CIM Environmental, Social, and Governance Guidelines

Submitted by the
Environmental and Social Responsibility Society
Adopted by CIM Council XXXXXXXX

DRAFT

February 2022

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Acknowledgements

The ESG Guidelines have been prepared by the ESG BP Working Group, part of CIM's Environmental and Social Responsibility Society (ESRS). The ESRS is composed of those members of the CIM with expertise and experience managing the environmental and social aspects of mining projects. The Working Group reports to the Mineral Resource and Mineral Reserve (MRMR) Committee of CIM.

CIM would like to thank its members for their support in the preparation of this document and acknowledge the following people who contributed to the development and review of this guidance.

Working Group
The ESG Guidelines have drawn on the expertise of over 20 industry practitioners with various backgrounds and representation who have contributed to the discussion on environmental, social, and governance factors. The following people have been involved in preparing the principles:

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In addition to others, we would like to recognize Reno Pressacco for invaluable advice and direction.

The guidance document was revised based on review and comments received during a peer review period from September to October 2021. CIM and the Working Group Members appreciate the comments received from peer reviewers.

The Working Group also accepted comments during the public comment period …

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1 Introduction

1 Within the mining industry, the pathway from exploration, to planning, to construction and operation has become more complex and onerous over the last few decades. The current financial, environmental, social, and Indigenous influences present the mining industry with unprecedented challenges. Environmental, social, and governance (ESG) risks are generally related to either regulatory approvals or obtaining financial resources for continued exploration and/or development. Failure to obtain the essential permits for a project will result in project failure, while the ESG-related issues, if poorly addressed through ineffective governance, may still see a mine constructed, but implies higher risks moving forward. In addition, international reporting standards and codes are becoming increasingly stringent when considering the requirements for accurate and appropriate disclosure of organisational social and environmental risks and liabilities (i.e., responsibility for payment for remediation of any damages).

2 The intended audience for the Environmental, Social, and Governance Guidelines (ESG Guidelines) includes industry participants at all levels of skill and experience, corporate management, government agencies, academic institutions, and interested parties. While also relevant for mining company executives and board members, these ESG Guidelines focus on the environmental, social, legal, governmental, and governance modifying factors at the various stages of development of a mineral property from exploration, studies, and design (scoping, pre-feasibility, and feasibility stages) to operating facilities, closure, and post-closure. These aspects are among the modifying factors relevant to the preparation of a Mineral Reserve estimate in accordance with the Canadian Institute of Mining, Metallurgy, and Petroleum's (CIM's) Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (MRMR Best Practice Guidelines; CIM, 2019). The ESG Guidelines apply to mineral properties from exploration through post-closure where the document refers to all phases or stages, or the life of a project.

3 The ESG Guidelines also provide guidance for practitioners in the mining sector to locate leading industry practice guidance currently being used throughout the world and leading-edge advancements and innovation to manage environmental and social risks for their properties. Section 8 provides lists of references to these sources of information.

4 These ESG Guidelines supplement the CIM Mineral Exploration Best Practices Guidelines (CIM, 2018) and the CIM MRMR Best Practice Guidelines (CIM, 2019) as amended from time to time. The ESG Guidelines provide guidance for those Qualified Persons (QP) (or competent professional being relied upon by QPs) using environmental and social information when carrying out the practice of preparing and executing mineral exploration programs or contributing to the preparation of Mineral Resource and Mineral Reserve estimates for mineral properties that are either at the study stage (i.e., scoping, pre-feasibility, or feasibility studies) or that are currently in operation. It could also be used by exploration and mining companies to understand leading practices in ESG when retaining professionals to prepare material for company filings.

5 All disclosure of ESG items made by a public mineral resource company and intended to be, or reasonably likely to be, made available to the public in a jurisdiction of Canada must comply with the requirements of National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101), as amended from time to time (Canadian Securities Administrators, 2020a and 2020b). Appendix A presents a summary table showing the linkage of the principles and topics in these ESG Guidelines to Item 20 in NI 43-101. There are other ESG-related filings that public companies will need to consider; however, these are not covered by these ESG Guidelines (e.g., NI 58-101 Disclosure of Corporate Governance Practices, NI 51-102 Continuous Disclosure Obligations, Form 51-102F1 Management's Discussion and Analysis, and Form 51-102F2 Annual Information Form).

6 ***Broad Focus on ESG Practice****: These ESG Guidelines provide guidance relating to the practice of preparing and executing mineral exploration programs or contributing to the preparation of Mineral Resource and Mineral Reserve estimates. Disclosure is not addressed in these ESG Guidelines. Determination of what to include in disclosures is defined in the applicable securities legal framework. Determination of materiality depends on the project type, location, jurisdiction, legal requirements, shareholder, financing, and stakeholder*

7 This document is not intended to be prescriptive and is not intended to provide exhaustive guidelines on what to consider in terms of environmental, social, legal, and governmental modifying factors in the preparation of MRMR estimates. Rather, it is intended as general guidelines to assist companies and practitioners in assessing environmental and social modifying factors for estimates of MRMR, and in the preparation of technical reports. These modifying factors are based on well-established principles and experience in environmental and social responsibility as they relate to the mining sector.

8 International good practice documents describing sound environmental and social governance practices related to mining are extensive and varied depending on site-specific conditions. Hence, the ESG Guidelines identify the key principles involved and where appropriate, refer to external guidance for further detail. While these Guidelines reflect CIM's current views of leading practice in environmental and social responsibility, these practices are context specific and continually evolving as industry experience increases and as public expectations, market expectations, and government legal frameworks change. These ESG Guidelines are updated on a periodic basis; readers may wish to consult the CIM website at www.cim.org to ensure that they are referring to the current version.

9 While these ESG Guidelines provide guidance based on the best available current knowledge and experience, it is envisaged that some situations will be encountered that are not covered by the ESG Guidelines. Where guidance has not been provided for unique and unforeseen scenarios, readers should then be guided by scientific information and best practice principles and methods pertaining to the context of the situation.

10 ***International Focus****: These ESG Guidelines have an international focus. More than half of recent technical reports filed for mineral properties have been for properties outside of Canada.*

1.1 Background

11 Subject matter experts relied upon by QPs (where QPs do not have the required specific area of expertise), should prepare supporting materials and be consulted when interpreting the environmental, social, and governance information. A wide breadth of disciplines and local experts are needed to fully understand the environmental and social conditions, legal frameworks, context, and risks for a property. These experts should have appropriate levels of education and experience in their respective areas of work. It is essential to include multiple disciplines and areas of expertise in project management and project planning and implementation to appropriately address environmental and social aspects of a property. It is also good practice to have leads and experts work in close collaboration and as a multi-disciplinary team.

12 Mineral exploration and mining companies (and professionals hired by them) should be guided by the following:

a. Information should be suitable and appropriate for the level of study being undertaken and for requirements by the regulatory authorities.
b. Work should be completed by suitably skilled practitioners, who may meet the definition of a QP or are

being relied upon by QPs.

c. Collection, analysis, interpretation, and disclosure of relevant data should follow industry-accepted practices.

13 Primary and secondary sources of environmental, social, and related information and data should be collected and documented to support the work and reporting. This could include environmental and social monitoring data (e.g., water quality, wildlife, community interviews), impact assessments, management plans, audit reports, community agreements, etc. that may be referenced in technical reports. The collection of data should be guided by relevant guidance documents and the host country regulatory requirements.

14 Several industry-accepted practices in environmental and social aspects of mineral exploration and mining projects are presented and referenced in this document. Accepted industry practices generally exceed the minimum jurisdictional requirements to meet the environmental, social, and governance standards, and to support the industry's reputation.

15 The term Mineral Resource covers mineralization and natural material of intrinsic economic interest which has been identified and estimated through exploration and sampling and within which Mineral Reserves may subsequently be defined by the consideration and application of modifying factors (CIM, 2014). To be considered a Mineral Reserve, the following major categories of modifying factors should be applied to the Mineral Resource estimate (CIM, 2019). The environmental, social, and governmental modifying factors are the focus of these ESG Guidelines.

1. mining
2. processing
3. metallurgical
4. <u>environmental</u>
5. location and infrastructure
6. market factors
7. legal
8. economic
9. <u>social</u>, and
10. <u>governmental (regulatory/permitting requirements set out by local/regional/national governments, potentially including Indigenous group requirements).</u>

16 ***Broad Links to Modifying Factors****: All ESG matters have the potential to affect project costs, schedules, government permits and approvals, social licence to operate, and/or financing – and ESG matters vary widely from project to project. Therefore, the scope of these guidelines is necessarily broad so that all potential ESG modifying factors can be identified and accounted for as applicable to the project.*

17 While the modifying factors described above relate to the considerations required for the statement of a Mineral Reserve, they are also important considerations when completing technical studies. The scope and level of accuracy of the modifying factors described above should reflect the level of estimation accuracy of the study. As it relates to the underlined modifying factors listed above, the MRMR BP Guidelines note that the estimation of Mineral Reserves should be a team effort involving various technical disciplines including specialists dealing with environment, social, and permitting aspects (CIM, 2019). Appendix A presents a summary table showing the linkage of the principles and topics in these ESG Guidelines to the potential effects on project costs, schedules, government permits and approvals, social licence to operate, and financing.

18 Important international initiatives on environmental awareness began in the late 1980s with the 1987 United Nations publication of the Report of the World Commission on the Environment and Development, followed by Agenda 21 from the 1992 United Nations Earth Summit, the United Nations Millennium Development Goals (2001-2016), and now the UN Sustainable Development Goals (UN, 2015). The World Bank first published its Equator Principles in 2003 with the latest update in 2020, and the International Finance Corporation (IFC) issued its first sustainability framework for private sector projects in 2006. As of 2021, 118 financial institutions in 37 countries have adopted the Equator Principles guiding environmental and social risk management of transactions (Equator Principles Association, 2021). Other reporting standards and initiatives have included the Global Reporting Initiative (GRI), Carbon Disclosure Project (now known as the "CDP"), UN Global Compact, European Green Deal, and the EU Taxonomy Regulation to name a few. Reporting indicators and standards are expected to continue to change driven by the desire to find common indicators amid changing environmental and social risks and market demands.

19 Organizations in other jurisdictions are working towards standardizing incorporation of ESG into mineral project disclosures or guidelines. This includes the US Securities and Exchange Commission, Society for Mining Engineering (SME), the Pan-European Standard for the Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves (the PERC Reporting Standard), and the South African Guideline for the Reporting of Environmental, Social and Governance (SAMESG) associated with the South African reporting codes (SAMREC, SAMVAL and SAMOG; SAMCODES Standards Committee).

20 These ESG Guidelines complement the MRMR Best Practice Guidelines and focus on the environmental, social, and governmental modifying factors and discusses them as key principles. The principles have been developed based on key risk factors to mineral properties identified by governments, mining companies, financing institutes and investment advisors. Application of the ESG principles directly or indirectly affect cost, schedule, social licence, and approvals for continued exploration and/or conversion of mineral resources to reserves. A considerable body of leading and best practice guidance is available in the areas of environmental and social responsibility, both within Canada and internationally. Therefore, the key principles refer where appropriate to existing guidance and lists of leading practice guidance included in the References section.

21 Companies and practitioners should consider the following key points to assess impact on the modifying factors and test the question of importance considering:

a. What environmental and social constraints currently exist for the property and what considerations may be required for potential further development?
b. What internal control systems and measures are in place to manage environmental and social risks on the project now and in the future?
c. Does the project have all the necessary permissions and rights for the current activities and planned future activities?
d. What are the environmental, social, and governmental costs (i.e., related to legal and permitting aspects)

for current activities and any proposed development?

e. What environmental, social, and governmental considerations or uncertainties could affect the development schedule and the timing of the return on investment?

f. What are the current and potential future liabilities with the current project and proposed development plans that could affect the investment/property now and in the long term?

1.2 Key Principles for ESG

22 The ESG BP Guideline is organized according to five key principles, based on the experience of practitioners in CIM's Environmental and Social Responsibility Society (ESRS). The underlying Environmental, Social, and Governance Principles (ESGPs) may support good corporate practices and may assist reporting in the mineral and mining industry. The five overarching principles are:

- ESGP 1 – Environmental and Social Governance: Establish effective governance and management for ESG matters
- ESGP 2 - Impact and Risk Management: Assess and manage impacts and risks
- ESGP 3 - Permits: Acquire and maintain compliance with approvals and permits
- ESGP 4 - Environmental Planning: Minimize environmental impacts and long-term liabilities
- ESGP 5 - Social Planning: Protect people and benefit communities

23 Considerable efforts have been ongoing throughout the world for decades to build good practices for sustainable mine development and to manage the environmental and social risks while developing mineral projects and carrying out mining operations. CIM recommends exploration and mining companies and/or practitioners also refer to other guidance documents and standards to provide a fulsome understanding to achieve the key principles. Selected sources of leading practice environmental and social management guidance applicable to mineral exploration and mining properties are included in the References section and can be accessed for additional guidance. For clarity, the selected references are provided for the convenience of the reader and are intended to serve as sources of further information on various topics to interested parties. Readers of this document are not obliged to consider these references as the sole source of information on any of the topics covered.

