GUIDANCE FOR GOVERNMENTS

Improving Frameworks for Environmental and Social Impact Assessment and Management

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The International Institute for Sustainable Development (IISD) serves as Secretariat for the IGF since October 2015. Core funding is provided by the Government of Canada.

Improving Frameworks for Environmental and Social Impact Assessment and Management
September 2019

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Recommended Citation

Disclaimers

Use of Examples and Case Studies Does Not Endorse a Jurisdiction’s Approach

The examples and case studies in this document present actual legislation and diverse experiences of stakeholders in managing environmental and social impacts in a wide range of jurisdictions. Presentation of legislation from a particular jurisdiction does not indicate endorsement of that jurisdiction’s legislation or how it has been implemented or failed to be implemented in particular projects. However, it is useful to compare the various approaches around the world and to easily access actual language from legislation on a particular key topic. Likewise, presenting a case study from a particular jurisdiction does not indicate that the jurisdiction is managing all aspects of its mineral sector optimally. There is room for improvement in all jurisdictions; this guide provides opportunities to learn across different jurisdictions from different types of mining projects.

Unofficial Translations of Legal Texts

The translations of laws and policies referenced and presented in this document are in most cases unofficial translations.

This Guide is Not a Substitute for Legal Advice

While this guide provides a range of factors and options to consider, this book is not a substitute for legal advice.
Acknowledgements

The IGF Secretariat would like to thank the German Government for its support. The IGF received funding support from the German Federal Institute for Geosciences and Natural Resources (BGR) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) for the development of this Guide.

This guidance document was developed based on input from IGF Members and a wide range of other stakeholders, including participants at the following international gatherings:

- October 15-19, 2018 IGF Annual General Meeting in Geneva, Switzerland, where IGF members and other stakeholders provided feedback on the Background Document: Legal Framework of Environmental and Social Impact in the Mining Sector.
- February 4-6, 2019 Investing in African Mining Indaba in Cape Town, South Africa where Indaba participants from government, company, non-profit organizations and others participated in Sustainability Roundtables led by the IGF Secretariat to discuss key themes in Environmental and Social Impact Assessment.

We thank the following subject-matter experts for their review and comments on draft reports: Robert A. Bassett, Robert A Bassett, P.C.; Lisa Caripis, Research and Policy Manager, Transparency International; Dr. Jenifer Hill, Principal, JLH Environmental; Dr. Cathryn MacCallum, Principal Consultant, Social Development and Management, SRK Consulting; Dr. Ann Maest, Vice President, Buka Environmental.
EXECUTIVE SUMMARY
Executive Summary

This document provides IGF member states with a summary of good international practice in legal frameworks for Environmental and Social Impact Assessment (ESIA) and related management plans for large-scale mines. While professional organizations have published technical guides on ESIA, guidance on law and policy frameworks for ESIA and related management plans is largely lacking in the literature. This guide aims to fill this gap for governments and other stakeholders who would like to improve their legal frameworks for and management of environmental and social impacts in the mining sector.

The IGF Secretariat’s survey of legislative frameworks for and research on ESIA and related management plans identified the following key components of a good legal framework:

1. Well-defined objectives incorporating principles of sustainable development.
2. The legal framework for ESIA and related management plans is regularly reviewed to ensure that it remains relevant given changes in technologies, international good practice, scientific knowledge and other circumstances faced by the jurisdiction.
3. Domestic legislation governing ESIA and related processes is streamlined, clear and free of conflicting requirements.
4. A single authority leading the ESIA process and coordinating all relevant government ministries and stakeholders involved, as well as the final decision at the end of the assessment.
5. Approval of the ESIA report before allowing exploitation activities to begin.
6. Processes established to coordinate expert input from relevant ministries.
7. Cooperative agreements with other jurisdictions if necessary.
8. Early and meaningful engagement and consultation with stakeholders.
9. Special consideration for the involvement of Indigenous Peoples, where applicable.
10. Timelines that are certain, predictable and reasonable given available human resources.
11. Decisions based upon science as well as traditional and local knowledge.
12. Transparent directions on how to navigate the ESIA stages.
13. Clear criteria set out for evaluation of ESIA reports.
14. Clear criteria for decisions, both those within the ESIA process and at the end when a decision to proceed or not must be taken.
15. Legal and/or procedural means for appeal of a decision on a project’s approval or rejection.
16. Requirements for financial assurance for closure and reclamation costs.
17. Requirements for monitoring and management plans including a mine closure plan.
18. Linkage between conditions of the ESIA approval and post-decision permits.
19. Established grievance mechanisms.
20. A transparent and easily accessible public registry where all project-related information is stored.
21. Regularly updated guidelines that support the legislation, for example, details on what elements need to be included in ESIA documents.
22. Reasonable, legislated sanctions or penalties for noncompliance, along with administrative remedies.

The guide provides an overview of the phases of the life of the mine and suggests key government actions for each phase. This guidance is summarized in the two tables below. Not every step proposed in this guide will be appropriate for every jurisdiction but each should be considered carefully by the government and its advisors, taking unique national and subnational circumstances into consideration.
Table 1: The mine life cycle: Definitions and key opportunities for responsible environmental and social management

<table>
<thead>
<tr>
<th>Prospecting and Exploration</th>
<th>Mine Planning</th>
<th>Construction</th>
<th>Mine Closure &amp; Post-Mining Transition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prospecting:</strong> The process of searching for economically exploitable mineral deposits. <strong>Exploration:</strong> Field work for rock and soil sampling, and use of small to heavy machinery to identify and quantify mineral resources.</td>
<td><strong>Mine Planning:</strong> Evaluation of the potential for mineral development through further studies and assessments.</td>
<td><strong>Construction:</strong> This phase involves building all the roads and infrastructure needed for the mine, including infrastructure needed for environmental management and to house employees. <strong>Operation:</strong> This phase involves extracting ore from the deposit and processing it to obtain mineral products of value to society, such as metals.</td>
<td><strong>Mine Closure &amp; Post-Mining Transition:</strong> The process that begins at an early stage of mine development to manage environmental and socio-economic impacts and benefits of mine closure, and the impacts that will remain after the mine has closed.</td>
</tr>
</tbody>
</table>

**KEY OPPORTUNITIES TO PROMOTE RESPONSIBLE ENVIRONMENTAL AND SOCIAL MANAGEMENT**

**Prospecting and Exploration:** This phase offers opportunities to make a good “first impression” of the minerals sector and the mining company by demonstrating respect and engaging with local communities, managing any advanced exploration techniques or other exploration techniques that pose a high level of social and/or environmental risk, and conducting remediation of exploration activities commensurate with level of environmental impact.

**Mine Planning:** This phase offers the optimal opportunities to comprehensively assess and develop plans and adequate funds to manage environmental and socio-economic impacts from construction through mine closure. This process, backed by the country’s legal framework and informed by public engagement and input from local communities, helps parties avoid social conflict and legal disputes, while optimizing environmental management and socio-economic development opportunities.

**Construction:** This phase offers opportunities to continuously implement and improve environmental and social management plans, including participatory monitoring mechanisms, to enhance environmental management and socio-economic benefits of the mine project. **Operation:** Participatory monitoring programs will last throughout operations and offer the opportunity for direct communication with the community about mine performance and for improvement of environmental and socio-economic conditions.

**Mine Closure & Post-Mining Transition:** While action on mine closure and the post-mining transition begins with planning in the Mine Planning Phase, and implementation and modification of plans in the Construction and Operations Phases, the closure phase offers a final opportunity to promote a positive legacy of the mine project, particularly for local communities and to ensure that the project supports local, regional, and national sustainable development objectives through the post-mining transition.
Table 2: Key government ESIA actions by phase of mine life cycle

<table>
<thead>
<tr>
<th>Key Government Actions by Phase</th>
<th>Construction and Operation Phases:</th>
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# Acronyms and Abbreviations

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<th>Description</th>
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<tr>
<td>AMD</td>
<td>acid mine drainage</td>
</tr>
<tr>
<td>ARD</td>
<td>acid rock drainage</td>
</tr>
<tr>
<td>BC</td>
<td>British Columbia</td>
</tr>
<tr>
<td>CDA</td>
<td>Community Development Agreement</td>
</tr>
<tr>
<td>CIP</td>
<td>Community Involvement Plan</td>
</tr>
<tr>
<td>CSR</td>
<td>corporate social responsibility</td>
</tr>
<tr>
<td>EA</td>
<td>Environmental Assessment</td>
</tr>
<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>EIAsd</td>
<td>Semi-Detailed Environmental Impact Assessment</td>
</tr>
<tr>
<td>EIS</td>
<td>Environmental Impact Statement</td>
</tr>
<tr>
<td>ESIA</td>
<td>Environmental and Social Impact Assessment</td>
</tr>
<tr>
<td>ESMP</td>
<td>environmental and social management plan</td>
</tr>
<tr>
<td>FPIC</td>
<td>Free, Prior and Informed Consent</td>
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<tr>
<td>FS</td>
<td>feasibility study</td>
</tr>
<tr>
<td>GHG</td>
<td>greenhouse gas emissions</td>
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<tr>
<td>HIA</td>
<td>health impact assessment</td>
</tr>
<tr>
<td>HRIA</td>
<td>human rights impact assessment</td>
</tr>
<tr>
<td>I&amp;AP</td>
<td>interested and affected party</td>
</tr>
<tr>
<td>IAIA</td>
<td>International Association for Impact Assessment</td>
</tr>
<tr>
<td>ICSID</td>
<td>International Centre for Settlement of Investment Disputes</td>
</tr>
<tr>
<td>IGF</td>
<td>Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development</td>
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<tr>
<td>IFC</td>
<td>International Finance Corporation</td>
</tr>
<tr>
<td>ILO</td>
<td>International Labour Organization</td>
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<tr>
<td>ISDS</td>
<td>investor–state dispute settlement</td>
</tr>
<tr>
<td>MAC</td>
<td>Mining Association of Canada</td>
</tr>
<tr>
<td>MMT</td>
<td>Multi-Partite Monitoring Team</td>
</tr>
<tr>
<td>MPF</td>
<td>Mining Policy Framework</td>
</tr>
<tr>
<td>MPRD</td>
<td>South Africa Mineral and Petroleum Resources Development Act, 2002</td>
</tr>
<tr>
<td>NGO</td>
<td>non-governmental organization</td>
</tr>
<tr>
<td>PCA</td>
<td>Permanent Court of Arbitration</td>
</tr>
<tr>
<td>PEA</td>
<td>Preliminary Economic Assessment</td>
</tr>
<tr>
<td>PFS</td>
<td>Pre-Feasibility Study</td>
</tr>
<tr>
<td>SDG</td>
<td>United Nations Sustainable Development Goal</td>
</tr>
<tr>
<td>SEA</td>
<td>Strategic Environmental Assessment</td>
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<tr>
<td>SESA</td>
<td>Strategic Environmental and Social Assessment</td>
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<tr>
<td>SIA</td>
<td>Social Impact Assessment</td>
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<tr>
<td>ToR</td>
<td>Terms of Reference</td>
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<tr>
<td>UNDRIP</td>
<td>United Nations Declaration on the Rights of Indigenous Peoples</td>
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</table>
Chapter 1

