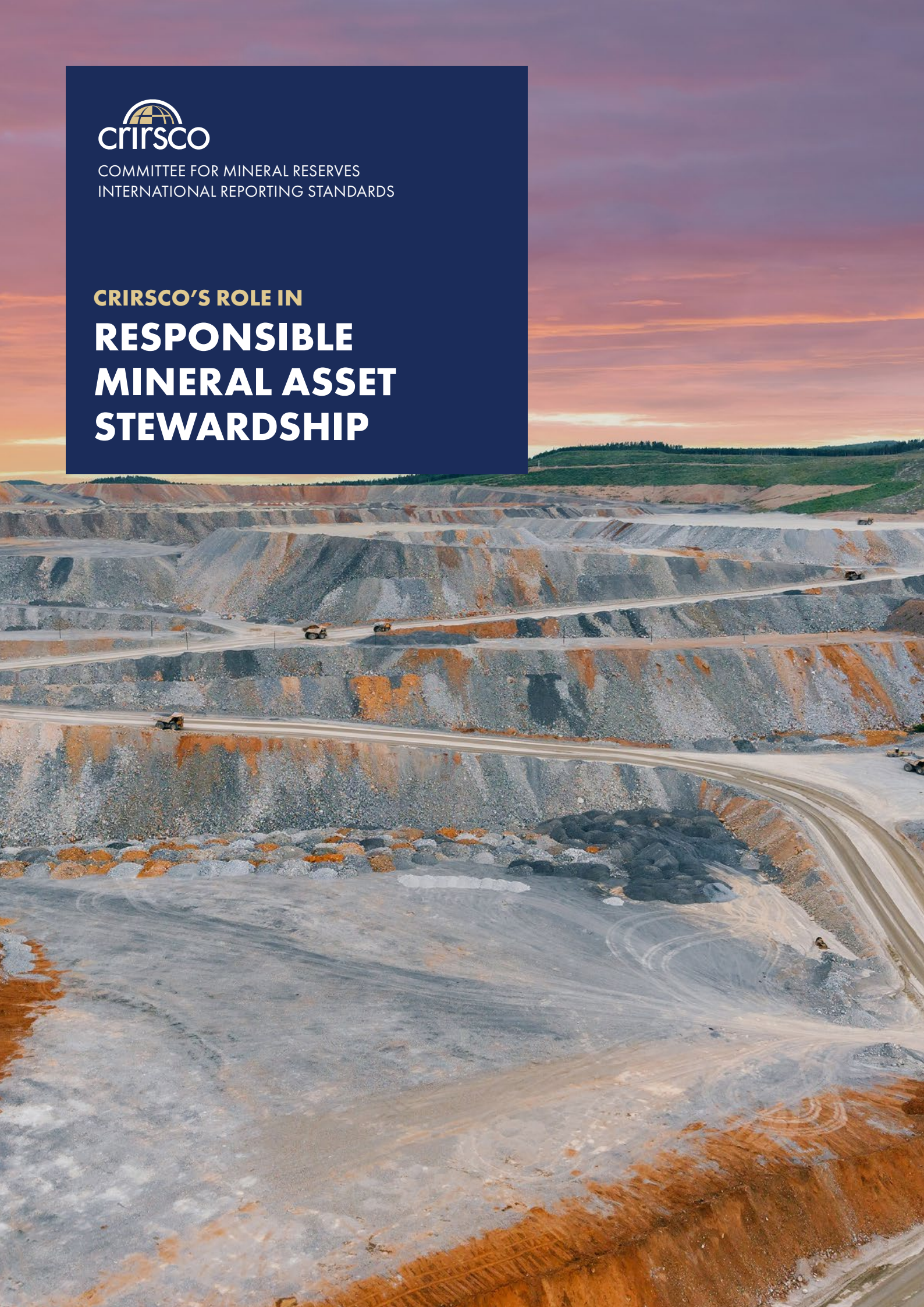


crirsco

COMMITTEE FOR MINERAL RESERVES
INTERNATIONAL REPORTING STANDARDS

CRIRSCO'S ROLE IN

RESPONSIBLE MINERAL ASSET STEWARDSHIP

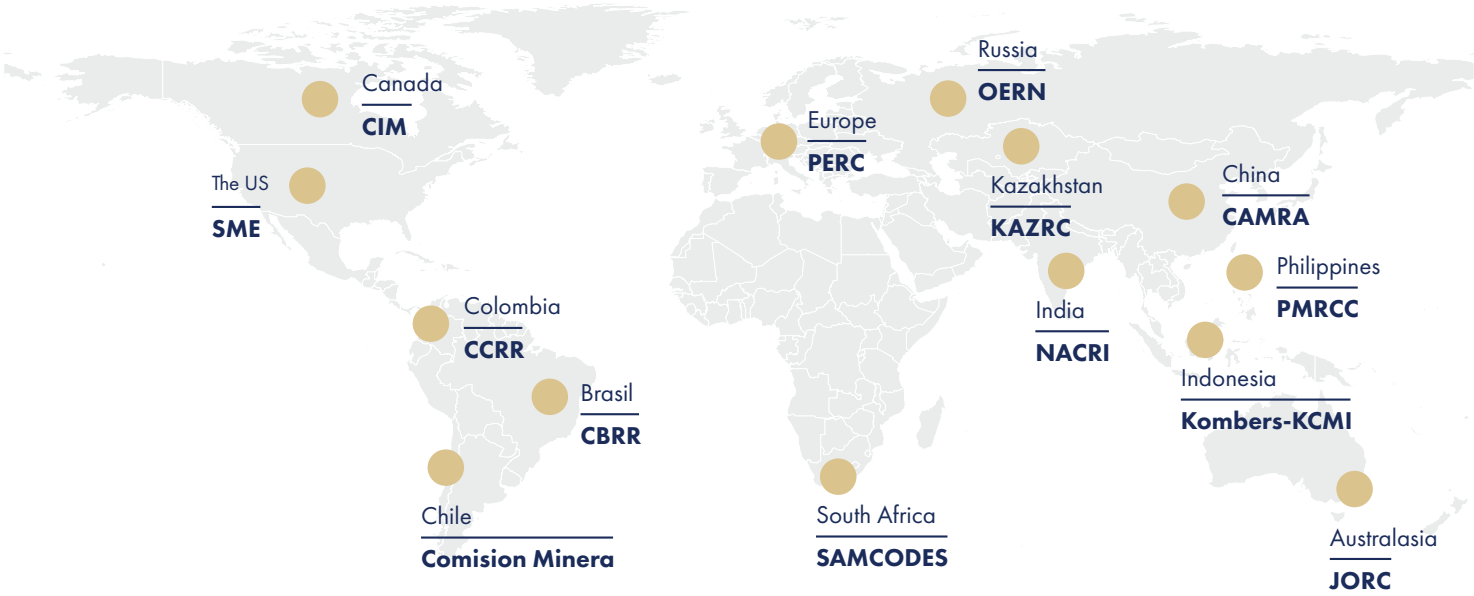
What is CRIRSCO?



CRIRSCO – the Committee for Mineral Reserves International Reporting Standards – is a volunteer-run international organisation that provides a globally recognised framework for reporting Exploration Results, Mineral Resources, and Mineral Reserves, creating a consistent global language for mineral asset disclosure.

CRIRSCO was formed in the late 1990s as a result of collaboration efforts by professional organisations from Australasia, Canada, South Africa, UK and USA seeking a common international standard. Today, its 15 member countries align their national codes with the CRIRSCO International Reporting Template (the 'CRIRSCO Template'), ensuring global consistency and comparability. CRIRSCO's members are the national reporting organisations (NROs) – country or region-specific bodies responsible for developing mineral reporting codes, standards and guidelines – who nominate representatives to CRIRSCO. For further information visit: www.crirsco.com.

CRIRSCO has a strategic alliance with ICMM, who have provided financial and administrative support to its work since 2007. Encouraging leading practice in resource estimation is consistent with ICMM's focus on responsible mineral resource governance.







Why Responsible Mineral Asset Stewardship Matters: Governance, Stakeholders and Stewardship

Minerals are part of almost everything we use – phones, cars, batteries, buildings, energy infrastructure, fertilisers, and medical equipment. Because these resources are limited and often located near communities and sensitive environments, they must be managed responsibly.

A recurring challenge in mining is that minerals and metals lie unseen beneath the surface, so their quantity and quality can only ever be estimated. Before commercial viability is established, mining companies often spend years on exploration to inform these estimates – and getting them right depends on rigorous, well-governed decision-making. This is exactly what CRIRSCO's principle of competence exists to ensure: that estimates are produced by qualified professionals, who are held accountable for what they report.

