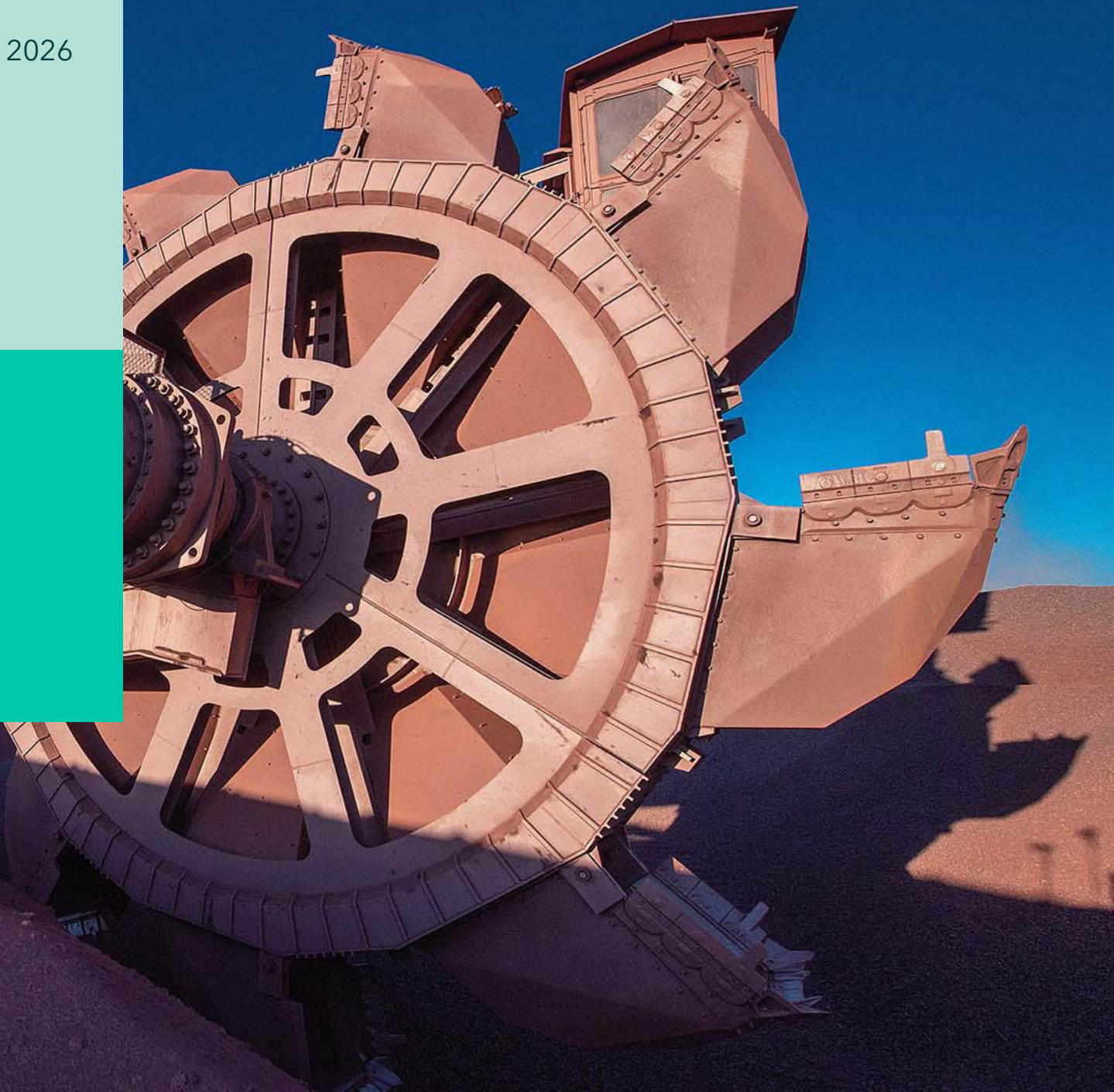


From commitment to conformance: tailings management progress and responsible mining standards

Dr Emma Gagen
Director Data & Research, ICMM



Tracking global tailings management progress



Overview

- ICMM
- Looking back
 - ICMM Tailings Management Timeline
- Looking within
 - ICMM member conformance with the GISTM
- Looking forward
 - Global Tailings Management Institute
- Looking more widely
 - Consolidated Mining Standard Initiative



ICMM Members

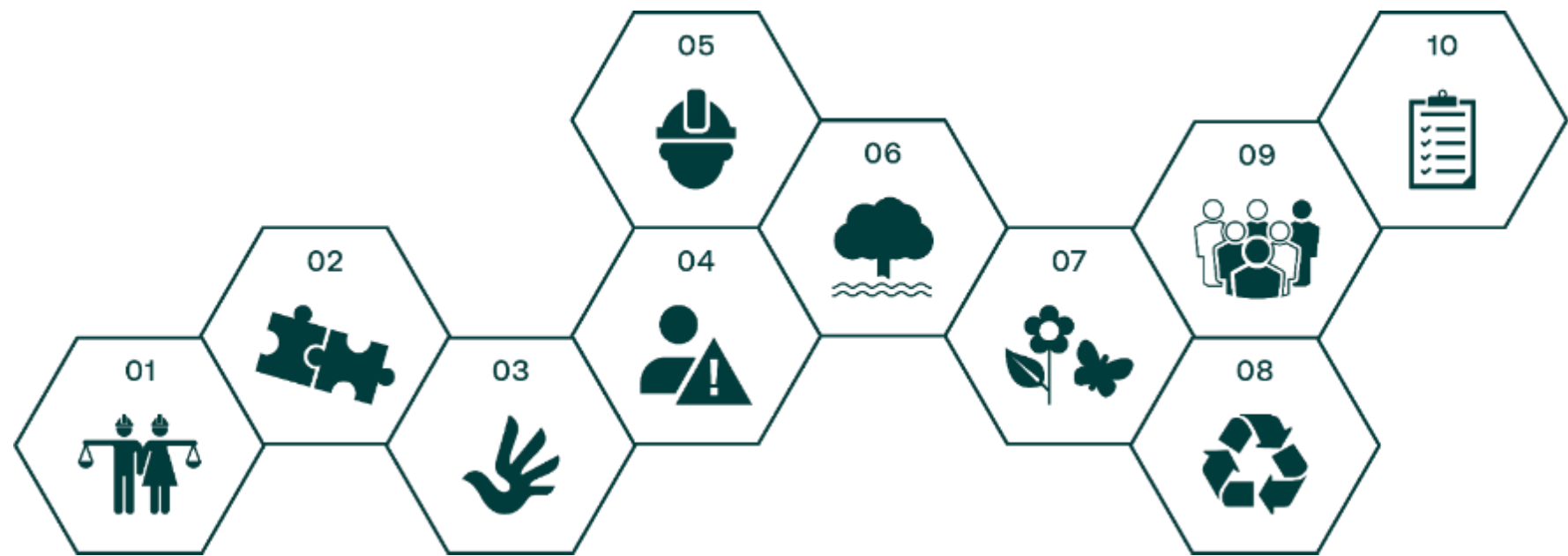


ICMM brings together a third of the mining and metals sector to drive leadership, action, and innovation, Members set the standard for responsibly produced minerals and metals in a safe, just and sustainable world.