24 The ESG actions discussed in these Guidelines follow a continuum that generally aligns with the project stages of a mineral property, with overlap. Figure 1 illustrates a typical alignment of impact assessment, permitting, environmental and social management, and stakeholder engagement; however, each site will vary depending on the local context and legal framework. This figure also illustrates that decisions made during the study or design stage of a mine are very important, because the impacts of poor decisions will increase over time.

25 Some regulatory authorities have been progressively developing policy, legislation, guidance, permitting and best practice for more than half a century, and the most stringent (e.g., in Canada) have driven the need for pollution control and environmental protection. This is exemplified in mining permits. In addition, various environmental assessment authorities also provide standard practice guidelines for pollution control, environmental protection, and consultation. Many of the key principles within ESG practice have been derived from the progressive legislation and policy of various regulatory authorities.

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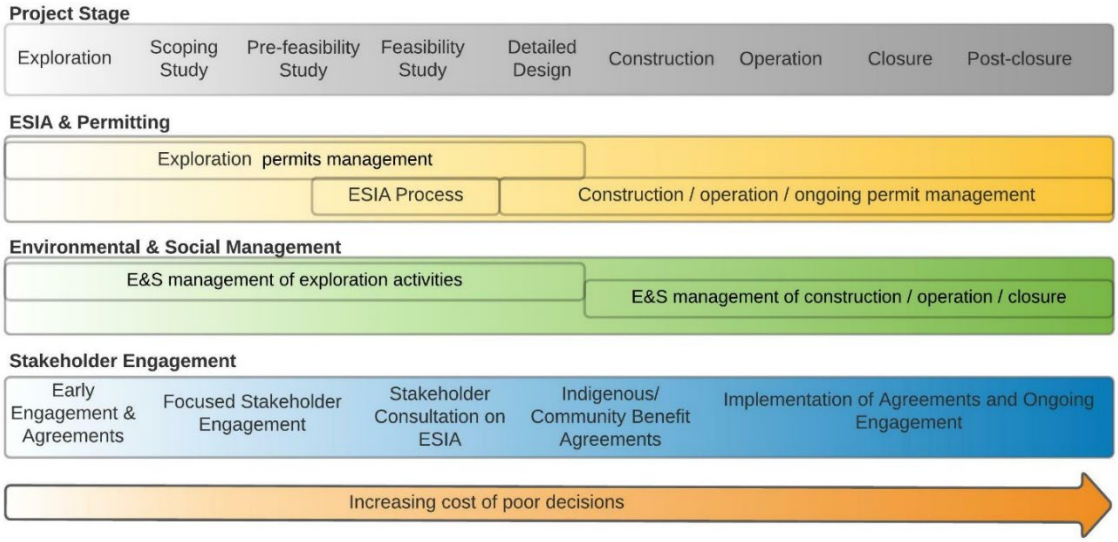

Figure 1: General *Alignment of Environmental and Social Activities with Project Stage*

2 ESGP 1 – Environmental & Social Governance: Establish effective governance and management for ESG matters

1 For the purposes of this document, governance is defined as the structures and processes that are designed to ensure accountability, transparency, applicable laws, equity, and inclusiveness. At the core of this ESG Guideline document, governance is the mechanism by which all principles are achieved in a verifiable manner. Effective governance is aimed at reducing corporate risks through the adoption of a broad suite of measures to prevent and mitigate the potential for harm to human health and safety as well as that of the environment in a verifiable manner. The potential for risk to these areas can reasonably be assumed to be a direct risk to the company, so it is therefore in the company's best interests to properly mitigate the risks as a failure to do so can impact public acceptance, financing, environmental assessment and licensing, operations, shareholder perceptions, and viability of the project itself.

2 Many structured and systematic approaches to developing a governance and management structure for ESG matters are available. Most are flexible enough to handle virtually any type of risk and are scalable to project size and project phases. Risks associated with ESGs generally include, but are not limited to, regulatory compliance (environmental assessment and permitting noncompliance), other environmental issues such as water and biodiversity management, social issues like land access, social licence to operate and lack of community engagement (or unforeseen conflicts developing with the local community), and corporate governance and labour issues. While there is a great deal of variation on what constitutes good governance or good management practices, common components should include, but are not limited to:

3
- Effective and systematic assessment of risk factors that allows for the determination of significant risk

4
- Clear direction on how to deal with risks. This direction could include:
  a. Compliance with legislation, regulation, permits, license conditions, and commitments
  b. Pollution prevention hierarchy (avoid, minimize, rectify, reduce, and offset)
  c. Tailings and waste rock, and refuse management (including recycling of many of the materials brought onto the mine site)
  d. Water management, water quality, and water conservation
  e. Waste management hierarchy (eliminate, reduce, reuse, recycle, and responsible disposal)
  f. Emergency response and preparedness.
  g. Climate change adaptation and energy conservation
  h. Community engagement, consultation, and relationships
  i. Aspects of human and worker's rights
  j. Supply chain
  k. Safety and security
  l. Use of sustainability principles
  m. Life cycle stewardship, and
  n. Others management components that may align with company values or/and are important for the project in hand.

5
- An effective management system should include:
  a. Clear roles and responsibilities should be established in managing risks. Assignment of responsibilities to a specific individual is considered good practice
  b. Risk management and mitigation strategies that are properly resourced and periodically tested

(typically documented in various management plans)

c. Monitoring and reporting on how risks are handled, often with performance indicators
d. Verification (independent reviews, inspections, and audits) and non-conformance protocols
e. Periodic review by those accountable for continual improvement, and
f. Systematically follow a "Plan-Do-Check-Act" cycle for the life of the project

6 Best practice suggests that part of a corporate governance system should include setting company goals and targets, including ESG aspects. The UN Sustainable Development Goals (SDGs) can be considered in setting these goals in line with international best practice – aligning company goals to minimize impacts and enhance benefits where activities interact with the SDGs. The key to good governance is to make these goals a reality at the project level. Managers at the local level may have performance priorities that can be perceived as conflicting with corporate level goals. Education, training, and support are needed at all levels of the company to meet the ESG goals and targets. For example, progressive reclamation may be a corporate goal that gets deferred by budget constraints and differing priorities at the site. Therefore, the monitoring and evaluation process plays a critical role in identifying unanticipated barriers to performance.

7 Management systems (e.g., ISO Standards such as ISO 14000 environmental management, ISO 18000 health and safety, ISO 26000 social responsibility, ISO 50000 energy management, ISO 20400 sustainable procurement) are commonly employed in areas where the corporate actions have a high potential for risk to themselves, the public and the environment. Many regulatory agencies are requiring management plans for high-risk areas, especially for environmental protection, health, and safety.

8 The Mining Association of Canada (MAC) and its Toward Sustainable Mining (TSM) programs provide a good example of the structured programs available for ESG matters, as does the Canadian Nuclear Safety Commission's (CNSC) guidance on safety and control areas related to uranium production. The CNSC guidance provides a look at a mining sector in Canada that has had management systems for managing risks to human health, safety, and the environment for decades. There are standards embedded in legislation and in mining, there are global standards that could be considered, such as the Global Reporting Initiative (GRI) Standards (GRI, 2016) and the International Finance Corporation (IFC) Corporate Governance Methodology (IFC, 2018) to name only two. The ideal system may be a combination of national and international standards combined with local legislative, securities reporting, social and site-specific requirements.

9 While effective corporate governance does not guarantee corporate legislative compliance, it is a mechanism whereby companies will have an effective management and due diligence framework in place to satisfy regulators, financial institutions, stakeholders, shareholders, and others interested in the project. It is expected that a company's governance of ESG risk will undergo transitions in the future and will be adhere to any requirements for necessary permitting, financial, and securities reporting.

3 ESGP 2 - Impact and Risk Management: Assess and manage impacts and risks

3.1 Environmental and Social Impact Assessment

1 Environmental and social impact assessments (ESIA) are a suite of tools that may be used at any stage of a mineral project from exploration through closure. However, in most countries, an ESIA process is legally required to obtain authorization to advance project development. Regardless of the jurisdiction, an ESIA is a useful tool to initiate as early as the exploration stage. In addition, in some countries, a semi-detailed ESIA process is required for permitting exploration activities. A governmental ESIA process is an overall review of the interaction between proposed activities and the environmental and social setting to determine whether the overall residual impacts and benefits of the project (after all proposed mitigations are applied) are acceptable to government and stakeholders. As such, stakeholder engagement is considered a critical part of a government's ESIA process as well as critical part of gaining social licence to operate. Through the engagement process, all proposed activities, potential impacts, and proposed mitigations should be effectively communicated to stakeholders, and stakeholder concerns should be addressed. Many jurisdictions have legislation detailing the ESIA process, and some of the information required in this critical process will be collected during the exploration phase. The ESIA would create the framework to document and analyse information gathered early in the project and be updated as the project advances in complexity and detail.

2 Identification of the environmental and social impacts and risks is considered by CIM's ESRS group as fundamental to sustainable development and mine operation. Resources on leading practice guidance for conducting impact assessments is available through the International Association of Impact Assessment (IAIA, n.d.), the IFC Environmental and Social Performance Standards, PS1 (IFC, 2012) and guidance notes, and in many jurisdictions throughout the world. It is also imperative to consult with the host country regulator to determine the detailed requirements for the content of the ESIA. It is also critical to ascertain the structure and provisions, such as effluent and emission quality discharge standards and requirements for subsequent permits. Water, waste, and air emissions are among the higher risk items that typically result in a proposed mining project failing to receive approval. In addition, the social impact management is equally important.

3 An ESIA typically includes and documents the follow key steps:

a. Determine the scope of the assessment
b. Describe the baseline environmental and social conditions
c. Describe the proposed project activities (including closure and post closure)
d. Assess the impacts and risks of the proposed activities
e. Develop the mitigation measures and management plans to minimize impacts and maximize benefits
f. Assess the significance of residual impacts
g. Prepare a follow-up monitoring and adaptive management plan.

4 Identification of key interactions between the project and the biophysical, socioeconomic, cultural, and human health environments is likely to support successful project execution. Environmental and social impact assessments may identify potential effects where specific project designs, controls, and mitigation measures and management plans are needed. Through an iterative process of assessment and redesign, the project design and activities may be improved to minimize the adverse environmental and social effects from the project. An underlying principle of leading practice in impact assessments is application of the precautionary principle. Following the precautionary principle, an assessment includes actions to address uncertainties in predictions to avoid future damage.

5 CIM's ESRS group identifies the following as key areas of mineral and mine activities that have potential environmental and social impacts:

a. Atmospheric emissions including, but not limited to dust, process emissions, equipment exhaust, greenhouse gas emissions
b. Extraction and use of surface water and groundwater
c. Effluent discharges including, but not limited to mineralized material, mine rock and tailings contact water, mine dewatering, water treatment plant discharge and residue, and domestic wastewater
d. Direct and indirect land disturbance
e. Use, storage, and disposal of hazardous and non-hazardous materials
f. Transport of workers, goods, and services
g. Procurement of goods and services
h. Employee and contractor camps and housing
i. Local and foreign employment and contracting
j. Worker influx (including temporary construction)

6 Impacts and risks associated with these activities and leading practice for mitigation and management are further described under principles ESGP4 (environmental planning) and ESGP5 (social planning).

3.2 Environmental and Social Management Systems

7 An environmental and social management system (ESMS) and management plan should follow on from the assessment of environmental and social impacts and risks. An ESMS provides the management and organizational tools to deal with the complexity of project environment and social interactions. Typically, components of an environmental and social management system (ESMS) include the company's environmental and social policies, project impacts and risks, management program, organizational structure and capacity, emergency preparedness and response, stakeholder engagement, communication and grievance mechanism, reporting, management plans (including standard operating and maintenance procedures), monitoring (including auditing), and review. These all support a "Plan-Do-Check-Act" cycle that is considered good management. This type of management system ties into the good practice on environmental and social governance. Most governments require management plans to be developed and implemented as part of the ESIA process and permitting.

8 Existing good practice guidance and standards for developing an ESMS are available through many initiatives such as IFC's Environmental and Social Performance Standard 1 (IFC, 2012), the International Organization for Standardization (ISO) 14000 (ISO, n.d.), MAC's Towards Sustainable Mining (MAC, n.d.), Prospectors & Developers Association of Canada (PDAC, 2009), Global Reporting Initiative (GRI, 2016), and Initiative for Responsible Mining Assurance (IRMA, 2018). There are also many other ESG reporting programs to assist companies and the public. The references section includes links to some of these; however, companies should recognize that these are changing as public needs change and indicators are revised.

9 Management plans are initiated at the exploration stage. They are then updated, and new ones developed as a project moves into construction then operation. Management plans are often a requirement for permitting to assure government agencies that impacts will be managed. Management plans should be prepared and implemented by companies at all project stages to avoid and mitigate impacts and risks specific for the site conditions and current or proposed activities. Management plans are "living" documents and should be reviewed and updated on a regular basis based on monitored performance. An adaptive management approach can be taken to manage unexpected events.

10 Potential impacts and risks that may require management plans can include (but are not limited to), tailings, mine rock, water, air emissions, dust, noise, biodiversity, hazardous materials, community health and wellbeing, safety, human rights, and heritage resources (i.e., archaeological, paleontology, and cultural resources). Many of these impacts are discussed under ESGP 4 (environmental planning) and ESGP 5 (social planning) below. It is recommended that the level of detail and accuracy of impact assessment, mitigation, and management planning should be commensurate with the project development stage and increase in detail as the project advances.

