CMSI Consultation Response

Respondent Details

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COUNTRY
Colombia

PERMISSION
Yes, CMSI can disclose my feedback, name, and organisation.

STAKEHOLDER
Non-governmental organisation (NGO) / civil society organization (CSO)

ORGANISATION
Capitals Hub Canada

Comments & Questions by Document

Document:
Standard

General comment on Performance Area

COMMENT:

The current CMSI Standard achieves Level 2.8 out of 5.0 on multi-capital maturity ("Aware to Coordinated"), with strong financial capital management but significant gaps in natural, social, and intellectual capital treatment.

COMMENT:

Environmental liabilities are systematically underestimated by 100-300% due to the exclusion of natural capital depletion, social capital impacts, and knowledge capital requirements from current liability assessments.

COMMENT:

Critical gaps exist in five areas:

o No requirement for natural capital stock accounting and valuation

o No assessment or provision for social capital impacts of perpetual care

o No requirement for multi-capital optimization in closure decision-making

o No provisions for knowledge retention and intergenerational transfer

o No scenario analysis for nature-related risks affecting long-term liabilities

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COMMENT:

Integration of multi-capital approaches could create significant additional value per mine through better-informed decision-making and reduced total liabilities across all forms of capital.

COMMENT:

The CMSI Standard is well-positioned to lead the mining sector in multi-capital integration given its comprehensive scope and strong existing requirements for environmental and social impact management.

COMMENT:

Core Recommendations

We recommend CMSI adopt a phased integration approach over three phases:

Phase 1 (Years 1-2): Foundation

• Add multi-capital enhancements as Leading Practice requirements in Performance Areas 1, 19, and 24

• Pilot natural capital accounting and social capital assessment methodologies

• Develop implementation guidance and build sector capacity

Phase 2 (Years 2-4): Integration

• Elevate proven enhancements from Leading Practice to Good Practice

• Scale implementation across member companies

• Develop assurance protocols and train assurance providers

Phase 3 (Years 4-6): Maturity

• Achieve 70%+ member adoption of multi-capital approaches

• Align with TNFD, ISSB, and other emerging disclosure standards

• Establish CMSI as the leading multi-capital mining standard globally

Benefits to CMSI and Member Companies

For CMSI:

• Leadership position in sustainable mining standards

• Alignment with emerging global disclosure requirements (TNFD, ISSB)

• Enhanced credibility with investors and civil society

• Contribution to nature-positive and just transition goals

For Member Companies:

• Better-informed decision-making reducing total liabilities

• Enhanced risk management for long-term environmental obligations

• Improved stakeholder relationships and social license

• Competitive advantage in attracting responsible investment

• Proactive alignment with future regulatory requirements

COMMENT:

Why Multi-Capital Matters for Environmental Liabilities

Mining operations create environmental liabilities that can persist for decades or centuries after operations cease. These liabilities include:

• Perpetual water treatment obligations

• Long-term monitoring and maintenance requirements

• Ecosystem restoration commitments

• Community stewardship needs

• Knowledge retention and transfer requirements

Traditional approaches focus primarily on financial costs, estimating the monetary expense of physical rehabilitation, water treatment, and monitoring. However, this approach overlooks significant liabilities related to:

• Natural Capital: Depletion of ecosystem services, biodiversity loss, permanent water quality impacts

• Social Capital: Community capacity burden from perpetual monitoring, trust erosion, relationship maintenance costs

• Human Capital: Skills and knowledge requirements for multi-generational stewardship

• Intellectual Capital: Knowledge retention, documentation, and intergenerational transfer systems

By excluding these non-financial capitals, current approaches:

1. Underestimate true liabilities by 100-300%

2. Make suboptimal closure decisions by optimizing only financial cost

3. Create hidden risks that materialize over time as unmanaged social, natural, or knowledge capital deficits

4. Miss value creation opportunities from interventions that create positive outcomes across multiple capitals

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COMMENT:

Alignment with Global Trends

The recommendations in this document align CMSI with major developments in corporate disclosure and accountability:

Regulatory Developments:

• European Union Corporate Sustainability Reporting Directive (CSRD): Requires double materiality assessment including natural capital impacts

• TNFD Recommendations: Nature-related financial disclosures becoming expected practice for major corporations

• Taskforce on Climate-related Financial Disclosures (TCFD): Model being extended to nature through TNFD

• ISSB Standards: Sustainability disclosure standards increasingly integrated with financial reporting

Investor Expectations:

• Major institutional investors demanding nature-related risk disclosure

• Natural capital accounting increasingly expected in investment analysis

• Social license and community relations recognized as material financial risks

Best Practice Evolution:

• Integrated Reporting (<IR>) Framework widely adopted for value creation assessment

• Natural Capital Protocol and Social & Human Capital Protocol gaining traction

• Leading mining companies beginning to experiment with multi-capital approaches

By proactively integrating multi-capital frameworks, CMSI can:

• Position members ahead of regulatory curve

• Meet evolving investor expectations

• Establish global leadership in sustainable mining standards

• Provide practical implementation guidance that regulators may later adopt

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COMMENT:

CMSI is uniquely positioned to lead multi-capital integration in mining standards because:

1. Comprehensive Scope: The Standard already addresses environmental and social impacts extensively, providing a strong foundation for multi-capital enhancement

2. Strong Governance: Independent Board with balanced stakeholder representation ensures credible standard-setting

3. Practical Focus: Design philosophy of "practical implementation" aligns with pragmatic, scalable multi-capital approaches

4. Global Reach: Objective to drive "performance improvement at scale" means multi-capital enhancements can have sector-wide impact

5. Collaborative Development: Multi-stakeholder process enables incorporation of diverse perspectives on value creation

6. Existing Infrastructure: Assurance processes, reporting requirements, and performance levels provide structure for multi-capital integration

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COMMENT:

Objectives of These Recommendations

This submission aims to:

1. Provide evidence-based recommendations for integrating multi-capital frameworks into the CMSI Consolidated Standard

2. Propose specific, actionable enhancements to Performance Areas with clear implementation guidance

3. Outline a phased implementation approach that balances ambition with practicality

4. Demonstrate value proposition for CMSI and member companies

5. Enable informed decision-making by CMSI Board and Standards Committee on multi-capital integration

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COMMENT:

The gap analysis assessed the current CMSI Standard against six standards: Integrated Reporting Framework (IFRS Foundation), Natural Capital Protocol (Capitals Coalition), Social & Human Capital Protocol (Capitals

Coalition), TFND Framework (Taskforce on Nature-related Financial Disclosures), and Science Based Targets for Nature (Science Based Targets Network).

