



Panel II: State of the Arts in Management, Disposal and Closure of Tailings Dams *Australian overview*

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Sustainable Minerals Institute International Centre of Excellence CHILE

CONÓCENOS

<http://www.smicechile.cl>

Tailings Dam Management



Rehabilitation of Tailings



Tailings to Treasure

Tailings Dam Management

Immediate



Closure and Final Landforms

Near Term

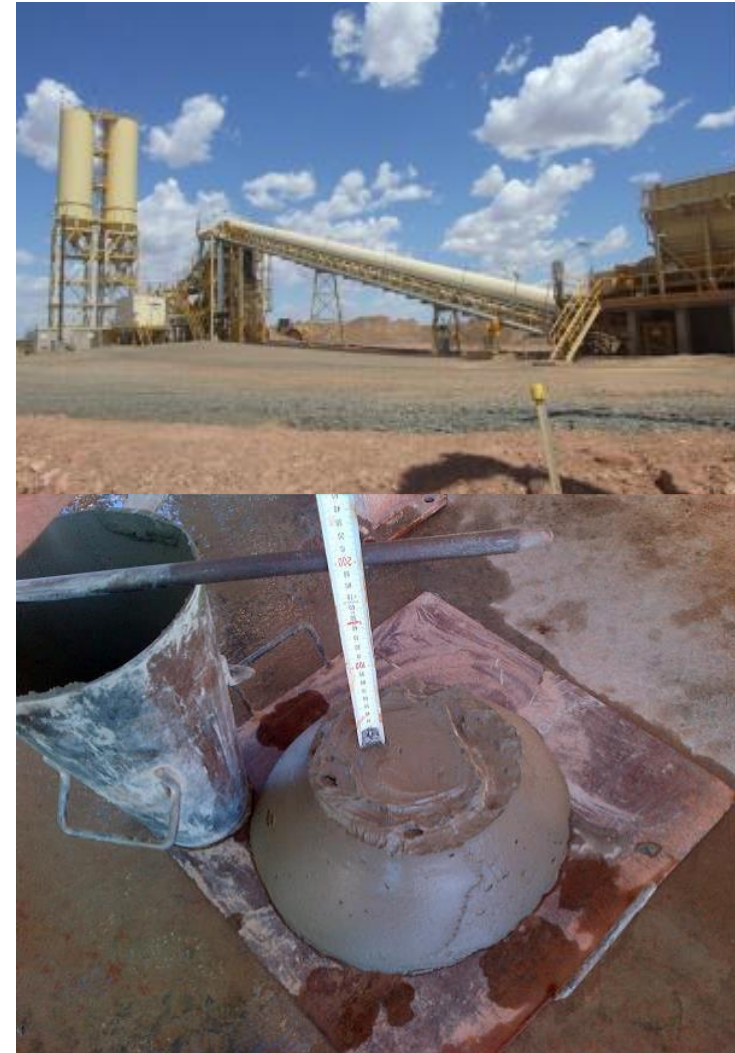


Re-use waste for revenue

Longer Term

Paste Tailings Backfill

- Tanami Gold stopped using cemented aggregate fill due to reduced productivity and rising costs
- Harvested tailings and dried to a total moisture content of 7%–9%
- Once dried sufficiently loaded on to ore haulage road trains
- Water and binder added, before pumping underground through available boreholes



<https://www.newmont.com/operations-and-projects/australia/tanami-australia/overview/default.aspx>

<https://www.industry.gov.au/data-and-publications/leading-practice-handbook-tailings-management>

Enhanced Evaporative Drying – ‘Farming’