Our Mining Principles are the bedrock of our membership commitments



- ICMM's Mining Principles define good practice environmental, social and governance performance expectations for the mining and metals industry.
- Implementation is supported by robust site-level validation; transparent disclosure of outcomes; and credible assurance of corporate sustainability reports.
- Applying to more than 650 assets in over 50 countries, ICMM's Mining Principles seek to improve environmental, social and governance performance at scale.



Pursue continual improvement in environmental performance issues, such as water stewardship, energy use and climate change.

Performance Expectations

1. Plan and design for closure in consultation with relevant authorities and stakeholders, implement measures to address closure-related environmental and social aspects, and make financial provision to enable agreed closure and postclosure commitments to be realised.
2. Implement water stewardship practices that provide for strong and transparent water governance, effective and efficient management of water at operations, and collaboration with stakeholders at a catchment level to achieve responsible and sustainable water use.
3. Design, construct, operate, monitor and decommission tailings disposal/storage facilities using comprehensive, risk-based management and governance practices in line with internationally recognised good practice, to minimise the risk of catastrophic failure.[\[8\]](#) [\[9\]](#)
4. Apply the mitigation hierarchy to prevent pollution, manage releases and waste, and address potential impacts on human health and the environment.
5. Implement measures to improve energy efficiency and contribute to a low-carbon future, and report the outcomes based on internationally recognised protocols for measuring CO2 equivalent (GHG) emissions.

Looking back

ICMM Tailings Management timeline

Key events

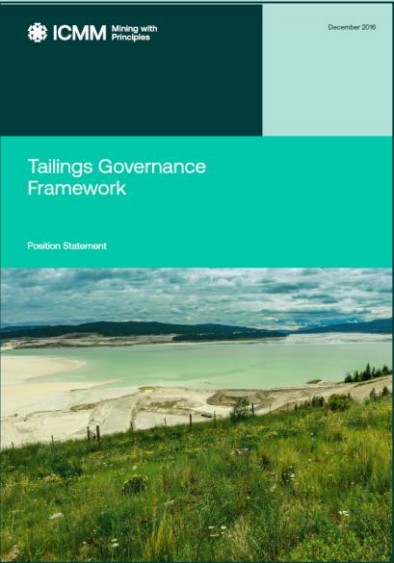


Fundão tailings dam failure (2015)

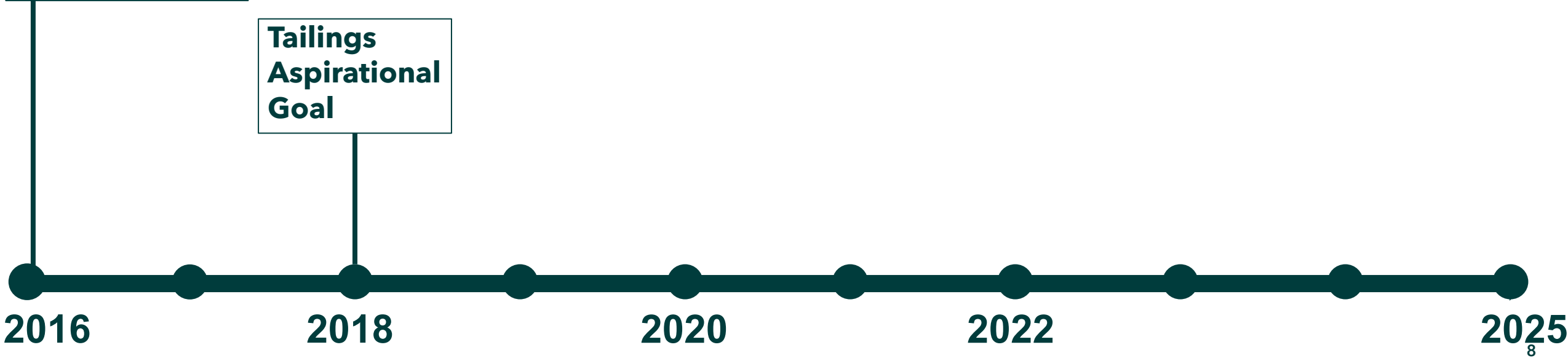


ICMM Tailings Management timeline

Key documents



**Tailings
Aspirational
Goal**



ICMM Tailings Management timeline

Key events



Brumadinho tailings dam failure (2019)



ICMM Tailings Management timeline

Key documents: GISTM



Jan: Brumadinho
Feb: ICMM commit to new standard
May: Global Tailings Review
Nov-Dec: public consultation



- Six topic areas, 15 principles, 77 auditable requirements
1. **Project-affected people**
 2. **Environmental, social and economic knowledge base**
 3. **Design, operation, maintenance closure**
 4. **Governance**
 5. **Emergency preparedness and response**
 6. **Public disclosure of information**

Tailings Aspirational Goal



ICMM Tailings Management timeline

Key documents: Good Practice Guidance and Conformance Protocols



Tailings Aspirational Goal



Looking within

ICMM member conformance with GISTM

Tailings Progress Report



Tailings Progress Report

Implementing the Global Industry Standard on Tailings Management (GISTM)

Purpose

- Transparent overview of ICMM members’ progress in implementing the GISTM as at 5th August 2025.

Context & Scope

- Aggregates data across ICMM members, focusing on collective progress – not individual facility details.
- Facility-level conformance (full, partial or non)

Conformance Level	Description
Full Conformance	All applicable requirements are met in full. For some requirements, where a plan is in place but has not been fully implemented, some companies express these as “meet with a plan”. Further details on this approach can be found on each company's respective disclosure.
Partial Conformance	Some requirements are fully met, others are partially met or not met.
Non-Conformance	No applicable requirements are either partially or fully met.