About This Guidance Document
Chapter 1: About this Guidance Document

Overview

Each year at their Annual General Meeting, Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF) members select a theme for a guidance document. At the October 2017 Annual General Meeting, IGF members decided to focus the guide on the legal framework for Environmental and Social Impact Assessment (ESIA) and related plans in the context of granting permits and negotiating mining contracts. The IGF members selected this topic based on their awareness of the challenges in assessing and managing environmental and social impacts and their insights that improving ESIA and related management plans is a critical component of optimizing sustainable development benefits in the minerals sector.

IGF guidance documents are developed annually by the IGF Secretariat based on the IGF Mining Policy Framework (MPF) and emerging best international practices. The MPF represents best practices for managing the minerals sector in a manner that optimizes the sector’s contributions to sustainable development.

The purpose of this document is to provide IGF member states with a summary of good international practice in legal frameworks for ESIA and related management plans for large-scale mines. Discussions of case studies and related tools are included to aid in evaluating and improving legal frameworks and environmental and social aspects of resource governance. While professional organizations have published technical guides on ESIA, guidance on law and policy frameworks for ESIA and related management plans are largely lacking in the literature. This guide aims to fill this gap for governments and other stakeholders who would like to improve their legal frameworks for and management of environmental and social impacts in the mining sector.

Implementing all the guidance suggested in this guide immediately would be a challenge for any government, but especially for governments where resources are limited. Moreover, not every step proposed in this guide will be appropriate for every jurisdiction, but each should be considered carefully by the government and its advisors, taking unique national and subnational circumstances into consideration.

While the guidance presented in this document is particularly designed for governments of IGF member states, the good practices and examples provided may also be useful for companies, civil society organizations, community leaders and others who are interested in optimizing sustainable outcomes from mineral development and governance.
Guidance Based on Comprehensive Research

Two important studies inform this guidance document. One study is the **Background Document: Legal Framework of Environmental and Social Impact in the Mining Sector** published by the IGF Secretariat in January 2019. Relevant ESIA legislations and regulations from more than 42 jurisdictions have been analyzed for the development of this guidance document.

The background document identified issues and problems related to the legal framework of ESIA and related plans in the mineral resource sector. The guide is also supported by extensive IGF Secretariat research of ESIA and management plans in legislative frameworks and mining contracts. This research looked at ESIA and management frameworks for large-scale mining in 10 IGF member countries and reviewed related clauses in a mining contract between the government of each country and a mining company.

Organization of the Guide

This guide is organized as follows:

- Chapter 1 provides important background as well as an introduction to this guidance document.
- Chapter 2 defines ESIA and explains why environmental and social management are important across the mine life cycle. This chapter describes key stakeholders, provides an overview of the phases of the life of a mine, describes potential environmental and social impacts of mining, and identifies key issues for ESIA and environmental and social management.
- Chapter 3 describes the importance of having a strong legal framework for governance of ESIA and related management plans in place **before** starting the permitting process for a new or expanding mine.
- Chapters 4 to 7 discuss ESIA and environmental and social management over each phase of the life of the mine, from prospecting and exploration to mine closure and the post-mining transition.
- The Annex to the guide provides additional resources, including: a Good Governance Checklist for each phase of the life of the mine with questions, tools and strategies for governments to consider when assessing or revising legal frameworks and processes; a list of key terms with definitions; a list of additional references and resources for further study of this topic.

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2. Afghanistan, Australia, Bhutan, Botswana, Burkina Faso, Burundi, British Columbia (Canada), Canada, Cameroon, Chad, Colombia, Democratic Republic of Congo, Dominican Republic, Ecuador, Egypt, Finland, France, Ghana, Guinea, India, Mali, Morocco, Mongolia, Mozambique, Nevada (United States), Niger, Nigeria, Nunavut (Canada), Ontario (Canada), Papua New Guinea, Peru, The Philippines, Quebec (Canada), Queensland (Australia), Rwanda, Senegal, Sierra Leone, South Africa, Tanzania, Thailand, United States, West Australia (Australia).
3. The final references of these laws and regulations will be incorporated in the final version of this Guidance document.
Chapters 3 to 7

These chapters include the following sections:

**Overview:** This section provides an overview of chapter content and describes basic principles for good governance of permitting, ESIA and management.

**State of Play:** This section describes current trends in environmental and social management.

**Key Government Actions:** This section describes key actions and strategies for government management of environmental and social impacts. Where available, case studies and examples are provided.

Limitations of this Guide

This guide does not cover artisanal and small-scale mining⁴ or present the unique challenges of small and medium-sized mining operations.

The guidance presented in this document, while incorporating the input of technical experts, does not detail technical aspects of conducting ESIA but instead focuses on good practices in legal frameworks. This guide is not a substitute for the level of informed, multi-disciplinary expert guidance that is needed to address the unique characteristics of any local development project. Accordingly, this guide presents good practices, examples and tools instead of attempting to provide law or policy “models.” Governments will need to build a diverse team with the requisite skills to gather information and carefully consider the unique circumstances of a particular project, the priorities of local communities and the surrounding environment.

Additional Resources

In addition to the resources provided in the Annex to this guidance document, you can find additional materials in a range of languages at [www.IGFMining.org](http://www.IGFMining.org). This guidance document may lead to additional future resources, including training courses and online materials. If you are interested in more information or would like to request additional training or materials, please contact the IGF Secretariat at [secretariat@igfmining.org](mailto:secretariat@igfmining.org).

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CHAPTER 2

INTRODUCTION TO ENVIRONMENTAL AND SOCIAL MANAGEMENT ACROSS THE MINE LIFE CYCLE
Chapter 2: Introduction to Environmental and Social Management Across the Mine Life Cycle

What is an ESIA?

An ESIA is a legal process that provides complete information about all development impacts, includes legitimate stakeholder engagement, and functions appropriately within decision making and planning to contribute to proactive environmental management and enhance the benefits of development.\(^5\) It is the process of identifying, predicting, evaluating and planning to mitigate the biophysical, social and other relevant effects of development proposals prior to major decisions being taken and commitments made.\(^6\)

Some jurisdictions continue to use the term “Environmental Impact Assessment” (EIA), and may have a separate “Social Impact Assessment” (SIA) process. This guide will use the term “ESIA” to recognize the growing importance of and expectation for managing socioeconomic impacts along with environmental impacts. ESIA incorporates the reality that environmental and socioeconomic impacts are often inextricably linked. The wider value of the environmental assessment process is the process of engagement with stakeholders and the dialogue it creates.\(^7\)

ESIA is a common and well-accepted process for trying to ensure that mining projects are not conducted at the expense of sustainable development. A comprehensive framework for ESIA promotes informed government decision making that takes into account environmental and socioeconomic factors while clarifying expectations for all stakeholders. This is particularly important in an era where there is so much political, economic and other pressures from a wide range of stakeholders.\(^8\) Because mining developments can have a wide range of effects on the natural environment as well as on the communities that live near the mining project, impact assessment in this sector has evolved from the early assessments focused more exclusively on the environment to now include much more attention to social, health, cultural and socioeconomic aspects.

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Key Stakeholders in ESIA and Management

Prior to describing good practices in ESIA and management, it is useful to understand the key stakeholders involved. A “stakeholder” is a person or group that is influenced by, or can influence, an operation. Stakeholders typically include national and local government representatives, representatives of Indigenous groups, leaders and residents of mine-impacted communities, representatives of non-governmental organizations (NGOs) and companies. Key stakeholders will range from project to project and from jurisdiction to jurisdiction.

Government Stakeholders

Government stakeholders include both national government leaders in relevant ministries and local government leaders. Government stakeholders may also include leaders in regional or local government, depending on government structures and procedures. Stakeholders may include representatives of national, regional, or local departments or ministries governing:

- Environment
- Mining
- Labour
- Finance
- Health
- Infrastructure
- Transportation
- Energy
- Trade
- Planning and Development

Community Stakeholders

Community stakeholders may include communities in mineral-rich areas, particularly those in areas zoned for mineral development. When considering a particular mining project, community stakeholders may include those within the mine area, in neighbouring areas, or along proposed road or other construction developments or transportation corridors.

