Where will our future metallurgists come from?

The 14th Annual SAIMM Student Colloquium 2017 was held at Mintek on 25 October 2017. This is a prestigious annual event where mining and metallurgy students at tertiary institutions can showcase results of their projects to an audience from the greater Southern Africa mining community. The top students are invited to publish their papers in a special issue of the *Journal*. Looking at the papers in this edition, it is clear that the type of research conducted by students increasingly reflects the priorities in the industry, and that the outcomes are applicable, current, and of very high quality. This is a very encouraging sign, and it does go far to dispel the notion that only 'pie-in-the-sky' research is being done at our tertiary institutions. We are indeed successfully contributing to the creation of prosperous and empowered young professionals, to paraphrase the slogan of the Colloquium. Anybody with any interaction with these bright young minds can confirm that the industry will be in good hands in the future.

But will this be enough? While the quality of education of our future mining professionals seems to be ensured, the numbers are worrying. We have been experiencing a steady but significant drop in enrollment numbers for metallurgy- and mineral processing-related qualifications at most, if not all, of the big universities. The effect of this is that there is a high probability that there will not be enough of these young professionals in four or five years' time to cater for our job market. The South Africa mining industry (and the rest of the world as well, probably) has always been locked in this lead-lag dilemma on the supply of, and demand for, qualified professionals. One can recall the situation in the early to mid-1980s, when we had to look overseas to supplement the demand for young metallurgists to service the boom in the gold and platinum industries, in particular. Yes, the times were good then, but we all know that our game is a highly cyclic affair. And we know that the past few years were abysmal. But we need to question ourselves if we are geared to support a new optimism in the mining sector as far as trained and educated professionals are concerned. Remember, it takes more than four years of foresight to plan our future in terms of qualified talent. And who knows what will happen in the industry in four or five years' time?

So why don't we currently get the young feet flowing to our institutions? Capacity is certainly not the problem, and I don't believe we can blame the school system this time. To find a solution, we need to ask the same questions young potential students ask themselves: How will I pay for my studies? and; will I have a secure and satisfying career?

Unfortunately, the answer to the first question is not easy. All academics in this field agree that the number of industry-funded bursaries has decreased drastically over the last ten years. We do not see the abundance of bursaries that we saw in the 'nineties. This is perfectly understandable, given the state of the industry, but the question is whether any scenario planning about future professional requirements is being done. We may be caught napping once again.

Another issue around bursaries is the rise of emerging miners, coupled with the fragmentation of the once mighty mining houses. And while nobody is questioning the strategic and social importance of this change, it is true that small emerging players simply do not have the capacity – financial or otherwise – to invest in talent development.

The answer to the second question, about the future prospects in a career in mining, is rather obvious: the perception about the state of mining in the country has never been worse. It is not surprising that students do not see themselves operating in such an unsecure industry while the policy-makers are still trying to get their ducks in a row. The damage to the future of the industry in terms of acquiring young talent is terminal. Added to that are the many qualified mining and metallurgical engineers not being able to find employment in their disciplines. We will not attract top talent while there is a perception that a career in mining is not a good option.

Thank goodness for the few students, like the authors of these papers, who are prepared to gamble on a very bright future – one in which they themselves may very well be the change agents for the better. Now is the time for universities and employers to invest in the few who are willing, and to develop them to reach their potential. We are going to need special people in the foreseeable future.

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