AusIMM Branch | New Zealand

MINE CLOSURE MANAGEMENT
GREENROAD GROUP

Integrated Mine Closure

Planning for the end from the beginning

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AusIMM NZ Branch

Conference 2024

AGENDA

- Importance of Integrated Mine Closure
- Focus areas for the mining industry
- Framework for Integrated Mine Closure

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‘PLAN FOR THE END BEFORE YOU BEGIN’

In March 2024, the New Zealand Government introduced the *Fast-Track Approvals Bill* to Parliament.

Provides a streamlined decision-making process for significant infrastructure and development projects.

Many of these projects will be within the mining industry.

Mine closure is the end point. The goal must be for it to also be the starting point.

Source: *ICMM Integrated Mine Closure: Good Practice Guide* (2019)

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FOCUS AREAS FOR INDUSTRY

KEY AREAS INCLUDE:

- Overall governance and integration of closure planning
- Water management
- Mineral waste material management
- Stakeholder consultation

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GOVERNANCE: INTEGRATED CLOSURE PLANNING

WHAT IS IMPORTANT THAT WE NEED TO GET RIGHT?

- Risk management - holistic, ongoing and **adaptive**
- **Structural** integration - functional organisation placement
- Governance structures - in place and fit for closure purpose
- Having the **right resources** - people and funding.
- External **stakeholder engagement prioritisation**.
- Mine **planning strategy** considering closure upfront.

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INTEGRATED WATER MANAGEMENT

INTEGRATED CLOSURE PLANNING FOR WATER SHOULD BE RISK-BASED AND:

- **Establish robust baseline** during planning stages – surface water flow paths, aquifer extents, recharge rates, mode of occurrence of surface water features, water quality.
- **Understand** how the mine footprint and activities will **impact** on these: flow termination or altered flow paths, catchment reductions and impact to surface water features.
- Seek **stakeholder views** - they may not support your preferred management pathway or offer alternatives.
- Ensure **ongoing modelling and monitoring** during operations drives **identification of options to remediate** (dewatering, surplus discharge, water management and treatment).
- **Incorporate** management activities and processes **into operations** to meet closure outcomes.

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INTEGRATED MATERIALS MANAGEMENT

- Mining companies are essentially mineral waste miners, and ore is a positive by-product.
- Detailed **materials characterisation** and understanding through testwork and modelling is central to delivering appropriate final landform design and sound environmental outcomes.
- **Materials tracking** is similarly important. Often due to historic lack of materials tracking, companies cannot definitively determine where materials have been distributed within a landform, leading to risk, rework and increased costs.
- Life of Mine Plans optimised to **integrate closure** material **movements**.

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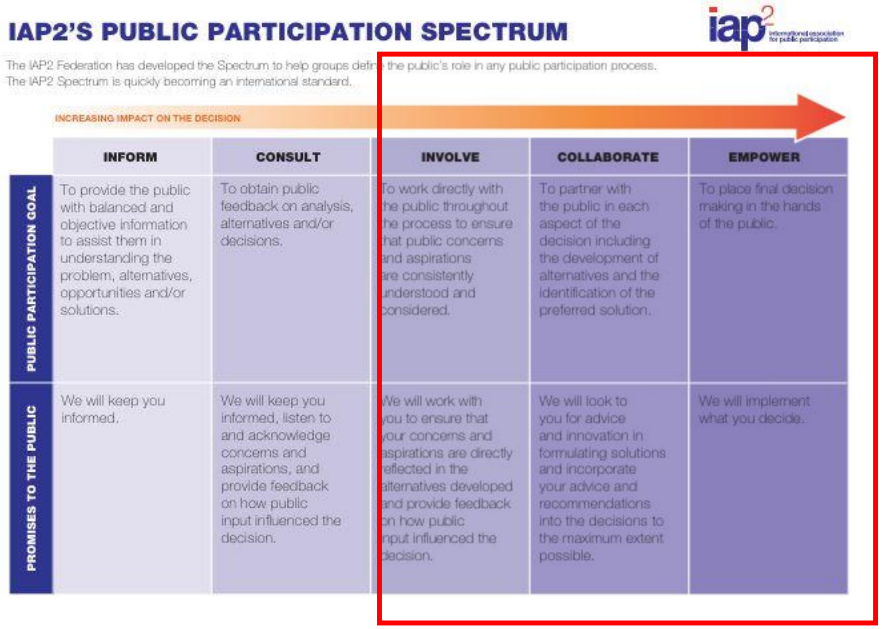
INTEGRATED CLOSURE STAKEHOLDER CONSULTATION

ROBUST STAKEHOLDER ENGAGEMENT FOR CLOSURE SHOULD:

- **Start early and continue** throughout the mine life.
- Be premised on **transparency** from all parties, particularly on risks.
- Collaborate on **post-mining land use options**, understand end land user aspirations.
- Build capacity, provide **independent** technical **support** and review.
- Acknowledge that parties may not always agree, but support finding common ground where possible.
- Defined **feedback processes** in place.
- Aim for **Free, Prior and Informed Consent** with Traditional Owners/Iwi.
- Multi-dimensional, using a **range of tools** that provide for **stakeholder participation**.



