

Unlocking Australia's Re-Mining Potential

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Critical minerals and strategic materials, essential for modern technologies, are often found at low concentrations within Australian ore deposits. Conventional ore processing historically had limited recovery for these materials, allowing them to end up in mine waste. Assessment of re-mining potential supports sustainable recovery of critical minerals from mine waste, to realise more value from Australia's already discovered mineral deposits.

Under the Australian Government's 35-year Resourcing Australia's Prosperity initiative, Geoscience Australia is assessing Australia's re-mining potential. In collaboration with Australia's state and territory governments, RMIT University, and the University of Queensland, this project represents a pioneering effort to sustainably recover critical minerals from secondary sources and aims to enhance resilience, sustainability and efficiency in Australia's mineral resources sector. The project involves a national-scale assessment of mine waste, identifying new opportunities for critical minerals supply from previous mining and processing activities. It provides precise geospatial and technical information delivered via the digital Atlas of Australian Re-mining Potential (Geoscience Australia, 2024) and includes geochemical analyses of selected case study sites nationwide.

Future work will focus on understanding Australia's secondary resource potential through rapid estimations of critical mineral potential at selected sites, extrapolated from existing geochemical understanding and publicly reported resource information. Continued sampling, supported by geophysical surveys and geochemical analysis, will characterise additional sites and develop new methodologies and tools to support both the extraction and modern management of reprocessed mine waste.

Outcomes of assessing Australia's re-mining potential will include a comprehensive view of the nation's minerals inventory, presenting commercial, strategic, and environmental benefits. Re-processing mining and mineral-processing wastes is a significant step towards realising a circular economy, affirming Australia as a reliable and responsible supplier of critical minerals to global partners.

Reference:

Geoscience Australia. (2024). Atlas of Australian Re-mining Potential, Geoscience Australia, Canberra. Retrieved 29 April 2025 from <https://portal.ga.gov.au/persona/australian-remining-potential>