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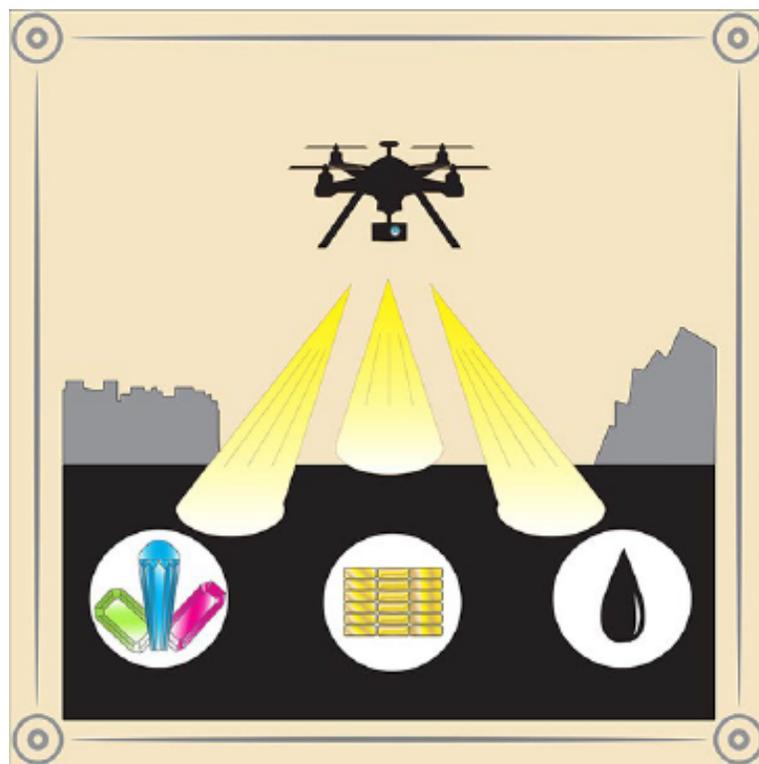
Brain Drain Spells Trouble for Critical Industries

Growing demand for critical minerals causes the mining industry to look for solutions to access additional sources.

The ‘metals of the future’ are deeply reliant on a robust mining sector. Everything from space travel and transportation, to electronics and power storage, even communications and medical applications rely on critical minerals such as aluminum, platinum, lithium, as well as gold, silver, and copper. However, there is a major roadblock ahead. That being a lack of talent needed to drive the industry forward.

“We’re tapped out at this moment in time,” says William Sattlegger, P. Geo., who has more than 35 years in the resource industry and is the Executive Director of the Redefining Electrical Metals Conference. “What I’ve seen over the last several years is a deficiency of talent. We just don’t have enough experienced people: technical staff, service providers, operational services, equipment, labor, period.”

Unfortunately, he says the problem is getting worse, and he sees a limited effort being made by the industry as a whole to improve the brain drain. In his opinion, it starts at the academic level where there are simply not enough college students seeking a career in the mineral sector. This comes on the heels of a report by the U.S. Bureau of Labor and Statistics that says the industry will need to increase its workforce by at least 4% over the next decade.



Critical Minerals

There are far-reaching implications if the dearth of talent persists. In 2018, the U.S. government began compiling a list of minerals that were considered critical for economic and national security. The list included 35 minerals such as lithium, platinum group metals, and aluminum.

Both the Biden and Trump administrations have pushed to increase domestic mining of these minerals, but that becomes much more difficult if people are not entering the industry at a sustainable rate.

“It is ironic that you have all these highly talented young people going into the tech industry, aerospace, electric vehicles, but without these critical metals, they won’t be able to produce that technology,” adds Sattlegger. “You can’t build what you don’t have.”

Gold, silver and copper were left off the list of critical minerals, but these are also essential for future technologies as well as the transition to renewables and environmental sustainability.

Mining for options

There are a number of solutions that the industry could focus on to help align itself with the imminent shortfall in talent. As an example, instead of committing large investments into the exploration of new properties, the mining industry needs to shift to extracting the resources that were previously left behind in known deposits because at the time they were simply not economical.

“Historically, when miners found something, they would only be able to pull about 60% of the precious metal out of the ground,” explains Sattlegger. “Thankfully, with today’s technology, we should be getting 90% recovery or more utilizing extraction processes which are less detrimental to the environment.”

Additionally, mining operations should be developing more than just the most valuable or primary commodities within a known deposit. Since these key minerals occur together naturally, mining operations should be extracting not just the gold and silver, but all the associated minerals which are technically feasible.

By focusing on underdeveloped properties, companies can also dramatically reduce the time it takes to get from the exploration phase to production.

“We are seeing this business model work more and more and it is easier to finance and becomes more attractive for investors,” says Sattlegger.

However, he believes that junior mining operations are better positioned to take advantage of these opportunities.

A better mousetrap

Element79 Gold Corp (CSE: ELEM, FST: 7YS), a junior mining company with a growing list of properties throughout North America, is a prime example of this strategy. The company’s mission is to take its acquisitions and develop them using state-of-the-art technology. The intent of its business model is to turn those assets into proven resource values and then cashflow-positive operations in under two years.

“We have the flexibility to be nimble, acquire multiple properties, and at the same time take advantage of the latest and greatest technologies,” says James Tworek, CEO of Element79. “While we obviously work with great contractors, we don’t necessarily need a massive workforce under our wing.”

While mining traditionally depends on tested-and-true methodologies and technologies, Element79 is not against breaking the mold when it comes to the utilization of bleeding-edge technologies. This could include the use of AI systems to analyze geological and geophysical data from existing drillholes and regional analogs.

Additionally, the company may look to incorporate everything from satellite-based geophysics to high-resolution imaging of in-ground resources. Both AI and satellite geophysical technologies utilize supercomputers to crunch and render data for improved results when setting new targets for future drill plans.

Element79 has also recently deployed drone-based magnetic resonance to generate higher quality hits on properties instead of more costly and environmentally impactful helicopter recon.

“Old technologies often require a dozen or more workers onsite to operate,” adds Tworek. “A major benefit of new tech is that in some cases you can get equal, if not far better, results with fewer humans. So, if people are becoming scarce in this industry across North America, then that is a good thing.”

Technological advances can also improve the recovery of resources on the backend as well.

“What was previously uneconomical for miners in the past can become profitable to more innovative miners today, with smaller teams, harnessing newer technology and equipment,” explains Tworek.

He is even aware of a few private groups that started investing and producing cash flow from previously-producing mines, tailings and waste rock instead of the traditional model of exploring greenfield properties for a discovery.

“They follow the ethos that the best place to find gold is where the last team was already digging, but ran out of gas,” adds Tworek. “Or it could be that they were on the wrong side of financing when the cycle shifted on them.”

Greater returns

While advances in new technologies and improved operations may signify a brighter outcome for the industry, that alone may not fully offset what is expected to be an unquenchable demand.

“Global populations will continue to grow and developing economies will evolve. This will bring more currency chasing scarce resources,” explains Tworek. “So, there will always be more demand for the resources that the global mining industry produces.”

However, Tworek believes that as demand grows, the cost and value of the resource will also increase, the cost of implementation will decrease through better technology, thereby increasing mining yields and improving the ability to meet global demand.

“We are going to see increased revenues and investment yields that will make the mining industry a very attractive sector.”

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