

Fast Facts: Mining Research Report 2010



Local mining industry mirrors global skills crisis

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As global economies climb out of the 2009 recession, the mining industry faces serious skills shortages that could hamper future growth. An even greater concern is that the local industry has lost a lot of its skills development capability.

These are the findings of mining research carried out by executive search firm Landelahni Business Leaders in its third biannual Mining Survey.

Addressing current skills shortages demands a long-term strategic approach. South Africa – despite being a large mining driven economy – was unable to take advantage of the commodities boom earlier this decade due to low growth in mining production. Factors such as skills shortages, long lead times in delivery of equipment and electricity were cited as the main reasons.

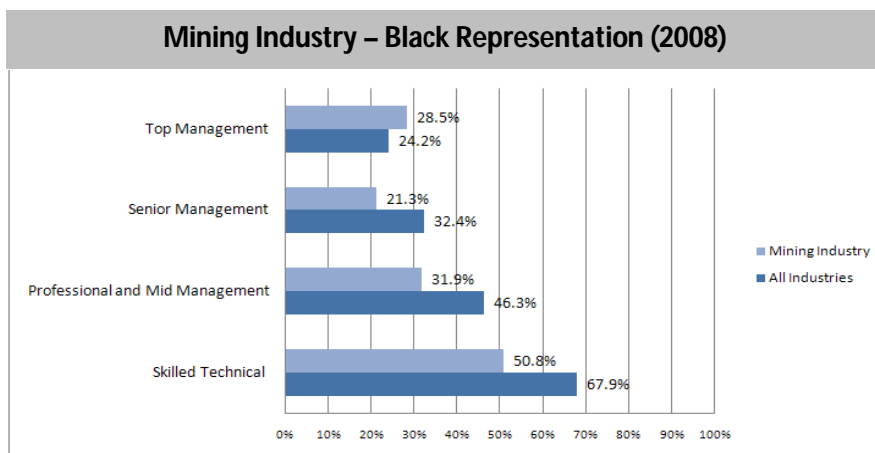
As global economies recover, we must ensure that our future supply of minerals is not constrained by same factors that inhibited supply during the last boom. To achieve that will demand a focused skills development programme, driven by sound research to supply the data – currently either hard to come by or totally lacking – to make sound management decisions.

The mining industry is competing for scarce skills with infrastructure, manufacturing and other local industries as well as in the global mining arena. Engineers and artisans are highly mobile due to transferability of their skills. SA is known for its top mining expertise and is likely to continue to be a preferred poaching ground for mining talent. Although we produce more mining engineers than all other English-speaking countries combined, we are not producing sufficient skills to replace the aging engineering and artisan population, let alone to gear the industry for growth.

To compound this, recession has had an impact on progress in employment and gender equity and skills development in mining.

Employment and gender equity

The Landelahni Mining Survey shows that in management, professional, skilled and semi-skilled categories, employment equity in mining continues to lag behind the industry average. However, at 28.5%, it exceeds the all-industry average at top management level.



After a sizeable boost in 2005/6, there was a slight decline in employment equity in mining in 2008, with top management at 28.5%, and skilled technical workers at 50.8%. Equity representation at non-executive director level showed an increase from 30% to 36%.