Farming of thickened residue to aid drainage and desiccation



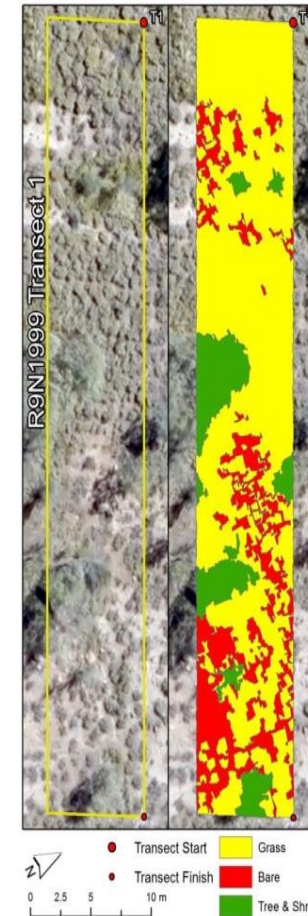
Archimedes Screw Tractor technology

<https://www.industry.gov.au/data-and-publications/leading-practice-handbook-tailings-management>

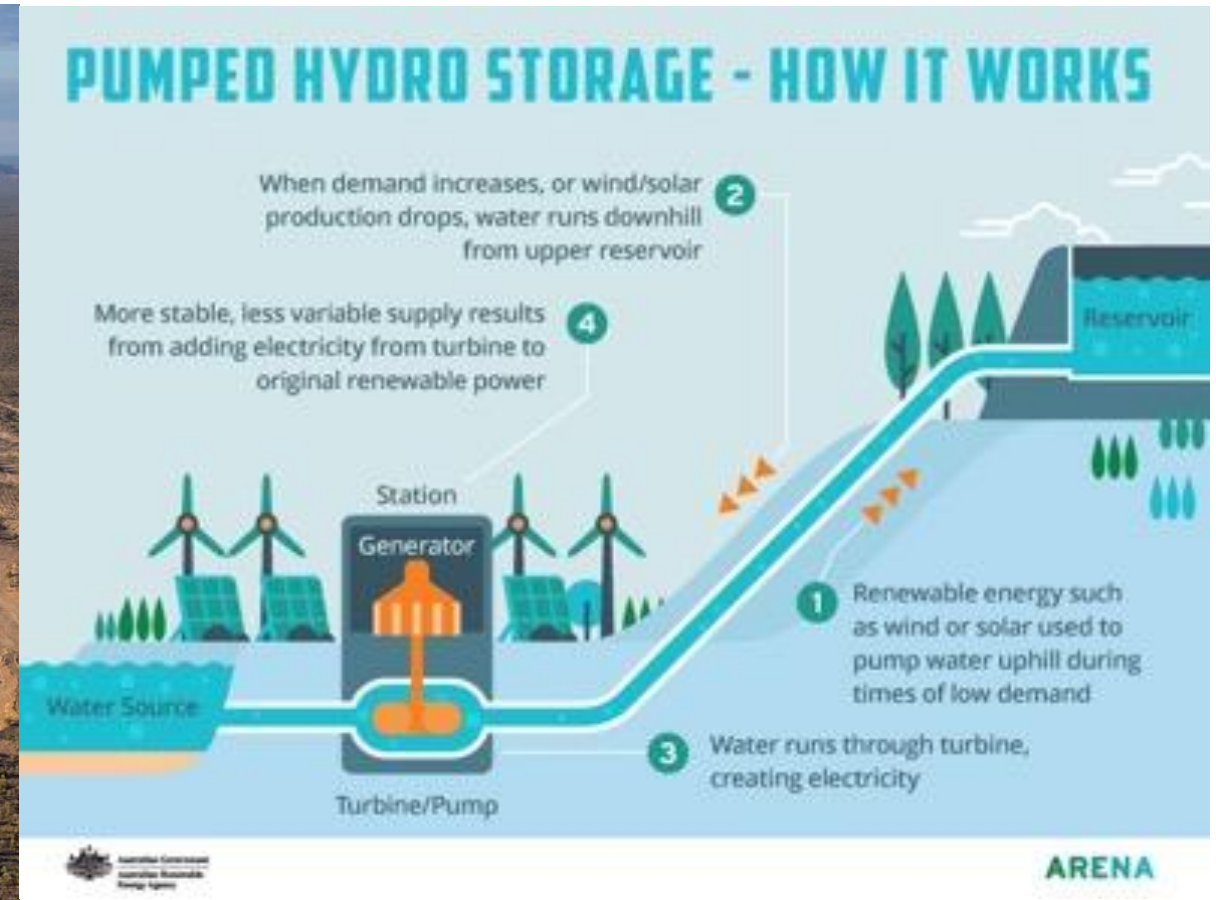
<https://www.phibion.com>

Monitoring using Unmanned Aerial Vehicles (UAVs)