11 Management plans, processes and results of project design decisions and environmental studies should be disclosed to the populations living within the area of influence of the project. Leading practice also promotes development of management plans in consultation with the local communities and other stakeholders. Consultation is most important for management of potential impacts on local communities such as, but not limited to, requirements of standards to which the project subscribes (e.g., International Cyanide Management Code). Consultation is particularly important for development of emergency preparedness and response plans, community development plans, tailings management plans, water management plans, and biodiversity management plans.

4 ESGP 3 - Permits: Acquire and maintain compliance with ESIA approvals and permits

1 ESIA and permitting requirements vary based on geographical location. The variation manifests itself in terms of the level of environmental protection and social consultation. Therefore, robust ESG practice may have to be guided by an established international ESG leading practice, rather than the jurisdiction in which the mining activity is located. Compliance with environmental and social impact assessment (ESIA) approval agreements, mine and environmental permits acquisition, and bonding requirements are important elements that should be considered for ESG good practice and are discussed below.

4.1 Regulatory Setting

2 Defining the regulatory setting is the starting point for addressing the environmental assessment process and permits. The regulatory setting provides the context in which the property and company are working. The risks associated with permit acquisition, retention, enforcement, financial assurance requirements, and financial liability depend on an understanding of regulatory requirements. Note that legal frameworks in some jurisdictions may be less developed and pose a potential risk to reputation, sustainability goals, social licence, and ability to obtain financing. To minimize risk, companies may consider incorporating international standards to fill any legal gaps.

3 Companies and practitioners should know and incorporate the following into their permitting strategy for project planning and execution at all stages from exploration through mine closure:

a. Applicable international conventions, national, regional, and local legislation, and standards. (Note that a company should conform to the international conventions to which Canada and the host country are signatory.)
b. Current interpretation and application of environmental and social legislation
c. Government agencies responsible for environmental and social regulations
d. Prohibited and/or restrictive activities relevant to the property or future development
e. Timelines for environmental assessments and permitting
f. Legal and financial liabilities of the project
g. Risks and uncertainties in the regulatory regime of the applicable jurisdiction.

4.2 Environmental and Social Impact Assessment (ESIA) Approvals

4 In many jurisdictions, environmental and social impact assessments (ESIAs) are required to be completed and assessed for approval or rejection of mine development. The assessment process may address a broad range of environmental, economic, social, health, and cultural/heritage issues through an integrated government process. The social and environmental assessment process for large mining projects may be longer than legislated timelines due to consultation requirements, information requests, and environmental impact issues that the proponent has not demonstrated can be mitigated, which can result in increased costs and impacts to a project's schedule. Uncertainty in the environmental assessment and permitting process, including the time frame for approval, should be considered and documented in development planning. The ESIA process is designed to screen projects to allow only those that can achieve environmental and social compliance requirements, such as: mine discharge quality; receiving water quality standards; air discharge quality requirements and ambient air quality standards; social consultation and community benefits agreements, etc.

5 When environmental and social effects assessment have been approved by government regulators, binding commitments contained in the ESIA become conditions of approval and need to be tracked and implemented for compliance, and some governments may have legislated/policy requirements for follow-up on compliance of

ESIA conditions. Distinct environmental, social, health and safety management plans may be required in an environmental assessment or in the permitting phase and can affect the allocated budgets for development, project schedules and development requirements during the project life cycle. Often there is an application fee for the ESIA, permit application fees, and annual permit fees.

6 As mentioned under ESGP2, companies should implement appropriate management plans to manage the risks and impacts corresponding to activities at each the stage of the property. Management plans in permitting may include but are not limited to:

a. Construction Environmental Management Plan
b. Air Quality and Fugitive Dust Management Plan
c. Tailings Dam Safety Plan
d. Tailings Facility Management Plan
e. Disaster Management Plan
f. Chemicals and Materials, Storage, Transfer, and Handling Plan
g. Construction Environmental Management Plan
h. Effluent Discharge Management Plans
i. Explosives Management Plan
j. Fuel Management and Spill Control Plan
k. Heritage Resources Management Plan
l. Mine Emergency Response Plan
m. Mine site Traffic Control Plan
n. Mine site Water Management Plan
o. Metal Leaching/ Acid Rock Drainage (ML/ARD) Management Plan
p. Occupational Health and Safety Program
q. Public Access Management Plan
r. Reclamation and Closure Plan
s. Socio-economic Management Plan
t. Surface Erosion Prevention and Sediment Control Plan
u. Biodiversity (Vegetation and Wildlife) Management Plan
v. Visual Resources Management Plan
w. Waste Management Plan for Refuse and Emissions

7 Note that environmental assessment processes are on a cost-recovery basis in some jurisdictions which should be considered in budget planning (e.g., Canadian Impact Assessment Act, 2019). The conditions of an ESIA approval are also legally binding and costs for implementation and management of compliance should be included in project budget planning.

4.3 Permit Acquisitions

8 Permits required for exploration, mine development, ongoing operations, and closure vary greatly between jurisdictions and depending on the activities carried out on site. Permits also vary depending on the host country's federal, regional, and local legal requirements. There are some jurisdictions that issue permits that authorize the overall activities to take place on site (e.g., exploration permits, environmental assessment approvals, mine and reclamation permit, land use permits, permits for effluent and emission discharges, water use or diversion

licences) and also permits that provide approval and conditions for related activities such as effluent discharge, camp operation, sewage treatment/discharge, materials storage, mine waste storage, biological study permits, etc. Note that no work is usually permitted until authorizations, permits, and/or environmental assessment approvals are obtained (depending on level of proposed activity). Permit terms and conditions define specific limitations on the exploration and/or development activities and schedule.

9 Permits are typically required from the exploration phase onward for the following activities:

a. Exploration programs
b. Construction, operations, reclamation, and closure
c. Mine waste rock and tailings storage facilities
d. Water diversion, extraction, storage, and use
e. Effluent discharges (e.g., from tailings ponds, treatment plants)
f. Air emissions
g. Refuse waste disposal
h. Land use
i. Infringement on heritage and archaeological resources
j. Work site operation (exploration or remote operations with employee accommodations)
k. Hazardous materials transport, storage, and use
l. Explosives production, transport, storage, and use.

10 It is important to note that financial assurances for project closure and reclamation may be required to be in place before work begins.

11 Irrespective of the jurisdictions, permitting of mining projects is often a long and complex journey involving the realisation of numerous studies, interactions with authorities and communities, and adjustments to the project to meet the different expectations. Therefore, documentation, tracking, and scheduling is critical to successful permitting. These permitting challenges are best mitigated by searching for, and applying, good practices related to the preparation of supporting information and documentation, during the environmental assessment and permitting processes.

12 Notwithstanding the very prescriptive context, permitting remains an uncertain activity that is strongly impacted by considerations outside the control of the proponent. In fact, even if the project risks and issues are well understood, documented, and explained, the permitting process can be impacted by external considerations such as the perception of the risks and issues by the authorities and the communities, or by the authorities' time and capacity to manage the demands. Therefore, it is suggested that a permitting strategy should:

a. Provide a list of the permits obtained and to be obtained and identify in a qualitative way their importance and the potential time frame required to obtain them.
b. Develop a simple permitting road map showing the permitting process and associated timeline.
c. Describe, for each permit, the required background information in general terms (ESIA, PFS, FS, etc.), describe the need and the nature of any required consultation, and provide realistic timelines, accounting for uncertainties.
d. List of the different commitments associated with these permits.
e. Conduct research of similar permits issued by the regulatory authority, and then synthesize a "draft" best fit permit to guide the various permit applications.

4.4 Permit Compliance Management

13 Obtaining permits and complying with legislation represents a primary risk factor. Permit non-compliance or poor performance practices at the project site can be a potential material legal risk for schedule slippage, fines, and legal charges. Non-compliance and poor performance may result in significant monetary penalties, and adversely affect future permit acquisitions and continuing exploration and/or mining activities. Non-compliance can also be "administrative" non-compliance, i.e., failing to meet permit reporting requirements. For this reason, the principles of good governance of environmental, social, health, and safety matters should be followed. Good corporate and project-level governance programs promote environmental and social management systems, among other management systems, as a mechanism for effective compliance management and continual improvement.

14 Maintaining permit compliance is essential for all mineral properties. Types of compliance issues may include administrative non-compliance, minor non-compliance, or more serious non-compliance that may be resolvable by submitting a non-compliance management report to the regulator indicating how a repetition will be avoided. More serious non-compliance that is not immediately resolvable could lead to legal action by the government and inability to legally operate.

15 Permit compliance should be maintained and tracked using a structured internal management control system. Various software solutions are available to assist companies with permit tracking and compliance management. Components of a compliance tracking system may include:

a. Registry of existing permits, conditions, fees, and expiry dates.
b. Permit conditions transferred into appropriate mitigation measures, objectives and targets, employee roles and responsibilities, corrective action systems, and management plans within the overall environmental and social management system.
c. Internal or external compliance audits as part of the overall environmental and social management system.
d. Records of the history of compliance, e.g., monthly and annual compliance and inspection reports.
e. Non-compliance events should have follow-up such as remediation action plans, including responsible persons, resource allocations, schedule, and documentation of the resolution or withdrawal of each order
f. Permit amendments, and new permit requirements, initiated internally and imposed by the regulatory authority, require resource allocations and scheduling
g. Reporting and disclosure requirements.

16 Many jurisdictions may have detailed reporting requirements for non-compliance and in some cases may have a requirement to provide a non-compliance report (e.g., written by an independent qualified professional) explaining the non-compliance event, why it occurred, and what corrective action will be undertaken to avoid/prevent a reoccurrence. Openness around permit compliance and timely disclosure of failure to comply with permit requirements can be a building block to foster trust with communities, authorities, or any groups, such as potential investors, that may be interested in a mining project. Effective communication should be simple, clear, and transparent. Furthermore, any communication should recognize that no organization is perfect but rather on a continuous journey toward improvement.

5 ESGP 4 – Environmental Planning: Minimize environmental impacts and long-term liabilities

5.1 Pollution Prevention

1 Current standards related to environmental protection are founded on scientific research, which are protective of environments in general. Mature government environmental organisations, in conjunction with academic research, have established protective standards over the last half century for receiving environment quality. Accordingly, these receiving environment quality standards are referenced as benchmarks on which to design pollution control measures.

2 Mine development can produce large amounts of tailings, waste rock, and site runoff sediment during the process of mineral extraction and mineral processing. These mine wastes are a potential source of pollution depending on the physical and chemical properties of the mineralization and surrounding host rock. Precipitation and groundwater can come in contact with the mine wastes and transport constituents of concern. In addition, large volumes of water are often needed in mineral processing. Mines are also located in watersheds with multiple water users, all having requirements for a sometimes-limited resource. Careful management of mine waste and water is necessary to prevent harm to surrounding communities and the environment.

3 Project design, control measures, and management plans should be designed for compliance with all jurisdictional requirements and may conform to applicable international conventions and programs for pollution prevention and sustainable resource development. The objective of sound mine waste management should be protection of communities and surrounding environment long-term. Pollution prevention should follow the mitigation hierarchy of avoidance, minimization, and then remediation to optimize efficient outlay of capital and ongoing costs and liabilities, and to minimize development costs. When possible, use of mine wastes for construction should also be considered with the objective of minimizing wastes. Pollution prevention should also consider the supply chain and connected offsite facilities and activities. Environmental risks and impacts usually extend to areas beyond the mine site, tailings, mine waste facilities, water infrastructure, and airborne emissions sources. As such, all potentially affected stakeholders should be engaged when developing pollution prevention measures to manage mine wastes, water, and hazardous materials and in corresponding emergency response planning.

4 Leading practices for tailings, mine waste, and water management are further explained in the following sections.

5.1.1 Tailings Facility Management

5 Potential instability and/or outright failure rank as the highest concern for tailings facilities and can lead to loss of life (in the worst case), loss of livelihood, loss of stored material, downstream erosion, contamination, and loss of flora, fauna, and aquatic resources. Tailings facility design and management requirements were strengthened after recent dam failures. Standards have been developed to promote safe design, construction, and operation of tailings facilities, which are incorporated in the 2020 Global Industry Standard on Tailings Management (ICMM, 2020). Through extensive consultation with world experts, the key topics, and principles for leading practice to develop robust tailing management facilities include: engagement with affected communities; integrated knowledge base; robust design, construction, operation, and monitoring of tailings facilities; strong management and governance; well-planned emergency response that is co-developed with communities; and an effective information disclosure system.

6 Extensive analysis and investigative work have been completed on tailings facilities throughout the world as part of the Global Tailings Review. *Towards Zero Harm: A compendium of papers* (Global Tailings Review 2020) was the resulting report, which provides a rich source of information that should be reviewed by companies and

practitioners. Other guidance on leading tailings management practices have been produced by the International Commission on Large Dams (ICOLD), the Australian National Committee on Large Dams (ANCOLD), the Canadian Dam Association, and MAC, and these are included in the References section. Although tailings facility management is presented separately here, tailings is a mine waste, and further relevant guidance is presented and should be reviewed in the next section.