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When discussing community stakeholders, it is very important to give special consideration to Indigenous groups. As further discussed below, Indigenous groups are afforded special rights under international law and, where recognized under national legal frameworks, may also have special protections under domestic legislation. Indigenous groups typically have their own leadership, governance and decision-making structures that should be well understood and respected by national and subnational government leaders and the mining company. Governments can play a facilitating role in opening dialogue between companies and Indigenous groups and ensuring that companies understand and respect the rights, procedures, leadership structures and cultures of Indigenous groups.

**Company Stakeholders**

Company stakeholders may include specific mining companies, industry groups, and companies that provide services to mines and in mining communities. In a particular project, the key company stakeholder is the company that holds the mining permit or licence. Public companies are driven by shareholder goals for economic gains and may have other investment requirements, which may include sustainability.

**Other Stakeholders**

A wide range of other important stakeholders may be interested in a project, including NGOs, land users, the media and individuals who express interest or have been identified as a stakeholder through ESIAs and related studies.

**The Mine Life Cycle**

The life cycle of a mine is generally comprised of five main phases that are strongly interrelated:

- Prospecting and Exploration
- Mine Planning
- Construction
- Operation
- Mine Closure and the Post-Mining Transition.

Activities in these phases often overlap. For example, advanced exploration drilling often occurs during mine planning, exploration drilling often occurs during operations to find additional ore to extend the life of the mine, and progressive closure and rehabilitation activities should begin during operations to minimize liabilities at the end of the mine life.

If environmental and social issues are not properly identified and managed in the early phases of the mine life, efforts to control impacts in subsequent phases may be limited in effectiveness. Responsible management in each phase can set the stage for responsible management of subsequent phases. For example, inadequate collection of baseline data or lack of effective public engagement in the mine planning phase may negatively impact all the subsequent phases of a project and could ultimately undermine the viability of a project. Similarly, successful management of environmental, social and economic impacts during the operation stage
may increase the success of the mine closure and post-mining transition phase. Good practice in each phase of mining lays the foundation for good practice in each subsequent phase.
Table 1. The mine life cycle: Definitions and key opportunities for responsible environmental and social management

<table>
<thead>
<tr>
<th><strong>Prospecting and Exploration</strong></th>
<th><strong>Mine Planning</strong></th>
<th><strong>Construction and Operation</strong></th>
<th><strong>Mine Closure &amp; Post-Mining Transition</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prospecting</strong>: The process of searching for economically exploitable mineral deposits.</td>
<td><strong>Mine Planning</strong>: Evaluation of the potential for mineral development through further studies and assessments.</td>
<td><strong>Construction</strong>: This phase involves building all the roads and infrastructure needed for the mine, including infrastructure needed for environmental management and to house employees.</td>
<td><strong>Mine Closure &amp; Post-Mining Transition</strong>: The process that begins at an early stage of mine development to manage environmental and socio-economic impacts and benefits of mine closure, and the impacts that will remain after the mine has closed.</td>
</tr>
<tr>
<td><strong>Exploration</strong>: Field work for rock and soil sampling, and use of small to heavy machinery to identify and quantify mineral resources.</td>
<td></td>
<td><strong>Operation</strong>: This phase involves extracting ore from the deposit and processing it to obtain mineral products of value to society, such as metals.</td>
<td></td>
</tr>
</tbody>
</table>

**KEY OPPORTUNITIES TO PROMOTE RESPONSIBLE ENVIRONMENTAL AND SOCIAL MANAGEMENT**

<table>
<thead>
<tr>
<th><strong>Prospecting and Exploration</strong></th>
<th><strong>Mine Planning</strong></th>
<th><strong>Construction</strong></th>
<th><strong>Mine Closure &amp; Post-Mining Transition</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prospecting and Exploration</strong>: This phase offers opportunities to make a good “first impression” of the minerals sector and the mining company by demonstrating respect and engaging with local communities, managing any advanced exploration techniques or other exploration techniques that pose a high level of social and/or environmental risk, and conducting remediation of exploration activities commensurate with level of environmental impact.</td>
<td><strong>Mine Planning</strong>: This phase offers the optimal opportunities to comprehensively assess and develop plans and adequate funds to manage environmental and socio-economic impacts from construction through mine closure. This process, backed by the country’s legal framework and informed by public engagement and input from local communities, helps parties avoid social conflict and legal disputes, while optimizing environmental management and socio-economic development opportunities.</td>
<td><strong>Construction</strong>: This phase offers opportunities to continuously implement and improve environmental and social management plans, including participatory monitoring mechanisms, to enhance environmental management and socio-economic benefits of the mine project.</td>
<td><strong>Mine Closure &amp; Post-Mining Transition</strong>: While action on mine closure and the post-mining transition begins with planning in the Mine Planning Phase, and implementation and modification of plans in the Construction and Operations Phases, the closure phase offers a final opportunity to promote a positive legacy of the mine project, particularly for local communities and to ensure that the project supports local, regional, and national sustainable development objectives through the post-mining transition.</td>
</tr>
</tbody>
</table>
Range of Potential Environmental and Social Impacts by Mining Project Phase

Mining has a wide range of potential environmental and social impacts that vary by project phase, from prospecting and exploration through mine closure and the post-mining transition. Impacts occur in the following areas:

- Community
- Workers
- Water use and quality
- Waste
- Hazardous materials
- Land use and biodiversity
- Air quality
- Noise and vibrations
- Energy use
- Visual impacts
- Heritage resources

The following table summarizes the range of key potential impacts by phase to help guide governance for sustainable development.
Table 2. Key potential environmental and social impacts by mining project phase

<table>
<thead>
<tr>
<th>Phase</th>
<th>Water use and quality</th>
<th>Wastes</th>
<th>Hazardous materials</th>
<th>Land use and biodiversity</th>
<th>Air quality</th>
<th>Noise and vibrations</th>
<th>Energy use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploration</td>
<td>Drilling water use</td>
<td>Non-hazardous waste</td>
<td>Potential spills from fuel transport, use and storage</td>
<td>Small disturbance of land use and biodiversity</td>
<td>Some vehicle emissions and dust</td>
<td>Noise from drilling</td>
<td>Minor energy use for camp operation and drilling, usually provided by mobile generators</td>
</tr>
<tr>
<td></td>
<td>Sediments in discharge</td>
<td></td>
<td>Potential spills from fuel transport, use and storage</td>
<td>Larger land clearing disturbance affecting fish and wildlife and their habitat</td>
<td>Dust from land clearing</td>
<td>Noise from heavy equipment</td>
<td>Energy use is for equipment used in reclamation and any ongoing water treatment</td>
</tr>
<tr>
<td></td>
<td>Water use for camp operation</td>
<td></td>
<td>Potential for spills from fuel transport, use and storage</td>
<td>Incremental disturbance of habitat</td>
<td>GHG emissions from equipment</td>
<td>Vibration and noise from mine pre-development</td>
<td>Energy use increases through construction as processes are brought online</td>
</tr>
<tr>
<td>Construction</td>
<td>Water release</td>
<td>Non-hazardous waste Mine rock storage</td>
<td>Potential spills from fuel transport, use and storage</td>
<td>Restoration of habitat and land use values as reclamation progresses</td>
<td>Dust from mining, roads, and tailings</td>
<td>Vibration and noise from mine blasting</td>
<td>Energy use increases through construction as processes are brought online</td>
</tr>
<tr>
<td></td>
<td>Water use for camp operation</td>
<td></td>
<td>Potential for spills from processing (depending on the type of process) GHG emissions from equipment</td>
<td></td>
<td>Potential for acid rock drainage and/or metal leaching</td>
<td></td>
<td>Large energy requirements for milling ore and moving materials</td>
</tr>
<tr>
<td>Operation</td>
<td>Water use for mineral processing</td>
<td>Non-hazardous waste tailings storage</td>
<td>Potential for spills from transportation, use, and storage of reagents</td>
<td></td>
<td>Water use for camp operation</td>
<td></td>
<td>Energy use is for equipment used in reclamation and any ongoing water treatment</td>
</tr>
<tr>
<td>Closure</td>
<td>Water use for camp operation</td>
<td></td>
<td>Potentially for long-term water management and treatment depending on how the mine was designed and the characteristics of the mine rock types</td>
<td></td>
<td>Water use for camp operation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Importance of a Comprehensive Legal Framework for ESIA and Management

The importance of a comprehensive, transparent and robust legal framework for ESIA and related environmental and social management in the minerals sector cannot be emphasized enough. From the perspective of ensuring that mining projects contribute to sustainable development, this framework can help governments:

1. Understand the potential environmental and social effects (negative and positive) before irrevocable decisions are taken.
2. Responsibly manage the potential effects of mining sector activities on the natural environment and people.
3. Support long-term socioeconomic development, which is particularly important for local communities.

For the private sector, this type of framework provides a clear understanding of the various environmental and social management requirements throughout the life of the project and allows greater confidence in the approaches from early mineral exploration to mine closure and the post-mining transition. The framework, if implemented by governments, is also likely to improve investor confidence, which is important for attracting foreign investment needed to advance and improve development. When the private sector fully understands the legal and procedural requirements of a potential project, they are in a better position to calculate the benefits and risks associated with mineral development.

The framework outlined in this guidance document is designed to aid governments in promoting sustainable development in the mining sector in two ways: first, it considers and tracks the legal and procedural components throughout the life of the mine, and second, it assesses the potential development through the lens of sustainability, taking into consideration the environment, the economy, human health, society and culture. When using and applying this guide, governments will be able to review and evaluate their current legal framework for mineral development by looking at all factors from a sustainability perspective. Practically, this requires governments to consider multiple strategic objectives in relation to: the country’s economic development prospects as a whole (but specifically in relation to the role of the mineral development sector); the country’s environmental protection objectives; and the need to protect and improve social and community health and well-being.