- Capture high-resolution remote sensing data and imagery
- At spatial and temporal resolutions higher than possible with satellite and manned aircraft
- To reliably indicate condition and composition of mine rehabilitation and closure



Renewable Energy Generation – Kidston Mine



250MW Kidston Pumped Storage Hydro Project – Genex Power

<https://www.genexpower.com.au>

<https://arena.gov.au/blog/kidston/>

Construction Materials



Road construction by Main Roads Western Australia using Red Sand™

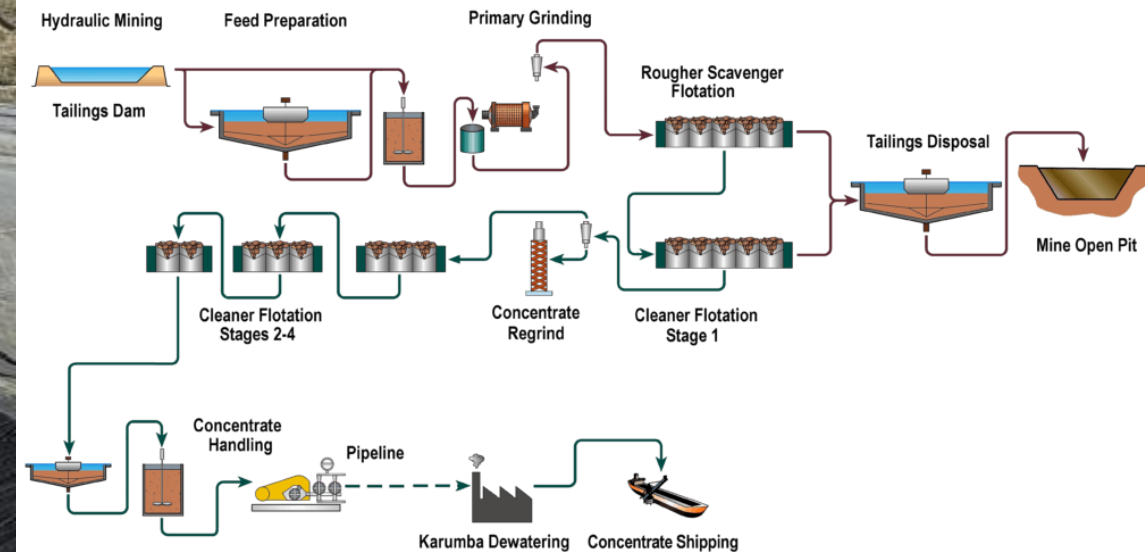
<https://www.industry.gov.au/data-and-publications/leading-practice-handbook-tailings-management>

<http://www.powertrans.com.au/wp/wp-content/uploads/2016/05/TransformingMiningResiduesIntoViableByProducts.pdf>



