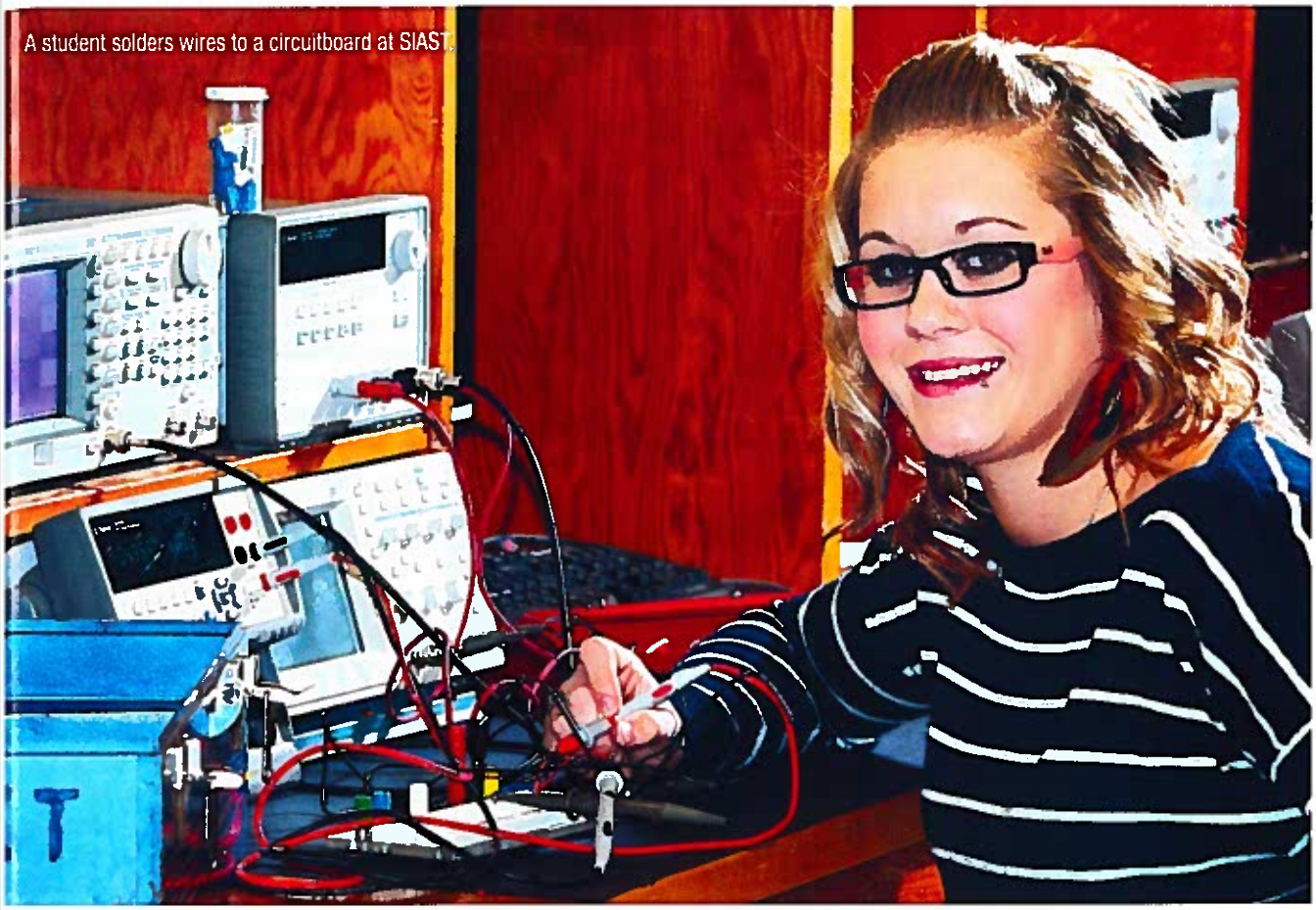

A student solders wires to a circuitboard at SIAST.

Photo provided by SIAST

Training the next generation of miners

Building the Minerals Institute

by Penny Eaton

There are many mining-related training initiatives underway at numerous institutions in the province, including SIAST, the University of Saskatchewan, University of Regina, First Nations University of Canada, Saskatchewan Indian Institute of Technologies, Gabriel Dumont Institute, Lakeland and Northlands Colleges.

However, each institute and each program to a large extent works on its own, or sometimes in ad hoc partnerships with industry. We've been missing something bigger, more coordinated, and something that could tie together teaching, research and the needs of the marketplace. Until now.

Although various concepts around a 'mining institute' have been circulating for years, things began to coalesce around the idea of a cooperative industry-led approach in 2007.

"What became clear in our discussions was that a coordinated, collaborative effort was needed to address our unique challenges in mining," remembers Dr. Karen Chad, VP of research at the University of Saskatchewan.

Also, with Saskatchewan's heavy involvement in mining, it sometimes seems odd that there isn't a corresponding emphasis on training and research here. "Nowhere else in the world do we

have the uranium grades or the potash production that we have in this province. But meanwhile, we are not well-known for the best technologies," says Engin Ozberk, VP of technology and innovation for Cameco.

It was past time to change that. Ozberk and Chad and several others came together in a steering committee to examine the issue more closely. One of the first orders of business was to contract a feasibility study to determine if there was sufficient industry support for the concept.

Industry, while generally supportive, was quick to point out that their number one issue is access to enough qualified people to address the growing industry's needs. Such a collaboration would be a non-starter unless education and training were a significant part of the picture. A vision emerged of a body that would bring focus to the mining sector needs in two areas: education and training (E&T) on one side, and research and development (R&D) on the other.