5.1.2 Mine Waste Management

7 Physically and chemically stable mine waste management is important to minimize short and long-term costs and liabilities. Mine waste can include reactive or non-reactive waste rock, coarse rejects, spent heap leach pad material, and treatment sludges. Risks from the mine waste storage facilities are dependent on foundation stability, facility design and development, physical properties and chemical reactivity of the rock, and seepage quality and quantities. Potential downstream environmental and social effects from mine rock facility malfunctions are similarly dependent on the type and size of failure of controls and/or containment and emergency/contingency planning.

8 Mine waste characterization is essential to determine the potential for acid rock drainage and constituent leaching. Characterization may include mineralogical analysis, static and kinetic testing, geotechnical testing, and leach testing, etc. The Global Acid Rock Drainage (GARD) Guide provides detailed, good international practices for sampling, analyzing, and predicting the reactivity and leaching potential of mine waste materials (INAP, 2014). Facility designs and materials management plans are developed to define how the physical and chemical stability of the mine waste facilities will be maintained long term into closure and post-closure.

9 Extensive research on mine waste management is available through the Mine Environment Neutral Drainage (MEND) program, and extensive guidance on leading mine waste management practices are available through organizations such as International Council on Mining and Metal (ICMM), MAC, IFC, and the European Commission, etc. Links to these documents are included in the references section.

5.1.3 Water Management

10 Water management facilities and contact water (water originating from mining, mineral processing, tailings, waste rock and other infrastructure) can pose a risk to the environment and continued project activities. Water management facilities include collection, storage, interception, treatment, and diversion systems (e.g., around pits, tailings impoundments, mine waste rock piles, and/or heap leach pads), any of which can fail and result in an unplanned release of contaminants into downstream waterways and terrain.

11 Extensive guidance for leading practice in water management is available through various organizations including ICMM, MAC, and IFC, etc. Sources of guidance for water management in mining are presented in the references section.

12 A watershed-based approach can be taken to ensure water management considers and accommodates social factors including protection of community and Indigenous water rights, availability, and quality (for consumption, sustaining livelihoods, and cultural values). From this starting point, water management should be considered for stages of a project, from exploration through post-closure. Water management programs should have an overall water management strategy and design basis (e.g., permitted water sources; emergency response design features; treatment requirements; discharge and receiving environment water quality and quantity criteria; groundwater quality criteria) for all key features or issues. Project planning should first minimize freshwater usage and maximize recycling opportunities.

13 Fundamental to environmental management is characterization, simulation (modelling), and verification sampling of the entire water system (e.g., surface and groundwater source waters, non-contact, and contact waters) and determination of the mitigation and treatment needed to meet discharge and receiving water criteria.

The key to designing a proper water management and treatment system is to properly establish and continuously update the major design criteria:

a. Water volumes: a design recurrence event must be established and be part of the permitting (e.g., a 1 in a 100-year runoff event). No release of untreated water is to occur at any point below this design event.
b. Raw water chemistry: mine waste characterisation and prediction, combined with the expected water volumes, will form a basis of high and low expected concentrations for management or treatment.
c. Water quality objectives: these may be imposed by local regulations, receiver water quality objectives, or recycle water requirements.

14 Among the risks related to water is the need to incorporate robust designs that can accommodate climate change. In this modelling, particularly concerning water volumes. Modelling can vary in complexity, and modelling results are only predictions, so verification sampling is important to demonstrate conformity with predictions and with regulatory compliance. A sophisticated modelling tool is often used for design, impact assessment and operational management for large mine developments. The design criteria for water volume and the geochemical prediction from mine waste management facilities both need to feed into the raw water quality modelling. Modelling should be updated periodically as a mine develops, and operational data should be collected to verify the model and verify the results of any design change. Any process changes, mine expansions, or tailings facility update must be updated in the modelling in advance to be prepared for the water quality changes and prevent the need for emergency responses. The GARD Guide provides additional guidance on water mitigation and treatment (INAP, 2014).

5.2 Resource Efficiency

15 Resource efficiency refers to using limited resources in a sustainable manner while minimizing impacts on the environment. Examples of resource efficiency includes re-processing, repair, maintenance, recycling, and eco-design, which can be applicable to many aspects of mineral exploration and development. In the mining realm, resource efficiency is closely linked to the concept of "circular economy", which has also gained prominence as a policy goal for sustainable development in recent years. Circular economy implies reusing wastes back into new products and uses, instead of wasting potential resources. Therefore, steps to achieve a circular economy are an important part of resource efficiency; however, resource efficiency encompasses a wider range of strategies through the entire life cycle of mined products: mining/extraction – design – manufacturing/production – use/consumption – disposal/recovery.

16 It is considered good practice to examine options such as reprocessing or repurposing mine wastes and recovering valuable by-products. A holistic approach should be taken to look at mine waste as a source of secondary metals and other valuable industrial minerals; technologies exist to reprocess mine wastes for target metal recovery (e.g., gold and silver). Green Mining_Innovation, through Natural Resources Canada, is also a valuable initiative for developing new waste management technologies to look at mine waste as a potential source of valuable materials and to develop enhanced waste technologies to address ecosystem restoration and mine closure.

5.3 Biodiversity

17 All mineral projects, by the nature of the business, will have an impact on natural living resources. Risk management strategies for mineral projects should attempt to recognize responsible biodiversity management from the earliest stages of a project (including exploration) through understanding of the material risks to project design, permitting, schedule, finances. Simple recognition of the biodiversity aspects is no longer considered good practice on its own, as complex management plans will need to be in place to provide for responsible management, mitigation, and financial resources. Global biodiversity loss is a critical issue addressed by the international Convention on Biological Diversity and UN SDGs to prevent a decline in biodiversity (SDG#15 Life on Land, and SDG#14 Life Under Water), and therefore extensive guidance on biodiversity management is

available including the IFC Performance Standard 6 guidance notes, Business and Biodiversity Offsets Programme (BBOP), the TSM Biodiversity Conservation Management protocol and framework, and ICMM, to name a few.

18 The biodiversity goal for all mineral projects should be no net loss of natural habitat, net gain of critical habitat, and overall net positive impact on biodiversity following guidance under IFC, PS6. Biological conservation should be balanced with development goals through maintaining ecosystem services. Ecosystem services evaluation looks at the regulating, supporting, provisioning, and cultural services that the natural environment provides to humans. This recognizes that biodiversity supports human needs; therefore, sustainable development needs to integrate biodiversity conservation.

19 Biodiversity is an integral part of any project ESIA and is also included in specific protocols in some of the most important management systems (see guidance in the References section). Typically, a regional or landscape level approach should be taken to assess project direct, indirect, and cumulative impacts in the context of current and proposed end land use. Furthermore, baseline assessments should be reinforced by incorporating Indigenous knowledge and historical information.

20 Biodiversity management should follow the mitigation hierarchy of first avoid, then minimize, restore, and finally offset impacts. Ideally, projects should have a net positive impact on biodiversity. Species and ecosystems of conservation concern need to be identified and appropriately avoided wherever possible. The project footprint should be minimized through optimized design. Minimizing impacts can be achieved by implementing programs such as timing construction to avoid biologically sensitive time periods, completing preclearance procedures for any land clearing, managing access and transportation, waste management, training employees and contractors, and installing signage. Progressive and final reclamation need to be planned early to re-establish biodiversity and minimize temporary reductions in habitat suitability and availability.

21 Offsets may be needed for residual biodiversity loss, even if they are temporary during the life of the mine. Offsets consider site-specific and regional biodiversity limiting factors and land use planning, but can include restoration of degraded lands, new conservation, or support for other initiatives. Sustainable finance mechanisms may also be needed to ensure the offsets protect biodiversity for the long term, post-closure.

22 Building partnerships with conservation groups and universities to assist through the biodiversity management planning and implementation process can be an effective strategy that brings expertise, local knowledge, and trust. Community engagement throughout the planning and implementation of the biodiversity management program is also essential to building trust, assessing ecosystem service values, and ensuring long-term success. The engagement process also facilitates local education and awareness of the impact of human activities on biodiversity, which can help regional biodiversity protection.

23 With the development of new technologies for environmental characterization and monitoring over the last few decades, biodiversity can and is expected to be approached in a quantifiable manner. To develop relevant biodiversity management plans, it is essential to assess biodiversity before the project development (baseline conditions), and during and after the project implementation.

24 Biodiversity management plans should be developed to a level of detail that informs the project design and enables progressive mitigation, with the goal of final closure. The biodiversity management plan also needs to be developed with a long-term vision beyond the end of operation and be integrated in the progressive reclamation and closure plan.

25 Through collaborative planning, identification of mitigation strategies, monitoring, evaluation, adaptation and integration into risk management strategy, success in resource development project will be possible.

5.4 Climate Change and Greenhouse Gases (GHG)

26 Our changing climate and society's response to it have rapidly increased in visibility during the past few years and are becoming an increasingly important issue for mining projects, with significant reputational implications related to corporate disclosure, risk assessment, project financing and project approvals.

27 The TSM Climate Change Protocol (MAC 2021) and ICMM Position Statement (ICMM 2019) have recognized the importance of an industry-wide effort to address climate change in support of the Paris Agreement 2015. Both organizations have taken steps to address the climate related risks and align themselves to the Financial Stability Board – Task force on Climate-related Financial Disclosures (TCFD 2017) recommendations that focus on addressing climate related risks through two main topics:

a. Risks related to the potential transition to a lower-carbon economy
b. Risks related to the physical impacts of climate change.

28 The Bank of Canada's discussion paper on the financial risks of climate change reflects public views on climate change risk (Ens and Johnston 2020). The Financial Stability Board (FSB) is an international body that monitors and makes recommendations about the global financial system. Financial markets need clear, comprehensive, high-quality information on the impacts of climate change and the risks and opportunities presented by rising temperatures, climate-related policy, and emerging technologies in our changing world. For this reason, the Financial Stability Board created the Task Force on Climate-related Financial Disclosures (TCFD) to improve and increase reporting of climate-related financial information.

29 Good practices to address climate change in the mining industry focus on areas that deliver step change and contribute to meaningful results. Programs and systems that can be considered include:

a. Corporate climate change management strategy
b. Systems to manage energy and greenhouse gas (GHG) emissions
c. Innovation programs and applications to reduce emissions
d. Systems to track and publicly report key metrics related to energy use and GHG emissions
e. Investment and management of transitions towards lower carbon future, including climate adaptation
f. Systems to help host communities and equip operations to adapt to the physical impact of climate change
g. Integration of climate change aspects in planning process at all levels as necessary
h. Engagement with peers, governments, and society to share solutions, and develop collaborative initiatives.

30 Climate change is a cross-cutting theme that should be integrated into a company's impact and risk assessment and management strategies. Climate change needs to be considered in the assessment and management of emissions, energy alternatives, water, mine waste, biodiversity, and community health and safety – from the perspective of both the project effects on climate change and the effects of the environment on the project.

5.4.1 Energy Use and GHG Emissions Management

31 Development of a comprehensive energy use and GHG emissions program should cover direct and indirect emissions. Good practice is to develop management systems to support inventory, management, and adaptation as per local government requirements and international conventions and standards. Scope 1 GHG emissions (direct from sources owned or controlled by the company) and Scope 2 GHG emissions (indirect from purchase of electricity, steam, heat, or cooling) need to be calculated and reported to support national reporting frameworks; however, Scope 3 GHG emissions (indirect sources from the supply chain) can be considered in a company's sustainability goals as Scope 3 emissions are becoming increasingly important to the public. GHG emission caps and carbon offset requirements may also need to be considered depending on the legal framework and investor requirements for the project.

32 In 2021, the Mining Association of Canada published the Climate Change Protocol to facilitate continual performance improvements in the mining sector related to the management of climate-related risks and opportunities, including associated mitigation and adaptation strategies, target-setting, and reporting (see the References section).

5.4.2 Climate Forecasting

33 Climate forecasting considerations should be incorporated in assessing the physical risks from climate change on the project. A credible climate forecast underpins climate change risk assessment, which may be required for new project approvals and/or project financing. Generally, climate forecasting considers the short to medium term (present to 20 years in the future) and the long term, looking forward several decades to a century or more. Modeling in applicable stages of the mining project should be scenario-based because future climate change will depend on future trends in GHG emissions which in turn will depend on the level of success of efforts worldwide to limit or curb emissions. These models will increase in detail as the project advances from scoping to pre-feasibility study, feasibility study, construction, operation, and closure, and need to consider uncertainty in climate scenarios and application of the precautionary principle.

5.4.3 Climate Risk Assessment

34 In 2015 the Financial Stability Board (FSB) established the Task Force on Climate-related Financial Disclosure (TCFD) to develop a set of voluntary, consistent disclosure recommendations for use by companies in providing information to the public, lenders, and insurance underwriters about their climate-related financial risks. In 2017, the TCFD released its recommendations in a report entitled "Recommendations of the Task Force on Climate-related Financial Disclosures".

35 The TCFD considers climate-related risk in the context of physical and transition risks. Physical risks are classified as acute (those related to the increased severity of severe weather-related events) and chronic (those related to long-term changes in climate causing, for example, changes in sea level, water availability, etc.). Transition risks are related to a company's exposure to the nature, speed, and focus of the policy, and to the legal, technological, and market changes associated with the mitigation and adaptation aspects of society's response to climate change.