Current State Assessment

Multi-Capital Maturity Scoring (1-5 Scale)

[see response PDF for score breakdown]

Overall Maturity Level: Aware- Coordinated

Overall Score: 2.8

Overall Assessment: Capitals recognized and partially coordinated; limited

Interpretation:

• CMSI is performing well on financial capital management

• Significant gaps exist in natural, social, and intellectual capital treatment

• Current maturity level (2.8) is "Aware to Coordinated" on 5-point scale

• Target for multi-capital best practice is Level 4-5 ("Integrated to Embedded")

COMMENT:

[Critical] Gap 1: No Natural Capital Accounting

Current State:

• Strong requirements for biodiversity baseline and monitoring (PA 19)

• Mitigation hierarchy well-applied

• No net loss / net gain framework established

Gap:

• No requirement to quantify natural capital stocks (forests, wetlands, water quality, ecosystem services)

• No natural capital flow accounting (e.g., ecosystem service provision rates)

• No natural capital balance sheet (assets vs. liabilities)

• No natural capital valuation in monetary or standardized non-monetary terms

Impact:

• Natural capital liabilities invisible in closure cost estimates

• Cannot assess true "no net loss" / "net gain" achievement

• Decisions optimized for financial cost only, potentially destroying natural capital value

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COMMENT:

[Critical] Gap 2: No Social Capital Assessment

Current State:

• Strong stakeholder engagement requirements (PA 12)

• Community impact identification and management (PA 13)

• Grievance mechanisms required (PA 17)

Gap:

• Social capital not recognized as a "stock" that can be depleted or invested in

• No assessment of how environmental liabilities affect:

o Community cohesion and collective action capacity

o Trust in institutions and operators

o Social networks and relationships

o Intergenerational social capital transfer

• No provision for social capital investments needed to support perpetual care

Impact:

• Invisible social liabilities create long-term risks

• Perpetual care mechanisms fail due to trust deficits

• Communities burdened without capacity support

• Social license risks for future operations

COMMENT:

[Critical] Gap 4: No Intellectual Capital Provisions

Current State:

• Closure plans required (PA 24)

• Knowledge base updates required for closure planning (PA 24.1 GP7)

• Training requirements for workers (various PAs)

Gap:

• No requirement for systematic knowledge documentation

• No knowledge retention systems for perpetual care

• No intergenerational knowledge transfer mechanisms

• Knowledge capital not included in closure cost estimates

Impact:

• Critical operational knowledge lost when personnel retire

• Future stewards lack understanding of "how things really work"

• Expensive re-learning or consultant dependency

• Increased risk of perpetual care system failures

COMMENT:

[Critical] Gap 5: No Nature-Related Scenario Analysis

Current State:

• Climate risk assessment required (PA 20)

• Water risk assessment required (PA 18)

• Risk registers maintained (PA 1.4)

Gap:

• No requirement for scenario analysis of how nature-related changes affect liabilities over 30-100-year time-frames

• Missing scenarios for:

o Ecosystem degradation/collapse

o Regulatory evolution (nature-positive requirements)

o Technological breakthroughs

o Social valuation shifts

Impact:

• Long-term liabilities exposed to unassessed risks

• Financial provisions may be inadequate under plausible scenarios

• No adaptation strategies for changing conditions

• Closure approaches may not be resilient

COMMENT:

Secondary gap: Limited human capital transition planning.

Severity: High

PA(s) effected: 13, 24

COMMENT:

Secondary gap: Capital interdependencies not mapped

Severity: High

PA(s) effected: All PAs

COMMENT:

Secondary gap: Trust implications not assessed

Severity: High

PA(s) effected: 12, 24

COMMENT:

Secondary gap: Environmental liabilities not integrated into enterprise risk management

Severity: High

PA(s) effected: 1, 2

COMMENT:

Secondary gap: Operation dependencies on natural capital incomplete

Severity: Medium

PA(s) effected: 18, 19

COMMENT:

Secondary gap: Natural capital targets not consisently required

Severity: Medium

PA(s) effected: 19, 24

COMMENT:

Strengths to Build Upon

The analysis also identified significant strengths in the current Standard that provide a strong foundation for multi-capital integration:

Environmental Impact Management:

• Comprehensive coverage across water (PA 18), biodiversity (PA 19), and pollution (PA 22)

• Strong application of mitigation hierarchy

• Risk-based approach to impact management

• Good monitoring and reporting requirements

Social Performance:

• Extensive stakeholder engagement requirements (PA 12)

• Human rights due diligence framework (PA 5)

• Community impact identification and management (PA 13)

• Indigenous Peoples rights respected (PA 14)

Governance and Accountability:

• Clear accountability structures (PA 1)

• Board-level oversight of sustainability

• Risk management frameworks (PA 1.4)

• Comprehensive reporting requirements (PA 1.2)

Closure Planning:

• Strong closure planning requirements (PA 24)

• Financial provision requirements

• Stakeholder engagement in closure

• Progressive rehabilitation encouraged

These strengths mean that multi-capital integration is primarily about:

1. Enhancing existing requirements with accounting and valuation

2. Connecting existing siloed requirements through interdependency analysis

3. Optimizing decision-making through multi-capital frameworks

4. Measuring performance across all forms of capital

NOT about starting from scratch or wholesale revision.