ICMM member conformance with GISTM

Conformance status



- 836 tailings facilities
- 558 in full conformance

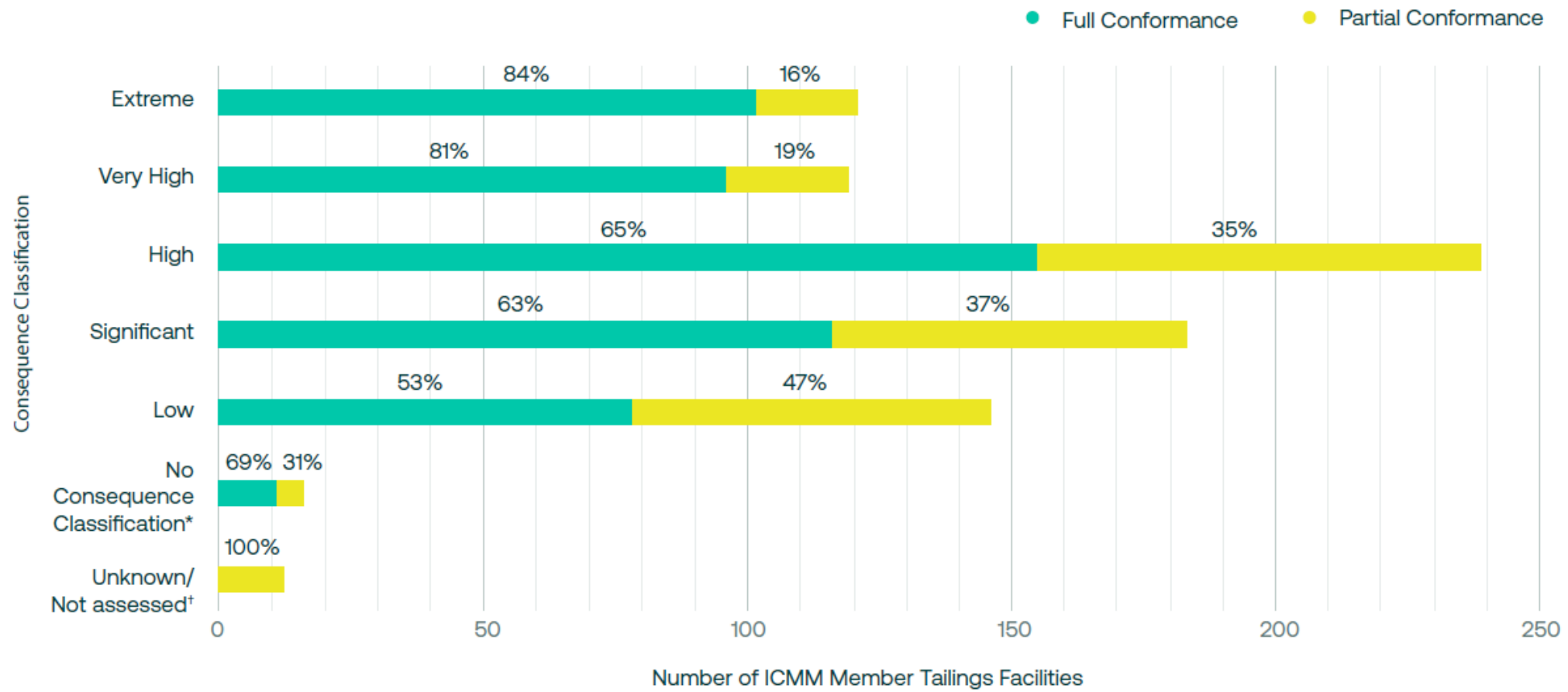
GISTM Conformance	Number of tailings facilities
Full conformance	558
Partial conformance	278
Total	836

ICMM member conformance with GISTM

Conformance status



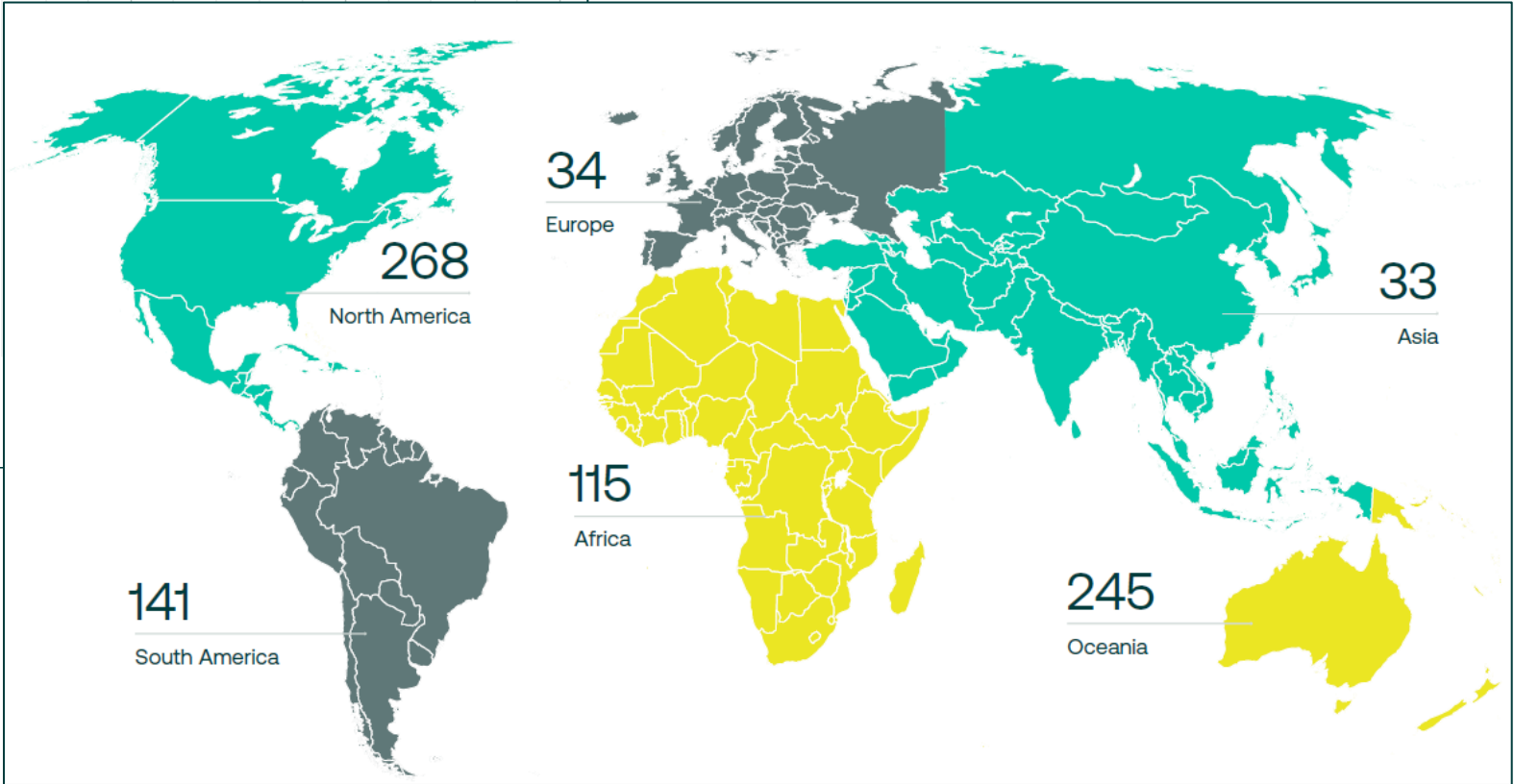
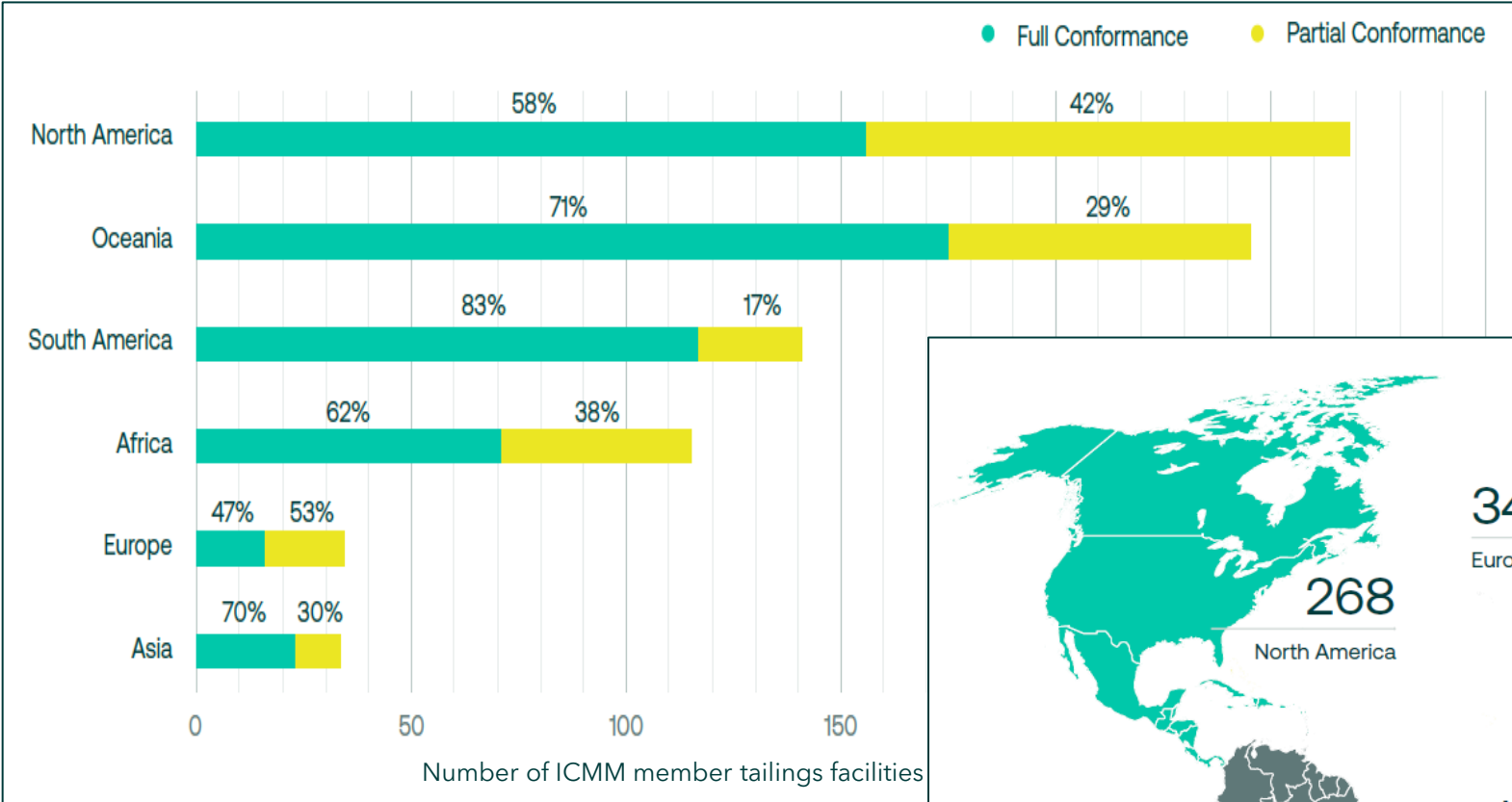
- Over 80% of 'extreme' and 'very high' consequence classification facilities were in full conformance.