36 Sufficient climate risks identification and management may allow the opportunity to build and operate resilient projects and future mines. No matter the size of the project, good practice is to incorporate climate risks in the overall risk management strategies for the mineral project.

5.5 Mine Closure Planning

37 Mining is a temporary use of land that aims to leave as small a footprint as possible. Closure planning represents an opportunity to promote the sustainable use of land after a mine closes.

38 A mine closure plan is a document that defines the long-term environmental, social, technical, and financial objectives for a mine site, describes the measures that the operator implements to achieve these objectives and presents the estimated costs of implementation. Other terms that may be used to describe a mine closure plan include progressive reclamation, decommissioning, reclamation, rehabilitation, restoration, and abandonment, or combinations thereof.

39 A considerable volume of technical guidance regarding mine closure planning is available publicly. Appendix B provides a comparative summary of guidance from seven organizations. Citations for these and other closure guidance materials are included in the References section.

40 This section summarizes key aspects of successful closure planning, as follows (and expanded upon in the following sections):

a. Co-develop the post operational (or end) land use plan objectives through engagement with government and community stakeholders.
b. Use elements of the knowledge base (social, environmental, legal, economic, and technical) to develop and maintain a complete mine closure plan throughout the mining life cycle.
c. Ensure the mine closure plan incorporates a robust process for identification and management of risks and opportunities related to closure activities.
d. Adopt reliable designs and provide reliable cost estimates, implementation schedules, and robust financial assurances and mechanisms to ensure that adequate funding is in place for implementation of mine closure measures.
e. Establish adequate governance mechanisms, such as policies, standards, and closure committees, to help coordinate the closure planning process and its integration into overall life of mine (LOM) planning.

41 Insufficient planning and/or unrealistic assumptions in closure planning can result in rapid cost escalation. Following good planning principles can significantly reduce this risk of cost escalation.

5.5.1 Mine Closure Plan Development and Maintenance

42 It is recommended that mine closure plan development should start as early as possible in the project life cycle so that closure concepts can inform design advancements that reduce long-term liabilities. The mine closure plan ideally includes progressive reclamation during the project lifecycle to evaluate and prove closure concepts and cost estimates, decrease liabilities over the life of the mine, and foster the recovery and restoration of biodiversity.

43 The mine closure plan should be developed by an interdisciplinary team of practitioners knowledgeable about the mining project, the regulatory framework, and good practice. Closure planning should be based on documented, realistic assumptions, and their validity tested throughout the life of the mine.

44 During the exploration phase, closure planning and reclamation activities are usually restricted to disturbances associated with exploration activities (e.g., drill pads, helicopter pads, access roads and camp sites). The reclamation activities should be documented, as knowledge gained in these activities could be useful in the future should the prospect become a mine.

45 Closure planning for the LOM site configuration should be undertaken during project design and planning (i.e., design for closure), which ultimately reduces overall costs, reduces long-term liabilities, maintains community relations, and helps improve industry reputation. Project economic models should incorporate closure cost estimates in consideration of closure financial security requirements. Although planning may be conceptual and based on assumptions at the design stage, the mine closure plan and cost estimate should be complete (see below). As the project evolves, initial closure plans developed using broad estimates, concepts or assumptions can be refined through technical studies, field trials, options analysis and other similar studies that will inform updates and ongoing refinement of the mine closure plan.

46 Closure plans should be updated at regular intervals during a mine's operating life, especially when the LOM plan changes materially and always in accordance with applicable legal requirements. Closure planning and cost estimating should contemplate the possible need for temporary cessation, or for sudden or premature (pre-LOM) mine closure.

47 Where feasible, mine operators should undertake progressive reclamation in areas where no further land disturbance is expected based on the current LOM plan and foreseeable future developments. The mine closure

plan should document progressive reclamation activities already undertaken and should identify opportunities for future progressive reclamation.

48 Input from local communities is an important and frequently overlooked aspect of mine closure plan development and amendments. Operators should engage local stakeholders in closure planning early in the mining life cycle, even though mine closure may be many years in the future. Local and/or traditional knowledge may be important in shaping decisions regarding post-closure land use, water management, shared infrastructure and so on. Early buy-in from local stakeholders on closure issues directly affecting them helps to mitigate the unavoidable impacts of mine closure on the local economy which in turn helps to control the associated costs to the company.

5.5.2 Risks and Opportunities

49 Mine closure plan development should incorporate an assessment of closure-related risks and opportunities, which should be documented and updated regularly during the mine's operating life. The risks and opportunities assessment should be used to inform updates of the mine closure plan and closure cost estimate. Good practice shows that integration and testing (through progressive reclamation) of the opportunities identified over the life of mine or property life cycle would reduce risks long term and facilitate closure plan implementation.

50 Early in the project life cycle, the mine closure plan will include assumptions about closure objectives, activities, and costs. These assumptions should be well documented and, in cases where the assumption is material to the closure cost estimate, the company should develop and implement action plans to test or refine the assumption. These action plans should be documented in the mine closure plan and subsequent updates should incorporate the action plan outcomes.

51 In addition, the closure cost estimate should consider implications if key material assumptions do not prove valid. For instance, where ARD/ML has developed or may reasonably be expected to develop based on geochemical testing, modelling and regulatory requirements, risk assessment should address the possibility of an extended post-closure phase where passive or active water treatment may be required to achieve post-closure water quality objectives. The potential impact on the closure cost estimate should be documented in the mine closure plan amendments.

5.5.3 Financial Aspects of Closure

52 Regulatory requirements for closure vary widely between jurisdictions and often do not consider all closure activities. A common error in closure planning is to confine the scope of the mine closure plan and cost estimate to consider only the applicable regulatory requirements. While the closure cost estimate presented for the purposes of regulatory approval and/or establishing financial assurance can be tailored to the applicable legal requirements, the LOM mine closure plan should address all activities directly related to mine closure, including those that may not be required under applicable law, such as:

a. Owner's costs. Project management costs, mine lease maintenance costs, taxes, insurance, stakeholder engagement and other administrative expenses associated with implementation of closure plans can be significant and should be estimated in a prudent and conservative manner.

b. Financial assurance costs. Once established, financial assurance needs to be maintained until it is released by authorities, which may be many years after active closure activities cease. The need to maintain financial assurance should be acknowledged in the mine closure plan and the cost of maintaining it should be included in the closure cost estimate.

c. Shared infrastructure. When infrastructure (e.g., for potable water or power supply) is provided by the mining company and is used jointly by the mining operation and the community, the mine closure plan should incorporate a reasonable provision for a transition of control at the end of the operation.

d. Monitoring & Maintenance of the site after closure activities are implemented. These activities and associated costs may be significant and continue for years, decades, or in some cases in perpetuity.

e. Contingency. Cost estimates for capital projects normally include a contingency that varies depending on the level of detail of the underlying technical studies and the assumed precision of the cost estimate. Contingency should also factor in elements such as potential changes in regulatory requirements and/or industry standards that could impact the site in the post-closure period. Companies should consider the need for an appropriate contingency in closure plan depending on the level of uncertainty in the closure cost estimate (higher contingency would be appropriate when project is in scoping study, and contingency may change as details of the projects are becoming available).

53 Rapid cost escalation in the period immediately before closure and during the closure phase itself can be avoided by ensuring that early closure planning efforts are comprehensive, complete, and accurate, and that the risks and opportunities of closure are effectively assessed and managed.

54 Closure costs estimates for the scoping stage, pre-feasibility study and feasibility study are based on the anticipated disturbances of the project and infrastructure. Level of accuracy should be aligned with financial modelling for the project and regulatory requirements. The accuracy of the closure cost estimate will improve over time as the estimate is informed by progressive reclamation efforts, the testing and refining of underlying assumptions and ongoing engineering, planning studies, and implementation projects.

55 It is important to understand that there is not just one closure cost estimate. In practice there are several types of estimates that serve distinct purposes, with different inputs and assumptions. These include:

a. The LOM closure cost estimate considers all aspects of mine closure based on disturbance as projected for the current life-of-mine plan. This is the best estimate of the total cost of mine closure and should be used in project financial models, independent of regulatory approvals.

b. The temporary closure cost estimate considers the costs of stabilizing the mine site based on the current disturbance footprint in addition to the annual recurring costs for care and maintenance.

c. The sudden closure cost estimate considers all closure costs associated with mine closure based on the current disturbance footprint (i.e., assumes a decommissioning tomorrow scenario).

d. The regulatory closure cost considers legal requirements in the mine's operating jurisdiction for the determination of financial assurance for closure. This is usually (but not always) based on the LOM disturbance footprint and is often a subset of the items included in the LOM closure cost estimate.

e. The financial liability estimate considers reclamation costs associated with obligations for closure of the mine site with the current disturbance footprint.

56 Regulatory requirements vary and many jurisdictions require a reclamation financial security to cover closure costs if the company is unable to complete the work. Acceptable financial mechanisms might include full cash, insurance, bonds, etc. Governments may require closure cost estimates to be based on assumptions of third-party contractors and equipment use and may not allow for equipment sales to offset closure costs. This reduces risks and exposure for the security holders if the company goes bankrupt during the closure phase.

5.6 Emergency Preparedness and Response

57 Emergency planning addresses critical risks related to the future operation that would have a detrimental effect on the company reputation, financial wellbeing, communities, and the environment. Being prepared and raising awareness of critical risks related to the future project or operation is an essential factor in emergency planning and emergency response.

58 Since 1988, the United Nations Environment Programme (UN Environment) has been leading the Awareness and Preparedness for Emergencies at Local Level (APELL) program, initiated in response to several chemical accidents that resulted in deaths and injuries, environmental damage, and extensive economic impacts to the surrounding communities.

59 Guidance and standards of good practice include:

a. MAC – TSM Crisis Management and Communication Protocol
b. ICMM, Good Practice in Emergency Preparedness and Response, 2005
c. World Bank Environment, Health and Safety Guidelines
d. CDA Dam Safety Guidelines, 2013
e. CDA Tailings Dam Breach Analysis, 2021

60 As a minimum, it is recommended that companies develop policies, procedures, and processes to prevent health, safety, and environmental emergencies, and in doing so critical risk identification and management plays an important role. Corporate offices should have a minimum standard for emergency preparedness and response, and then develop site-specific emergency preparedness and response plans based on site-specific risk assessments for each of their properties (e.g., exploration, development, operation, and closed properties). Recognizing critical risks (e.g., health and safety of personnel and communities, medical emergencies, mine rescue, potential failures of tailings facilities and defined alert levels, contaminants releases from waste rock dumps, hostage taking, etc.) allows better preparedness, and collaborative responses with the surrounding communities to reduce consequences.

61 Emergency preparedness and response plans need to be co-developed with the potentially affected communities and local governments, and regularly communicated with them. Successful emergency responses typically also depend on community participation and collaboration and take into consideration the social context and the host country emergency response infrastructure and capacity. In cases where local government agencies have little or no capacity, company leadership in emergency preparedness and emergency response become paramount.

62 Components that should be considered in development of an emergency preparedness and response plan are:

a. Evaluation of risks and hazards that may result in emergency situations in the community and define options for risk reduction
b. Identification of a level of emergencies and corresponding necessary responses
c. Identification of emergency response participants and establishment of their roles, resources, and concerns
d. Development of a co-ordinated response between different participants
e. Identification of response tasks and resources available for the participants to the response taskforce
f. Integration of the plan with the community emergency plan and participating groups, so that written endorsement is obtained, and relevant approvals are in place
g. Provision of equipment and resources
h. Periodic training
i. Creation of a communication, and implementation strategy
j. Establishment of procedures for training, periodic testing, review and updating of the plan
k. Communication of the integrated plan to the impacted communities (ICMM, Good Practice in Emergency Preparedness and Response, 2005)
l. Rehearsal / testing of the plans, and enhancement of the plans based on lessons learned.

6 ESGP 5 – Social Planning: Protect people and benefit communities

6.1 Engagement

1 Social licence to operate is one of the highest risks to mining projects at all phases. A "social license" refers to a level of approval the community and stakeholders hold about a company`s operation or activities. A social license is the direct relationship between companies and communities and can reflect that a company effectively engaged communities and protected their interests as part of the process of granting legal licenses for mining. Furthermore, through earning a social license, the public are assured that a company has the support of the communities surrounding the property, and has addressed, or has systems in place to address, community concerns including environmental stewardship or community well-being. This is especially important because the success of a mining operation can depend heavily on the company`s relationship to communities, activists, and stakeholder networks who may obstruct or delay projects, even projects where licences to mine were legally granted by a government. To attain a social license, companies need to build relationships and support communities.

2 Developing and maintaining positive, mutually beneficial relationships with local communities, Indigenous peoples, rights holders, and stakeholders based on respect, inclusion, transparency, and meaningful participation is fundamental to gaining and maintaining social license for a mining project. Active and continuous engagement with stakeholders, rights holders and other affected and interested parties can aid in meeting this objective.

