

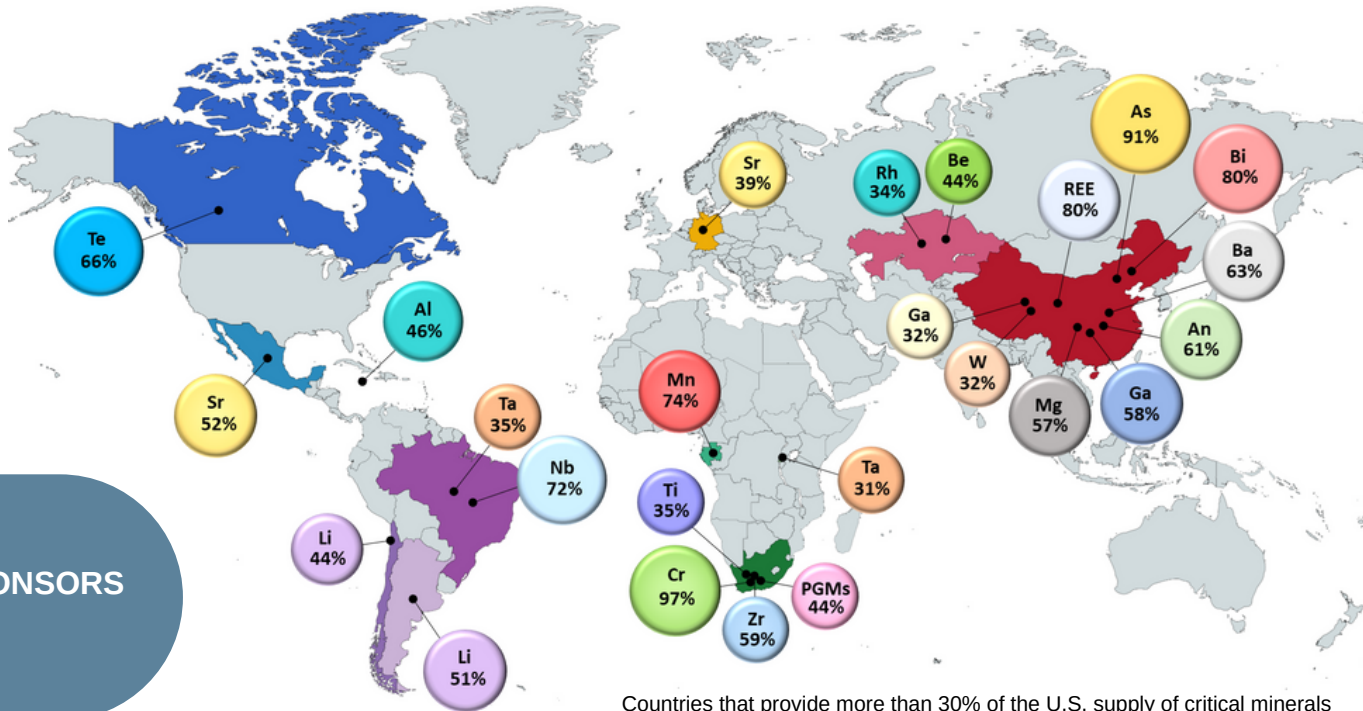
ASSESSMENT OF THE AVAILABILITY AND ACCESSIBILITY OF CRITICAL MINERALS AS BY-PRODUCTS OF MAJOR MINING RESOURCES: LAND REMEDIATION AND RECOVERY

Bryony Richards, Ph.D.

SUMMARY & PURPOSE

The technical, environmental, and economic assessment of mine tailings and other mine waste are critical in the economically profitable reprocessing and remediation of mine-related land. Land remediation and recovery of critical minerals can only be adequately achieved by the detailed mapping and mineralogical assessment of tailings. A combination approach of satellite and hyperspectral imaging is designed to map tailings in various states of natural vegetation re-growth and conventional land remediation. Following assessment of critical mineral type using satellite mapping, potential liberation techniques will be assessed using optical mineralogy and scanning electron microscopy. The latter assessment of liberation is designed to achieve the two-fold goal of environmental remediation of contaminated land using an economically viable route.

Project mining operations (active and inactive) will be chosen for evaluation and analysis will be determined by sponsoring companies



Countries that provide more than 30% of the U.S. supply of critical minerals
Figure adapted from Congressional Research Service report 2017

COST FOR SPONSORS
TBD

METHODOLOGY AND KEY DELIVERABLES

Obtaining and analyzing critical byproduct mineral samples from concentrates and tailings of mining operations across the United States. Mineralogical accessibility of critical byproducts to be investigated in regards to regional geological settings/resources types. Optical microscopy including reflected light and electron microscopy to assess the liberation potential of the byproduct minerals would be a critical aspect of this part of the project. Additional geochemical assessment of the concentrates/tailings may also be useful in the recoverability potential of byproduct minerals related to main products.

Contact to purchase

egi.utah.edu



Bryony Richards, Ph.D.



ContactEGI@egi.utah.edu

brichards@egi.utah.edu



801-581-5126