Responsible mineral asset management ensures that the benefits of resource extraction are fairly shared, promoting economic growth, social development, and long-term prosperity for host countries. In practice, this requires clear decision making, independent oversight, transparent communication, ethical behaviour, and the documentation of assumptions and decisions.

Good governance builds trust and ensures mineral wealth benefits society. This is crucial as mineral projects involve many groups, including mineral companies, local communities and Traditional Owners, workers and unions, environmental organisations, investors and shareholders, governments and regulators, local businesses and service providers.

Responsible mineral asset management means listening to all these voices and balancing their needs fairly.



This is essential to:

- Protect communities, the environment, investors, the economy and future generations.
- Ensure minerals are developed in ways that are sustainable, transparent, and aligned with society's long-term wellbeing.

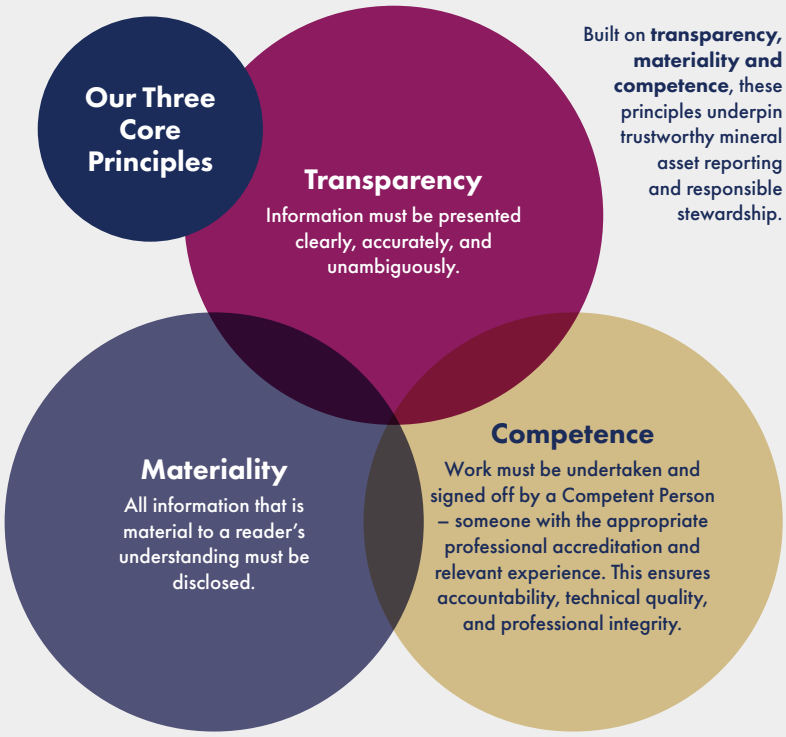
This is why CRIRSCO's role is so important. By requiring reporting built on transparency, materiality, and competence, CRIRSCO's standards give governance structures – and the stakeholders they serve – a consistent, verifiable basis for trust in how mineral wealth is estimated, developed, and disclosed.





CRIRSCO's reporting template – and every national code aligned to it – is built on three fundamental principles: **transparency, materiality, and competence**. These exist to solve a specific problem: mineral deposits are hidden beneath the surface and can only ever be estimated, not directly observed.

Investors, financial institutions, governments, and regulators all rely on these estimates for high-stakes decisions – from investment to taxation to public trust in the mining industry itself – so the estimates must be arrived at honestly, communicated without ambiguity, and backed by professional accountability.



How is this information used?

Responsible mineral asset stewardship depends on informed decisions for the right audience. A single mineral project should be understood by investors, governments, regulators, communities, technical specialists, infrastructure planners and company boards. Each group may be asking a different question, even when they are looking at the same underlying geology, engineering, environmental and social data.

Decision making by Investors, Markets and Government

CRIRSCO-aligned reporting codes support transparent reporting of Exploration Results, Mineral Resources and Mineral Reserves for investors, stock exchanges and financial markets. This allows for the comparison of projects globally, providing reliable data to enable informed decisions by investors.

Systems such as UNFC, USGS-style (McKelvey box) inventories and State Commission on Reserves (GKZ) based classifications are used in many countries to help governments assess resource potential, supply security, infrastructure needs and long-term economic development options.