The need for a good legal framework is also critical for both internal and external processes within government. Internally, it is important to coordinate laws and procedures across ministries and across levels of government. Coordination of this type requires clear structure and understanding of the roles and responsibilities outlined for all aspects of the project throughout the life cycle of the mine. This guidance document explains the key government roles and responsibilities in each phase of mineral development.
Externally, governments need to clarify expectations for mining companies and communities in the areas of:

- Public engagement and consultation with Indigenous Groups.
- Gathering of local, traditional and Indigenous knowledge, and considering its potential use to inform assessments and management plans.
- The type and level of detail of studies that should be conducted (environmental, socioeconomic, health, etc.).
- The evaluation process and criteria used to assess mine permit applications (from exploration through mine closure and the post-mining transition).
- How decisions will ultimately be determined for permit and approvals and denials, renewals, suspensions, withdrawals, appeals and other permit-related actions.

A robust and comprehensive legal framework should provide for appropriate and meaningful engagement and participation of government, the company, the public, local communities and Indigenous groups. Given the extensive life of some mine projects, it is critical that a new development is acceptable to and considers those who are likely to be most affected by it. It is therefore of utmost importance that potentially affected communities have opportunities to contribute to the design of participatory mechanisms, and have access to needed support to utilize these mechanisms, evaluate pros and cons, and express their concerns and expectations throughout the life of the mine.

**Responsible Governance Through National Legal Frameworks**

National legal requirements for ESIAs for mining projects vary from one jurisdiction to another but are widely adopted. Requirements for ESIAs were identified in over 30 national legal frameworks studied to prepare this guide.

While the needs of each jurisdiction will vary, there are common components to a comprehensive legal framework for ESIA and environmental and social management plans. A comprehensive framework promotes good governance of environmental and social management through all phases of the life cycle of the mine, advancing integrated management of environmental and social impacts and benefits from exploration through the post-mining transition.

Good governance of ESIA can result in the following benefits:

- Opportunities to identify and minimize environmental and social harm
- Fostering local understanding of the proposed mine developments
- Overall resource efficiency
- Avoidance of costly social conflicts, work stoppage, litigation and international arbitration
- Ensuring that future generations are not left with a legacy of abandoned or otherwise improperly closed mines
• Providing clarity of process for companies and investors who seek to advance mining developments.

Key Issues for ESIA and Management

There are several challenging and important topics specific to environmental and social impacts of mining that require special attention. This section summarizes many of these key issues.

Land Rights

Land rights are a leading social and political issue in many mineral-rich developing countries. Where rights to land are unclear or undocumented, the economic, cultural and social well-being of individuals and even entire communities can be severely undermined. Governments must ensure that land rights are well-defined before permitting any mining activity. This can take time and even require significant legal reform to ensure protection of human rights.

In cases where resettlement is needed, government should ensure that the company has completed any resettlement in a manner that meets best practices and does not violate human rights. Similarly, governments must not violate human rights where government assistance is needed for resettlement and changes to land title changes. Note that resettlement can include economic displacement and residents without clear land title.

Water

Water use and management in mining is a complex and challenging aspect of the majority of mineral projects and mining operations. Drilling uses and must discharge water during exploration. The risk of erosion and release of sediments to creeks and rivers is high during the construction stage. Open-pit and underground mines are often below the groundwater table and accumulate water that requires pumping and treatment before being discharged to the surface. Mineral processing usually requires water that is then recycled, goes to tailings, or needs to be treated. Water that infiltrates mine rock storage facilities needs to be collected and often stored in facilities requiring water management and treatment facilities. Mineralized rock typically releases metals once it is exposed to oxygen, and sulphidic rocks can produce acid rock drainage. These contaminants are usually in high concentrations and need to be treated before being discharged to protect the aquatic life in the receiving environment and downstream users of the water.

Water use is a large source of conflict with mines in many areas of the world. Therefore, community consultation and water management, including the mine water balance and water quality modelling, are critical components in the impact assessment process and for setting permit conditions.

Management of Acid Rock Drainage

Acid rock drainage (ARD; also known as acid mine drainage, AMD) is undoubtedly the most well-known, difficult, persistent and costly environmental problem affecting mines and mining operations worldwide. Any attempt to evaluate the possible environmental impacts of mining should probably start by looking at this phenomenon.

Acid generation is fundamentally a natural process. The primary minerals responsible for ARD are the iron sulphide minerals pyrite, pyrrhotite and marcasite. These and other iron sulphide minerals are frequently associated with valuable ores. They are found in most gold and copper deposits, as well as in many coal seams. They are frequently found at many other types of metal mines. In general, the iron sulphide minerals in the rock react with oxygen and water to form sulfuric acid. In addition, the weathering products of these
sulphides, referred to as secondary iron sulphate minerals or efflorescent salts, can also form acid and release metals when they dissolve.\textsuperscript{10} Iron sulphide minerals generate acid through exposure to water and air. But the rate of reaction is low when they are undisturbed in rocks below the Earth’s surface.

Mining greatly increases the surface area available for chemical reaction by blasting the deposit and breaking and grinding the ore and waste rock during the mining process, and the rate of acid generation increases dramatically. Even with the increased surface area, the rate of acid generation is slower unless certain bacteria are present. However, the bacteria that increase the reaction rate by up to one million times are ubiquitous in the environment. An autocatalytic reaction—one in which the chemical products become reactants and start the reaction again—occurs with ARD, and this is what makes the reaction and ARD so difficult to turn off and remediate once it begins.

Mine leachate with a pH below 6 is considered to be ARD.\textsuperscript{11} As the pH lowers, the leachate will dissolve metals and other constituents from the mined materials and the surrounding rocks it encounters. The result is an acidic, metal- and sulphate-rich solution that may be laced with worrying concentrations of copper, iron, lead, arsenic, cadmium and other elements. If ARD reaches surface water and lowers the pH of the receiving stream, biota living in the affected watercourses may be adversely affected. Similar processes can affect groundwater and springs. If these water receptors are used for human consumption, livestock watering, irrigation or other economic uses, the uses will become impaired and can often only be remediated using expensive and complex treatment processes.

Mines that operated during the Bronze Age in Spain and 500 years ago in Bolivia are still producing acid drainage.\textsuperscript{12} Because ARD can last for centuries or longer, the current generation may benefit from the mineral riches produced from the mine, but our descendants will have to pay the cost for hundreds or thousands of years into the future. It is an intergenerational wealth transfer from unborn future generations to those of us now living—the antithesis of sustainable development.

**Tailings Management**

Tailings storage facilities can be a source of high risk for companies, governments and communities due to their potential for failure and catastrophic consequences if not designed, managed and monitored effectively. Tailings are a fine particle residual product from mineral processing. There are many ways to manage tailings, depending on the mine facilities, schedule, type of processing, environment and characteristics of the tailings. Tailings can be backfilled in areas of underground or surface mines where all the ore has been extracted, stored on land as dry or wet tailings. Tailings are often stored wet to prevent them from oxidizing and


releasing acid and metals (i.e., for long-term chemical stability); however, wet storage can sometimes challenge the physical stability of the dams.

From a governance perspective, when the mine project includes tailings, it is important to ensure that the company has completed a thorough alternatives assessment, physical and chemical characterization, robust design, water balance and water quality predictions as part of the impact assessment. Approval and permit conditions should be commensurate with the complexity and risk of the facility. International lenders and some governments now require a periodic technical review of tailings facilities by an independent panels of experts.

**Climate Change**

A changing climate poses significant challenges for the mining sector, both from adaptation and mitigation perspectives.

**Risk Management Approaches for Climate Change Adaptation**

Mines are now using climate data to aid in risk assessment and are identifying how climate change interacts with mining infrastructure across all phases of a project, from exploration to mine closure and the post-mining transition. Climate projections can prove beneficial for health and safety planning, understanding the impacts on and appropriately sizing mining infrastructure, efficiently managing water supplies, and protecting against extreme weather events or disruptions to transportation.

Climate change is resulting in higher risk for operations and environmental protection. For example, more frequent rainfall with higher levels of precipitation can result in unexpected releases of untreated water from tailings and/or water management facilities. Therefore, climate change analyses must be incorporated into mine design and into the impact assessment to ensure adequate measures are in place to manage extremes in water shortages, surpluses and increasing incidence of extreme events occurring over the life of the mine and after closure.

Glencore’s Sudbury Integrated Nickel Operations in Ontario, Canada, has analyzed potential weather risks, weather variability and future effects of climate change on mining facilities. This analysis includes developing adaptation strategies for water management/flooding risks, planning for impacts on transportation, and amending health and safety policies. Climate change projections also support climate risk assessments of dams and water management structures for a number of tailings management and waste rock storage areas at BHP’s Rio Algom Limited site in Elliot Lake, Ontario. Critical climate variables are also being factored into decision making that directly affects how and when the facility will close. Original design parameters in closure reports are being revised according to future climate condition parameters to more accurately represent predicted climate conditions.

The Mining Association of Canada (MAC) has recognized that climate change adaptation presents an opportunity for the mining industry. There are many benefits for mines in incorporating climate data into scalable risk-based mining frameworks and decision-making processes. A compelling argument can be made to practitioners, regulators and mining organizations of the cost savings, health and safety benefits, and strategic adaptation advantages over the life cycle of a mine. The next step for every mine operator is to incorporate climate change considerations into mine designs and for climate change to be a part of the continuous improvement programs. One of the most important issues is sizing mine facilities such as contact water ponds and diversion systems to hold water from larger storm events. The State of Nevada in the United
States recommends designing such facilities for the 500-year, 24-hour storm event rather than the 100-year, 24-hour storm event required by the IFC.  