IAP2'S PUBLIC PARTICIPATION SPECTRUM

The IAP2 Federation has developed the Spectrum to help groups defi the public's role in any public participation process.
The IAP2 Spectrum is quickly becoming an international standard.

INCREASING IMPACT ON THE DECISION

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
PUBLIC PARTICIPATION GOAL	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with he public throughout he process to ensure hat public concerns nd aspirations re consistently nderstood and onsidered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
PROMISES TO THE PUBLIC	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with ou to ensure that our concerns and spirations are directly eflected in the lternatives developed nd provide feedback n how public nput influenced the ecision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Source: IAP2, 2018

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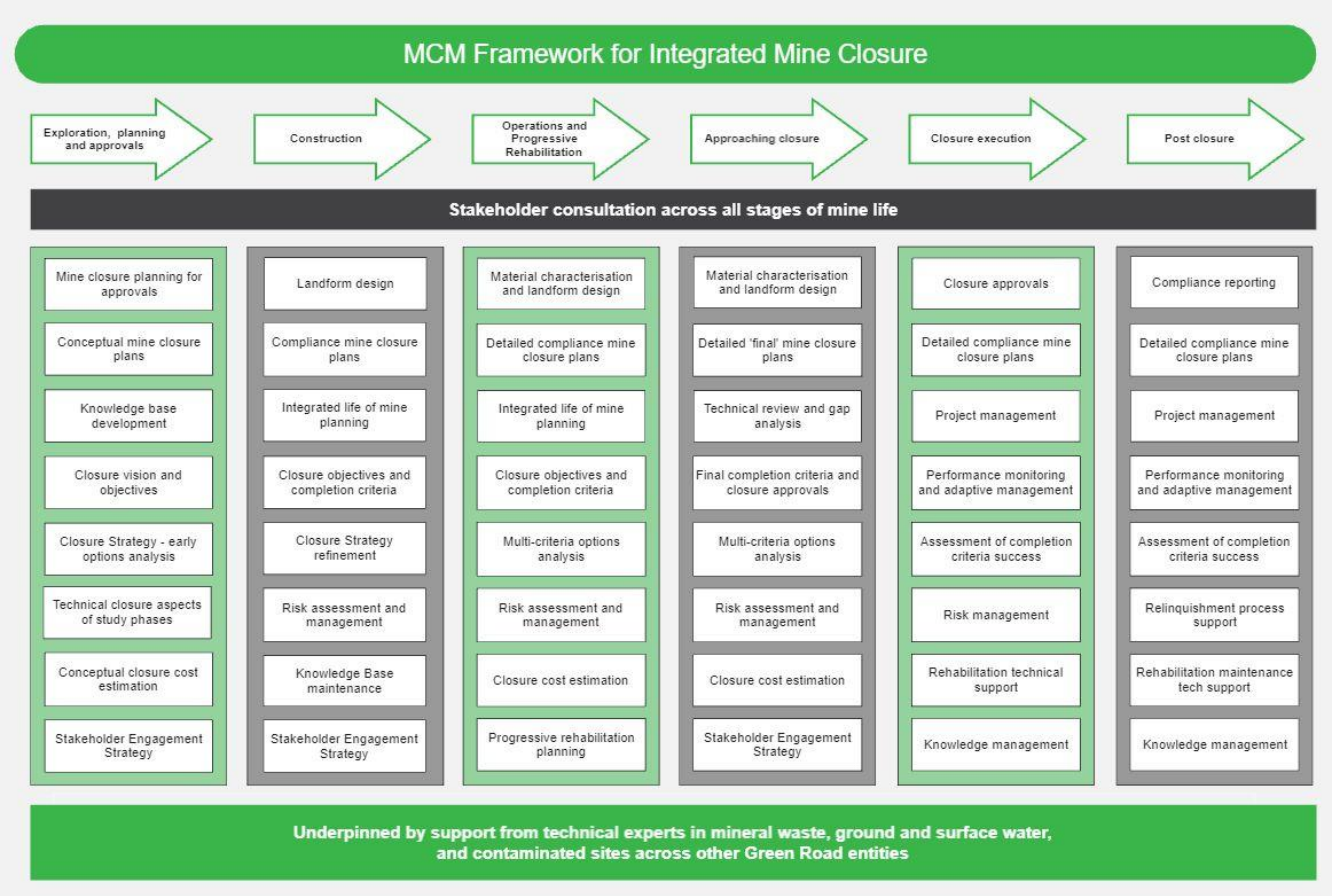
FRAMEWORK FOR INTEGRATED MINE CLOSURE

- Integrated mine closure drives true sustainable development.
- What do the Proponents you work with/for do well?
- Where are the opportunities to improve?



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MINE WASTE MANAGEMENT

HYDRO GEOCHEM GROUP

MINE CLOSURE MANAGEMENT

GEOCONTAM RISK MANAGEMENT

RESOURCESTACK

GR PROJECTS