

# UNECE 17<sup>th</sup> Session of the Group of Experts on Coal Mine Methane and Just Transition ISO presentation

Palais des Nations  
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- ISO/TC 82/SC 7, *Mine closure and reclamation management*

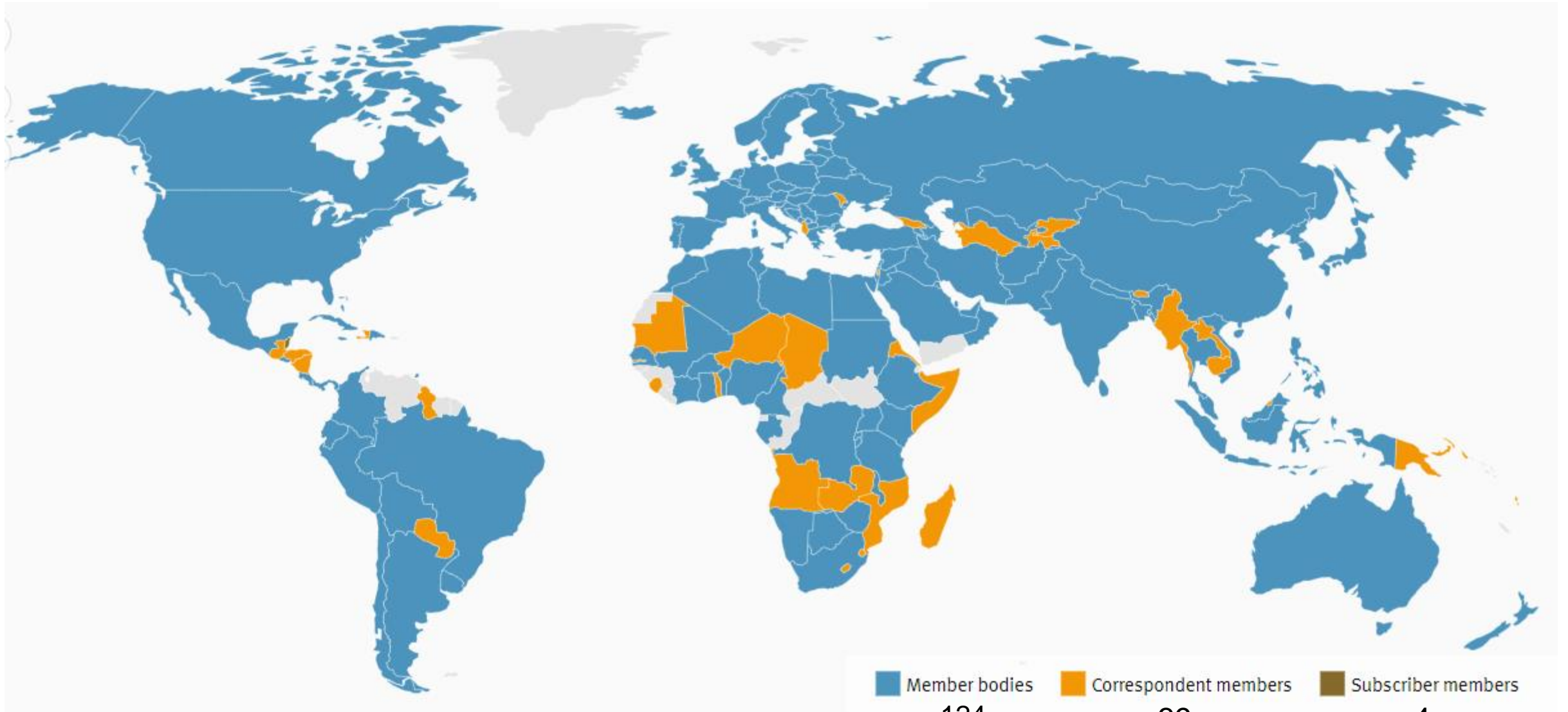


# ISO in brief

# Overview

- International Organization for Standardization, [ISO](#)
- Founded in 1947.
- Independent, non-governmental international organization.
- Global network of national standards bodies; one member per country.
- Coordinated by a Central Secretariat.
- We make International Standards.
- Not for profit.