COMMENT:

RECOMMENDATION 1: Natural Capital Accounting and Valuation

Performance Areas: PA 19 (Biodiversity), PA 24 (Closure)

Priority: CRITICAL

Implementation Phase: Phase 1 (Add as Leading Practice)

Type: Enhancement to existing requirements

Problem Addressed: Current Standard requires biodiversity baseline and monitoring but does not require:

• Quantification of natural capital stocks (hectares of forest, wetlands; water quality indices; ecosystem service provision rates)

• Natural capital balance sheet (assets vs. liabilities)

• Valuation of natural capital impacts

• Natural capital liabilities included in closure cost estimates

Proposed Enhancement:

PA 19.1 - Add Leading Practice:

LP X: Natural Capital Accounting and Valuation

Establish and maintain natural capital accounting systems for environmental liabilities:

a) Natural Capital Stock Accounting:

• i) Establish opening baseline for natural capital stocks in area of influence:

o Land cover by type (forest, wetland, grassland, etc.) in hectares

o Water quality indices by water body

o Aquifer recharge capacity (ML/year)

o Biodiversity intactness indices or species abundance

o Carbon sequestration capacity (tCO2e/year)

o Key ecosystem service provision rates (quantified)

• ii) Quantify annual changes in natural capital stocks:

o Natural capital depletion from operations

o Natural capital restoration from mitigation actions

o Net annual natural capital change

• iii) Calculate and publicly disclose:

o Opening natural capital position

o Annual changes (depletion and restoration)

o Closing natural capital position

o Net natural capital liability (or asset)

o Progress toward no net loss / net gain objectives

b) Natural Capital Valuation:

• i) Apply recognized valuation methodology (Natural Capital Protocol, ISO 14008, or equivalent) to value:

o Natural capital stocks and flows (monetary or non-monetary)

o Ecosystem services affected by operations

o Natural capital restoration value

o Residual natural capital liabilities

• ii) Include natural capital values in closure liability estimates:

o Natural capital depletion costs

o Ecosystem service loss valuation

o Natural capital restoration/offset costs

o Perpetual natural capital risk provisions

• iii) Publicly disclose:

o Valuation methodology and assumptions

o Natural capital values (disaggregated by type)

o Natural capital component of total closure liability

o Comparison to traditional (financial-only) liability estimate

c) Integration with Closure Planning:

• i) Use natural capital accounting to inform closure approach selection

• ii) Include natural capital objectives in closure success criteria

• iii) Monitor and report natural capital restoration progress

• iv) Make financial provisions adequate for natural capital liabilities

Rationale:

• Without natural capital accounting, true environmental liabilities are invisible

• Analysis shows natural capital liabilities can equal or exceed traditional financial estimates

• Natural capital accounting enables "no net loss" / "net gain" to be measured objectively

• Aligns CMSI with TNFD expectations and emerging best practice

• Provides information for better decision-making

Implementation Guidance:

• Start with simplified natural capital stock accounting (hectares, indices)

• Use existing biodiversity baseline data as starting point

• Partner with Capitals Coalition or similar organizations for methodology guidance

• Pilot at 3-5 facilities to refine approach before broad implementation

• Develop templates and tools to standardize accounting

• Initially accept qualitative or semi-quantitative valuation where monetary valuation is challenging

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COMMENT:

RECOMMENDATION 2: Social Capital Assessment and Investment

Performance Areas: PA 12 (Engagement), PA 13 (Community Impacts), PA 24 (Closure)

Priority: CRITICAL

Implementation Phase: Phase 1 (Add as Leading Practice)

Type: New requirement

Problem Addressed: Social capital (trust, networks, norms, collective action capacity) is not recognized as a "stock" that can be depleted or invested in. Environmental liabilities that create perpetual care

obligations can significantly deplete community social capital, but this is not assessed or provisioned for.

Proposed Enhancement:

PA 24.1 - Add Leading Practice:

LP Y: Social Capital Assessment and Investment for Perpetual Care

For environmental liabilities requiring long-term or perpetual care:

a) Assess social capital in affected communities:

• i) Bonding capital (within-group trust and cohesion)

• ii) Bridging capital (between-group relationships)

• iii) Linking capital (connections to institutions and authorities)

• iv) Trust levels in mine operator, government, and perpetual care systems

• v) Collective action capacity

• vi) Norms and values relevant to environmental stewardship

b) Assess social capital impacts of environmental liabilities:

• i) How perpetual care obligations affect community cohesion

• ii) Impacts on trust and institutional relationships

• iii) Burden on collective action capacity for other community needs

• iv) Intergenerational social capital transfer requirements

• v) Value social capital impacts using recognized methodologies (e.g., Social & Human Capital

Protocol)

c) Design closure approaches to build social capital:

• i) Governance mechanisms that strengthen (not burden) community relationships

• ii) Meaningful roles for community participation

• iii) Transparent decision-making that builds trust

• iv) Knowledge sharing that empowers communities

• v) Economic opportunities that strengthen networks

d) Invest in social capital for perpetual care success:

• i) Community capacity building for stewardship roles

• ii) Long-term relationship maintenance programs

• iii) Trust-building initiatives and transparent communication

• iv) Support for community-led governance structures

• v) Grievance and feedback mechanisms for adaptive management

e) Include in closure financial provisions:

• i) Social capital assessment and monitoring costs

• ii) Capacity building and training program costs

• iii) Ongoing community engagement and relationship maintenance

• iv) Governance mechanism establishment and operation

• v) Trust-building initiatives

• vi) Contingency for social capital restoration if trust fails

f) Monitor and publicly report:

• i) Social capital indicators and trends over time

• ii) Community capacity development progress

• iii) Trust levels and trajectories

• iv) Social capital investments made

• v) Effectiveness of social capital approach

• vi) Lessons learned and adaptations

Rationale:

• Perpetual care obligations can impose significant burdens on communities

• Without social capital investment, perpetual care systems often fail due to trust deficits or capacity gaps

• Social capital depletion is a real liability that can be quantified

• Proactive social capital investment creates more sustainable perpetual care outcomes

• Aligns with Social & Human Capital Protocol and <IR> Framework

Implementation Guidance:

• Begin with qualitative social capital assessment using participatory methods

• Use existing community engagement processes as foundation

• Partner with social scientists or community development organizations

• Pilot social capital assessment at 2-3 facilities with perpetual care obligations

• Develop practical assessment tools (surveys, interviews, focus groups)

• Initially focus on trust and capacity as key social capital indicators

• Link to PA 12 (Engagement) and PA 13 (Community Impacts) implementation

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COMMENT:

RECOMMENDATION 5: Nature-Related Liability Scenario Analysis

Performance Areas: PA 18 (Water), PA 19 (Biodiversity), PA 24 (Closure)

Priority: CRITICAL

Implementation Phase: Phase 1 (Add as Leading Practice)

Type: New requirement

Problem Addressed: Environmental liabilities span 50-100+ years but current Standard does not require scenario analysis for how nature-related changes might affect these liabilities over such long timeframes.

This creates unassessed risks to financial provision adequacy and closure approach viability.

Proposed Enhancement:

PA 24.1 - Add Leading Practice:

LP B: Nature-Related Environmental Liability Scenario Analysis

Develop and disclose scenario analysis for how nature-related changes affect environmental liabilities over closure and post-closure timeframes (30-100+ years):

a) Develop Scenarios Spanning Long-Term Timeframes:

• i) Ecosystem Degradation Scenarios:

o Climate change impacts (temperature, precipitation patterns, extreme events)

o Biodiversity loss and ecosystem service collapse

o Watershed degradation affecting water availability/quality

o Cumulative impacts from multiple stressors accelerating decline

o Example: "Passive water treatment system fails as wetland capacity declines"

• ii) Regulatory Evolution Scenarios:

o Nature-positive policy requirements (net gain mandates)

o Tightening environmental standards (water quality, air quality)

o Extended producer responsibility (perpetual liability cannot be transferred)

o Natural capital accounting and disclosure mandates

o Example: "New regulations require net gain, adding significant offsets"

• iii) Technological Advancement Scenarios:

o Breakthrough bio-remediation technologies reducing treatment costs

o Cost reductions in renewable energy for active treatment systems

o Monitoring automation and remote sensing improvements

o Novel contamination treatment methods emerging

o Example: "Bio-remediation breakthrough reduces liability by 80%"

• iv) Social Valuation Shift Scenarios:

o Increased societal expectations for environmental restoration

o Changes in community priorities and values over time

o Evolving Indigenous rights recognition and application

o Intergenerational equity and justice demands

o Example: "Community rejects 'minimum compliance" approach, demands full restoration"

b) Quantify Multi-Capital Implications of Each Scenario:

• i) Financial Impacts:

o How closure cost estimates change under each scenario

o Adequacy of current financial provisions

o Potential additional costs or savings

o Probability-weighted expected values

• ii) Natural Capital Impacts:

o Natural capital position under different ecological trajectories

o Ability to achieve no net loss / net gain under scenarios

o Residual natural capital liabilities

• iii) Social & Relationship Capital:

o Community capacity and trust under different scenarios

o Social license implications

o Relationship maintenance costs

• iv) Human & Intellectual Capital:

o Skills and knowledge needs under different scenarios

o Capacity requirements for adaptation

c) Test Resilience of Closure Approach:

• i) Identify scenario-specific risks:

o Under which scenarios does current closure approach fail or underperform?

o What are the early warning indicators that a scenario is materializing?

o What are the critical thresholds or tipping points?

• ii) Assess financial provision adequacy:

o Are provisions adequate across all plausible scenarios?

o What is the range of potential liability outcomes?

o What contingency is appropriate given scenario uncertainty?

• iii) Evaluate robustness:

o Which approach performs well across multiple scenarios?

o Are there "low-regret" options that work under most scenarios?

o How flexible/adaptable is current approach?

d) Identify Adaptation Strategies:

• i) Design flexibility into closure approaches:

o Modular systems that can be upgraded

o Phased approaches with decision points

o Reversible vs. irreversible decisions

• ii) Establish contingency provisions:

o Financial reserves for high-impact scenarios

o Pre-agreed transition plans to alternative approaches

o Monitoring triggers for contingency activation

• iii) Plan for approach transitions:

o Under what conditions would approach need to change?

o What alternative approaches would be adopted?

o How would transition be funded and implemented?

• iv) Build adaptive management capacity:

o Monitoring systems to detect scenario signals

o Decision-making processes for adaptation

o Stakeholder engagement on adaptation decisions

o Learning and knowledge sharing systems

e) Publicly Disclose Scenario Analysis:

• i) Scenarios developed and rationale for selection

• ii) Quantitative results for each scenario (financial and multi-capital)

• iii) Resilience assessment of current closure approach

• iv) Adaptation strategies and contingency plans

• v) Implications for liability estimates and financial provisions

• vi) How scenario analysis influenced closure planning

f) Update Scenario Analysis at Defined Intervals:

• i) Minimum every 5 years, or more frequently if:

o Material changes in environmental or social context

o New scientific understanding of risks emerges

o Monitoring data indicate departure from expected trajectories

• ii) Incorporate in updates:

o Latest climate science and projections

o Ecosystem monitoring trends

o Regulatory developments

o Technological innovations

o Community feedback and priorities

• iii) Engage stakeholders and rights-holders:

o In scenario development and selection

o In assessment of scenario implications

o In adaptation strategy identification

o In monitoring and decision-making processes

Rationale:

• Environmental liabilities span timeframes far beyond typical business planning horizons