Governments may require reporting that supports fiscal assessment, production monitoring, reserve accounting or state planning.

Permitting, Sustainability and Community Trust

Responsible decisions require information that is accessible, culturally appropriate and focused on impacts, benefits, land use, heritage protection and long-term outcomes.

Reports prepared according to CRIRSCO-aligned national reporting codes are expected to transparently disclose how extraction of the Mineral Resources and Mineral Reserves will create value for all stakeholders.

Permitting authorities, government decision makers, host communities, Tribal Owners and interested stakeholders use these reports to inform their opinions and decisions about project development.

Complementary processes assessing environmental, heritage, social, water, land access and other impacts support robust determination of project viability and societal acceptability.

Long-term partnerships between mineral asset managers and their stakeholders start with the transparent disclosure of material information as promoted by the CRIRSCO Template.

Responsible Practice Across the Mineral Asset Lifecycle

From Permitting to Production

To explore or mine, companies must obtain mineral rights, negotiate land access, work with Traditional Owners, complete environmental and heritage assessments and secure government permits – steps that protect cultural heritage, water, land, and community rights from the outset.

Once permitted, scientists study what minerals are present, how much is there, how reliable the data is and what uncertainties exist – through drilling, sampling, mapping, and modelling. This groundwork matters: good science avoids unnecessary disturbance and ensures only viable, safe projects move forward.

Throughout this process, mining companies must follow laws covering environmental protection, water use, worker safety, mine rehabilitation, financial reporting and community consultation, all of which exist to protect people and the environment and hold companies accountable to responsible practice.

Because mineral projects require large investments, responsible companies also assess economic viability honestly – avoiding exaggerated claims, ensuring funding is transparent and plan for long-term success, not short-term hype. This protects not just the project, but investors, superannuation funds, and local economies.

Protecting People, Place, and Transparency

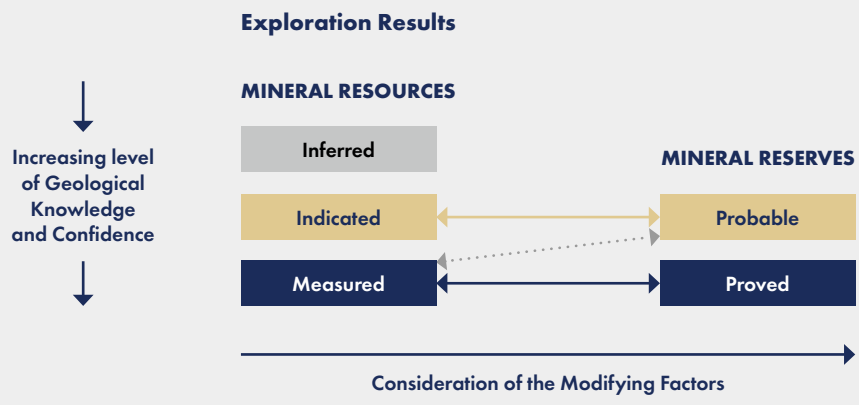
Responsible mineral management extends well beyond extraction: protecting water sources, minimising land disturbance, eliminating or reusing waste, safeguarding biodiversity, respecting cultural heritage, reducing emissions, planning for mine closure and rehabilitation and sharing benefits with local communities are all crucial. This ensures mining leaves a positive legacy rather than long-term harm.

This is underpinned by reporting. Responsible companies must disclose Mineral Resources and Mineral Reserves using regulated standards such as CRIRSCO-aligned codes, alongside any additional requirements set by local legislation – giving regulators, the public, and investors a clear picture of what is real, what is possible, and what remains unknown.

Resources and Reserves: Key Definitions

A **Mineral Resource** is a concentration of material of economic interest in or on the Earth's crust with reasonable prospects for economic extraction. Resources are sub-divided by increasing geological confidence into Inferred, Indicated, and Measured categories, based on the geological evidence available.

A **Mineral Reserve** is the economically mineable part of a Measured or Indicated Mineral Resource, defined through pre-feasibility or feasibility studies that apply "modifying factors" – such as mining, processing, and economic considerations – to confirm that extraction is realistically justified. Mineral Reserves are sub-divided by increasing confidence into Probable and Proved categories.