# Members



Total: 167 members as of 16 March 2022



# International Standards, IS

## + 23 000 Voluntary International Standards

- Provide technological know-how and best practice
- Facilitate trade
- Make products compatible
- Address safety issues
- Environmental and social component



<https://www.iso.org/research-and-education.html>

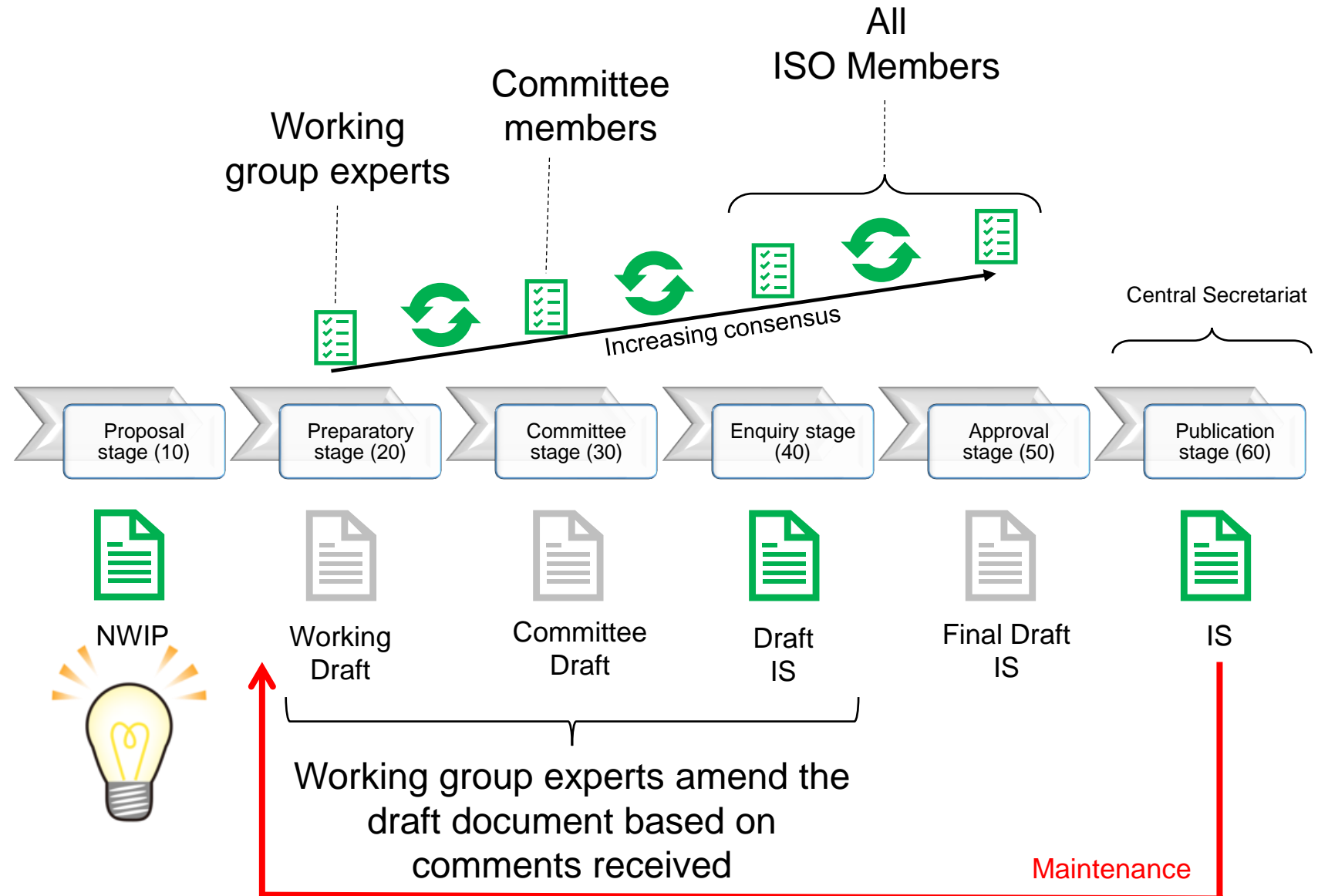


# Structure and Actors

- Decentralized work in **Technical Committees (TC)**, **Subcommittees (SC)**, **Working Groups (WG)**
  - Contribution from the **ISO Members: Participating (P) or Observers (O)**.
  - “Liaisons” with **External Organizations:** for **active participation (A)** or for **information (B)**
- UNECE** is in liaison with 68 Committees (41 active, 27 for information)



# Development stages





# ISO and the SDGs



# Supporting “just transition”



ISO’s commitment to achieve the **climate agenda** by 2050.



For businesses and organizations committed to operate in a **socially responsible** way.