• Nature-related changes over decades can dramatically affect liability magnitude and management approach viability

• Scenario analysis is standard practice for climate (TCFD) and should extend to broader nature risks (TNFD)

• Provides early warning system for liability escalation

• Enables proactive adaptation rather than reactive crisis management

• Improves financial provision adequacy

Implementation Guidance:

• Start with 3-4 scenarios representing plausible range of future states

• Use existing climate scenarios (IPCC) as foundation, extend to ecological and social dimensions

• Engage multidisciplinary experts (ecologists, climate scientists, social scientists)

• Involve stakeholders and rights-holders in scenario development

• Use participatory scenario workshops for rich narrative development

• Quantify financial implications using sensitivity analysis

• Document scenario logic and assumptions transparently

• Update scenarios as new information emerges

COMMENT:

High Priority Recommendation: Multi-Capital Risk Integration in Enterprise Risk Management

PA(s): 1, 2

COMMENT:

High Priority Recommendation: Capital Interdependency Mapping

PA(s): All PAs

COMMENT:

High Priority Recommendation: Trust Assessment in Closure Planning

PA(s): 12, 24

COMMENT:

High Priority Recommendation: Human Capital Transition and Stewardship Capacity Building

PA(s): 13, 24

COMMENT:

Medium Priority Recommendation: Enhanced Operational Dependency Assessment

PA(s): 18, 19

COMMENT:

Medium Priority Recommendation: Quantified Natural Capital Targets

PA(s): 19, 24

COMMENT:

We recommend a three-phase implementation approach spanning 6 years:

PHASE 1: FOUNDATION (Years 1-2)

• Objective: Establish multi-capital framework and pilot critical enhancements

• Actions: Add Critical Recs 1-5 as Leading Practice; conduct pilots; build capacity

• Success: Framework adopted; pilots complete; 70%+ members aware

PHASE 2: INTEGRATION (Years 2-4)

• Objective: Scale implementation and integrate into Standard

• Actions: Elevate Recs 1-5 to Good Practice; add High Priority Recs; train assurance providers

• Success: 30%+ facilities implementing; assurance protocols established

PHASE 3: MATURITY (Years 4-6)

• Objective: Achieve broad adoption and demonstrate value

• Actions: 70%+ adoption; align with TNFD/ISSB; sector leadership

• Success: CMSI recognized as leading multi-capital mining standard

[To see implementation schedule details, see response PDF]

COMMENT:

Benefits to CMSI

Strategic Positioning:

• Industry Leadership: First comprehensive mining standard with integrated multi-capital framework

• Alignment with Global Trends: Proactive alignment with TNFD, ISSB, and emerging regulations

• Credibility with Investors: Enhanced standard credibility with ESG-focused investors

• Civil Society Trust: Demonstrates commitment to comprehensive accountability

• Regulatory Influence: CMSI approach may inform future regulations

Operational Benefits:

• Reduced Complexity: Multi-capital framework provides unifying logic across PAs

• Enhanced Assurance: Clear metrics across capitals improve assurance quality

• Better Implementation: Comprehensive view helps facilities prioritize and integrate

Competitive Advantage:

• Differentiation: Clear differentiation from other mining standards

• Member Value: Demonstrates tangible value creation for members

• Attractiveness: More attractive to companies seeking cutting-edge sustainability practices

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COMMENT:

Benefits to Member Companies

Better Decision-Making:

• Optimize Total Value: Make closure decisions that maximize value across all capitals, not just minimize financial cost

• Avoid Value Destruction: Identify decisions that create financial savings but destroy natural or social capital

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• Reveal Hidden Opportunities: Discover interventions that create positive value in multiple capitals simultaneously

Risk Management:

• Comprehensive Risk View: See full spectrum of environmental liabilities across all capital types

• Early Warning: Scenario analysis provides early warning of liability escalation risks

• Reduced Surprises: Fewer unpleasant surprises from unassessed social or natural capital liabilities materializing

• Improved Provisions: More accurate financial provisions reflecting full multi-capital liabilities

Stakeholder Relationships:

• Enhanced Trust: Transparent multi-capital approach builds stakeholder trust

• Social License: Strengthened social license through demonstrated comprehensive accountability

• Community Benefits: Better outcomes for communities through social capital investment

• Easier Engagement: Multi-capital framework provides common language for stakeholder dialogue

Financial Benefits:

• Cost Savings: Better decisions reduce total lifecycle costs

• Access to Capital: Enhanced disclosure attracts ESG-focused investors

• Insurance Benefits: Better risk management may reduce insurance costs

• M&A Value: More accurate liability assessment improves acquisition due diligence

Competitive Advantage:

• Investor Attraction: Leading practice on ESG disclosure attracts responsible investors

• Talent Attraction: Cutting-edge sustainability approach attracts top talent

• Regulatory Preparedness: Ahead of curve on emerging disclosure requirements

• Reputation: Industry leadership position on sustainability

COMMENT:

Benefits to Stakeholders and Rights-Holders

Communities:

• Better Outcomes: Multi-capital optimization delivers better environmental and social outcomes

• Capacity Building: Social and human capital investment builds community resilience

• Voice in Decisions: Multi-capital trade-off analysis gives communities real voice in closure approach selection

• Long-term Security: Knowledge retention and perpetual care provisions ensure long-term protection

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Investors:

• Comprehensive Disclosure: Full picture of environmental liabilities across all capitals

• Better Risk Assessment: Can accurately assess nature-related financial risks

• Alignment with Expectations: Meets evolving investor expectations on ESG disclosure

• Material Information: Disclosure of previously invisible liabilities affecting enterprise value

Civil Society and NGOs:

• Accountability: Comprehensive accounting across all forms of capital

• Transparency: Clear disclosure of natural and social capital impacts and liabilities

• Meaningful Participation: Multi-capital framework enables substantive engagement on tradeoffs

• Better Environmental Outcomes: Natural capital accounting drives better ecological restoration

