

Systems-Thinking to Tackle the Impending Economic Geologist Crisis

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Globally there are decreasing numbers of geoscientists studying in post-secondary institutions and working professionally, particularly those specializing in economic geology. In the context of decreased discovery success, and predicted increased demand for critical metals, this represents a workforce crisis.

Mineral Systems consider what critical geological processes need to be active and effective for a deposit to form and supports opportunities proceeding through the exploration pipeline. We can apply the same process-thinking to the people pipeline for geoscientists. In mineral systems we start with the original source of metal, the human resource equivalent is supporting the interest and understanding of geoscience in school-age children and their parents. Generation of a medium to move metal has its counterpart in supporting university training of geoscientists, and concentration of metal into medium is the provision of quality economic geology education as part of this training. This optimizes the potential for successful migration of a metal-rich medium, and of well-trained geoscientists into the profession. This is important across all disciplines, but to find the critical metals required globally we need to recruit some of those geoscientists into the exploration industry, just as we separate metals once they have migrated through the crust. The enrichment of metals, physically and chemically, to form the highest quality systems is, in workforces, represented by on-going training and development. The final critical process in mineral systems this is the preservation of mineralization at a mineable depth – for people it is creating the processes to ensure geoscientists stay within the minerals industry.

We need success and collaboration across all critical processes, across all pillars of geoscience – industry, academia, government, and associations - for Skilled Geoscientists to form, develop, transition to the workforce and thrive; and ensure we can provide the people to power the next world class discovery.