ISO/TC 82/SC 7,  
*Mine closure and reclamation  
management*

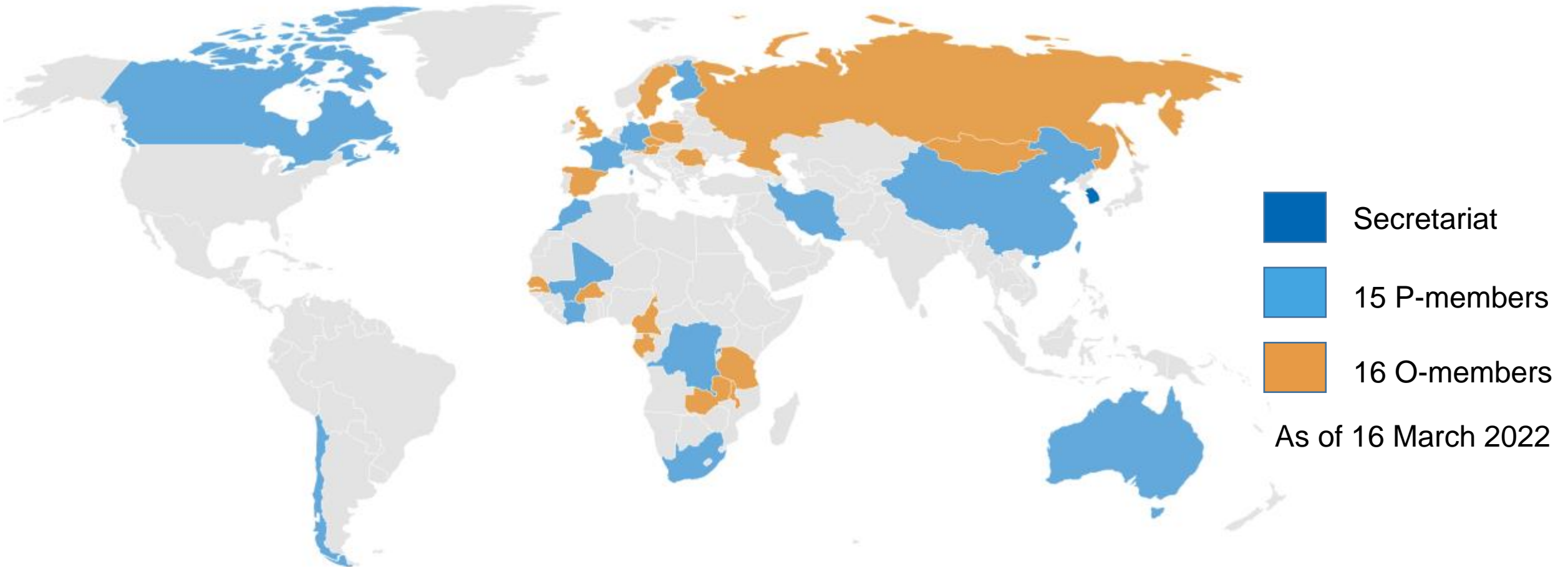


# Overview

- Under parent ISO/TC 82, *Mining*.
- Established in 2014.
- Secretariat: KATS (South Korea).
- Chairmanship: AFNOR (France).
- Covers **mine closure and reclamation management** to **minimize mine impacts** that occur during the **lifecycle** of the mine.
- **All** kinds of mines, including **coal mines**.
- **Active** and **legacy** mines.



# Membership



Annual meetings: Seoul 2014, Cleveland, Helsinki, Santiago de Chile, Shanghai, Paris, *Virtual*, *Virtual*, Sydney 2022?



# Structure

## Three Working Groups:

- WG 1, Mine closure and reclamation **terminology**
- WG 2, Mine closure and reclamation management **planning** (*closed*)
- WG 3, Managing mining **legacies**

# Standards published and under development

- ISO 20305:2020, *Mine closure and reclamation – Vocabulary* [WG 1]
- ISO 21795-1:2021, *Mine closure and reclamation planning – Part 1: Requirements* [WG 2]
- ISO 21795-2:2021, *Mine closure and reclamation planning – Part 2: Guidance* [WG 2]
- ISO/DIS 24419-1, *Mine closure and reclamation – Managing mining legacies — Part 1: Requirements and recommendations* [WG 3]
- ISO/DTR 24419-2, *Mine closure and reclamation – Managing mining legacies — Part 2: Case studies and bibliography* [WG 3]

# ISO 20305, Vocabulary

## Ten sections:

- mine closure status;
- mine closure phases;
- mine closure strategies;
- mine features;
- mine materials;
- mine closure risks;
- mine closure treatments;
- mine closure activities;
- mine closure finance;
- social and cultural aspects.


