

SEG 2024 Conference: Sustainable Mineral Exploration and Development

Precompetitive Support of Exploration and Development in the Critical Minerals Era

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Precompetitive support of exploration and development by government agencies has played a key role in driving exploration success for more than a century. Such support has traditionally taken the form of geoscientific datasets and value-added interpretations focused on the area selection end of the exploration and mining value chain. This focus has taken priority because the mining, processing, and downstream considerations of more traditionally sought commodities are well-understood, and companies and investors have been focused mainly on the technical challenges to attaining production. Several important developments have taken place over the past decade to change this situation.

- Exploration focus has moved more to critical and strategic minerals where sustainable processing pathway and supply chains are not as well understood;
- Mineral production opportunities are expanding to increasingly use exploration approaches applied to secondary sources such as tailings and other waste products;
- Sustainability performance at all stages of the mining value chain is becoming more important to stakeholders;
- Expectations have increased to begin at an early stages to identify potential challenges and opportunities associated with exploration and development projects in terms of waste disposal, circular economy opportunities, and closure considerations, all of which require early and different geoscientific data to be collected from the outset of a project; and
- Exploration targets continue to be more difficult to identify and test, and more effective means to provide a fuller spectrum of precompetitive data in a form that can allow explorers to recognise more subtle indications of haloes and expand the detection space is becoming increasingly important.

Sustainable Minerals has been collaborating with the Geological Survey of Queensland and other state and federal surveys over the past 8 years on over 40 projects aimed at addressing these challenges, with positive and tangible impacts in terms of exploration success and improved project development approaches.