* Where a facility may not have any credible failure mode, and therefore it may not be assigned a consequence classification.
† Where a facility consequence classification is in progress and not assessed.

ICMM member conformance with GISTM

Conformance status



ICMM member conformance with GISTM

Shared challenges towards full conformance



- **Social engagement:** Meaningful, ongoing dialogue with communities is essential; aligning emergency preparedness plans takes time.
- **Skills gap:** Shortage of qualified tailings professionals' highlights need for training and knowledge transfer.
- **Climate resilience:** Extreme weather events demand regular updates to risk assessments, design assumptions, and infrastructure.
- **Historical data challenges:** Older facilities often lack complete records, requiring additional investigations and adaptive solutions.
- **Continuous improvement:** Conformance is not a one-off milestone but an ongoing process of learning, innovation, and collaboration.



ICMM member conformance with GISTM

Case studies



- **Commingled mine waste:** GISTM encourages operators to consider feasible technologies. Commingling can offer benefits in a more stable landform and smaller footprint
- **Community preparedness:** Partnerships with the local municipality to test and validate emergency planning and preparedness during a flood simulation.
- **Strengthening social performance requirements:** Governance framework to ensure operators understand the social context around their facilities
- **Supporting accountability and transparency :** Effective engagement process and model of continuous improvement between the key governance roles and the Accountable Executive