The Mineral Asset Development Cycle



A mineral project progresses through a sequence of technical, environmental, social, and commercial milestones. Each stage builds confidence, reduces risk, and supports responsible mineral asset stewardship.

1. **Conceptual Studies & Ground Selection**
   Desktop reviews, geological models, historical data, and land selection to identify prospective areas before fieldwork begins.
2. **Early Exploration**
   Low-impact mapping, geophysics, geochemistry, and reconnaissance drilling to detect mineralisation and understand geology.
3. **Target Identification & Assessment**
   Promising anomalies become drill targets. Drilling, sampling, and modelling define geometry, grade, and continuity.
4. **Initial Mineral Resource Definition**
   Sufficient drilling supports declaration of an Inferred or Indicated Mineral Resource under CRIRSCO aligned codes.
5. **Scoping Study**
   High-level assessment of mining options, processing routes, infrastructure, environmental constraints, and indicative economics.
6. **Pre-Feasibility Study (PFS)**
   Refines the resource model, selects preferred mining and processing methods, improves cost accuracy, and takes steps to reduce the impact of risks that have been identified. May support declaration of Probable Mineral Reserves.
7. **Feasibility Study (FS)**
   A detailed confirmation of technical, environmental, social, and economic viability. Proved and Probable Mineral Reserves are typically finalised here.
8. **Engineering Design & Construction**
   Front-End Engineering and Design (FEED) transitions the project into final engineering, mine and infrastructure construction, and commissioning.
9. **Operation**
   Continued mining operations including extraction, processing, access, utility, environmental management and community engagement. During operations, companies often pursue:
   - Mineral Resource and Mineral Reserve replenishment
   - Brownfields exploration
   - Expansions or debottlenecking
   - Extraction of additional products from waste streams (e.g., critical minerals, tailings reprocessing)
10. **Closure & Remediation**
    Landform reshaping, revegetation, water management, social transitioning, and long-term monitoring. Closure planning begins early and evolves throughout the project.
11. **Renewal & Circularity**
    Mineral projects are circular in nature because of mining processes that minimise and reuse waste, and from product design and collection processes that harvest and reuse metals.

Even after closure, opportunities remain for circularity around reprocessing of residual waste, recovery of additional minerals from tailings, brownfields exploration around the former mine, repurposing infrastructure for new projects or renewable energy. This restarts the cycle and supports responsible mineral asset stewardship.

CRIRSCO and other Reporting Systems

The CRIRSCO template is CRIRSCO's primary tool for achieving its objectives. Built on the principles of transparency, materiality and competence, it gives countries a guideline for developing their own reporting standards, and a benchmark for comparing them internationally. The Template is supported by additional guidance papers on specialist topics.

The CRIRSCO Template continues to evolve. As national standards are updated, CRIRSCO reviews each one with the relevant national reporting organisation (NRO) to keep it compatible with the rest – folding in improvements as they emerge. This keeps changes to a sensible minimum while ensuring the most recent version of the Template reflects leading practice.

Because mineral reporting doesn't exist in isolation, CRIRSCO also works closely with several other international standards bodies – each addressing a different piece of how mineral and resource information is used.

United Nations Economic Commission for Europe (UNECE)

UNECE manages the United Nations Framework Classification for Resources (UNFC) which supports broad policy decisions around resource management for a wide range of different sectors.

Our jointly produced CRIRSCO Template-UNFC Bridging Document shows how the two systems can be applied in a complementary manner when used in the minerals sector.

CRIRSCO Reporting Template

International Accounting Standards Board (IASB)

CRIRSCO provided input into the IASB's work considering whether and how to amend or replace IFRS 6 Exploration for and Evaluation of Mineral Resources, the IFRS Accounting Standard for exploration and evaluation expenditure.

Ongoing engagement with accounting standard-setters is essential so that new accounting standards work within existing national reporting systems.

The Society of Petroleum Engineers (SPE)

Mining and Petroleum define, estimate, and classify resources differently and the SPE has its own Petroleum Resources Management System (PRMS).

Our organisations work together to map where our systems align and differ, helping stakeholders to interpret needs of both industries where there may be a shared framework.

Useful links

CRIRSCO	crirsco.com
ICMM	icmm.com
IAEA	iaea.org
IASB	ifrs.org/groups/international-accounting-standards-board
SPE/PRMS	spe.org/en/industry/reserves
UNECE/UNFC	unece.org/sustainable-energy

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