Terminological entries are freely available on the

[ISO Online Browsing Platform](#)

Search for:

- ISO 20305
- Individual terms



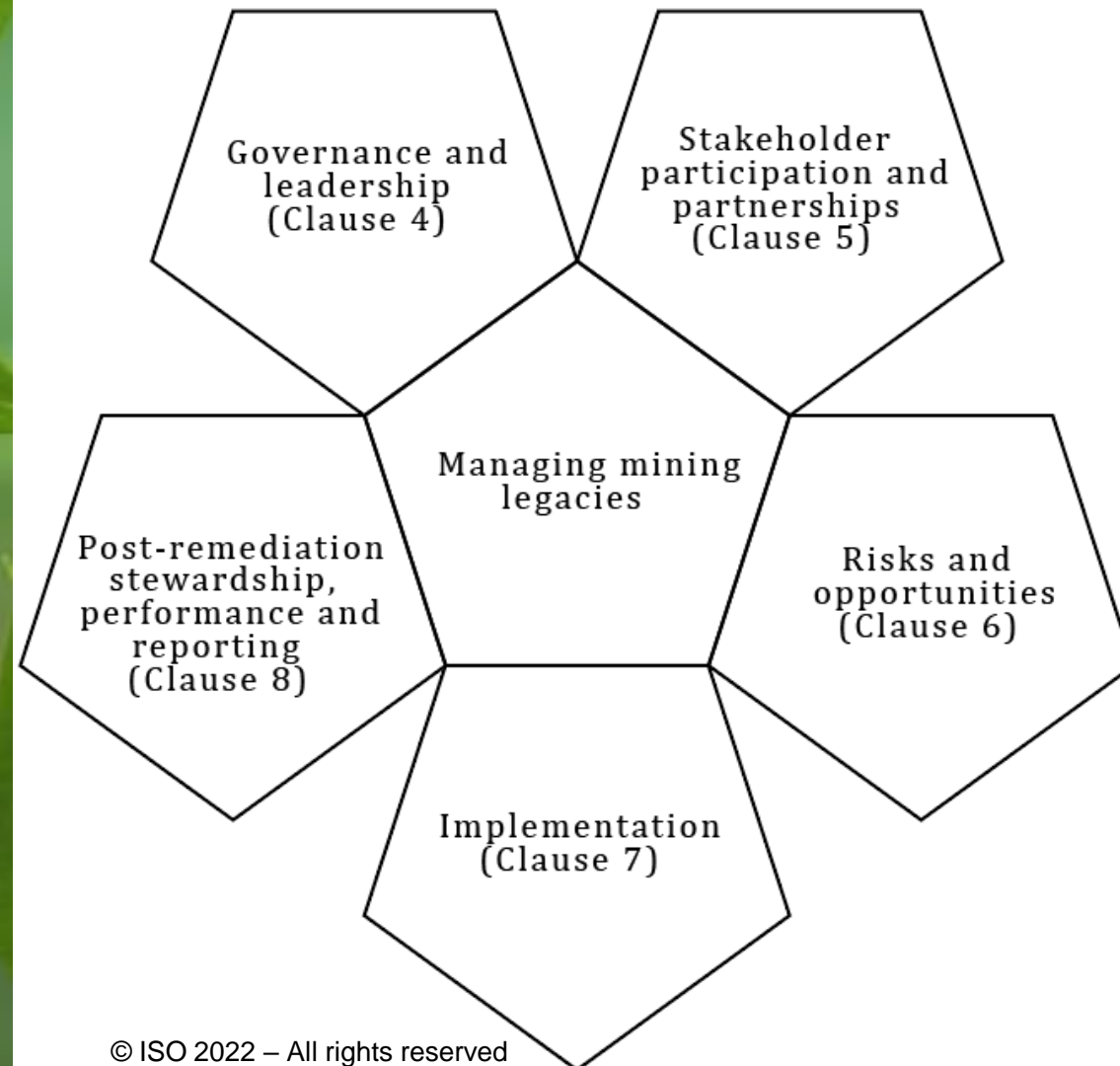
A vertical strip on the left side of the slide features a close-up photograph of several vibrant green leaves, likely from a citrus tree, set against a soft, out-of-focus background of more foliage. The leaves are arranged vertically, with some in sharp focus and others blurred, creating a sense of depth and natural texture.