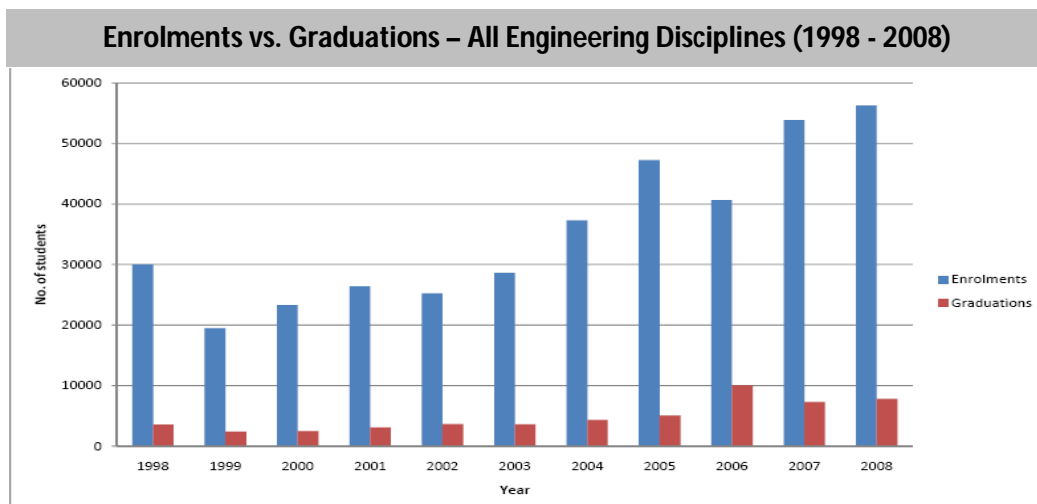
Year	NED	Top Mng	Snr Mng	Mid Mng / Prof	Skilled
2001	0,05%	12,5%	21%	-	-
2005	37%	13,9%	22%	27%	45%
2006	30%	30,6%	22%	30%	53%
2008	36%	28,5%	21,3%	31,9%	50,8%

Gender equity remained fairly constant between 2006 and 2008 at top and senior levels (10%) and professional levels (18%). However, across all levels, mining continues to lag behind the all industry average.

What is discouraging is a drop in blacks and women in core operational positions in the mining sector. The 2008 survey shows a decrease to an average of 50% of black and female employees in core operations, against almost 65% in 2006. In contrast, blacks and women in support roles show an increase from 35% to an average of 50%.

Skills development: Graduates

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



Over the 11 years from 1998 to 2008, enrolments for degrees and diplomas across all engineering disciplines totalled 388 606, against 53 342 graduations – a 13.7% pass rate, compared to the 25% international pass rate. Some 20 819 candidates graduated with university degrees, while Technikon diploma graduates totalled 32 523.

While we have substantially increased the number of enrolments since 2004 – close to an additional 10 000 in 2005 alone – we are not seeing the corresponding proportional increase in students completing their studies.

The numbers entering mining specific disciplines are low, but growing. Mining engineering graduates have increased from 260 in 2006 to 304 in 2008, while metallurgical graduates increased from 186 to 234 over the same period. Encouragingly both showed increases in black and female graduates.

Graduations – Mining Specific Disciplines (2003 - 2008)						
	Mining Graduates			Metallurgical Graduates		
	Black	Female	Total	Black	Female	Total
2003	36	9	61	74	39	100
2004	43	7	65	93	28	111
2005	103	17	156	167	63	196
2006	150	25	260	159	63	186
2007	186	48	244	198	73	216
2008	215	50	286	211	97	235

Clearly, efforts by the sector to increase numbers of bursaries and attract students have borne fruit. However, it is clear that mining cannot support its growth objectives based on current graduate numbers, and that a greater industry effort is required.

SA remains the major educator of mining engineers in the English-speaking world. The country produced 304 mining engineers in 2008, compared to Australia's 130, Canada's 127 and the USA's 35. Globally there are major drives to increase the number of mining engineers, albeit off a low base. Australia, in particular, has dedicated substantial funding to increasing its mining graduates, given the importance of mining in the economy.

Skills development: Artisans

SA is experiencing a severe shortage of well-qualified, competent and experienced artisans. For this reason, despite the recession, spiraling salaries, retention and sign-on bonuses are still a reality for companies hiring artisans.

The Joint Initiative for Priority Skills Acquisition (JIPSA) target of training 50 000 artisans required urgently by business across SA between 2007 and 2011 is still far from a reality.

Against dwindling artisan training and a low pass rate over the past few years, Seifsa reports that a total of 5 730 metal industry apprentices underwent training in 2009 – the highest in 10 years, against its target of 5 000.