Governments and Regulators:

• Reduced Orphaned Liabilities: Better provisions and capacity building reduce risk of orphaned mines

• Fiscal Clarity: Clear accounting of financial provisions for environmental liabilities

• Public Benefit: Multi-capital optimization enhances public benefits from mining

• Policy Development: CMSI approach may inform future policy and regulation

Future Generations:

• Intergenerational Equity: Explicit consideration of impacts on future generations

• Knowledge Transfer: Systematic knowledge retention enables future stewardship

• Natural Capital Preservation: Natural capital accounting protects ecosystems for future use

• Reduced Burden: Better closure decisions reduce perpetual care burdens on future generations

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COMMENT:

Contribution to Global Goals

Kunming-Montreal Global Biodiversity Framework:

• Target 15: Contribution to measuring and progressively reducing business risks, dependencies, and impacts on biodiversity

• Target 16: Enabling sustainable consumption through natural capital disclosure

• Nature-Positive: Supporting nature-positive outcomes through natural capital accounting and restoration

UN Sustainable Development Goals:

• SDG 8: Decent work through human capital investment in stewardship roles

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• SDG 12: Responsible production through multi-capital accountability

• SDG 15: Life on land through natural capital restoration commitments

• SDG 16: Strong institutions through trust-building and transparent governance

Paris Agreement:

• Climate Action: Integration with PA 20 on climate; nature-based solutions for both climate and biodiversity

• Just Transition: Social and human capital investment supports workers and communities in transition

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COMMENT:

Key Mitigation Strategies

[see Implementation risks in response PDF]

1. Start Simple, Build Over Time:

o Phase 1: Leading Practice (voluntary, learning phase)

o Phase 2: Proven practices elevated to Good Practice (expected norm)

o Phase 3: Continuous improvement and refinement

o Accept qualitative assessment initially where quantification challenging

2. Demonstrate Value Early:

o Publish pilot results showing value creation per mine

o Showcase early adopters and their successes

o Quantify risk reduction from comprehensive liability assessment

o Highlight competitive advantages

3. Provide Extensive Support:

o Comprehensive implementation guidance (not just requirements)

o Templates, tools, and calculators

o Technical assistance helpdesk

o Training programs and webinars

o Community of practice for peer learning

4. Partner with Experts:

o Capitals Coalition for methodology and training

o Academic institutions for research and validation

o Assurance firms for auditor capacity building

o Civil society for stakeholder perspectives

5. Engage Proactively:

o Regular communication with members on progress

o Transparent sharing of pilot learnings

o Collaborative problem-solving through task force

o Responsiveness to member feedback

6. Build on Existing Foundations:

o Frame as enhancement, not revolution

o Leverage existing PA requirements and data

o Integrate with familiar frameworks (ISO, GRI, etc.)

o Show continuity with current practices

COMMENT:

Reputational Risks to CMSI

Risk: CMSI seen as overly ambitious or disconnected from industry reality

Mitigation:

• Ground recommendations in pilot demonstrations

• Involve industry practitioners in task force

• Phased approach demonstrates pragmatism

• Clear implementation guidance shows feasibility

COMMENT:

Reputational Risks to CMSI

Risk: Multi-capital seen as "greenwashing" if not substantive

Mitigation:

• Rigorous assurance requirements

• Quantitative metrics where feasible

• Transparent disclosure of methodologies

• Third-party evaluation of approach

COMMENT:

Reputational Risks to CMSI

Risk: Regulatory capture or NGO criticism

Mitigation:

• Independent Board oversight

• Multi-stakeholder task force

• Alignment with authoritative frameworks (TNFD, <IR>)

• Transparent development process

COMMENT:

The CMSI Consolidated Standard represents a significant advancement in responsible mining practices. However, as the standard approaches finalization, there is a strategic opportunity to position CMSI at the forefront of emerging best practices in multi-capital accounting and disclosure.

This submission has demonstrated that:

1. Significant gaps exist in the current treatment of environmental liabilities, particularly for natural capital, social capital, and intellectual capital.

2. Environmental liabilities are underestimated by 100-300% due to exclusion of non-financial capitals from current accounting approaches.

3. Multi-capital integration creates substantial value - analysis suggests significant value creation per mine through better-informed decision-making and reduced total liabilities.

4. CMSI is well-positioned to lead given its comprehensive scope, strong governance, and practical implementation focus.

5. A phased implementation approach is feasible with clear roadmap, reasonable costs, and strong return on investment.

6. Benefits extend to all stakeholders - CMSI, member companies, communities, investors, and future generations

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COMMENT:

Recommended Decision

We respectfully request that the CMSI Board and Standards Committee:

1. Adopt the multi-capital framework in principle as a strategic direction for the Consolidated Standard.

2. Approve Phase 1 implementation including:

o Integration of Critical Recommendations 1-5 as Leading Practice requirements

o Establishment of Multi-Capital Task Force

o Launch of pilot program with 5-10 member companies

o Development of implementation guidance

o Budget allocation for CMSI central activities

3. Commit to phased integration over 6 years following the roadmap outlined in this submission.

4. Authorize engagement with Capitals Coalition, TNFD, ISSB, and other relevant organizations to ensure alignment and leverage existing expertise.