# ISO 21795-1, MC&R planning

Requirements and recommendations on:

- mine closure and reclamation **plan objectives and commitments**;
- **technical** procedures and techniques;
- mitigation of **socio-economic** impacts;
- **financial** assurance and associated planning;
- mine closure and reclamation planning for **unplanned closure**;
- **post-closure** management plan;
- mine closure and reclamation plan **documentation**.

# ISO 24419, Legacy mines



Illustrative examples in the TR:

- Long term financing of the perpetual obligations resulting from hard **coal** mining in Germany
- Green Golden Lake **coal** mining rehabilitation program, China



# Strategic Business Plan

## MISSION OF ISO/TC 82/SC 7

To develop International Standards and complementary documents, which when applied, will prevent and mitigate long term mining impacts and create environmental and socio-economic value through the mine closure and reclamation management process.



## CONTEXT

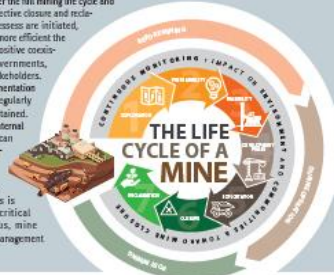
The mining industry provides raw materials essential for the functioning of the economy and society in general, with the mining sector contributing significantly to the socio-economic fabric of many countries. However, this industrial activity also has attracted negative sentiment, notably due to short and long term impacts that can extend beyond mining extraction. Technological advances enable larger and deeper mines which contribute to a greater physical scale and community awareness of mining. This means that mine closure and reclamation management are also gaining greater scrutiny.

Consequently, there is increasing societal attention being given to the environmental as well as social impacts resulting from mining. It therefore is of great importance to articulate and promote leading practices, particularly those that allow for increased community and other stakeholder engagement. In this way, it is possible to demonstrate sustainable development principles and practices for mining, that are applicable globally to further enhance the significant economic and social benefits provided by the activity.

Effective mine closure and reclamation processes reduce potential mining impacts over the full mining life cycle and beyond. The sooner that effective closure and reclamation management processes are initiated, planned and designed, the more efficient the outcomes are in terms of positive coexistence between mines, governments, communities and other stakeholders. Closure planning and implementation are most effective when regularly reviewed, improved and sustained. Positive relationships with internal and external stakeholders can be built through intentional engagement that identifies and addresses risks and opportunities. Part of this process is to identify and resolve critical gaps in knowledge. Thus, mine closure and reclamation management

should be a continuous process that starts early, is integrated with all mining activities and evolves over the life cycle of a mine.

To support these principles, the ISO/TC 82 (mining) committee launched a specific Subcommittee, "ISO/TC 82/SC 7" in 2014 to address standardisation of "Mine Closure and Reclamation Management" (MCRM). This Strategic Plan introduces the mission of this Subcommittee.



## BENEFITS

By promoting voluntary and proactive mine closure and reclamation International Standards, ISO/TC 82/SC 7 aims to reduce potential impacts of mining activity on local communities and the environment and to promote positive re-use of land after mine closure. Additionally, mine closure and reclamation International Standards have the potential to promote constructive dialogue between stakeholders. The Subcommittee is developing International Standards and complementary documents accessible to a wide range of users, to address similar objectives, international standards offer a unique opportunity to develop leading practice standards through an international consensus process.

The family of Mine Closure and Reclamation Management standards will support the needs of a range of stakeholders:

- Mine operators: to demonstrate that their proposed mining procedures are aligned with global leading practices. Standards support small and start-up mining companies with limited resources and capacity to develop their own internal standards;
- Public authorities: to align environmental and socio-economic aspects of regulation with leading practices. In cases of inadequate guidance, standards can articulate and facilitate effective closure and reclamation;
- External stakeholders: to benchmark technical solutions proposed by local mining operators with leading practices for environmental protection and socio-economic benefit as outlined in standards, thereby providing a foundation for meaningful engagement.

documents throughout their development process as well as nominate International Experts to participate on specific International Standards development projects.

Interested experts wishing to engage within ISO/TC 82/SC 7 should contact their national member body to ISO (see <https://www.iso.org/members.html>).