Climate Change Impacts: Mitigation of GHG emissions

The mining sector is currently an energy-intensive sector but is advancing strategies to increase energy efficiency and reduce GHG emissions. As discussed previously, the transition to electric vehicles is one example of such efforts. The sector is also working to improve energy efficiency and use of renewable energy, and adopt low-emission technologies. It is also improving strategies for sharing efficient and renewable energy sources with communities around mines. All of this work and collaboration with mining companies is necessary to help progress toward Sustainable Development Goal (SDG) 13: climate action.

Emerging Technology

Innovative and technological advancements have the capacity to significantly change some of the potential effects of mine developments on both the environment and people. New technologies can reduce some environmental and social concerns while simultaneously amplifying others, as described below.

The increased use of robots in mining may mean fewer mine-related accidents, increased efficiency of operations, lower unit costs and decreased environmental impact. It could simultaneously result in a dramatic drop in training and hiring of employees from the local communities. Mines have historically sourced both skilled and unskilled workers. However, the onset of autonomous technological advances in the mining industry could rapidly decrease the number of human workers needed to perform the same amount of work. This poses an important challenge for mine companies who have historically relied upon the economic and social benefits that they bring to a community through job creation to attain community and government support.

As autonomous and electric vehicles, robotics, telemetry, fibre optics, alternative energy and other technologies quickly emerge in the sector, governments will need to continuously build capacity to understand and manage new technologies, as well as understand the associated environmental and social repercussions. For many reasons, governments should welcome such technological advances and specifically reward mining projects that adopt cleaner or energy-efficient technologies.

The use of autonomous trucks in mines is gaining momentum, with several companies looking to capitalize on this opportunity. Many of the environmental and social effects of technology are being realized in mines today, such as Rio Tinto’s Pilbara mine in Western Australia, as more than 80 Komatsu haul trucks are already autonomous. Although a strong argument can be made for breakthrough technologies to be used in mines (e.g., greater efficiencies in ore extraction and/or energy use, reduced accidents and collisions, improved health and safety conditions for employees), upfront costs can remain high for smaller companies and social deficiencies may exist. If Rio Tinto employed an entire fleet of autonomous vehicles, at least 400

jobs would be lost. This does not include the social and economic ramifications affecting local businesses that support miners.

Telemetry is also rapidly becoming a cost-effective and efficient method for real-time environmental monitoring from mining exploration to closure. Three telemetry options exist—radio, cellular and satellite—all of which require data loggers that quickly communicate local information to a base station. Radio telemetry is only possible if pieces of equipment are in relative proximity to one another, transferring data by spread-spectrum radio technology. Cellular telemetry allows for equipment to be farther apart, relying entirely on cellular signals for data transfers. Satellite telemetry is capable of transferring real-time data from a remote Iridium satellite modem to a base station anywhere on Earth. Real-time monitoring through telemetry can be quite economical across the entire life cycle of a mine. Once data loggers are positioned and connected to a base station, telemetry has the potential to: quickly collect high-quality data and recognize issues, establish two-way communications, save time and resources, and receive consistent data from potentially difficult-to-access areas. That said, since a core component of ESIAs include baseline data collection and subsequent monitoring, the emergence of telemetric technologies could replace considerable effort by both skilled and unskilled workers.

Another major technological shift with regards to health, safety and environment is the emergence of clean or energy-efficient technology at mines. Recently, Goldcorp has eliminated diesel fuel and opted to rely on electric power for subsurface vehicles at the Borden Mine in Ontario, Canada. This radical transformation not only provides workers with a work environment with better atmospheric conditions than traditional mines, it has the potential to reduce overall emissions by 50 per cent. Several incentives exist for mining companies to not continue to use diesel fuel and integrate clean technologies in mines. This is because cleaner and sustainable mining projects are likely to increase government and community acceptance if efficient technologies are implemented. Governments should acknowledge pro-environmental efforts and utilize mining as an outlet to assist in reducing the effects of climate change by including appropriate requirements and measures in applicable legislation. Using new and cleaner energy-efficient technologies may prove more challenging for mines in highly remote areas or in less developed countries where access or opportunities for alternative energy technologies are not yet available.

Renewed Approaches to Gender in Mining

Mining often has different impacts on and benefits for men and women. According to Oxfam, “while some progress has been made in recent years, the extractive industries continue to undermine women’s rights and

contribute to gender inequality, which hampers the development potential of the sector.” Many of these gender issues stem from inequitable opportunities, poor financial compensation and exacerbated living environments as a result of mining projects.

Because mining is a historically male-dominated work environment, women have struggled to have a voice and gain access to employment. For example, only 5–10 per cent of the global mining workforce is female. These numbers also reflect the percentage of women who are given opportunities to make high-level decisions in mining. Overall, fewer opportunities for women, little access to resources, poor benefits and lack of awareness that gender issues exist all make it difficult for women to engage in mining. Equitable opportunities for women in mining must be highly promoted.

Economic issues also persist, as men who work in mining receive at least 17 per cent greater financial compensation than women. Circumstances may arise, for example, where payments or benefits are conferred directly to a male “head of household” and not equitably shared with a female partner. This inequitable financial imbalance denies women the financial freedom created by economically fruitful mining projects. In turn, this increases women’s reliance on men, which then amplifies existing gender problems in the mining sector.

Furthermore, women also are exposed to environmental, health and safety constraints. Mining projects can lead to unpredictable and potentially harmful living conditions for women, as either damaged or restricted access to land can displace residents. This can lead to increased workloads specifically for women, who are traditionally responsible for caretaking. The effects of resettlement typically impact women more, as connections to traditional support networks are severed and dependence on men can intensify. In most cases, a transient male workforce is needed to accommodate the demands of large-scale mining projects. This can further result in the following issues that affect women disproportionately: the spread of diseases, increased violence, sexual exploitation and increased stress levels due to unsafe living conditions.

In summary, impacts disaggregated by gender should be represented in the ESIA laws, and gender equality objectives ought to be included in environmental and social management plans. These efforts would help build inclusive societies and advance progress toward SDG 5 on gender equality. Women in mining can be effectively empowered through systemic change. The most effective solution is social norms being overcome by positive social progress. Governments have an obligation to protect all citizens potentially affected by industrial development, and especially the vulnerable. There must be an onus on mining companies to train and sensitize men and women employees, local communities and children. They should provide information that instills gender equity as a value and principle and encourage women to have a prominent role in advocacy spaces. It is essential that the work of women also be dignified at the political level and displayed to their

23 Ibid.
26 Ibid.
27 UN SDG, n.d.
28 Ibid.
communities by mining companies. Policies, procedures and protocols in mining companies and organizations could effectively spearhead gender equality initiatives.  

Indigenous Rights and Consultation

Indigenous Peoples have special rights under international law, including the right to Free, Prior and Informed Consent (FPIC). FPIC is recognized in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). It gives Indigenous Peoples the right to give or withhold consent to a project that may affect them or their lands. These rights, which are not recognized by all countries, are independent from those of the general public and non-Indigenous mine-impacted communities.

The International Labour Organization Indigenous and Tribal Peoples Convention 169 (ILO 169) is the primary international treaty that governs Indigenous rights. Only 23 countries have ratified ILO 169. Some of those countries recognize the right to FPIC and some do not. ILO Convention 169 provides a legal framework for FPIC in countries that have ratified it. In these countries, consultation must have certain characteristics: appropriate proceedings, good faith, representative community institutions and the aim of achieving an agreement. The consultation is the responsibility of the government when there are “legislative or administrative measures which may affect them directly.”

Implementation of ILO Convention 169 has proven to be difficult. Some countries have adopted regulations, others have attempted but failed to adopt regulations and some others are simply moving forward without regulations.

In certain countries that did not ratify ILO 169, the state has granted Indigenous Peoples the right to approve or reject a project. This is especially the case when the holder of the research permit must first obtain the agreement of the community in the form of a legal document before being granted the exploitation permit. It is important here to distinguish between the legal power granted to Indigenous Peoples to be consulted or approve a mining project or not, from the diffuse concept of the “social licence to operate.” In the first case, it is a true right of veto and in the second case, a way for companies to ensure ongoing acceptance from the community for the feasibility and success of the project in the long term.

Issues related to Indigenous Peoples are also crucial in Latin America, the location of several responding states in mining arbitration cases related to the ESIAs. The mining and environmental laws from this area that we examined show that Indigenous Peoples have been given a role to play in the process of developing ESIAs and related plans, but do not have a right of veto. Another of the main problems is that the law has not provided effective mechanisms for the communities to actually participate or have their issues addressed (this includes the regulation of ILO Convention 169).

In Africa and Asia, where issues related to Indigenous Peoples are generally less prominent, local communities do not have a legal veto right. As a result, the final decision rests with the central or provincial government.

For countries where the protection of Indigenous Peoples is a sensitive issue, it is important that legislation clarify and strengthen their role in the process of developing ESIAs and related plans, while putting in place

29 UN SDG, n.d.
31 See, for example, South Africa, Environmental Management Act (2017), Article 40.1.a.
tools and mechanisms to ensure their effective participation. The UNDRIP, jurisprudence of the Inter-American Court of Human Rights and recommendations from UN supervision agencies and Special Rapporteurs offer best practice on how to meaningfully consult the public and uphold Indigenous rights. If every legislative approach considered these best practices, it would reduce the risk of conflicts and arbitration cases related to ESIAs.