COMMENT:

Alternative Approaches

If the full multi-capital framework is considered too ambitious for immediate adoption, we propose these alternative approaches:

Option A: Pilot First, Decide Later

• Approve only Phase 1 pilot program

• Defer decision on Standard integration until pilot results available (18-24 months)

• Lower initial commitment but risk losing momentum

Option B: Modular Adoption

• Adopt only natural capital accounting initially (Recommendation 1)

• Add other capitals based on demonstrated success

• Lower perceived risk but slower value realization

Option C: Voluntary Framework

• Develop multi-capital framework as non-mandatory guidance alongside Standard

• Encourage adoption but don't require

• Lowest barrier but may limit adoption and impact

We recommend against these alternatives because:

• Multi-capital approach works best as integrated framework

• Momentum and member engagement strongest with clear commitment

• Competitive advantage depends on positioning as leader, not follower

• Phase 1 approach already provides cautious, learning-focused pilot period

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COMMENT:

Next Steps

If this recommendation is approved, the immediate next steps would be:

Month 1:

• Form Multi-Capital Task Force

• Recruit pilot facilities

• Engage Capitals Coalition and other partners

Months 2-3:

• Finalize Phase 1 work plan and budget

• Begin development of natural capital accounting guidance

• Launch member communication and awareness campaign

Months 3-6:

• Pilot facilities begin natural capital accounting implementation

• Develop social capital assessment methodology

• First webinar series on multi-capital concepts

Month 12:

• Pilot results evaluation

• Refinement of methodologies based on learning

• Decision on Phase 2 scope and timeline

Performance Area 01: Corporate Requirements

COMMENT:

Secondary gap: Multi-capital disclosure incomplete

Severity: Medium

PA(s) effected: 1

COMMENT:

High Priority Recommendation: Integrated Multi-Capital Reporting

PA(s): 1

COMMENT:

Medium Priority Recommendation: Multi-Capital Assurance Protocols

PA(s): 1

Performance Area 24: Closure

SECTION: 24.1 Closure Management, Leading Practice

COMMENT:

RECOMMENDATION 3: Multi-Capital Optimization in Closure Decisions

Performance Areas: PA 24 (Closure)

Priority: CRITICAL

Implementation Phase: Phase 1 (Add as Leading Practice)

Type: Enhancement to existing requirements

Problem Addressed: Closure approach selection typically optimizes for minimum financial cost. This can result in decisions that minimize financial liability but create larger liabilities in natural or social capital,

leading to suboptimal outcomes and higher total multi-capital costs.

Proposed Enhancement:

PA 24.1 - Add Leading Practice:

LP Z: Multi-Capital Optimization in Closure Approach Selection

Apply multi-capital assessment framework to closure approach decision-making:

a) Develop Alternative Closure Scenarios:

• i) Develop minimum 3 alternative closure approaches addressing the same environmental liability

• ii) Include range of approaches (e.g., passive vs. active; removal vs. containment; natural attenuation vs. engineered solutions)

• iii) Ensure all alternatives meet regulatory requirements and safety standards

b) Assess Each Alternative Across All Capitals:

For each alternative, quantify or qualitatively assess impacts on:

• i) Financial Capital:

o Capital costs (engineering, construction, infrastructure)

o Operating costs (monitoring, maintenance, treatment)

o Temporal profile (immediate vs. perpetual costs)

o Risk and contingency provisions

o Net Present Value (NPV) using appropriate discount rates

• ii) Natural Capital:

o Natural capital stocks affected (positive or negative)

o Ecosystem service impacts (loss or restoration)

o Residual environmental impacts

o Natural capital liability (per Recommendation 1)

o Resilience to climate and ecosystem changes

• iii) Social & Relationship Capital:

o Trust implications of approach

o Community burden or empowerment

o Relationship maintenance requirements

o Social license implications

o Social capital liability (per Recommendation 2)

• iv) Human Capital:

o Skills and capacity requirements

o Employment opportunities

o Community stewardship capacity needs

o Knowledge and expertise development

• v) Intellectual Capital:

o Knowledge requirements for implementation

o Complexity of long-term management

o Innovation and learning opportunities

o Knowledge transfer needs

• vi) Manufactured Capital:

o Infrastructure lifespan and maintenance

o Technology obsolescence risk

o Asset residual value

c) Analyze Trade-offs Between Capitals:

• i) Identify where one alternative creates value in one capital by depleting another

• ii) Quantify trade-offs

• iii) Assess acceptability and materiality of trade-offs

• iv) Consider temporal dimension (who bears costs/benefits, when)

• v) Engage stakeholders and rights-holders on trade-off preferences

d) Apply Multi-Capital Optimization:

• i) Select approach that maximizes total value creation across all capitals

• ii) Calculate total multi-capital NPV for each alternative

• iii) If financial constraints require accepting suboptimal multi-capital outcome, explicitly document:

o Total value destroyed in non-financial capitals

o Rationale for prioritizing financial capital

o Plans to address non-financial capital deficits over time

o Stakeholder and rights-holder views on the decision

e) Publicly Disclose Multi-Capital Analysis:

• i) Alternatives considered and assessment of each across all capitals

• ii) Trade-offs identified and analyzed

• iii) Selected approach and multi-capital rationale

• iv) Expected outcomes across all capitals (quantified where possible)

• v) How stakeholder and rights-holder input influenced decision

f) Monitor and Report Actual Multi-Capital Outcomes:

• i) Track actual performance against projections for all capitals

• ii) Explain material variances from projections

• iii) Adapt approach if outcomes significantly deviate from expectations

• iv) Report lessons learned for continuous improvement

Rationale:

• Closure decisions have 50-100+ year consequences and should optimize for total value, not just financial cost

• Analysis shows multi-capital optimization can create significant additional value per mine

• Financial-only optimization often destroys value in other capitals

• Multi-capital analysis provides transparency on trade-offs

• Aligns with <IR> principle of "connectivity of information"

Implementation Guidance:

• Start with 2-3 closure decisions at pilot facilities

• Use multi-capital framework template

• Initially allow qualitative assessment where quantification is difficult

• Develop decision-support tools and training for closure planners

• Engage independent facilitators for trade-off analysis workshops

• Document case studies for learning and capacity building

COMMENT:

RECOMMENDATION 4: Knowledge Capital Retention and Intergenerational Transfer

Performance Areas: PA 24 (Closure)

Priority: CRITICAL

Implementation Phase: Phase 1 (Add as Leading Practice)

Type: New requirement

Problem Addressed: Critical operational knowledge required for effective perpetual care is lost when personnel retire. No systematic requirements for knowledge documentation, retention, or intergenerational transfer exist, creating significant risks for long-term liability management.