## STRATEGIC AGENDA

Potential topics of relevance to Mine Closure and Reclamation Management are numerous. To avoid overloading expert volunteer involvement, a Strategic Agenda is described here to identify high-priority themes to be addressed in the coming years. The agenda will be regularly reviewed and adapted, in the context of progressive development of standards and emergence of new issues and priorities. Future projects can refer to globally-relevant multi-disciplinary themes (Figure 1), or be more narrowly focused on single disciplinary areas where the need to develop a standard is demonstrated. The following figure presents the themes in Mine Closure and Reclamation considered by the Strategic Plan, including those currently under development, as well as new initiatives proposed for coming years.

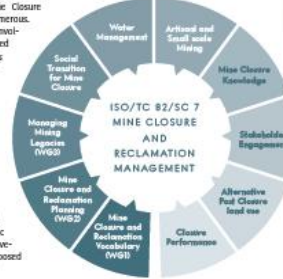


FIGURE 1 Proposed themes for future standards to be addressed within ISO/TC 82/SC 7

## CONTACT POINTS:

Chair : Christophe Didier  
[c.didier@brgm.fr](mailto:c.didier@brgm.fr)  
 Secretariat : Soondong Kwon  
[skwon@mireco.or.kr](mailto:skwon@mireco.or.kr)

Website :  
<https://www.iso.org/committee/556264.html>

## SCOPE

ISO/TC 82/SC 7 produces International Standards and complementary documents (guidelines, technical reports...) that address all lifecycle stages of resource development, including design, development, mining, temporary suspension of operations, cessation of mining, closure, post-closure monitoring and management, along with the effective transition to post-closure use. While safety and health aspects related to the active mining workplace are not considered in the Subcommittee, post-closure health and safety risks, monitoring/maintenance, social aspects of closure, human and animal exposure and use of the post-mining landscape will be addressed.

Planning for mine closure and reclamation should be a key objective to reduce mining impacts. Unfortunately, many improperly closed mines already exist around the world. As a result, closure and reclamation management International Standards will not only benefit for new mines, but also for existing (mid-life mines) and legacy mines (with negative impacts), where closure and reclamation planning has not yet been properly implemented. The development and application of dedicated International Standards on this topic will help to mitigate negative impacts associated with mining and will provide opportunities for value creation throughout the mine closure and reclamation management process.

Thus, the Subcommittee addresses new mines, as well as active and already abandoned mines. Mine closure and reclamation management is very broad in scope. It integrates many technical subjects such as water, subsidence, tailings, monitoring, landform design as well as social aspects such as community and other external stakeholder engagement, land use planning and management, integration of cultural elements. Effective mine closure and reclamation understandings and practices evolve over time. They start with initial closure planning during mine design to implementation during mining, through progressive reclamation concurrent with operations and continue through to preparation for cessation of mining, and completion of decommissioning and closure. The process must also address long-term maintenance and monitoring whilst also understanding the expectations of internal and external stakeholders.

To encourage an integrated approach that is globally applicable, ISO/TC 82/SC 7 appoints working groups formed by international members with appropriate expertise and experience to develop standards. It is also charged with the regular review and updating of International Standards for mine closure and reclamation whilst connecting with other ISO Committees working on related International Standards.

## STRATEGIC PLAN FOR ISO/TC 82/SC 7





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# Future developments

- Work in preparation:
  - Task Force 1, Social aspects
  - Task Force 2, Mine water
- Also to come:
  - Tailings
  - Artisanal mining
- **A Scope expansion is under discussion:** from “mine closure and reclamation” to “responsible mining”.

# Applicability to coal mines

The Committee has potential to address:

- **Uncontrolled fires** in underground workings or waste deposits (create risks for people and the environment)
- **Greenhouse gas emission** (should be accounted for), **lack of oxygen** in abandoned galleries and **gas migrations** to cellars
- Many **mine openings** to handle (due to shallow workings, a large numbers of adits or shafts have to be managed)
- **Subsidence** (huge movements due to thickness of material extracted) and **collapses** (especially over shallow works with pillars/voids)
- **Water quality** (e.g. acid mine drainage), **air quality** and **biodiversity** (e.g. degraded landscape)
- **Social aspects** (e.g. transitioning local economies)

# Thank you for your attention

Acknowledgements:

Christophe Didier, ISO/TC 82/SC 7 Chairman

Corinne Unger, ISO/TC 82/SC 7/WG 3 Convenor

Mercè Ferrés, Technical programme manager for ISO/TC 82

[ferres@iso.org](mailto:ferres@iso.org)