**Biodiversity**

Biodiversity conservation is gaining importance due to increasing threats from habitat loss and fragmentation. Countries who are signatories to the International Convention on Biological Diversity and international financiers of mining projects require impacts on biodiversity to be effectively managed and offsets created for losses in critical habitat. In many cases, governments will be asked to assist companies with managing land tenure and creating legally protected areas for offsets. The governance framework needs to accommodate these requirements.
Table 3. Key government ESIA actions by phase of mine life cycle

<table>
<thead>
<tr>
<th>Prospecting and Exploration</th>
<th>Mine Planning</th>
<th>Construction and Operation</th>
<th>Closure and Post-Mining Transition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KEY GOVERNMENT ACTIONS BY PHASE</strong></td>
<td><strong>Construction and Operation Phases:</strong></td>
<td><strong>Operations Phase</strong></td>
<td><strong>Closure and Post-Mining Transition</strong></td>
</tr>
<tr>
<td>1. Distinguish between prospecting and exploration</td>
<td>1. Ensure ongoing community engagement and capacity building</td>
<td>1. Require ongoing action to implement Mine Closure Plan and prepare for (temporary and permanent) mine closure</td>
<td>1. Inspect and monitor implementation of the Mine Closure Plan and complete final inspection prior to relinquishment</td>
</tr>
<tr>
<td>2. Define social and environmental requirements for exploration</td>
<td>2. Provide clear inspection requirements and adequate human resources for compliance checks and enforcement</td>
<td>2. Address both social and environmental aspects of mine closure in closure guidelines</td>
<td>2.</td>
</tr>
</tbody>
</table>
LAYING THE FOUNDATION FOR GOOD GOVERNANCE OF ENVIRONMENTAL AND SOCIAL IMPACTS: PREPARING FOR THE PERMITTING PROCESS
CHAPTER 3: Laying the Foundation for Good Governance of Environmental and Social Impacts: Preparing for the permitting process

Overview

This chapter describes the key building blocks of a comprehensive foundation for good governance of environmental and social impacts.

In this chapter you will learn why it is important to:

1. Develop a national vision for sustainable development through the mining sector.
2. Align international, national and subnational law and policy.
3. Adopt a comprehensive legal framework for permitting, ESIA and related social and environmental management plans before mining permits are issued.
4. Clarify roles and opportunities for collaboration across ministries.
5. Conduct a strategic ESIA for the mining sector.
7. Create guidelines for participatory environmental and social monitoring.
8. Ensure that adequate human resources are in place, along with ongoing training programs.

Governments can lay the foundation for responsible management of environmental and social impacts by promoting a clear vision for the role of ESIA and ensuring that a comprehensive legal framework for environmental and social impact management is in place, along with the necessary human and fiscal resources needed to implement the framework, before the permitting process begins. In countries where mining permits have already been issued, as is the case in most mineral-rich countries, these strategies can now be assessed and, where applicable, put into place before new permits for exploration or operations are issued.

Putting the time and resources into getting the right legal framework in place in advance of permitting mining activities can minimize environmental and social issues throughout the life of the mine while optimizing environmental management and socioeconomic benefits. Furthermore, as noted in the introduction above, a clear legal framework for responsible management of environmental and social impacts can increase the confidence of companies and investors who seek to advance mining developments.

State of Play

Two important studies inform this guidance document. One study is the Background Document: Legal Framework of Environmental and Social Impact in the Mining Sector published by the IGF Secretariat in January 2019. The background document identified issues and problems related to the legal framework of ESIA and related plans in the mineral resource sector. The guide is also supported by extensive IGF Secretariat research of ESIA and management plans in legislative frameworks and mining contracts. This research looked at ESIA and management frameworks for large-scale mining in 10 IGF member countries and
reviewed related clauses in a mining contract between the government of each country and a mining company. Trends identified across the legal framework and contracts studied in preparation of this guidance document are summarized in the table below.

### Table 4. Trends in legal frameworks for ESIA and environmental and social management

<table>
<thead>
<tr>
<th>Trends in Legal Frameworks</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>General commitment to environmental protection and sustainable development</td>
<td>The legal frameworks reviewed typically include a strong commitment to environment protection and/or sustainable development in their Constitution and Environmental Law.</td>
</tr>
<tr>
<td>Environmental law prevails in most circumstances of conflict of laws</td>
<td>Where there is an inconsistency between environmental law and mining law (or other laws, other than the Constitution), most legal frameworks state that environmental law prevails.</td>
</tr>
<tr>
<td>Requirements for ESIA</td>
<td>The legal frameworks require assessment of environmental impacts, although the detailed requirements varied widely. Almost all of the frameworks also require assessment of social impacts. Most of these were in integrated assessments.</td>
</tr>
<tr>
<td>Requirements for management plans</td>
<td>Most legal frameworks require companies to provide an environmental management plan. However, only some specifically require social management plans. Some of the frameworks also required some type of development plan to benefit local communities.</td>
</tr>
<tr>
<td>Requirements for reclamation and mine closure</td>
<td>Most legal frameworks reviewed require some level of requirements for reclamation and mine closure with costs borne by the company. Legal frameworks vary widely in level of detailed requirements. Some legal frameworks require the ministry of the environment to approve a mine closure plan while others require approval from the ministry of mining or from both ministries.</td>
</tr>
<tr>
<td>Timing and approval process</td>
<td>Legal frameworks typically state that a mining licence holder cannot start activities without some type of written authorization or certificate from the environmental ministry. Requirements for exploitation projects typically require a full EIA. Some also require environmental and social management plans, and rehabilitation and mine closure plans with corresponding budgets.</td>
</tr>
<tr>
<td>Reporting requirements</td>
<td>A few frameworks require reporting on environmental monitoring and compliance to the ministry of mines, but most frameworks require reporting directly to the ministry of the environment or to both ministries. The frequency of reporting requirements on environmental and social management plans is typically once per year, with semi-annual reporting in some jurisdictions.</td>
</tr>
<tr>
<td>Public engagement requirements</td>
<td>Most frameworks broadly require public engagement during the ESIA process before a project may be implemented.</td>
</tr>
</tbody>
</table>

However, some challenges were also identified in the legal frameworks and contracts reviewed.
### Table 5. Common challenges in legal frameworks for ESIA and environmental and social management

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Specifications</th>
</tr>
</thead>
</table>
| Confusion or lack of alignment of laws applicable to the mining sector within the same jurisdiction | Some mining laws and environmental laws within the same jurisdiction are not aligned, leading to contradictions that impair or limit effective implementation.  
Some laws and regulations governing the ESIA process in the mining sector are outdated, leading to approaches that do not reflect current challenges or making implementation difficult or impossible because of inconsistencies.  
Some mining contract provisions do not comply with applicable laws and regulations. |
| Ambiguity concerning the rights of permit holders during the transition phase between exploration and exploitation | Several mining laws obtain some form of a “right to obtain an exploitation permit.” Such provisions can minimize the role of an ESIA process in the permitting process, making the ESIA process simply procedural. |
| Failure to require approval of an ESIA report and management plans during the permitting process | In some jurisdictions, the timing of submitting and approving an ESIA report and/or related management plans diminished their weight in the permit decision-making process. In some jurisdictions, for example, management plans were required after instead of before granting the operations permit. |
| Shortcomings in procedures for preparing and approving an ESIA report | Division of responsibilities between the ESIA approval authority and the mine permitting authority remain unclear in some jurisdictions, creating coordination issues.  
Automatic approval of ESIA reports and related plans appears in some legislative frameworks, for example, where a decision on an ESIA report is not made within a set timeframe, it is automatically approved.  
Many frameworks do not include requirements or guidelines for integrating socioeconomic considerations into the ESIA study and related management plans.  
Most frameworks do not include requirements or guidelines for integrating climate change mitigation and adaptation considerations into the ESIA study and related management plans.  
Several jurisdictions do not provide robust requirements for public and stakeholder engagement in the ESIA process and development of related management plans.  
Requirements that promote transparency and prevent conflicts of interest in the ESIA process and related permit decisions are widely insufficient. |
| Lack of appropriate mechanisms for monitoring and implementing environmental and social management plans | Requirements for reporting to the public and stakeholders on the ESIA process, management plans and progress on management plans is widely insufficient.  
In several jurisdictions, regular review and amendment of environmental and social management plans are not required.  
In some jurisdictions, penalties for violations of environmental and social obligations are not commensurate with the impacts of such violations.  
In most jurisdictions, the procedures and legal implications of relinquishment are unclear. |
Below are some of the best practices and actions governments may consider when assessing and improving their law and policy frameworks for ESIA and environmental and social impact management for the minerals sector.

It is important to reiterate here that not all recommendations in this guide will be applicable in all national contexts. Furthermore, governments will need to prioritize which strategies to implement and in what order, based on available budgets, capacity, national and subnational objectives, and other factors. However, the actions and strategies below represent good international practices for governments to consider.

**Key Government Actions: Laying the foundation for good governance of environmental and social impacts**

1. **Develop a National Vision for Sustainable Development through the Mining Sector**

The ministry of environment, ministry of mining and other relevant government ministries, together with representatives from key companies, Indigenous groups, communities and other stakeholders, should discuss and elaborate a national vision for sustainable development through the mining sector.

Planning for sustainable development takes place at many levels, including at the project, local, regional, national and international levels. International frameworks, including the SDGs, can inform the national vision for sustainable development. However, the vision should primarily be informed by local perspectives and experience, including those of local government, Indigenous groups and communities in mineral-rich regions. The national constitution, environmental laws and mining laws likely already contain some of the underlying concepts for this vision and may be referenced.

Existing national and subnational development plans can also inform the vision. It is important to make efforts to align development plans so that local-level plans and perspectives inform the national vision. Much of the benefit of this process may be in the process itself and not just the resulting vision; vision-building is an opportunity to discuss the topic of sustainable development with civil society and others and build awareness.

### The United Nations Sustainable Development Goals

The 17 SDGs are the heart of the 2030 Agenda for Sustainable Development, unanimously adopted by all United Nations Member States in 2015. Together, developing and developed countries are working in a global partnership to advance objectives to end poverty, improve health and education, reduce inequality, and advance economic growth, while addressing critical issues such as climate change and preserving our oceans and forests. The SDGs provide a global vision but emphasize the importance of inclusive planning and partnerships to meet the goals. ESIA and other efforts to manage the environmental and social impacts and benefits of mining can help advance the SDGs at the local, regional and national levels. Read more at [https://sustainabledevelopment.un.org/sdgs](https://sustainabledevelopment.un.org/sdgs).