ICMM progress on tailings innovation

Case studies

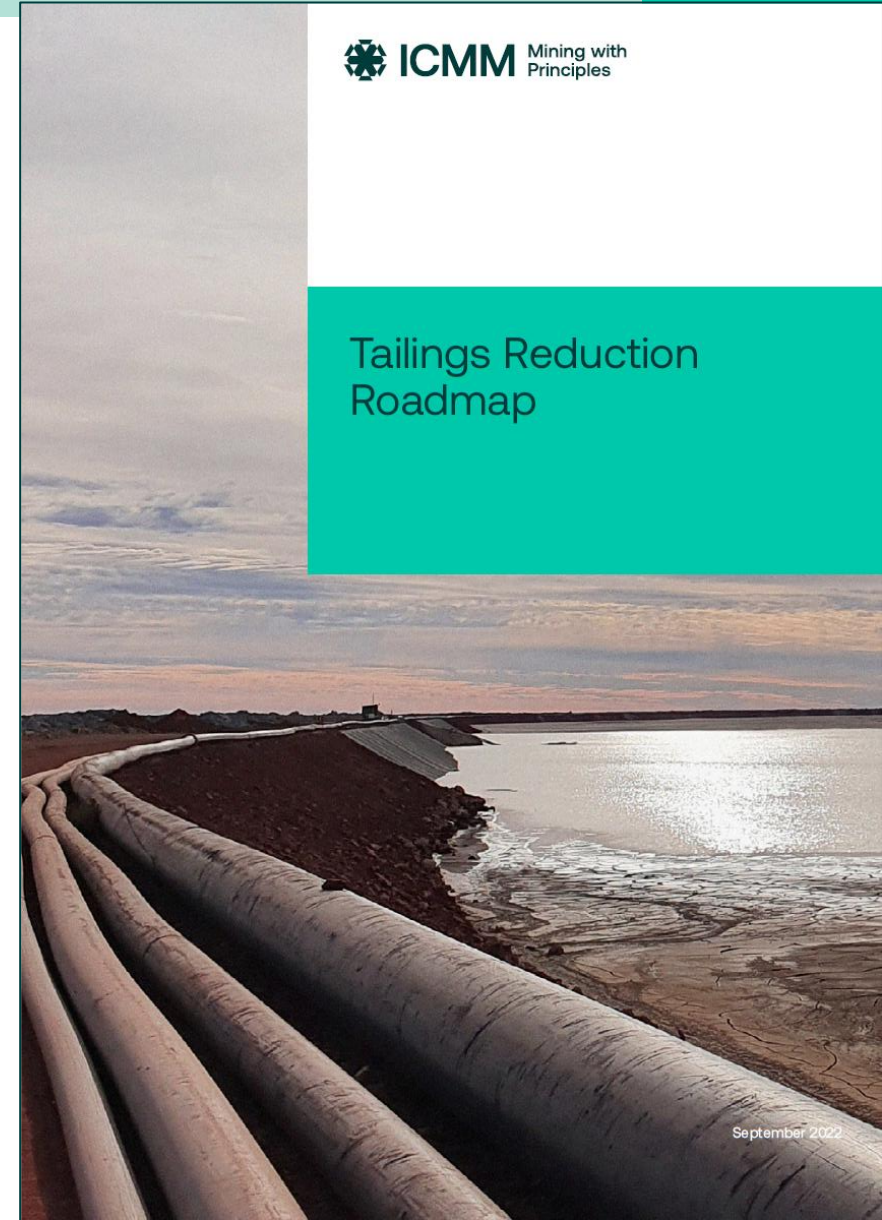


In parallel to supporting GISTM implementation, ICMM members continue to pursue innovations to reduce or eliminate the need for conventionally stored tailings.

- **Reduce:** the volume of tailings generated and stored.
- **Re-use:** existing tailings for new purposes and products.
- **Re-imagine:** explore breakthrough technologies to significantly reduce or eliminate the production of fresh tailings.
- Case studies are in the Tailings Progress Report

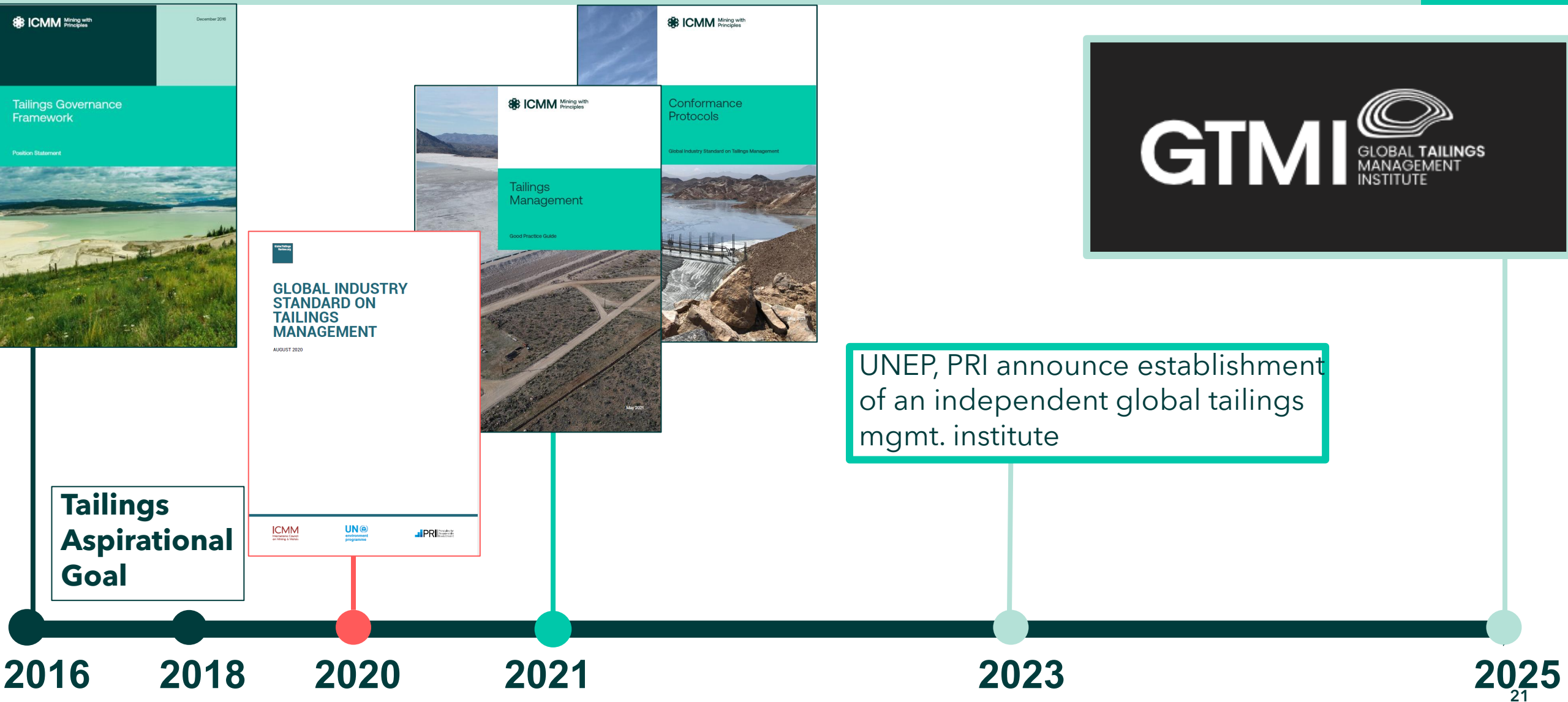


Tailings Reduction Roadmap



Looking forward

Global Tailings Management Institute Timeline



Global Tailings Management Institute

Next phase of GISTM implementation



Overview

- Independent, multi-stakeholder governed organisation
- Goal of zero harm to people and the environment from tailings facilities
- Core role: **manage an assurance framework** for the Global Industry Standard on Tailings Management (GISTM)
- Secondary role: **raising awareness** and encouraging the adoption of GISTM, **sharing knowledge** and best practices for responsible tailings management, and transparently **disclosing auditing outcomes**



CO-FOUNDERS





Governance

GTMI is a **not-for-profit** organisation, governed by a **multi-stakeholder board** comprising up to 9 members from:

- ✓ Mining Industry
- ✓ Potentially affected communities
- ✓ Indigenous Peoples
- ✓ Investment community
- ✓ Insurance & Banking Industry
- ✓ Technical and Academic community
- ✓ Environmental Experts
- ✓ Workforce
- ✓ Regulatory Bodies

A **Technical Committee** will be established to oversee technical matters.