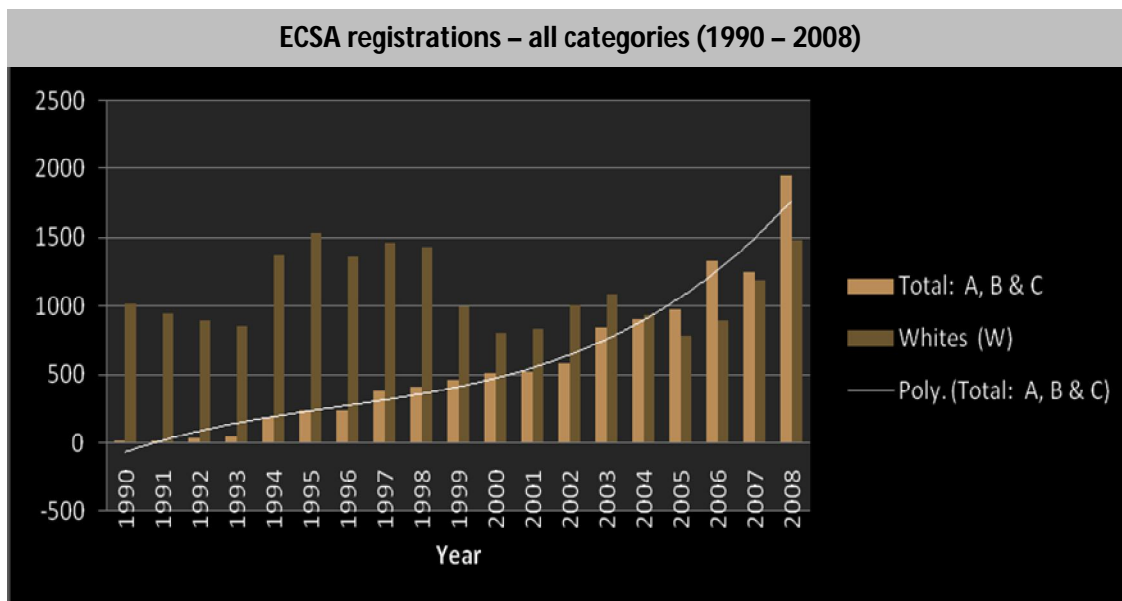
The current artisan population is aging, with an average age of 50-55 years. The Department of Labour estimates that, based on date of qualification, 60% of artisans are below the age of 40. Business estimates the proportion to be closer to 20%. So we should not merely be training for current needs and to meet expected growth, but also to replace the aging workforce, which will exacerbate demand issues.

However, the unavailability or total lack of data on the actual numbers of artisans being trained in specific trades makes it difficult to determine whether we are training the right kind of skills to support economic growth.

Skills development: Professionals

The Engineering Council of SA (ECSA) recorded an increase in registrations across all engineering categories in 2008, with close to 3 500 registrations, including 1 500 blacks. This bodes well in terms of a pipeline of engineers coming through the ranks.

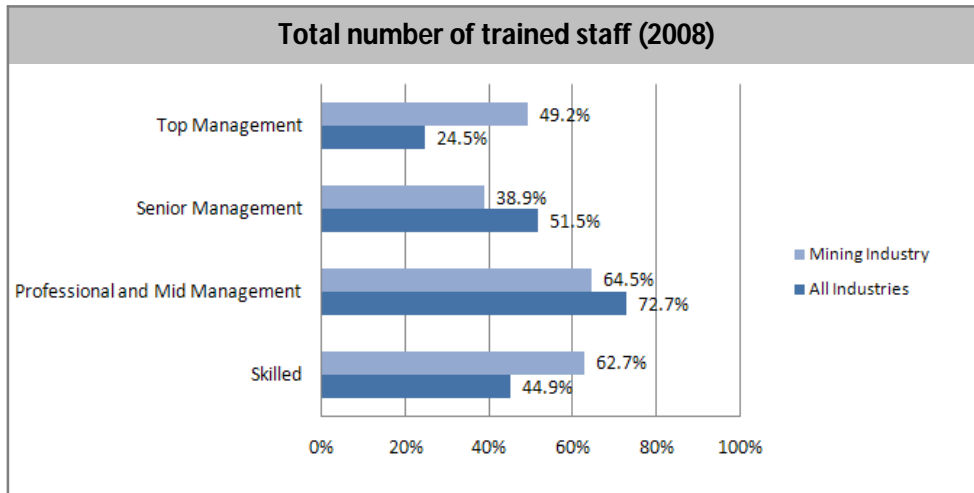
There are currently 14 474 professional engineers registered across all disciplines – close to 1 000 fewer than 10 years ago. Only a small proportion of these registered engineers work actively in the mining sector. This has serious implications for all aspects of mining operations.