The two are inextricably connected, Ozberk argues. "For education and training to happen, especially at the university level, we must sustain good professors. They need to have the opportunity to do research or they won't stay. If you want good brains here, we have to provide research possibilities."

The steering committee, with assistance from Meyers Norris Penny and considerable consultation with industry, developed a business plan for a new entity called the International Minerals Innovation Institute (IMII). Its mission statement reads: "The IMII is a public/private/post-secondary partnership and leader to inform, facilitate, coordinate, and financially support industry-driven research and skill development that will enable the growth and global competitiveness of Saskatchewan's mineral industry."

The plan estimated that IMII will need over $40 million for the first 5 years, with the intent that industry and government share costs on a roughly 50-50 basis. For education and training, government will fund the larger share, while industry will carry more of the research costs on a 'pay-to-play' basis.

In August 2011, the project reached an important milestone when the business plan was rolled out to senior industry personnel, who indicated their support for the

idea—including significant financial backing for the Institute, although still unofficial at the time. "It was a turning point," Ozberk says. "It was the first time at a serious level that the industry came together to support it, to give it the green light."

The steering committee followed up with an information session for representatives of the province's universities, technical schools and regional colleges in December 2011. "It really just scratched the surface in terms of what some of the issues were, but it became very evident that Saskatchewan as a whole has a wealth of expertise within the education and training field. We just need to be able to mobilize it and make it as user-friendly as possible for the mining sector," Jamie Hilts from SIAST observes.

David Grier has been facilitating the actions of steering committee almost since the project got off the ground in 2009. He was appointed as the interim executive director for IMII shortly after it was incorporated in January 2012. He describes what the IMII is trying to do as bringing 'market pull' to deciding what kind of education to deliver and what kind of research to do, as opposed to the more traditional 'technology-push', where the institutions decide on programming and project design.

"To me, this is the biggest innovation we're bringing to this: we're trying to apply market pull to the teaching side," Grier says. "It's been there on the research side for a long time to some degree. There's both technology push and market pull happening out there on the R&D side and that's good. Technology push isn't bad; it's only bad if it's the only thing. I think the research side of the world is more used to the idea, but to the teaching side, it is still a new approach."

While still unsure exactly how it will work, educational institutes are fairly positive about the concept. "We're all kind of waiting for this baby to be born," says Jim Kells at the University of Saskatchewan's College of Engineering. "I think we've heard industry say pretty loud and clear that we must do something about fundamental training in mining."

IMII is not envisioned as a large building filled with teachers and researchers. Rather, its purpose is much more to coordinate and evaluate the efforts already underway. "It's a funding agency, but it's more than that. It's a mechanism for industry to define what it needs on both the E&T and R&D fronts and to decide which programs and projects get funded," Grier says.

"We need to do more to recognize the importance of mining to the Saskatchewan economy."

– Dr. Karen Chad, VP of Research at the U of S

Much of the work will be done by two panels (one for E&T, one for R&D) made up volunteers from industry and institutions, each managed by an IMII employee. The panels would first determine and prioritize the issues that need to be addressed, work with institutions to develop program or project descriptions, then figure out, perhaps through an request for quotation process, who is in the best position to deliver them, and finally, make recommendations on funding to the IMII board of directors. So far, six areas for E&T programs and R&D projects have been identified: (1) mining technology, (2) processing technology, (3) environment and safety management and technology, (4) exploration, (5) social license and policy research, and (6) business and economics of global commodities.

In February 2012, Innovation Saskatchewan granted $500,000 to IMII for start-up costs, as well as for some costs already incurred in 2011. For example, the two new mining courses developed for geological engineering students at the U of S were supported through this funding.

Rob Norris, Minister of Advanced Education, Employment and Immigration and Minister responsible for Innovation, has high hopes for IMII. "Long-term, I see IMII as being the focal point for positioning Saskatchewan as one of the world's leading mineral producing jurisdictions.," he says. "It will accelerate the implementation of the specific education and training that industry needs. It will be a player in addressing the skills gap the industry is projecting and it will facilitate research that addresses the industry's unique problems. Both sides of IMII will build the expertise needed to advance the sector. Our goal with IMII is for Saskatchewan to become the 'go-to' destination for world-class mineral industry solution development."

TAKING ACTION—NOW

While there's no question that mining is important to Saskatchewan's economy, it's also true that mining is a volatile industry, highly sensitive to global shifts in demand. What happens when demand goes down again? Market volatility is one thing, says David Grier at Innovation Saskatchewan, but that shouldn't scare us away from making investments in areas where we have a natural advantage. And our resources will continue to be there, regardless of what the market does.

"To some degree, you have to take the position that in the good times, you should be building up your expertise and your ability to deliver, whereas in the poor times, you don't have the money to invest in the building-up stage," he explains.

The time is now to build on that natural advantage. "Saskatchewan needs to do more," says Karen Chad at the U of S. "We need to do more to recognize the importance of mining to the Saskatchewan economy. We have to do more to ensure long-term sustainability of the mining sector. We need to enhance the benefits for Saskatchewan citizens, both in revenues and employment. We have to improve the mining industry's image to attract employees," she says.

There's no time to lose. "We need people in our mines. We need highly educated people. Right now, I cannot find them, and I'm not the only one looking," says Ozberk. "[The Minerals Institute] is an important part of our resource development and expansion of our capacity. It's not going to happen today, but it's going to happen hopefully over the next few years. And by then, we're going to need even more people." SMJ