is 1 766, against 1 034 actual registrations. Assuming an average pass rate of 42%, some 434 artisans are trained each year under MQA auspices with specific qualifications in mining.

"Artisan training requires a significantly increased investment by both government and private sector," says Burmeister. "The current artisan population is aging, with an average age of 50-55 years. So we should not merely be training for current needs, but also to replace the aging workforce."

### **Skills development: Professionals**

There are currently 14 234 professional engineers registered across all disciplines – 1 100 fewer than 10 years ago.

Following a sharp fall-off in registrations in 1998, Engineering Council of SA records show a dramatic increase in registration across all engineering categories in 2007, with 2 438 registrations, including 1 188 blacks. This bodes well in terms of a pipeline of engineers coming through the ranks.

Registration of professional engineers, on the other hand, has not recovered from its steep drop in 1998, with only 342 registering with the council in 2007, with a preponderance of 221 whites.

"Only a small proportion of these registered engineers work actively in the mining sector," Burmeister points out. "This has serious implications for all aspects of mining operations."

### **Training**

It is in the area of training that mining has shown true grit. The mining industry has increased training spend significantly and is way ahead of other industries in respective number of people being trained at almost every level.

In 2006, the proportion of top management receiving training was 34,0% compared to the industry average of 20,9%. Some 99,0% of unskilled workers in the mining industry received training compared to the 36,7% industry average.

"While accepting that training is coming off a low base, since skills development received scant attention from the mining industry prior to 2005, the industry deserves due recognition for its recent efforts in this area," says Burmeister. "However, it has no grounds for resting on its laurels."

Certainly, mining certification gives cause for concern. Mine managers certificates issued climbed to a high of 123 in 1997, dropping to zero in 2003, and increasing to 80 in 2006.

"The renewed upward trend is encouraging," says Burmeister. "Mining certification needs to be accelerated to meet the growth of the sector."

## Redoubling of efforts

Globally, according to Burmeister, employers have been forced to recognise that the war for talent is over, and talent has won. "The demand for skills and the transferability of skills across industries is only going to increase," she says. So what can the industry do to accelerate skills development and employment equity to the required pace?

"The shortage of skills –particularly of engineers – in the mining industry calls for a more innovative approach when recruiting at all levels in the organisation. "We must encourage the return of retired mining professionals to run key projects or act as coaches and mentors to those coming up the ranks. This should be part of a formal company-wide coaching and mentoring programme.

"Internal skills should be identified and assessed to determine competency levels and potential for ongoing training and development. Such investment in skills development is more than a scorecard measure. It is an economic imperative."

On the reward side, according to Burmeister, mining remuneration packages have tripled and quadrupled over the past two years. "Scarce skills incentives, shares, long-term incentives, performance bonuses and retention incentives may well continue to be the norm in the mining sector, and skills premiums for specific core business activities are likely to continue to rise.

"However, a significant increase in investment in the development of graduates and young and mid-tier professionals will help to balance supply and demand, and in the long run will be effective in driving down the remuneration spiral. Executives incentives should be aligned to increasing skills across the business, not just to advancing the bottom line."

While, traditionally, mining houses have tended to be conservative, with slow career acceleration, there has, according to Burmeister, been a shift towards faster upward career progression, with younger CEOs and shorter tenure in key positions.

Moreover, mining has moved from a cost centre to a profit centre business model, which demands general management and business skills, as well as technical skills, on the part of mine managers.

Such changes call for the introduction of formal career planning for employees and a clear career path. "This applies to long-term employees in the industry as much as it does to new recruits," says Burmeister. "Executives must manage expectations of all employees and understand that, in this era of shorter tenure, a clear career path is essential to retaining key talent.

"General management and business experience at head office level is important as part of a broader retention strategy, as is international exposure for up-and-coming young executives.

"Global resourcing is critical to the success of the local mining industry, given the spread of exploration and mining activities across globe. Many mining houses have international operations, and can make use of management exchanges and offshore projects to accelerate skills development. Smart strategies for resourcing include pooling scarce resources across continents and sharing skills across mines."



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