Training

In 2006, the mining industry was ahead of all other industries in respect of the number of people being trained at almost every level. However, training levels have dropped since then, which in turn has reduced the number of black and female staff trained.

The mining industry exceeds the all-industry training spend at skilled and executive levels, but has reduced its spend by 10-15 % at every level except executive, which has increased by 15%.



Mining certification's uneven progress gives cause for concern, says Burmeister. Mine managers certificates issued climbed to a high of 123 in 1997, dropped to zero in 2003, increased to 80 (against 787 applicants) in 2006 and dropped to 25 (against 822 applicants) in 2008. Government Certificates of Competency (GCC) in mechanical and electrical trades were issued in 2006 to 55 out of 97 applicants and in 2008 to 73 out of 134 applicants.



The number of applicants who fail to meet the requirements for certification is alarming. Skills development and formal mentoring programmes to meet mining certification standards need to be accelerated to meet the growth of the sector.

Aging workforce in global mining sector

Because the South African mining industry has an aging workforce, particularly in respect of engineers and artisans, the current skills shortage is likely to become much more acute in the next 10-15 years.

Research in Canada shows that 40% of the mining workforce is likely to retire over the next 10 years and that an additional 81 000 skilled people will be required to meet current and future industry needs owing to retirement.

Australia shows a similar trend. Skilled jobs in mining will double in the next 10 years to 215 000. Some 80% of mining houses in Australia currently indicate they are short-staffed. In 2005, the US Society of Mining Engineers reported 58% of members were over the age of 50.

Against this we must be mindful that it takes 12-15 years for an engineer to be sufficiently experienced to serve in a substantive managerial capacity. So the question is: how do we 'mine for talent' in a global skills short market?

Strategic long-term approach

Skills development in SA currently is demand driven and short term. We tend to ask: How many engineers do we need to train to meet short-term demands?

However, the skills shortage in the mining industry cannot be solved in the short term. It requires long-term strategies from mining companies and the state to ensure adequate funding of education and research. We can learn from the establishment of Mining Education Australia the value of combining government, education and private sector resources to substantially impact on skills development.

We have a critical need for research and accurate data on which to make management decisions. The availability of high quality data internationally contrasts substantially with the lack thereof in SA. Even more important is the measurement of the correct training and development metrics – metrics that focus on results and not on inputs.

Effective graduate attraction

In the US, 75% of mining engineering graduates join the industry. In Australia, the figure is 80%. "In SA only 15% of mining engineers remain in the industry for a long-term career; many join financial services or become contractors, consultants and suppliers of mining equipment in return for higher remuneration," according to Burmeister.

A comprehensive graduate talent acquisition plan, beginning with a proactive graduate recruitment programme to identify and hire graduates, linked to an effective on-boarding and mentorship programme is required. An increase in bursaries and formal work-back programmes will also increase the number of graduates in organisations.

Consistent skills investment

The shortage of skills in the mining industry demands investing in skills at all levels in the organisation. It takes up to 15 years for an engineer to be sufficiently experienced to serve in a substantive managerial capacity. Creating the pipeline is only the first step. Developing appropriate development plans, mentoring and coaching to grow this talent from graduate to effective engineer is going to be critical in the future.

Internal skills need to be identified and assessed to determine competency levels and potential for development. Greater investment and spend in skills development is not just a scorecard measure, it's an economic imperative for a sustainable mining industry – locally and globally.

Proactive resourcing strategies include the smart use of contractors and retirees for accelerated development programmes, mentoring and training, and industry coalitions for training specific scarce skills – such as artisan skills – while sharing the costs. International benchmarking, too, would be helpful in raising the bar in SA.

When it comes to remuneration, while the economic crisis has tempered excessive earnings in the short term, premiums for scarce skills specific to core business activities will continue to rise as the mining industry expands. Executive incentives should, however, be aligned to increasing skills across the business, not just to advancing the bottom line.