Fly ash geopolymer footpath

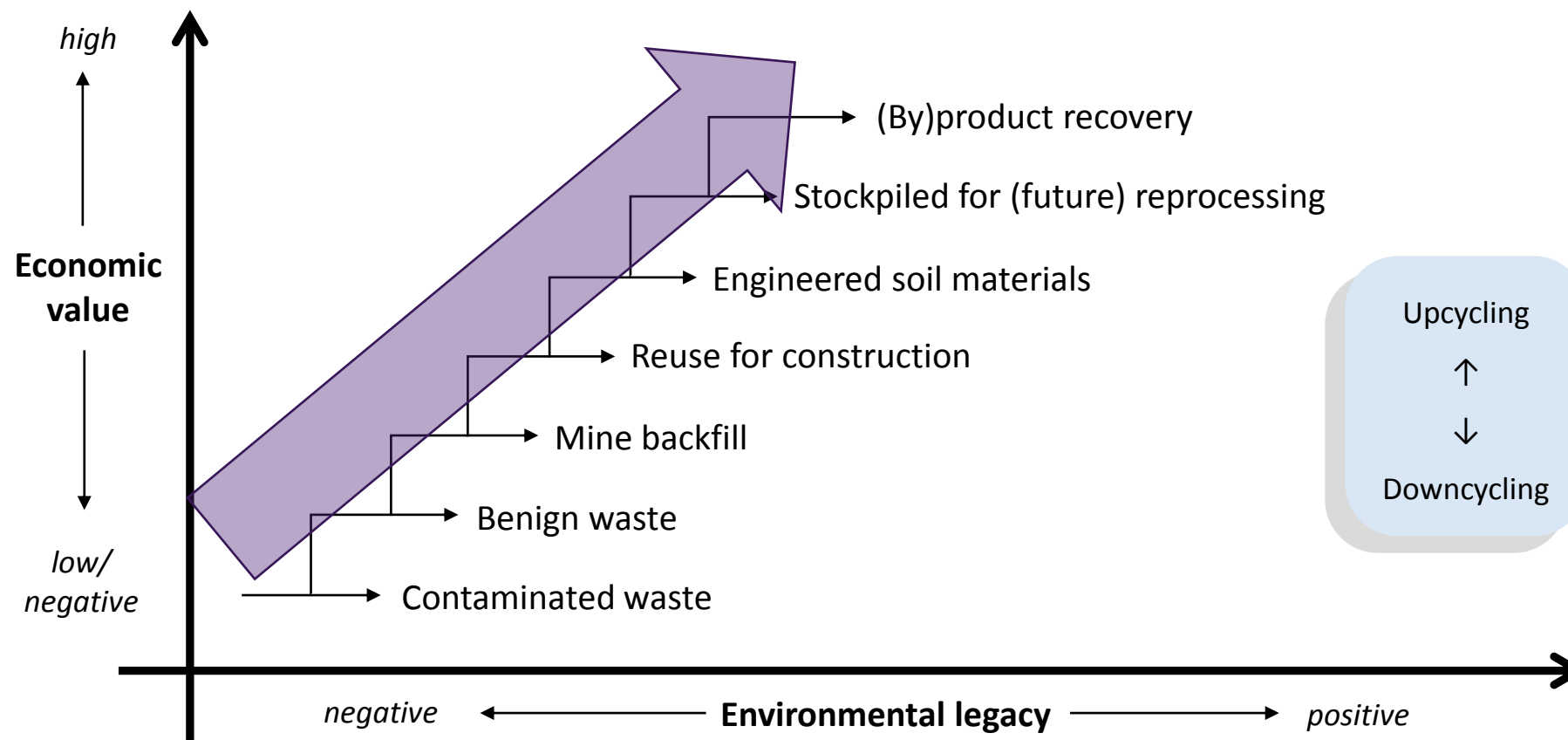
Re-processing Tailings – Century Mine



Century Mine’s tailings dam to become world's fourth-largest zinc operation following economic rehabilitation – *New Century Resources*