3 ***Dynamic Relationships**: Social relationships are characteristically dynamic and often highly context specific with respect to place and time, and influenced by such factors as history, culture, politics, and socio-economic conditions. The relationships need to be monitored on an ongoing basis to track changes in the factors influencing the attitudes and behaviours of stakeholders, rights holders, the company, and its personnel. Once the factors are understood, adjustments can be made to sustain good relations.*

4 Definitions relevant to this section include:

- **a. Engagement:** A process of contact, dialogue and interaction that ensures all stakeholders and rights holders are informed and participating in decisions that affect their future, in a way that is satisfactory to them (MMSD 2002).
- **b. Social Impact:** Changes in baseline social conditions that are caused by a specific project-related activity.
- **c. Area of Influence:** The geographic space and those who inhabit that geographic space that will be affected directly or indirectly by activities at (or associated with) an exploration project or mining operation**.**
- **d. Free, Prior and Informed Consent:** The principle that Indigenous peoples, based on defined rights and claims, have the right to withhold or withdraw their consent to proposed projects that may affect them.
- **e. Stakeholders:** Individuals, groups or organizations that are actually or potentially affected by a project and those who can influence the project (Freeman 1984). This includes those representing others and groups and individuals who may be, or are perceived to be, marginalized or affected by a project.
- **f. Rights Holders:** All individuals have Human Rights. However, in the context of a mineral exploration or mining project it is important to recognise that there may be situations where individual human rights are placed at risk. These include the loss of access to resources for food production or livelihood, water, health, and employment. There are also those with collective rights, such as Indigenous and tribal people, who may be affected by a mineral exploration or mining project or can affect its development. Individuals and groups in these situations are Rights Holders.

6.1.1 Relevant International Standards and Guidance

5 National and international guidance related to social planning and social licence to operate has been developed over the years. Guidance for stakeholder engagement has been developed by the Mining Association of Canada (MAC), the Prospectors and Developers Association of Canada (PDAC), the Association of Mineral Exploration British Columbia (AME), the Organization for Economic Co-operation and Development (OECD), the United Nations (UN), and the International Finance Corporation (IFC), to name a few (see References section).

6 Fundamental principles of good practice for engagement that would have an impact in project development are:

a. Start as early as possible in the life of a project.
b. Ensure transparency from the beginning.
c. Partner with stakeholders where possible.
d. Respect and listen.
e. Ensure equity in engagement.

7 Engagement is an ongoing social process that requires constant attention, revision, and enrichment to maintain positive and fruitful relationships, reduce conflict risks and delays, and advance projects responsibly. Companies should record information from stakeholder engagement and use it to inform company actions and decisions. The process of engagement should be approached as a circular function comprising due-diligence/review, analysis, planning, implementation, and meaningful regular updates – and the process continues. Good practice in engagement includes due diligence, stakeholder analysis, engagement planning, grievance mechanism, two-way communication, and review and update.

6.1.2 Research and Stakeholder Analysis

8 Background research and due diligence is the recommended first step to understanding the social context of stakeholders and rights holders. Stakeholders and rights holders need to be identified, including minority and vulnerable groups and individuals, and those that self-identify as stakeholders and rights holders. Social, political, and economic context is needed to understand the reality of the community and the risks created by the various stages of the property. If Indigenous or tribal peoples are among the rights holders present, the provisions of relevant national laws and /or the International Labor Organization Convention 169 on Indigenous and Tribal Peoples may apply. In all cases, provisions of the United Nations Declaration on the Rights of Indigenous Peoples apply to all mining projects.

9 Stakeholders and rights holders should be mapped first by their geographical relationship relative to the mining project and infrastructure, including traditional and legal land uses. Then, the social networks within and among stakeholders should be investigated to determine the concerns and issues that are shared. Based on this information, an analysis can be undertaken to classify stakeholders to establish a preliminary understanding of priority and mode of engagement to be applied.

10 Companies should implement special provisions and tailor social management plans to the needs of individuals or groups that may be affected disproportionately by a project due to existing disadvantaged or vulnerable status, and those who may become vulnerable because of project development (i.e., through loss of livelihood) and loss of access to lands used for traditional and cultural practices.

6.1.3 Engagement Planning and Monitoring

11 A communications and engagement plan should be developed once the background research is complete and stakeholders mapped. Although companies need to be involved in engagement to build relations, experts should be consulted to guide companies. The mode of engagement can range from monitoring the stakeholder/rights holder to full collaboration, depending on circumstances. As part of planning, identify the capacity of individual stakeholders and rights holders to effectively participate in engagement, and provide support to those that lack capacity. Engagement should capture the views of all genders and be implemented in a culturally appropriate format, using local languages to ensure accessibility. It is also important to identify situations where the involvement of trusted third parties may facilitate engagement with stakeholders or rights holders. When the engagement process relies on community representatives, companies need to demonstrate that they have made reasonable effort to verify that the representatives accurately share and express the views of the stakeholders they are representing.

12 If Indigenous or tribal peoples are present, identify and apply any national guidance or legislation for engagement with these groups. In the absence of national guidance, the provisions of the United Nations Declarations on the Rights of Indigenous People apply. In some jurisdictions, the provisions of International Labor Organization Convention 169 on The Rights of Indigenous and Tribal Peoples have been incorporated into national legislation and should be incorporated into engagement with these rights holders. Explorers and developers should be aware of the requirement for Free, Prior and Informed Consent, and should implement the requirement in a way that meets both legal regulation and the norms and expectations of the Indigenous or tribal peoples concerned. It is recommended that practitioners consult additional guidance on Free, Prior and Informed Consent such as that provided by Forest Stewardship Council (FSC) Canada (2019) and by the Food and Agriculture Organization of the United Nations (2016). Additional guidance on protocols and customs should be attained directly through engagement with the local Indigenous peoples.

13 The engagement plan should create clear corporate policy and procedures for communications and engagement with stakeholders and rights holders. The plan should include a management and internal reporting structure for the corporate and project/operational level to oversee and implement engagement with stakeholders and rights holders, with direct accountability at the highest levels of the company. Staff and contractors should be provided with the necessary training to enable them to effectively communicate and engage with stakeholders and rights holders.

14 The monitoring program and key engagement indicators should be developed in collaboration with priority stakeholders and/or rights holders. Regular reporting to stakeholders should be part of the overall program to build and maintain trust. Where issues arise, senior management needs to be notified of stakeholder concerns.

15 Effective implementation of an engagement plan requires diligent record keeping and monitoring. Companies should document all interactions (both formal and informal) with stakeholders and rights holders and track all offers, promises, and commitments made by or on behalf of the project or company. Special attention should be made to meet both legal requirements and the norms and expectations of Indigenous or tribal people for Free, Prior and Informed Consent.

16 Additional programs for stakeholder involvement should be considered, such as participatory monitoring. Where possible, the company should support and facilitate the active participation of project affected stakeholders and/or rights holders and other interested parties in monitoring project activities such as environmental performance and social investment.

17 As with all management plans, the engagement plan should include provisions for review, analysis, and updating for continual improvement and to adapt to changing situations.

6.1.4 Grievance Mechanism

18 A grievance mechanism should be site-level and established with input from priority stakeholders and rights holders. A grievance mechanism is a process to respond to complaints, claims and grievances and facilitate direct communication between stakeholders and companies. The mechanism should be workable and acceptable to all parties. The mechanism serves as an opportunity for groups to bring forward concerns and issues at any time, not just through formal engagement activities with the company. In this way, grievance mechanisms can sometimes serve as warning systems of issues arising; therefore, companies should ensure feedback is well-documented and followed-up. The mechanism needs to be sensitive to cultural norms and be accessible to all. Achieving this requires using traditional and community-based approaches, considering gender, and other key status attributes (Indigenous, vulnerable, and marginalized peoples). A strong grievance mechanism includes follow-up processes and record keeping methods that protect all parties.

6.2 Health and Safety

19 The protection of workers and all other persons from undue risks to their health and safety arising out of or in connection with activities at mines is paramount. Beyond the possible impacts to individuals, failure to do so can result in significant fines and jail terms if people are harmed. As early as possible, companies must evaluate the health and safety risks to local stakeholders, including environmental risks that may pose concern to health and safety. At the exploration phase, drinking water quality and availability, air quality and incidence of diseases (i.e., HIV/AIDs, TB, malaria) should be considered. This will enable companies to anticipate and avoid adverse impacts on health and safety of local stakeholders.

20 The number of grievances related to impacts on the environment and community health and safety through a formal grievance mechanism should be documented and disclosed when appropriate.

21 To minimize the diseases that may be endemic in the project area, companies should develop a Community Health Plan to identify and manage project-related risks to community health, worker health and safety. This includes tracking health indicators within the labour force as well as the surrounding communities throughout the lifecycle of the mine.

6.2.1 Worker Health and Safety

22 Guidance on best practices for worker health and safety are included in the IFC Performance Standard 2, Labor and Working Conditions. In addition, the Mining Association of Canada, TSM program includes a Safety and Health Framework (2019) and the Safety and Health Protocol (2020 revision) which provides best practice under four indicators pertaining to: commitments and accountability; planning and implementation; training, behaviour, and culture; and monitoring and reporting wherein companies recognize that zero harm is the goal for all facilities.

23 Companies should develop a strong worker health and safety program as part of their overall management strategy and to meet legal requirements and international conventions. The plan begins with a corporate policy on safety and health supported by executive and senior management that drives the overall corporate safety culture. Worker relations, health and safety are key components of a company's overall culture involving its social responsibility and governance program. Consideration should also be given to gender-based issues, Indigenous peoples, potentially vulnerable or marginalized workers, and cultural context.

24 Protection measures for a health and safety plan should be developed based on the level of activities and associated risks. The plan should include details regarding personnel safety, hazard analysis, safe work procedures and emergency preparedness such as evacuation in event of fire, emissions, gas releases, spills, and other hazards etc.

25 A strong workplace grievance mechanism is an important component of worker health and safety. The mechanism should be accessible to all workers and contractors. It should include appropriate follow-up, protect privacy, and have appropriate record keeping and access controls.

26 Avoiding child and forced labour is fundamental. Guidance on preventing the use of child labour and forced labour as defined by ILO Conventions 29, 138, and 182 is available from MAC's TSM. The TSM verification protocol sets out the general approach taken to verify that processes are in place to ensure that neither child labour nor forced labour are occurring, as defined by ILO conventions.

6.2.2 Community Health and Safety

27 Protecting the health and safety of communities is a fundamental obligation for exploration and mining companies wherever they work. Risks of not protecting communities include loss of social licence to operate, loss of reputation, fines, and even criminal charges. Risks to community health and safety are present for almost any activity that has connections outside the community, including (but not limited to) protecting workers who live in the communities, containment of mine waste and hazardous materials at site, emissions, water use, discharges, noise, vibration, security forces, transportation, procurement, worker accommodation, and social challenges associated with influx of workers and increased income (e.g., housing and food distribution, disease, community safety, gender-based violence, etc.).

28 Guidance on good practices for community health and safety include the IFC Performance Standard 1, Assessment and Management of Environmental and Social Risks and Impacts and IFC Performance Standard 4, Community Health, Safety, and Security. The Voluntary Principles on Security and Human Rights also provide guidance on policies and actions that can be taken to protect the community from risks associated with public and private security forces.

29 Protection of community health, safety and wellbeing should start with setting policies or standards to which the company conforms. Community relations management and grievance mechanisms are also important for identifying issues and protecting the community. In addition, the emergency preparedness and response procedures need to be developed with the community to respond to project risks (e.g., dam failures, flooding, fires, spills, evacuation, medical emergencies, etc.). A company's management system should address areas with potential for conflict over scarce resources (e.g., water). ICMM's A Practical Guide to Catchment-based Water Management for the Mining and Metals Industry and MAC's TSM Water Stewardship Policy Framework provide valuable guidance on how and why to manage water at the catchment level, which protects communities.

6.3 Procurement and Economic Development

30 Employment, contracting, and procurement are activities that can be managed effectively to minimize risks and enhance benefits. Using large foreign suppliers and employing expatriates can erode the social licence to operate, community trust, and cause conflict. However, focused policies, planning, and training can bring economic benefits to the local communities. One source of guidance for local procurement can be found in the Mining Local Procurement Reporting Mechanism (German Cooperation et al 2017).

31 Where significant changes in operations occur that impact employment levels, companies should provide reasonable notice and cooperate with worker representatives and appropriate government authorities to mitigate adverse impacts.

6.3.1 Local hiring

32 Local hiring is an effective way to foster sustainable development and avoid conflicts with stakeholders. Proactive efforts can be made to hire employees from the communities nearest and/or most impacted by mining activity to the greatest extent possible, by assessing the local skills base. Companies can play an important role in providing training skills development and good practices needed to ensure that projects can consistently meet regulatory requirements. As much as possible, skills upgrading and certification efforts for workers should be planned and executed in partnership with local government, educational institutes, and other partner organizations.

33 Companies should take measures to implement policies and systems in hiring processes that are based on equal opportunity and fair treatment and take measures to assess prevailing practices related to preferential treatment and discrimination based on gender, religion, and race.

34 Companies should measure and publicly report the quantity and levels of employees hired from local areas, disaggregated by gender and other relevant groups (see Indigenous Peoples below). Measurement and public reporting of skills upgrading should also take place (e.g., number of community members with new certifications because of the mine's activity). To the extent possible, skills upgrading should reflect long-term improvements that are consistent with planned post-closure economic activities.

