

## **SUSTAINABLE DEVELOPMENT AND RESPONSIBLE MINING-KEY TRENDS, ISSUES AND OPPORTUNITIES**

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**M**odern mining is vast in scale and almost every part of our planet remains connected with resource extraction. From a sustainable development perspective, mining is simply assumed to be unsustainable; you can't extract and consume a 'finite' resource forever. However, the mining industry now produces an ever growing quantity of metals and minerals to satisfy the demands of a resource hungry global society. Furthermore, we know of more mineral resources available than ever before, often ranging from decades to centuries of supply. In the past 20 years, the mining industry has evolved its approach to sustainable development, and mining is now seen as a key contribution to sustainable development (e.g. jobs, material capital, temporary land use, economic transition, etc). The reality is far more complex, with the industry facing declining ore grades, greater waste rock and tailings, rising energy-carbon-water intensities, increasing regulatory and financial scrutiny, more complex community engagement needs, amongst others. In addition, there is rising concern about the reliability of supply for numerous metals or minerals deemed strategic to society: the so-called critical metals which includes those used for renewable energy, military technology, consumer electronics or super alloys. Although views can vary, critical metals can include rare earths, indium, tellurium, cobalt, rhenium, niobium, platinum group elements, and many others. The supply of critical metals is further complicated by the fact that they are almost entirely by-products to common metals such as copper, zinc or iron meaning they are very dependent on their parent metal markets and dynamics. This talk will present wide-ranging research on global mineral resources and mining, including unique assessments of copper, platinum, nickel, rare earths, indium and gold, and the real challenges in supply of metals, minerals and energy continued to be social, environmental and economic in nature.

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