

International Copper Association sees real value in innovation funding

The International Copper Association has urged South Australia to become a global innovation hub for copper mining by adopting a venture capital model that is taking off in Chile.



ICA sees innovation that reduces production costs and improves sustainability as important to averting the threat of copper substitution threat

Mets Investor > Deals-finance The ICA's Washington-based director of technology development and transfer, Hal Stillman, told the recent Copper to the World conference in Adelaide that South Australia was in a strong position to lead innovation in copper mining because of its large and expanding production base and supportive environment for business start-ups.

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Comments

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**David Upton
In Adelaide**

He said innovation to reduce the costs of mining copper and improving sustainability was important for the ICA because of the constant threat of copper substitution.

"If the price goes too high, people work hard to figure out ways to eliminate or reduce the amount of copper that's used, so we have to work really hard to make sure there are available technologies to operate mines and recycling facilities in a way that reduces the cost of producing copper."

He said governments were pursuing policies that encouraged innovation and ideas, but they didn't go far enough to help entrepreneurs and small companies.

"These small companies need to persist over a long period time, they need to be able to conduct trials with mining companies and to fund those activities which are normally at an enormous scale. So there's a place for open innovation, venture capital and start-ups."

He said the ICA had taken a lead role in forming a venture capital fund, based in Santiago, with the singular focus of backing innovation to create profitable, Chilean-based companies involved in copper mining, processing, services and the development new applications for copper.

Known as the Aurus III fund, it provided a great example of the kind of opportunity available to South Australia.

The US\$65 million fund launched in 2015 after a gestation period of more than 10 years. The fund initially raised \$US25 million from several investors, including Codelco, Mitsui, the Latin American Development Bank, the Inter-American Development Bank and some private investors.

"The other co-investor of the fund, with US\$40 million of the funds invested, is the government of Chile, so an interesting message from policy makers here is if you want to get behind innovation you actually have to provide funding," Stillman said.

Results to date have been highly encouraging and paved the way for a soon-to-be-launched new capital raising of US\$100 million.

The fund is backing a number of highly promising projects, including EcoTR and Vizutire.



ICA's Hal Stillman: "If you want to get behind innovation you actually have to provide funding"

Stillman said EcoTR is the first company that had figured out how to profitably recycle mining tyres, using an advanced pyrolysis process that is highly efficient at breaking down tyres into their three elements of carbon black, steel and latex. Latex is transformed into biodiesel that can be used at the minesite or elsewhere. The carbon is transformed into high quality carbon black and the steel is entirely recycled. There are no emissions and there is no cost to the mining company. The first plant is being constructed in Chile, based on technology developed in Spain.

Vizutire has developed technology for checking whether truck tyres need to be replaced.

"The normal way in which tyres are assessed for their quality is tapping them with a hammer. A lot of tyres are recycled early. So this company has developed a new, 3D ultrasonic imaging technique that can detect the quality of tyres very rapidly on the minesite and save a lot of money in the operations and not retire tires early.

"This is an interesting start-up. You wouldn't necessarily get this anywhere else except where you are exposed to the real issue. This may not be an enormous company but combine it with EcoTR and maybe you have something even bigger," Stillman said.

Another company backed by the Aurus III fund is Scarab Recovery Technologies, which is trialling a process for low-cost extraction of calcium oxide from tailings. Calcium oxide controls the pH in the hydrocyclones used to produce concentrate. It accounts for about 17% of the operating costs of Chilean copper mines, and is rising in cost because of scarcity.

Other companies backed by the fund include Minesense, which has spent 10 years developing breakthrough technology for real-time measurement of the grade of ore in a bucket or on a conveyor belt, and Novamineralis, which has developed a bio-leaching process that can leach sulphide ore in one third of the time of conventional processes.

Stillman said Aurus III coinvested with other venture capital firms, and was now part of an ecosystem of venture capital firms around the world interested in industrial technology.

He said start-ups now knew where to come to for funding and guidance and introduction to copper mining companies to help them with technology trials, but there was an open opportunity for South Australia to become a key part of that global network.