- ✓ Board Chair or Deputy
- ✓ Board Mining Industry representative
- ✓ 4 other representatives
- ✓ Tailings management and geotechnical expertise; and environmental and social expertise

A **CEO and CTO** for operational accountability



Conformance and beyond

GTMI creates a trusted global system for verifying conformance with GISTM

Signatories demonstrate leadership, responsible practices and commitment to transparency and continuous improvement

Strengthening stakeholder confidence – communities, regulators, investors, insurers

Anticipate a call for signatories in 2026

Supporters v Signatories

Other organisations that do not have operational responsibility for tailings facilities are able to become supporters

Looking more broadly

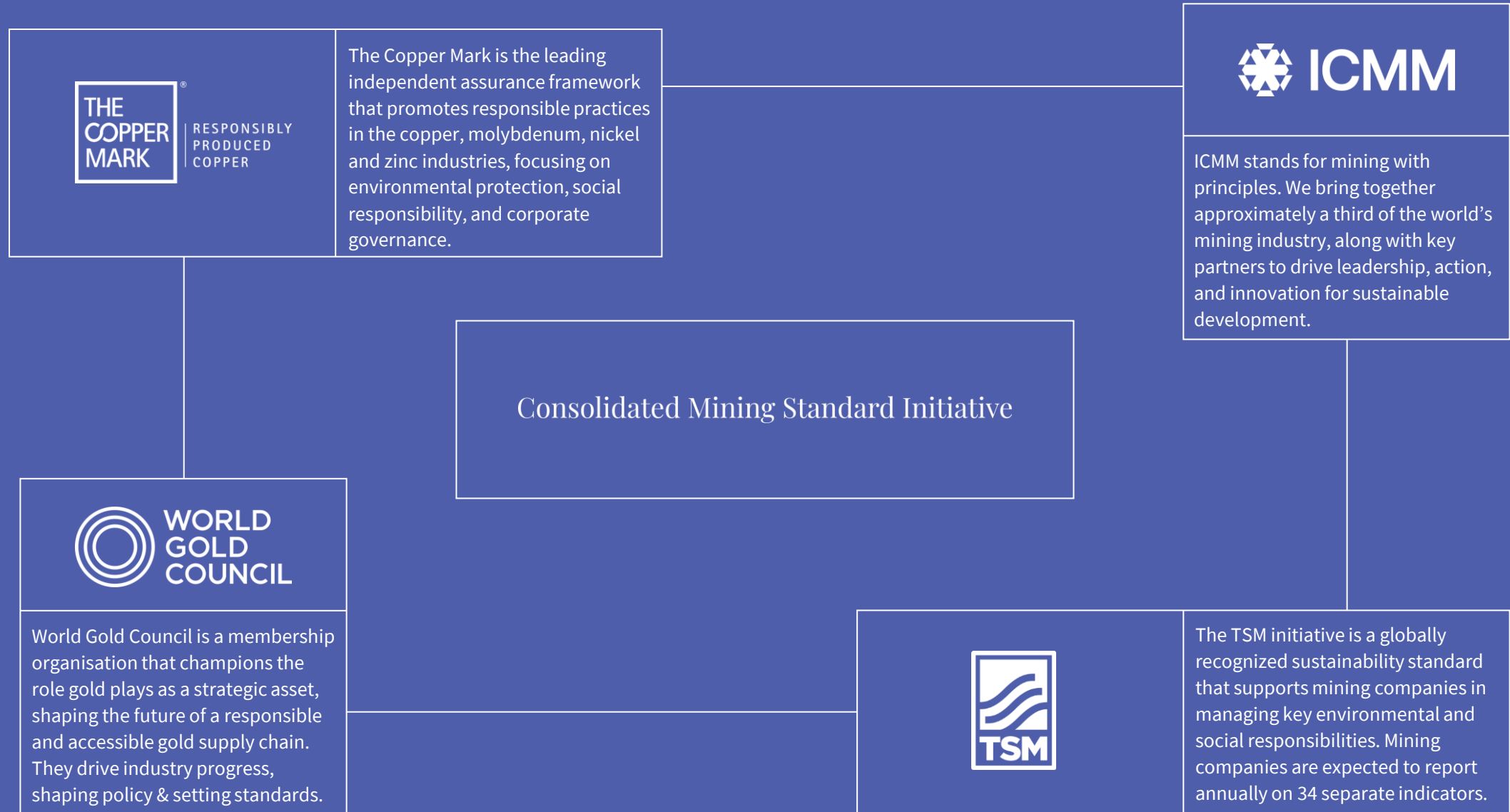
Responsible Mining Standards

Simplifying the Standards Landscape



Background

- 'A tonne of copper is a tonne of copper; and an ounce of gold is an ounce of gold'
- Although invisible to the eye, responsible production, processing and recycling matters immensely.
- Over the past 20 years a plethora of responsible mining performance standards have been developed.
- A listening exercise in 2023 confirmed that reducing complexity, both in the number of standards and in their content and assurance – while raising the bar – is vital.
- **Consolidation:** learning from other sectors e.g. food & agriculture; e.g. financial reporting standards



Vision and Objectives

A sustainable society, enabled by the responsible production, sourcing, and recycling of metals and minerals.

Through this Initiative, we are aiming to simplify the current upstream mining standards landscape and promote continual improvement of environmental, social and governance practices along individual metals' value chains.

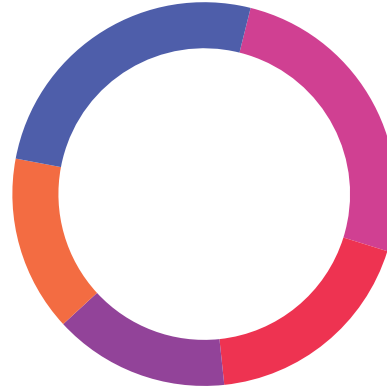
- Develop a credible and clear standard.
- Consolidate the four existing responsible standards into **one global standard and multi-stakeholder oversight system** which can drive performance improvement at scale.
- Build a standard that is practical, implementable and adaptable for any mine operator **with a commitment to responsible mining practices** anywhere in the world, regardless of commodity, geography or size.