ESIA processes are governed by various legal instruments in any given jurisdiction, including:

- **Domestic law**: In the majority of jurisdictions, ESIA requirements for the mining sector are primarily, but not exclusively, mining and environmental laws and regulations that outline ESIA and management plans in the context of mine permitting, management and closure. Ideally, domestic law should comprehensively address and regulate all components of ESIA processes and outcomes. Domestic law is the primary focus of this guidance document. It should reflect and implement the principles and obligations of international instruments the government has adopted and ratified.

- **International treaties**: Treaties provide international obligations directly or indirectly related to ESIA processes that state parties commit to respecting and implementing within their domestic legal framework. Key examples of international treaties include: the United Nations Framework Convention on Climate Change, the Stockholm Convention on Protecting Human Health and the Environment from Persistent Organic Pollutants, the Convention on Biological Diversity, the Ramsar Convention on Wetlands, the United Nations Declaration on the Rights of Indigenous Peoples, and the Convention on the Elimination of All Forms of Discrimination Against Women.

- **Lender requirements** have also been a major driver of ESIA development in much of the world. The requirements are provided by two categories of lenders. The first set of requirements applies to projects funded by development banks, such as the World Bank Environmental and Social
Framework,\(^{32}\) which has applied since 2018 in parallel with the previous Environmental and Social Safeguard Policies\(^ {33}\) for a transitional period, the International Finance Corporation (IFC) Performance Standard 1,\(^ {34}\) and its related Guidance Notes\(^ {35}\) as well as regional development bank requirements. The second set of requirements applies to projects financed by private lenders; the main one is the Equator Principles.\(^ {36}\) All of these requirements not only represent good practice, they are obligatory for many projects. If national ESIA practice does not meet these standards, the ESIA process, or parts of it, may need to be revised.

- **International voluntary standards:** Voluntary standards can synthesize good international practices and provide guidance for national legislation and for specific stakeholders. Such voluntary standards may be adopted by governments, companies or other stakeholders, and these standards may also be referenced in mining contracts and legal frameworks. The IGF MPF, and particularly the Environmental Management and Post-Mining Transition pillars,\(^ {37}\) is an example of international voluntary standards adopted by a governmental lead organization. It is critical for governments to align international legal obligations and, where relevant, good practices represented in voluntary standards, in domestic laws pertaining to ESIA governance. The overall domestic legal framework should be free of conflicts between international obligations and national law and policy frameworks. This alignment will promote procedural clarity and streamline implementation.

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### What about Mining Contracts?

ESIA and related management plans have been governed, in part or fully, by mining contracts in some developing countries. This approach is less common today. As ESIA and related management practices have evolved, legal requirements have become cornerstones of national environmental laws and regulations, typically supported by mining laws and regulations, and guidelines for the mining sector.

The best place to define company and government obligations for ESIA and related management plans is in domestic laws and regulations. However, some governments use contracts between the host government and companies (investor–state contracts) as a “gap filler” where the legal framework has significant shortcomings, is not comprehensive, does not incorporate good international practices, or is insufficient or unclear, for example, in response to a new form of mining technology.

The approach of using contracts to manage environmental and social impacts has both strengths and weaknesses. On a positive note, a contract can more specifically respond to the unique environmental and social circumstances of a particular project and local communities. On the other hand, a piecemeal approach to environmental management, contract by contract, can result in greater difficulty inspecting and monitoring compliance. Furthermore, community conflict may result where there are higher or lower standards for one company than for a company operating in or near a neighbouring community.

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\(^{34}\) See [https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/Performance-Standards](https://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/Performance-Standards)


\(^{36}\) See [https://equator-principles.com/](https://equator-principles.com/)

\(^{37}\) See [https://www.igfmining.org/mining-policy-framework/framework/](https://www.igfmining.org/mining-policy-framework/framework/)
Where contracts are used to manage environmental and social impacts, care should be taken to provide a role for local governments and communities in ESIA and management plans. The roles and obligations should be perceived as fair by the parties to the contract and by interested communities. For examples of contractual language on ESIA and management plans, see the International Bar Association Model Mine Development Agreement (MMDA) Version 1.0 (2011), available in multiple languages at: http://www.mmdaproject.org/.

In any case, where mining contracts are used, they should always be aligned with and subject to domestic laws. Government should ensure that mining contracts are not used as an instrument to replace domestic laws or undermine implementation of domestic rule of law. In addition, they should avoid environmental and social stabilization provisions in laws and contracts, as discussed below in the planning phase chapter.

3. Adopt a Comprehensive Legal Framework for Permitting, ESIA and Related Social and Environmental Management Plans Before Mining Permits are Issued

A comprehensive legal framework incorporates good international practices and is also tailored to respond to unique local circumstances. An overarching framework for ESIA is typically found in the environmental law and regulations, with more detailed requirements and guidelines for the mining sector either issued by the environmental ministry or the ministry of mining. Where requirements are issued by multiple ministries, care should be taken to ensure that obligations and procedures are aligned and do not conflict or result in unnecessary duplication or inefficiencies.

Comprehensive and clearly written ESIA legislation is critical, as it sets out the rules companies must follow. Transparency of the law and supporting documentation, such as regulations and policies, is paramount so that all involved can effectively participate in the process.

Public Access to Environmental Information

Access to environmental information is required by the Rio Declaration on Environment and Development; the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, and other international declarations and conventions. Public participation is also recognized as a key principle in international environmental law. ESIAs, updates to ESIAs and reports on progress implementing environmental and social management plans should be made accessible to the public. Mining contracts should also be made available to the public.

The IGF Secretariat’s survey of legislative frameworks for and research on ESIA and related management plans identified the following key components of a good legal framework:

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41 IGF, 2019.
1. Well-defined objectives, incorporating principles of sustainable development.
2. The legal framework for ESIA and related management plans is regularly reviewed to ensure that it remains relevant given changes in technologies, international good practice, scientific knowledge and other circumstances faced by the jurisdiction.
3. Domestic legislation governing ESIA and related processes is streamlined, clear and free of conflicting requirements.
4. A single authority leading the ESIA process and coordination of all relevant government ministries and stakeholders involved, as well as the final decision at the end of the assessment.
5. Approval of the ESIA report before allowing exploitation activities to begin.
6. Processes established to coordinate expert input from relevant ministries.
7. Cooperative agreements with other jurisdictions if necessary.
8. Early and meaningful engagement and consultation with stakeholders.
9. Special consideration for the involvement of Indigenous Peoples, where applicable.
10. Timelines that are certain, predictable and reasonable given available human resources.
11. Decisions based upon science as well as traditional and local knowledge.
12. Transparent directions on how to navigate the ESIA stages.
13. Clear criteria set out for evaluation of ESIA reports.
14. Clear criteria for decisions, both those within the ESIA process and at the end when a decision to proceed or not must be taken.
15. Legal and/or procedural means for appeal of a decision on a project’s approval or rejection.
16. Requirements for financial guarantee for closure and reclamation costs.
17. Requirements for monitoring and management plans, including a mine closure plan.
18. Linkage of conditions of the ESIA approval with post-decision permits.
19. Established grievance mechanisms.
20. A transparent and easily accessible public registry where all project-related information is stored.
21. Regularly updated guidelines that support the legislation, for example, details on what elements need to include in their ESIA documents.
22. Reasonable, legislated sanctions or penalties for noncompliance, along with administrative remedies.

**Integrating Components of ESIA and Management**

Some legal frameworks require a wide range of types of impact assessments. These may include environmental, social, human rights, economic, gender, health and possibly other types. While these types of assessments are identified as separate components of a comprehensive analysis, ideally the ESIA legislation or policy will direct the overall analysis to be conducted in an integrated manner, resulting in a comprehensive review. Older legislation that only assess environmental impacts may benefit from updates to include other critical socioeconomic issues. Likewise, each assessment may have its own separate management plan that is monitored by separate teams and may or may not inform progress on rehabilitation plans, mine closure plans and plans for the post-mining transition. Where possible, these impact assessments and management plans should be streamlined to avoid duplication of effort and to optimize access to information and use of resources.

**4. Clarify Roles and Opportunities for Collaboration Across Ministries**

Effective governance of ESIA and related plans requires governments to work across ministries. The ministries of mining and of the environment must have clear roles and complementary law and policy
requirements, timelines and processes. Ministries responsible for planning, development and social affairs should also be engaged.

Ideally the ESIA process is centralized in the ministry of the environment, with collaboration from other ministries. The advantage of this approach over a sectoral approach in which each ministry is responsible for ESIA for projects subject to its jurisdiction (for example, hydroelectric dams in the ministry of energy, forestry projects in a ministry of forestry and mining projects in a mines ministry) is that a centralized approach may be more consistent and streamlined. A sectoral approach can lead to inconsistencies and confusion. However, the Ministry of Environment or other authority responsible for ESIA should collaborate with other ministries on national and subnational levels to assess and manage environmental and social impacts.

Effective governance of the mine approval process may require the involvement of multiple government agencies at different phases of mine development. Multiple government departments have various responsibilities for mine planning, assessment, approvals and management, and therefore must work collaboratively throughout the life of a mine. Defining clear roles and responsibilities is necessary to provide for clear accountability, procedures and decision making. Given the potential for a major mine application to go through a comprehensive ESIA review process, including all necessary permitting applications, it is imperative to have an agreed upon-approach for interagency coordination. Such approaches may take the form of a formal government agency being solely responsible for this coordination, which is likely a good approach where a country has or expects mining activity for an extended period of time; or they may take the form of Memorandum of Understanding among agencies on an as-needed basis, which may be more practical for countries with only a few mining projects.