6.3.2 Local procurement

35 Mining projects should be designed and planned to use locally provided goods and services to the greatest extent possible. Project design should incorporate planning to identify local businesses who can take part in supplying opportunities and should incorporate capacity-building efforts to upgrade these firms. Capacity-building for local businesses should be planned and executed in partnership with local institutions including government, business associations (e.g., a local Chamber of Commerce or equivalent), and other partners who can impact the ease of doing business for firms.

36 Mining projects and operations should create different categories of suppliers (e.g., local, regional, and national, and/or those based on Indigenous and other stakeholder groups), and measure and report procurement spending broken down in these categories. Projects and operations should share publicly as much practical information as possible on procurement opportunities and how to access tendering opportunities.

37 Companies should also document their supply-chain management approach, including criteria used to screen the environmental, human rights, and labour practices of new suppliers as well as how performance is being monitored and tracked.

6.3.3 Indigenous community considerations

38 Strategies and programming for local hiring and procurement should incorporate the presence of Indigenous communities, ensuring to prioritize Indigenous employees and entrepreneurs in communities with relevant legal rights and agreements in relation to the mine project or operation.

39 Impact benefit agreements (the most common name in Canada of what are normally termed "community development agreements" globally) could incorporate local hiring and procurement preferences, as well as capacity-building support for workers and Indigenous owned businesses. Companies may also include Indigenous community considerations related to employment and procurement in an Indigenous Peoples Plan that defines and lists all actions and objectives related to company engagement and benefits related to Indigenous peoples.

6.4 Land Access, Acquisition, Displacement, and Resettlement

40 Mineral deposits cannot be relocated, which can result in land use conflicts unless managed effectively. In obtaining access to land and the acquisition of land, explorers and developers should first comply with any relevant national laws and regulations. They should then take steps to align their actions with the higher of any standard defined by national law and regulation or those set out in international standards and good practice guidelines. Relevant international standards and guidance documents that should be consulted include:

41
- International Finance Corporation (IFC)
    a. Performance Standard 5: Land Access and Resettlement (2012)
    b. Good Practice Handbook: Land Access and Resettlement (2019)

42
- European Bank for Reconstruction and Development (EBRD)
    a. Performance Requirement 5: Land Access, Involuntary Resettlement and Economic Displacement (2017)
    b. Resettlement Guidance and Good Practice (2017)

43
- International Council on Mining and Metals (ICMM)
    a. Land Acquisition and Resettlement: Lessons Learned

44
- Prospectors and Developers Association of Canada (PDAC)
    a. Community Engagement Guide

45 In situations where permission to access land involves Indigenous or tribal people, every effort should be made to comply with national regulations and/or the requirement for Free, Prior and Informed Consent (FPIC) under the United Nations Declaration on the Rights of Indigenous People in a manner that is acceptable to them. Similarly, FPIC should be initiated before obtaining exploration permits or rights.

6.4.1 Land Access

46 Access should be requested prior to carrying out any activities on a property. This begins to build relationships and social licence to operate and could help avoid future conflict. A fundamental message is to treat existing owners, users and rights holders with courtesy and respect, avoiding the assumption of eventual approval.

47 Useful guidance for good practice in obtaining access to land for exploration and mineral deposit evaluation is found in the Community Engagement Guide published by PDAC. Explorers and developers should undertake a thorough investigation and due diligence to identify individuals, groups or organizations that own, use. or have an existing or potential interest in the surface of the land where exploration and mineral deposit evaluation is to take place.

48 Permission to access the land should be obtained in writing from individuals, groups, or organizations. Note that where Indigenous or tribal peoples are involved, the United Nations Declaration on the Rights of Indigenous Peoples requires FPIC. It is important to formalize permission in an agreement that includes: a timeline/limit for access by the company; a description of any conditions agreed to governing access to the land; definition of any compensation for access to the land (which may be in cash or in kind), disturbance, displacement or loss of livelihood or income; access to and use of water sources, and, a process to receive and resolve disputes, complaints and concerns.

6.4.2 Land Acquisition

49 Construction and operation of a mine requires certainty of an exclusive right to use the surface of the land. Consequently, land is acquired for access to the mineral reserves, construction of a mine site and associated infrastructure that may include roads, railways, power lines, airstrips, residential accommodation and other utilities. Good practice is to limit the extent of land acquisition to the minimum necessary to successfully, and safely, execute the mining project. Fundamentally, it's important to only take what you need.

50 Legal certainty of land ownership is an essential element. However, all individuals affected by land acquisition are not affected in the same way or to the same extent, are not equally vulnerable to hardship or able to take advantage of the situation. In addition, land acquisition is context specific due to social and cultural norms of land use and ownership unique to a given region or social group. Therefore, it is good practice to approach land acquisition as a social process led by social specialists supported by legal professionals.

6.4.3 Displacement and Resettlement

51 The impact of land acquisition on people affected by the process is highly variable and can range from negligible to profound and can potentially lead to physical and/or economic displacement or the need for resettlement. In the context of land acquisition, displacement is a process whereby people lose land or other assets or access to resources, which may occur in one of several ways as follows:

a. Physical (loss of land, access to cultural sites and/or physical assets such as buildings and infrastructure) or economic (disruption of livelihood or loss of income), or both
b. Temporary (during mine construction, for example) or permanent
c. Partial or total: the latter creating residential dislocation.

52 Resettlement generally refers to the process by which those adversely affected by land acquisition are assisted in their efforts to improve or, at a minimum, maintain their living standards. It should be recognized that women are disproportionately affected by resettlement. Special consideration should be given to include them in negotiations and consider additional burdens that may occur from relocation. Resettlement takes considerable time and effort and should be started early and managed carefully.

6.4.4 Elements of Good Practice

53 Displacement and resettlement create some of the most difficult challenges encountered by the mining industry. Whilst there is considerable opportunity for improvement in livelihoods and living standards for affected people, there are also significant risks. Good practice is to involve the expertise of social practitioners who specialise in this area of social performance. Extensive background and baseline investigations should be completed to properly understand the nature and needs of the affected population. A Stakeholder Engagement Plan and a detailed Resettlement Action Plan should be prepared to guide the process from initiation. The principles guiding good practice may be summarised as:

a. Wherever possible, pursue alternative project designs to avoid the need to displace people
b. Minimize displacement if it cannot be avoided
c. Provide compensation to all affected people, and resettlement with livelihood restoration where displacement is unavoidable
d. Mitigate all adverse impacts
e. Assure the informed participation of affected people through adequate engagement, disclosure, and consultation
f. Improve, or at a minimum restore, the livelihoods, income earning capacity, and standard of living for all affected people

g. Develop special provisions for assisting disadvantaged or vulnerable individuals/groups
h. Establish a mechanism for managing grievances, claims and complaints
i. Monitor the success of resettlement and mitigation of impacts.

54 In any case of resettlement, it is important to "imagine this is happening to you". This approach will help ensure fair process and compensation while protecting human rights.

55 In addition, where Indigenous people are involved, implement the requirements of relevant national law and regulation and/or the provisions of IFC Performance Standard 7: Indigenous People. Where archaeological and/or cultural issues are present, implement the requirements of relevant national law and regulation and/or the provisions of IFC Performance Standard 8: Cultural Heritage.

6.5 Human Rights: Protect and respect human rights

56 Business activities can profoundly impact the human rights of stakeholders, suppliers, and contractors. Consideration should be given for impacts within and along the supply chain, which is becoming more important to the public and stakeholders. Assessing and managing associated risks throughout the project lifecycle is key to meeting international and domestic human rights obligations, attaining social license to operate, mitigating risks throughout the mine lifecycle, and accessing finance. Companies should prevent, mitigate, and account for how they address their adverse human rights impacts as part and parcel of their human rights due diligence. Although human rights due diligence can take place within broader enterprise risk management systems, it should always go beyond managing material risks to the company itself, to include risks to rights holders.

57 This section centers on efforts to ensure due diligence and protection of human rights for stakeholders, suppliers and contractors related to operations. Activities, policies and practice should reference the United Nations Guiding Principles on Business and Human Rights principle 17 (UNGPs), the International Bill of Human Rights, and the ILO Declaration on the Fundamental Rights of Workers, and they should align with the OECD Due Diligence Guidelines for Multinational Enterprises (Chapter IV on Human Rights), the Voluntary Principles for Security and Human Rights, the ICMM Guide on Human Rights in the Mining Sector, and the UN Global Compact Guide to Human Rights Impact Assessment and Management. Human rights impacts are becoming more important to the public and are now an integral part of Equator Principles 4 (2020).

58 At a minimum, companies should identify broad areas where the risk of adverse human rights impacts is significant and prioritize these for human rights due diligence. Elevated risk can exist for several reasons, including but not limited to certain suppliers' or clients' operating context or the products or services involved.

59 In line with global standards for human rights due diligence, companies should: comply with internationally recognised standards and obligations (including domestic laws and regulations of host countries); conduct human rights due diligence; have a human rights policy commitment; provide grievance mechanisms (both for internal and external purposes); and seek ways to prevent and mitigate adverse impacts that are linked to their activities.

60 Consistent human rights related monitoring should also address the identification, prevention, mitigation, and accountability for human rights abuses committed by a business's activities including activities by third party service providers or suppliers.

61 Finally, companies should understand both legal and non-legal implications of complicity, as well as perceptions of complicity in human rights impacts, which may arise when a company either contributes to or is seen to contribute to adverse human impacts caused by other parties. Conducting appropriate human rights due diligence and ensuring companies can demonstrate that they avoided involvement with human rights abuse can help assist companies to address legal or non-legal claims against them but may not always resolve issues.

6.5.1 Indigenous Peoples and Vulnerable Groups

62 Companies should ensure they identify and respond to impacts on individuals from groups or populations that may be at heightened risk of vulnerability or marginalization. These include Indigenous peoples, women, children, and migrant workers.

63 Human rights due diligence should always include, at the earliest stage, identification of all vulnerable groups and special rights holders like Indigenous peoples, who may be affected by a project. Good practice means not only identifying their rights through formal, explicit policies and engagement, but also listing the ways by which those rights will be affected.

64 More than other groups, Indigenous peoples are likely to be affected not only by "violation by commission" (i.e., acts that knowingly breach regulations or binding agreements), the intended effect of which *per se* constitutes a human rights violation, but also by unintended "violation by result" (e.g., violation of Indigenous peoples' land rights or decision-making methods due to a lack of knowledge on the part of the mining company).

65 For companies whose operations may specifically affect Indigenous peoples, a policy commitment concerning Indigenous peoples, whether as a separate document or as part of a wider human rights policy commitment, should be grounded in, and spell out the recognition of, Indigenous peoples' specific rights as set out in the relevant international human rights treaties and resolutions as well as in the jurisprudence of human rights courts and monitoring bodies.

66 Moreover, given the significance of Indigenous peoples' relationship to land, the recognition of their collective rights to lands and resources in accordance with their own customary law should also be stated even in cases where Indigenous groups do not hold official title to land.

67 For companies to successfully assess or address human rights impacts of their operations, they should directly consult stakeholders in a way that considers accessibility throughout the operation of their project and also at specific intervals of time: before the operations begin; at the time of any changes to operations or major decisions; and in response to or anticipation of changes in the operating environment.

6.5.2 Security Forces

68 Security forces employed by the mine, and/or state security forces operating within the mine's zone of influence, should serve to protect individuals, communities and property and maintain the rule of law. Company-hired security forces should be trained specifically to safeguard human rights, including those of staff and personnel. Diversity amongst the security forces (in particular, gender diversity) should be considered to reduce the risk of gender-based violence.

69 Companies should develop a Security Management Plan (SMP) and identify security risks related to an operation in its early or exploration phases, including threat to local stakeholders and community groups. In this assessment, and during ongoing assessment by mine site management, companies should seek to identify already existing human rights records at the local and national level, conflict history in the zone of influence, and all relevant human rights-related training of security personnel.

70 For preventing and mitigating adverse impacts in higher risk jurisdictions, companies can refer to the Voluntary Principles on Security and Human Rights Initiative (VPI), including its guidance for developing a Security Management Plan (SMP).

71 Additional guidance and resources on human rights related assessments and reporting are included in the References section.

6.6 Cultural Heritage: Respect and protect cultural heritage

72 Archaeological and cultural heritage are extremely important component of the mining process because of the potential for a project to affect these resources. These resources are sometimes protected either by national legislation or international convention, and other times by community groups without formal recognition. Companies should retain professionals for assistance with identification and protection of cultural heritage to avoid or minimize adverse impacts.

73 Archaeological and heritage resources are also important to Indigenous communities because they demonstrate the long-term use of their traditional territories and provide a physical link to their cultural history. Traditional sites such as named geographical features and other resources are also important to Indigenous peoples. Historical features such as cabins, trails and historic artifact scatters may be important to local communities and/or Indigenous peoples. These archaeological and heritage resources are vulnerable to surface and subsurface alteration from project activities. Any alteration, if not correctly handled, can result in potential litigation and issues with local Indigenous and community relationships.