Stakeholder Advisory Group: overview

■ Standards owners and multilaterals

- Extractive Industries Transparency Initiative (EITI)
- UN Environment Programme (UNEP)
- Intergovernmental Forum on Mining, Metals and Sustainable Development (IGF)
- Global Battery Alliance Secretariat
- China Chamber of Commerce of Metals, Minerals & Chemicals Importers & Exporters (CCCMC)
- London Bullion Market Association (LMBA)
- Responsible Business Alliance (RBA)/ Responsible Minerals Initiative (RMI)



■ NGOs, civil society and organised labour

- World Resources Forum (WRF) and International Resource Panel (IRP)
- AIDIS Argentina
- Fauna & Flora
- Casa de la Paz
- International Union for Conservation of Nature (IUCN)
- Unifor
- Institute for Human Rights and Business

■ Indigenous Peoples

- Kokatha Aboriginal Nation
- University of Colorado Law School
- Ájluokta-Drag TSM COI Forum, Norway
- Inuit Tapiriit Kanatami

■ Academia and research institutes

- Sustainable Minerals Institute, QLD
- University of British Columbia
- World Resources Institute
- Wits University

■ Investors and downstream customers

- Tesla
- London Metals Exchange (LME)
- BMW
- CofE Pensions Board
- Development Finance Expert

Industry Advisory Group: overview

- **Freeport-McMoRan**
- **BHP**
- **Vale**
- **Pan American Silver**
- **Newmont**
- **Rio Tinto**
- **Gold Fields**
- **Barrick**
- **Sibanye Stillwater**
- **Eldorado**
- **Antofagasta**
- **Anglo American**
- **Glencore**
- **Suncor**
- **OceanaGold**
- **Agnico Eagle Mines**
- **Trafigura**
- **Cameco**
- **Hudbay**
- **AngloGold Ashanti**
- **Teck Resources**
- **Albemarle**

While the Stakeholder and Industry Advisory Groups are structurally separate, functionally they are integrated and meet together. The Terms of Reference of the Advisory Groups can be found on the CMSI website: <https://miningstandardinitiative.org/about-the-initiative/role-of-the-advisory-groups/>

Workstreams

Consolidated Standard – 24 Performance Areas

Governance Model – How the Standard will be governed

Assurance process – How performance is independently assured

Reporting & Claims Policy – How performance is reported

Consultation Report & all submissions with consent

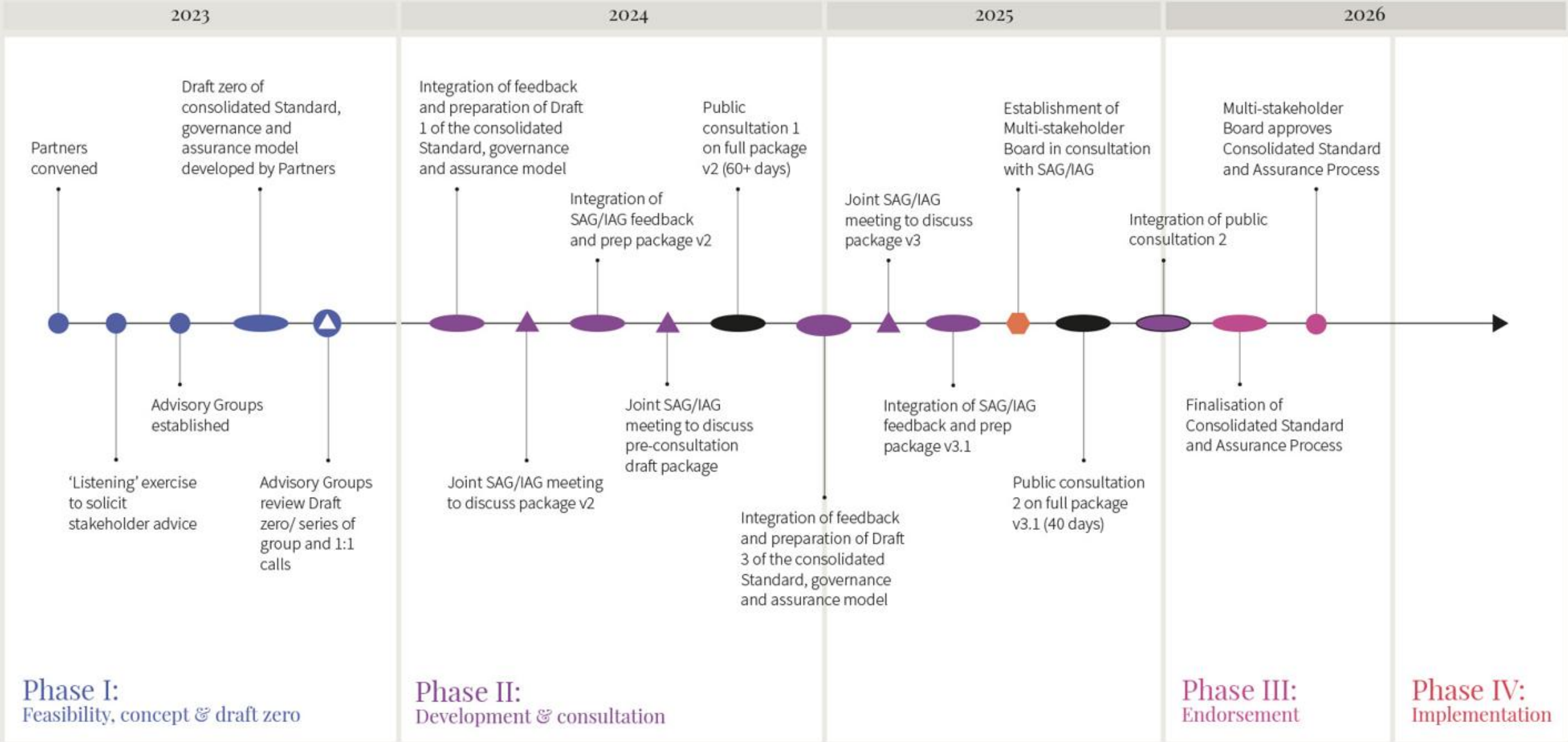
Response to feedback explaining how it was addressed