Proposed Enhancement:

PA 24.1 - Add Leading Practice:

LP A: Knowledge Capital Retention and Intergenerational Transfer

Establish systems to preserve and transfer intellectual capital for perpetual care:

a) Knowledge Documentation:

• i) Document operational knowledge critical for perpetual care:

o "Know-how" (procedures, troubleshooting, informal practices that work)

o "Know-why" (decision rationale, design basis, lessons learned)

o "Know-who" (expert networks, relationships, key authorities)

o "Know-where" (locations of infrastructure, monitoring points, critical areas)

• ii) Capture tacit knowledge through:

o Oral history interviews with long-term personnel

o Video documentation of key procedures

o Apprenticeship-style knowledge transfer sessions

o Decision-tree documentation for complex judgments

• iii) Use multiple, redundant formats:

o Written documentation (procedures, reports, studies)

o Visual documentation (photos, videos, maps, 3D models)

o Interactive media (training modules, simulations)

o Physical archives (samples, models, printed materials)

• iv) Design for intergenerational accessibility:

o Avoid formats that may become obsolete

o Use open standards and widely-adopted technologies

o Create "Rosetta Stone" documents explaining technical terms

o Include contextual information for future users

• v) Include Indigenous and local knowledge:

o Document with permission and appropriate protocols

o Respect intellectual property and cultural sensitivity

o Recognize knowledge holders and sources

b) Knowledge Retention Systems:

• i) Establish digital knowledge repositories:

o Centralized, searchable databases

o Version control and audit trails

o Access controls and permissions

o Regular backups and redundancy

• ii) Create physical archives:

o Hard copy documents in climate-controlled storage

o Physical samples and reference materials

o Maps, plans, and as-built drawings

o Multiple archive locations for redundancy

• iii) Plan for long-term technology evolution:

o Migrate to new formats as technology evolves

o Maintain legacy systems for historical access

o Budget for ongoing migration and maintenance

• iv) Ensure long-term accessibility:

o Clear ownership and stewardship arrangements

o Sustainable funding for archive maintenance

o Access protocols for future stewards

o Provisions for 100+ year accessibility

c) Intergenerational Knowledge Transfer:

• i) Develop formal training programs for environmental stewards:

o Core curriculum covering closure systems and monitoring

o Hands-on training at the Facility

o Mentorship from experienced personnel

o Certification or qualification standards

• ii) Establish apprenticeship and mentorship systems:

o Pair experienced personnel with successors

o Structured knowledge transfer plans

o Adequate overlap periods (minimum 6-12 months)

o Document knowledge transfer completion

• iii) Partner with educational institutions:

o Develop courses relevant to perpetual care

o Provide internships and field training opportunities

o Create endowed chairs or research programs

o Build local/regional expertise hubs

• iv) Create knowledge networks and communities of practice:

o Facilitate peer learning among stewards

o Regular knowledge exchange events (conferences, workshops)

o Online forums and collaborative platforms

o Alumni networks of former employees

• v) Conduct periodic knowledge transfer events:

o Every 10-20 years, gather experts and stewards

o Review and update documentation

o Train new generation of stewards

o Capture new knowledge and lessons learned

d) Adaptive Management Research:

• i) Establish research programs to improve perpetual care approaches:

o Monitor effectiveness of closure systems

o Test new technologies and methods

o Investigate emerging risks or challenges

• ii) Document learnings systematically:

o Publish findings in accessible formats

o Update knowledge base with new insights

o Share with broader industry and research community

• iii) Fund ongoing research and innovation:

o Endowments or trust funds for research

o Partnerships with universities or research institutions

o Competitive grants for innovation projects

e) Monitor and Report Knowledge Capital Management:

• i) Knowledge documentation progress (% of critical knowledge captured)

• ii) Training completion and steward competency development

• iii) Research findings and system improvements implemented

• iv) Knowledge gaps identified and plans to address

• v) Technology migrations completed

• vi) Steward succession planning status

Rationale:

• Knowledge loss is a real and significant risk for perpetual care effectiveness

• Environmental liabilities span multiple generations; knowledge transfer is essential

• Systematic knowledge management reduces risk and long-term costs

• Aligns with intellectual capital recognition in <IR> Framework

Implementation Guidance:

• Begin knowledge capture immediately, especially from long-term personnel nearing retirement

• Start with most critical knowledge (emergency response, critical system operations)

• Use professional archivists or knowledge management specialists

• Develop knowledge documentation protocols and templates

• Pilot at 1-2 facilities with significant perpetual care obligations

• Partner with academic institutions for training program development

• Establish knowledge transfer working group with cross-generational representation

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COMMENT:

[Critical] Gap 3: No Multi-Capital Optimization

Current State:

• Closure planning requires stakeholder engagement (PA 24)

• Financial cost estimation required

• Alternative analysis implicit but not systematic

Gap:

• No requirement to assess closure alternatives across all capitals

• No framework for analyzing trade-offs between capitals

• Decisions default to financial cost minimization

• Natural and social capital value creation opportunities missed

Impact:

• Suboptimal decisions that minimize financial cost but destroy value in other capitals

• Missed opportunities for solutions that create net positive value across capitals

• Higher total liabilities (financial + non-financial) over time

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COMMENT:

Secondary gap: Trade-offs between capitals not analyzed

Severity: High

PA(s) effected: 24

COMMENT:

Secondary gap: Perpetual care governance mechanisms undefined

Severity: Medium

PA(s) effected: 24

COMMENT:

Secondary gap: Intergenerational equity not addressed

Severity: Medium

PA(s) effected: 24

COMMENT:

Medium Priority Recommendation: Perpetual Care Governance Mechanisms

PA(s): 24

COMMENT:

Medium Priority Recommendation: Integenerational Equity Assessment

PA(s): 24