74 The IFC's Performance Standard 8: Cultural Heritage (IFC, 2012) defines heritage resources as including:

a. Tangible forms of cultural heritage that may include moveable and immovable objects, property, sites, structures, or groups of structures having archaeological (prehistoric), paleontological, historical, cultural, artistic, or religious values
b. Unique natural features or tangible objects that embody cultural values, such as sacred groves, rocks, lakes, and waterfalls
c. Certain instances of intangible forms of culture that are proposed to be used for commercial purposes, such as cultural knowledge, innovations, and practices of communities embodying traditional lifestyles; and
d. Critical cultural heritage

75 The IFC Performance Standard 8 was developed to conform to the Convention Concerning the Protection of the World Cultural and Natural Heritage (United Nations Educational, Scientific and Cultural Organisation, 1972). Specialists should be contracted prior to land disturbance to assess cultural heritage potential using both desktop and field investigations. Detailed studies may need to be completed for areas with high potential impacts.

76 Prior to land disturbance, a Chance Find Procedure should be developed and implemented, to be applied if cultural artifacts are subsequently discovered. The Chance Find Procedure will require training on what artifacts and cultural finds look like and will require long-term protection of any chance find until an assessment by qualified professionals is made and appropriate protection measures are implemented. Communities may need to be consulted for the identification and management of artifacts or sites of cultural heritage.

7 Conclusion

1 This document provides key principles of best or leading practices intended for practitioners contributing to technical and economic feasibility of mining projects, but also for mining companies managing their environmental and social risks.

2 There is an increasing impetus in the investment and financial sectors to rank, report, and track the ESG performance of companies in the mining industry. Financial institutions and large investors are aware of the risks that can accrue to projects in the environmental, social, and governance areas. Poor ESG performance can greatly affect the ability for a company to secure financing. The ESG performance record of a company may be required to determine whether it meets investment criteria and may affect other financial areas such as a company's eligibility for insurance, loans, and sureties. And while there is a financial aspect to ESG, it is all about the protection of the environment and public health and safety in very broad terms. Strong ESG performance can also provide benefits in maintaining social license, permits, investor confidence, and productivity.

3 Unlike other aspects of mining projects, environmental and social risks are difficult to assess using strict quantitative scientific or knowledge-based considerations since they are dependent on the perception the different rights holders, stakeholders, and regulatory agencies. These challenges notwithstanding, it is of prime importance for the company to provide reasonable clarity on these risks, how they are managed, and responsibly financed. One of the best examples of the risk from perceptions is defining permitting schedules, which are never fully prescribed or known and can result in exposure to delays and uncertainties resulting from external perceptions either by the government or by the impacted communities. It is therefore essential for companies to be transparent, clear, and recognize uncertainties.

4 Efforts to streamline the volume of information and to focus on impactful aspects, significant uncertainties, and anticipated or possible hurdles are recommended. Finally, these ESG Guidelines may be modified in the future as the state of practice in this space evolves.

8 References and Sources of International Standards and Guidance

8.1 International Reporting Standards and Principles

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Appendix A – Topic Relationship to Mineral Resources and Mineral Reserves

ESG Guidelines Section Number	Table of Contents - Topic	Potential Effects on MRMR (i.e., how MRMR is modified and/or the ability to develop reserves)					NI 43-101 F1 Related Item
		Cost	Schedule	Permits	Social Licence to Operate	Ability to Secure Financing	
1	Introduction						
1.1	Background						
1.2	Key Principles for ESG						
2	ESGP 1 – Environmental & Social Governance: Establish effective governance and management for ESG matters	x		x	x	x	
3	ESGP 2 - Impact and Risk Management: Assess and manage impacts and risks	x	x	x	x	x	Item 20a
3.1	Environmental and Social Impact Assessment			x		x	
3.2	Environmental and Social Management Systems			x		x	
4	ESGP 3 - Permits: Acquire and maintain compliance with approvals and permits	x	x	x	x	x	Item 20c
4.1	Regulatory Setting	x	x	x			
4.2	Environmental and Social Impact Assessment (ESIA) Approvals	x	x	x	x	x	
4.3	Permit Acquisitions		x	x		x	
4.4	Compliance Management		x	x		x	
5	ESGP4 - Environmental Planning: Minimize environmental impacts and long-term liabilities	x	x	x	x	x	Item 20b
5.1	Pollution Prevention						
5.1.1	Tailings Facility Management	x	x	x	x	x	
5.1.2	Mine Waste Management	x	x	x		x	
5.1.3	Water Management	x	x	x	x	x	
5.2	Resource Efficiency	x		x	x	x	
5.3	Biodiversity	x		x		x	

ESG Guidelines Section Number	Table of Contents - Topic	Potential Effects on MRMR (i.e., how MRMR is modified and/or the ability to develop reserves)					NI 43-101 F1 Related Item
		Cost	Schedule	Permits	Social Licence to Operate	Ability to Secure Financing	
5.4	Climate Change and Greenhouse Gases (GHG)						
5.4.1	Energy Use and GHG Emissions Management	x				x	
5.4.2	Climate Forecasting	x				x	
5.4.3	Climate Risk Assessment	x				x	
5.4.4	Mitigation and Adaptation	x				x	
5.5	Mine Closure Planning						Item 20e
5.5.1	Mine Closure Plan Development and Maintenance	x		x		x	
5.5.2	Risks and Opportunities	x				x	
5.5.3	Financial Aspects of Closure	x	x	x		x	
5.6	Emergency Preparedness and Response	x		x	x	x	
6	ESGP 5 - Social Planning: Protect people and benefit communities	x	x	x	x	x	Item 20d
6.1	Engagement						
6.1.1	Relevant International Standards and Guidance			x		x	
6.1.2	Research and Stakeholder Analysis		x	x		x	
6.1.3	Engagement Planning and Monitoring		x	x		x	
6.1.4	Grievance Mechanism				x	x	
6.2	Health and Safety						
6.2.1	Worker Health and Safety			x		x	
6.2.2	Community Health and Safety				x	x	
6.3	Procurement and Economic Development						
6.3.1	Local hiring	x	x		x	x	
6.3.2	Local procurement	x	x		x	x	
6.3.3	Indigenous community considerations	x	x	x	x	x	
6.4	Land Access, Acquisition, Displacement, and Resettlement						

ESG Guidelines Section Number	Table of Contents - Topic	Potential Effects on MRMR (i.e., how MRMR is modified and/or the ability to develop reserves)					NI 43-101 F1 Related Item
		Cost	Schedule	Permits	Social Licence to Operate	Ability to Secure Financing	
6.4.1	Land Access	x	x	x		x	
6.4.2	Land Acquisition	x	x			x	
6.4.3	Displacement and Resettlement	x	x		x	x	
6.4.4	Elements of Good Practice					x	
6.5	Human Rights: Protect and respect human rights						
6.5.1	Indigenous Peoples and Vulnerable Groups Including Women, Children and Migrant Workers				x	x	
6.5.2	Security Forces				x	x	
6.6	Cultural Heritage: Respect and protect cultural heritage	x		x	x	x	
7	Conclusion						

Notes: NI 43-101 Item 20 topics include:

Item 20a: *a summary of the results of any environmental studies and a discussion of any known environmental issues that could materially impact the issuer's ability to extract the mineral resources or mineral reserves;*

Item 20b: *requirements and plans for waste and tailings disposal, site monitoring and water management both during operations and post mine closure;*

Item 20c: *project permitting requirements, the status of any permit applications and any known requirements to post performance or reclamation bonds;*

Item 20d: *a discussion of any potential social or community related requirements and plans for the project and the status of any negotiations or agreements with local communities;*

Item 20e: *a discussion of mine closure (remediation and reclamation) requirements and costs.*

Appendix B – Closure Frameworks Comparison

The table in this appendix provides a summary of closure frameworks for leading practice around the world. Colour coding and acronyms are provided in the following legend.

Legend

APEC: Asia-Pacific Economic Cooperation
EPA Aus: Australian Environmental Protection Agency
EPs: Equator Principles
ICMM: International Council on Mining and Metals, Integrated Mine Closure: Good Practice Guide
IFC: International Finance Corporation
IGF-IISD: Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development - International Institute for Sustainable Development
IRMA: Initiative for Responsible Mining Assurance
MAC TSM: Mining Association of Canada, Towards Sustainable Mining, Mine Closure Framework

Table Icons:
Green = Included in Framework; Input Value = 3
Yellow = Partially included or implied in Framework; Input Value = 2
Red = Not included in Framework; Input Value = 1
User guidance: Each cell is formatted conditionally to the produce coloured icons when the corresponding and appropriate value is entered. To expand on evaluation in future, simply add a column and drag cell formatting across as needed.

Global Mine Closure Frameworks - Criteria Guide

	Mine Closure Framework/Guidance						
Criteria	MAC TSM	ICMM	IRMA	APEC	EPA Aus	IGF-IISD	EPs + IFC
CLOSURE PLANNING GOVERNANCE							
1. Develop/maintain closure plans, including post closure activities for new and existing projects, initiated during the early stages of projects and integrated throughout the lifecycle. Updated regularly having the level of detail appropriate to stage of development.	●	●	●	●	●	●	●
2. Early definition of closure vision, principles, objectives, and measures of success are supported by early engagement with stakeholders and developed based on knowledge, data collection, considering potential post-closure land use and identified risks.	●	●	●	●	●	●	●
3. Timing horizons are defined and schedules of closure planning elements are accounted for and integrated in project lifecycle, including schedules for regular plan updates, review, approvals and closure activities/implementation.	●	●	●	●	●	●	●
4. Management systems for closure planning documentation are comprehensive, including for maintenance of registries for all legal or other obligations/commitments relevant to the operation's closure, management of relevant data and information, stakeholder feedback and closure activities or trials record keeping.	●	●	●	●	●	●	●
SITE CHARACTERIZATION, RISK PROCESSES							
5. Closure planning is technically sound, defines baseline environmental conditions and characterizes the environmental setting, including climate and cultural/socioeconomic values and the relevant constraints, carried out by specialists.	●	●	●	●	●	●	●
6. Formal, proactive identification and assessment of risks and opportunities throughout the mining life cycle is incorporated in closure plans and managed in accordance with the mitigation hierarchy.	●	●	●	●	●	●	●
7. Identification of current surrounding land uses as well as the potential post-closure land uses, informed by community engagement and in consideration of their needs and regional development, considering any legacies which may restrict land use.	●	●	●	●	●	●	●
STAKEHOLDER ENGAGEMENT AND PARTICIPATION							
8. Stakeholders connected to closure planning are identified and a strategy for engagement is in place.	●	●	●	●	●	●	●
9. Internal and external stakeholders are involved and engaged throughout the entire closure planning process, including design, development of objectives and success criteria, plan execution and post-closure, to the degree practical.	●	●	●	●	●	●	●
10. When relevant, additional level of consideration for Indigenous Peoples and their rights, dignity, aspirations, culture, and livelihood and the impact of closure on their community or way of life.	●	●	●	●	●	●	●
ENVIRONMENTAL & SOCIAL CLOSURE							
11. Closure planning addresses key environmental aspects and impacts to monitor and manage performance, striving to achieve adequate site chemical/physical stability requirements related primarily to waste properties and facilities, surface water and groundwater quality, as well as landform interactions (such as ARD generation ??)	●	●	●	●	●	●	●
12. Impacts of climate change on closure planning process and activities are considered, a climate risk assessment carried out to evaluate threats and opportunities to any closure strategy elements.	●	●	●	●	●	●	●
13. Closure planning considers opportunities as well as risks, such as habitat creation and biodiversity improvements.	●	●	●	●	●	●	●
14. Closure planning with stakeholder input identifies and considers the protection of culturally valuable heritage features and the value of regional ecosystem services to communities.	●	●	●	●	●	●	●
15. Closure planning is conducted in consultation with communities to develop a plan and strategies to mitigate the socio-economic impacts of mine closure, and to support a smooth social transition, aligned with their communities needs, aspirations and regional long-term economic development.	●	●	●	●	●	●	●
CLOSURE PLANNING EXECUTION							
16. Operators commit to continuous improvement in their closure plans, incorporating risk-based consideration of new technologies, closure techniques and the current state of research and innovation to improve closure and aftercare activities.	●	●	●	●	●	●	●
17. Implementation of various progressive closure activities during the mine life to test and demonstrate the effectiveness, validity of success criteria and build trust with communities and regulators. Incorporate learnings of these activities into final closure.	●	●	●	●	●	●	●
18. Closure planning considers temporary and sudden closure scenarios for operating mines, including funding mechanisms, maintenance and surveillance programs, as well as identify any data gaps that affect the implementation of closure activities.	●	●	●	●	●	●	●
19. Holistic monitoring and maintenance programs, consistent with closure objectives and based on assessment of human health and ecological risks, are implemented during progressive reclamation, closure and/or post-closure to provide comprehensive information on reclamation progress and success	●	●	●	●	●	●	●
FINANCIAL CLOSURE							
20. Robust understanding of closure costs and alternatives. Identified financial liabilities and establishment of financial assurance mechanisms in accordance with applicable laws and obligations are determined, including reporting, and supported by expert review.	●	●	●	●	●	●	●
21. Relinquishment of closed sites to a third party are considered at the earliest stage of closure planning, including identification and evaluation of potential pathways, if applicable. Regulator and stakeholder feedback is incorporated.	●	●	●	●	●	●	●