



Metal Mining

Background

Government departments, regulators and industry require geoscience information to develop robust environmental guidelines and to mitigate the environmental impacts associated with developing new metal mines. The Metal Mining Project will provide baseline geochemistry data and knowledge of key geochemical processes that control the environmental signature of gold and critical metal deposits across Canada.

In the Slave geological province in the Northwest Territories, research will focus on modelling the cumulative impacts of natural and mining-related processes, particularly the role of climate change, on the transport and fate of metals in areas that are highly prospective for future gold mine development.

In eastern Canada, studies will document the environmental characteristics of carbonatite-hosted deposits of niobium and rare earth elements, which are currently the focus of exploration in response to increasing global demand for critical metals.

This project will also synthesize Natural Resources Canada's environmental geoscience information about prospective Canadian mineral deposits in a form that is readily accessible to decision-makers and easily understood by non-specialists. Throughout the project, researchers will engage key end-users directly to facilitate the use of environmental geoscience data and to explore collaborative approaches to better support environmental management decisions.

Expected outcomes

Applying the results from this project should reduce risks associated with developing gold, niobium and rare earth element deposits, make environmental assessment reviews more comprehensive, and improve environmental planning throughout the mining life cycle.

In the Northwest Territories, new baseline data will reduce barriers to northern development through improved understanding of the effects of natural mineralization, climate change and historical contamination on the concentrations of metals in the environment.

Environmental geoscience data for niobium and rare earth element deposits will provide new information to industry and regulators. This information can be used to assess, monitor and manage mining impacts and help to establish Canada as an environmentally responsible supplier of critical metals.

Dissemination of the project results in plain language summaries and online databases will help to strengthen connections with federal, provincial, territorial and other groups and encourage the use of geoscience data in environmental decisions for resource development of mining projects.

Partners

The Metal Mining Project supports activities in various locations in Canada and has a range of academic, industrial and governmental partners, including:

- Environment and Climate Change Canada
- Indigenous and Northern Affairs Canada
- Canadian Museum of Nature
- Northwest Territories Geological Survey
- Government of the Northwest Territories – Cumulative Impact Monitoring Program
- TerraX Minerals Inc.
- North Slave Métis Alliance
- Yellowknives Dene First Nation
- Academia (Queen's University, Carleton University, University of Ottawa, University of Leeds [United Kingdom])
- Municipality of Oka

Contact

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