<https://www.newcenturyresources.com/century-mine-project/infrastructure/>

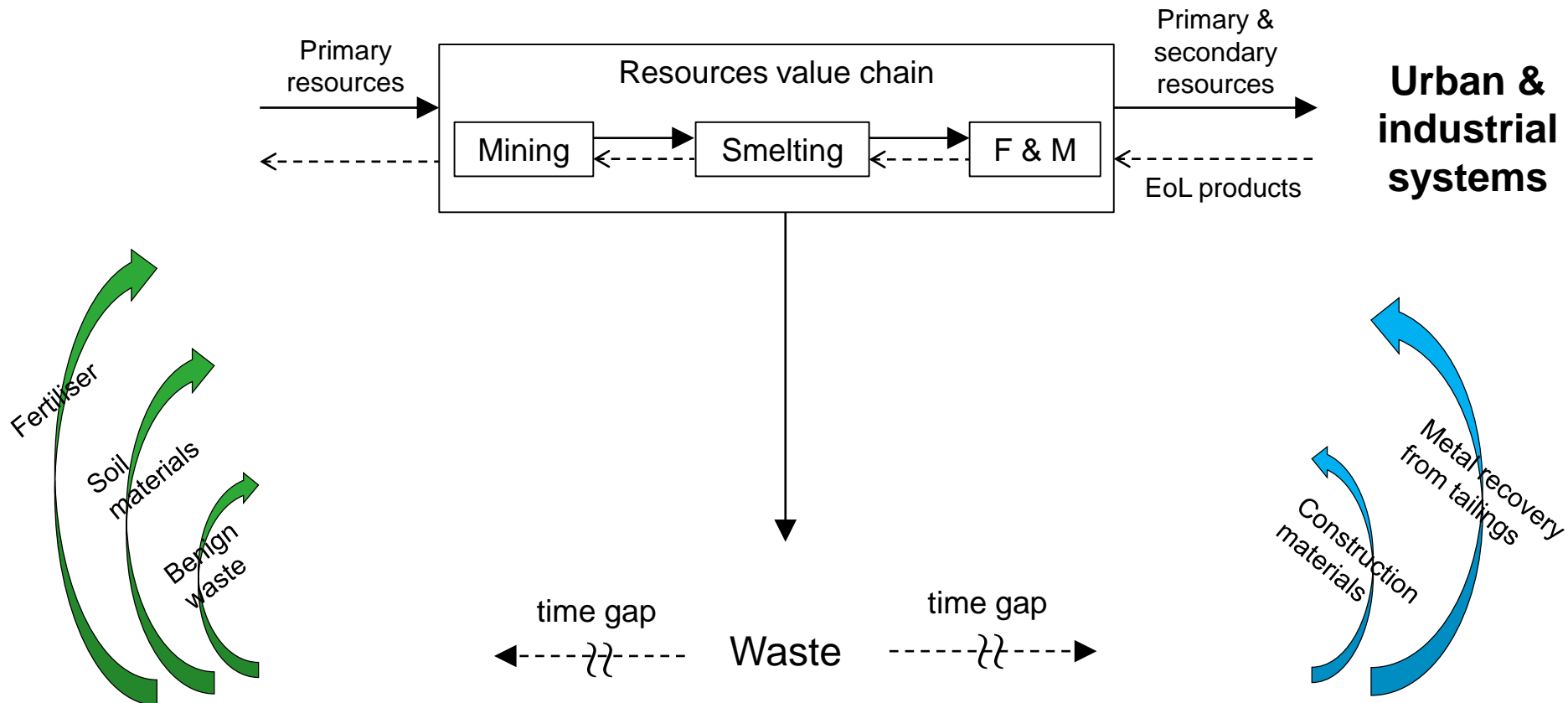
Value Chain Options for Mine Waste



<https://www.ausimmbulletin.com/feature/the-contribution-of-mining-to-the-emerging-circular-economy/>

Tailings in the Circular Economy

“A circular economy is an industrial system that is restorative or regenerative by intention and design...Such an economy is based on few simple principles. First, at its core, a circular economy aims to ‘design out’ waste.”



<https://www.ellenmacarthurfoundation.org/downloads/publications/Ellen-MacArthur-Foundation-Towards-the-Circular-Economy-vol.1.pdf>



Muchas gracias

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<https://www.linkedin.com/in/glen-corder-7318141a/>

Useful Reference

Leading Practice Handbook: Tailings Management

<https://www.industry.gov.au/data-and-publications/leading-practice-handbooks-for-sustainable-mining>