CMSI Theory of Change

Communications and stakeholder engagement

Transition of the Copper Mark and business model for the Standard

The process: overview



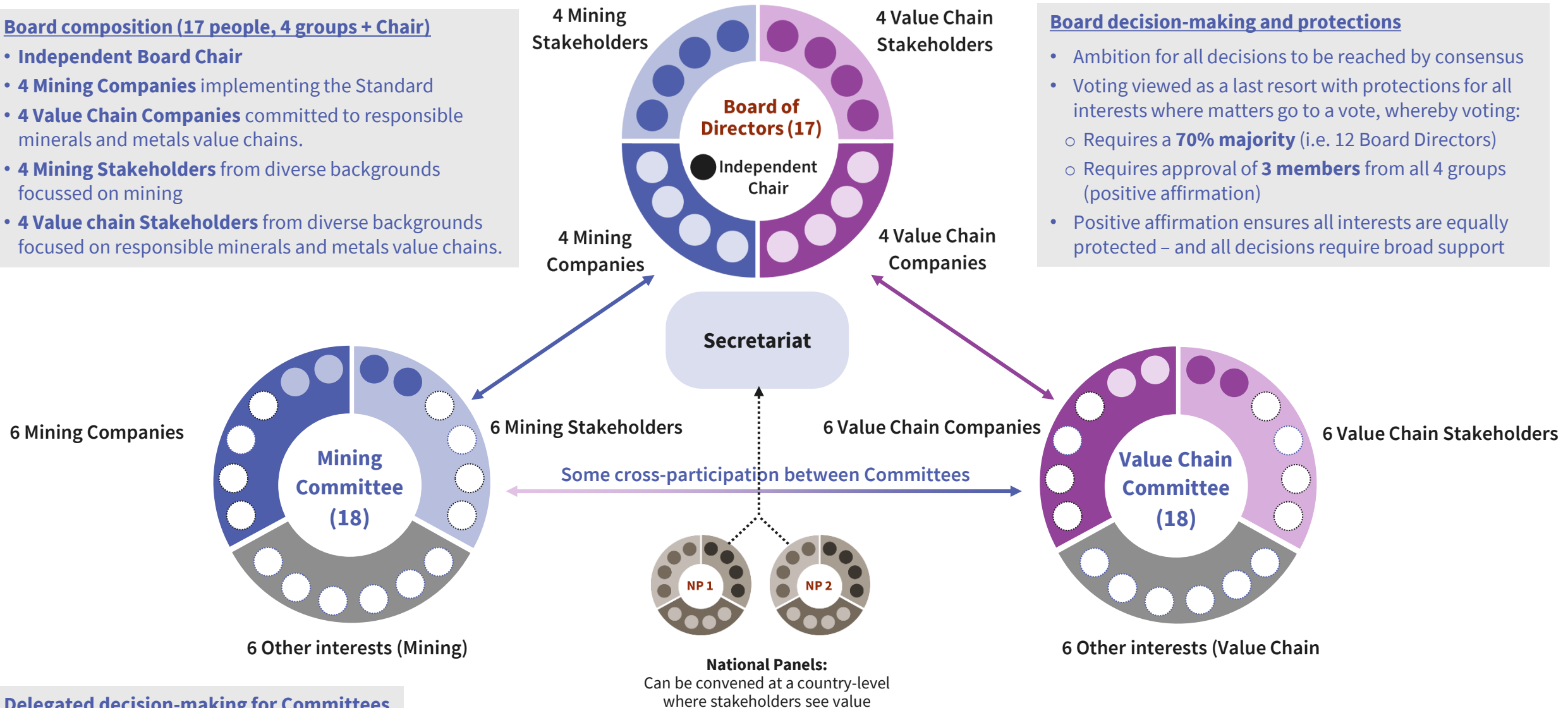
Overview of the Composition of the Board and Committees

Board composition (17 people, 4 groups + Chair)

- **Independent Board Chair**
- **4 Mining Companies** implementing the Standard
- **4 Value Chain Companies** committed to responsible minerals and metals value chains.
- **4 Mining Stakeholders** from diverse backgrounds focussed on mining
- **4 Value chain Stakeholders** from diverse backgrounds focused on responsible minerals and metals value chains.

Board decision-making and protections

- Ambition for all decisions to be reached by consensus
- Voting viewed as a last resort with protections for all interests where matters go to a vote, whereby voting:
 - Requires a **70% majority** (i.e. 12 Board Directors)
 - Requires approval of **3 members** from all 4 groups (positive affirmation)
- Positive affirmation ensures all interests are equally protected – and all decisions require broad support



Consolidated Standard Draft – Content Overview

Consolidated Mining Standard Initiative



RESPONSIBLY
PRODUCED
COPPER



ICMM



WORLD
GOLD
COUNCIL

Current Proposed Standard Structure



Ethical Business Practices

1. Corporate Requirements
2. Business Integrity
3. Responsible Supply Chains
4. New Projects, Expansions and Resettlement
5. Human Rights



Worker & Social Safeguards

6. Child Labour and Modern Slavery
7. Rights of Workers
8. Diversity, Equity and Inclusion
9. Safe, Healthy and Respectful Workplaces
10. Emergency Preparedness and Response
11. Security Management



Social Performance

12. Stakeholder Engagement
13. Community Impacts and Benefits
14. Indigenous Peoples
15. Cultural Heritage
16. Artisanal and Small-scale Mining
17. Grievance Management



Environmental Stewardship

18. Water Stewardship
19. Biodiversity, Ecosystem Services and Nature
20. Climate Action
21. Tailings Management
22. Pollution Prevention
23. Circular Economy
24. Closure

- Each Performance Area will have one or more 'categories' or sub-topics.
- Each category will contain specific criteria and be measured separately. These may be set at the corporate or site-level.

Three Performance Levels are proposed

- A scaled approach is inclusive - it provides an 'on ramp' for new participants, a good practice benchmark to work towards and space to grow into leading practice.
- A scaled approach provides greater scope for measuring continual improvement in performance.



Towards Good Practice is a starting point for conformance with minimum industry standards on which a facility can build on to improve performance. It is an 'entry point' for companies who are committed to transparency and responsible mining practices and will need additional time or resources to reach Good practice.



Good Practice is the Level of practice in line with industry standards and international norms, frameworks and guidelines. Good Practice Level reflects performance that all mining companies should eventually achieve.



Leading Practice is a level of performance which goes above and beyond responsible industry good practice and demonstrates leadership or best practice. As such, it is expected that only a minority of implementing companies would reach this level.

Tailings management

Examples of the distinction between the three proposed performance levels

21.1 Tailings Management	
Towards Good Practice	1. Publicly commit to safe, responsible management of <i>tailings</i> by implementing either the GISTM or the <i>MAC Tailings Management Protocol</i> .
Good Practice	1. Achieve <i>conformance</i> with the GISTM or the <i>Tailings Management Protocol</i> of MAC for conventional <i>Tailings Facilities</i> .
Leading Practice	1. Implement and publicly disclose progress on innovative approaches to either: (i) reduce the quantity of tailings to be disposed of; (ii) create value from tailings in a way that reduces the need for disposal; or (iii) reprocess historical tailings deposits in a way that significantly reduces the potential for harm to people and the environment.

Consolidated Mining Standard

Standard

- Sets a high bar
- Has incorporated a wide range of perspectives and feedback
- Designed to be adopted by any mining company
- Aims to drive performance at the scale
- Incentivises continuous performance

Governance

- Balanced multi-stakeholder governance.
- Each stakeholder groups' interests protected.
- Diversity criteria applied
- Open call for applications for Chair
- “Open call” at renewal of Board members

Assurance

- Independent providers, trained and accredited
- Advance notice and on-site interviews with local communities and other stakeholders
- Public disclosure of assurance findings, including any gaps and improvement plans
- Grievance mechanism for complaints

Summary: Tailings Management 360°



- Catastrophic tailings facilities failures are those that results in material disruption to social, environmental and local economic systems.
- The Global Industry Standard on Tailings Management (GISTM) underpins an integrated approach to tailings management **with the aim of preventing catastrophic failures.**
- ICMM members committed to full conformance with the GISTM and in 2025, 67% of member facilities were in full conformance
- Together ICMM, UNEP and PRI co-founded the Global Tailings Management Institute (GTMI) which will oversee industry-wide implementation of, and conformance with, the GISTM going forward
- GTMI's aim is zero harm to people and the environment and **their core function is to manage an assurance framework** for the GISTM.
- More broadly, the Consolidated Mining Standard Initiative aiming to simplify the responsible mining standards landscape while driving performance improvement at scale is progressing