In the mine planning phase, for example, it is critical to ensure that government departments coordinate roles and responsibilities so that companies have clear accountability and decision-making processes outlined in the ESIA and so stakeholders know what department to go to when they have concerns, issues or want to participate in the assessment. In countries with the involvement of multiple levels of government in mine ESIA and management, it is even more critical to have this coordination clearly defined for all involved.

5. Conduct a Strategic Environmental and Social Assessment for the Mining Sector

A Strategic Environmental and Social Assessment (SESA) is an evaluation of the environmental, social (including labour), health and safety considerations of a country’s existing policies, laws and procedures in relation to a potential sector. A SESA is “strategic” because it includes an assessment of legal, policy, regulatory, institutional and capacity components for addressing key environmental and social issues at a country or regional level, not at the project level. The goal of a SESA is to strengthen the environmental and social sustainability of a sector, particularly in light of potential pending growth. In the past, such reviews have often been referred to as Strategic Environmental Assessment (SEA). However, due to the recognition that social issues and considerations related to development projects are very important and closely linked to environmental criteria, this guide will refer to SESA rather than SEA.

For the mining sector, a SESA may help meet long-term national development objectives by providing a comprehensive sector-wide examination of potential impacts, both positive and negative, and identifying gaps in regulations, institutional capacity and public consultation mechanisms. It can guide discussions of appropriate policy and plans that may be needed in order to achieve sustainable mining in the country, while taking into account institutional and policy constraints. SEA can also inform the preparation of related plans at regional and local levels.
SESAs can assist government, with input from key company, community and civil society stakeholders, to identify environmental, social and cultural constraints in land-use planning and mine permitting. For example, SESAs inform government decisions related to more regional and local land-use decisions, such as where mining (and industrial activities in general) may be permitted and where there may be development restrictions, such as areas of major ecological importance.

SESAs can inform and clarify excluded zones from mining activities such as World Heritage Sites, other cultural heritage sites and protected areas. The International Union for the Conservation of Nature (IUCN) defines six levels of protected areas and suggests zones in which mining should not occur. Under the terms of the ILO Indigenous and Tribal Peoples Convention 169, the United Nations Declaration on the Rights of Indigenous Peoples, the Convention on Biological Diversity and other provisions of national and international law, exploration should not occur on the territories of Indigenous Peoples or where it affects resources of traditional subsistence, cultural or other use, without prior consultation with the appropriate Indigenous communities.

If done well, SESAs can provide clarity for all stakeholders regarding the longer-term plans for the mining sector in a country.

6. Establish Guidelines for Public Engagement and Consultation

Consultation should be a requirement in ESIA legislation, supported by guidelines. Guidelines for public engagement and consultation, particularly consultation with Indigenous Peoples, should be clear. Where Indigenous Peoples are present, the requirements and guidelines should be aligned with international frameworks such as the ILO Indigenous and Tribal Peoples Convention 169 and the United Nations Declaration on the Rights of Indigenous Peoples.

The ESIA is an important process that, to be effective, must be informed by those who are most likely to be affected by the project: the communities and Indigenous Peoples who live near the development site. Public engagement is essential in that it not only allows those potentially affected by the project to learn about what is being proposed, but it is an opportunity for the public and Indigenous People to share their knowledge of the area with companies and perhaps influence project designs, the assessment, and monitoring and management plans that will follow the ESIA.

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44 These include Strict Nature Reserve; Wilderness Areal National Park; Natural Monument or Feature; Habitat/Species Management Area; Protected Landscape/Seascape; and Protected Area with Sustainable Use of Natural Resources: IUCN Protected Area Categories, https://www.iucn.org/theme/protected-areas/about/protected-area-categories.
47 https://www.cbd.int/convention/text/
Engagement and consultation by a company with both the public and Indigenous People should be a requirement in ESIA legislation, supported by policies and/or guidelines. In many countries, the government’s role is to set out the rules and provide consultation guidelines, while the company is expected to carry out the engagement activities and inform the government of the process and outcomes of such engagement. In other countries, government also conducts or is a participant in the consultation program in the environmental assessment through required public comment periods, open house presentations and/or public hearings to obtain first-hand feedback from the public and stakeholders. Engagement and consultation must be coordinated between the government and the company to avoid duplication of efforts and to avoid stakeholder engagement fatigue, which can occur in areas where there is a lot of development or where the ESIA process is complex and/or takes many years.

Guidelines developed by government for public engagement and consultation, as well as for Indigenous Peoples (and traditional landowners), should be clear and easy to implement. It should lay out a framework for consultation, starting with principles of good public participation. Best practice principles for public participation by the International Association for Impact Assessment (IAIA) should be considered to provide a solid basis for guidance. Engagement and consultation must be transparent, open, free and culturally appropriate. It should provide equal opportunity for participation free from prejudice and be meaningful in that it not only informs and educates stakeholders, but integrates their input into project planning and management. The legal framework should require an early, ongoing and well-planned consultation program to be carried out. A well-planned and transparent public consultation program will also help manage public and stakeholder expectations.

Through legislation, policies or guidance, governance should address:

- Parties to be consulted
- Method of engagement and/or consultation
- Frequency and timing of consultations
- Required level of effort from a company
- Documentation requirements
- Criteria for how government will consider the results of consultations in project decisions.

The level of engagement and consultation may vary depending on the complexity and stage of the project; therefore, the legislation, policies and guidance should be flexible to account for different requirements by the public and Indigenous Peoples. For example, engagement and consultation with the public and Indigenous Peoples may be very active and frequent during the planning phase, with several meetings and workshops to solicit concerns, ideas and feedback on plans; whereas once a mine is in the closure phase, the engagement may be less frequent with engagement including provision of monitoring reports and fewer meetings.

Engagement and consultation with Indigenous Peoples is different from that with the general public. While the principles listed above all apply to consultations with Indigenous Peoples, the consultations must be also be free, culturally appropriate, meaningful and provide equal opportunity for participation free from prejudice. The project should meet the requirements of FPIC to conform with Article 32 of the United Nations Declaration on the Rights of Indigenous Peoples, where a project affects Indigenous Peoples’ rights to land.

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territory and resources. Separate guidelines for engagement with Indigenous Peoples may be required, if the country context necessitates it.

7. Create Guidelines for Participatory Environmental and Social Monitoring

It is beneficial to engage members of communities living near mining projects in environmental and social monitoring. This role of monitoring and collecting data, coupled with capacity building and proper equipment, can play a key role both in fostering collaborative relationships among government, company and community stakeholders, and in building trust in the reliability of the data collected among communities around mines. Examples may include collecting water samples, being involved in annual evaluations of monitoring results and adaptive management changes, counting the number of participants in a community meeting, noting the number of mining trucks that pass by, and any related observed impacts such as generation of dust, etc.

Governments can create guidelines for participation that describe ways that mining communities can be trained and involved in environmental and social monitoring, while protecting their health and safety. Environmental and social monitoring programs are implemented in the construction and operations phase and are further discussed in the Construction and Operations chapter below.

8. Ensure that Adequate Human Resources are In Place, Along with Ongoing Training Programs

Mining technology and our understanding of the short- and long-term environmental and social impacts of mining are evolving rapidly. Social impacts and benefits, as well as the environmental impacts of mining, are changing as mining becomes increasingly automated. Likewise, pronounced impacts of climate change, including more frequent and severe storms, floods and prolonged droughts, require enhanced assessment and management of risks. It is challenging for governments and other stakeholders to stay ahead of this curve, particularly the most under-resourced governments and those responsible for managing impacts in very remote regions. Ongoing capacity-building and training programs are necessary to better understand complex issues, risk factors and related costs over long periods of time.

While having a strong legal framework in place is important, funding, hiring and retaining skilled staff to implement the legal framework at national and subnational levels are also essential to a well-functioning environmental and social management framework. Effective implementation of the framework takes continuous efforts to secure needed funding, and to educate and support government staff, particularly those who are placed in isolated, rural settings. Special attention should be given to recruiting, training and supporting staff, and doing so in a manner that advances gender equality.

Incorporating Good Practices Into Your Legal Framework: The challenge of change

A common obstacle to incorporating good international practices in legal frameworks is a lack of focus and political will. It takes a lot of effort to develop visions and new laws and policies across ministries and stakeholder sectors. In many cases, the desire to support new foreign investment is strong and there is worry that environmental requirements can deter investors. But good companies with experience in project development expect that ESIA will be part of the process and may in fact be more concerned if a country indicates it does not apply this usual and normal practice.

Additional funding for developing a strong legal framework may be required. Governments may request assistance from financial and technical partners and others to assess and upgrade frameworks. In some
legislative frameworks, there may be conflicts between laws and that take substantial efforts to separate and clarify if respective ministries are very dedicated to their current approach.

Companies may also resist new requirements for ESIA and management plans, which will require them to make additional investments. Cash flow fluctuates dramatically over the life of the mine. Best practice requires companies to invest in ESIA and related management plans early in the life of the mine, when the company is already making significant expenditures and well before the project results in revenue. While environmental and social management should start early in the life of the mine, some companies resist investing significantly in ESIA and management plans until they are certain the project is viable and will lead to production and related profit.

The table below represents revenues and expenses over the life of a mining project. The vertical column represents income and expenditure. The horizontal axis represents number of years from inception.

To assist with helping companies adapt to changing legislative requirements, new legislation should include a schedule for implementation and compliance. In some cases, activities may need “grandfathering” (i.e., making an exemption) in the new legislation where the cost of bringing old facilities to new standards may be too costly for the benefits.

![Figure 3. Expenses and revenues over the life of the mine](image)

Governments may also have difficulty retaining skilled human resources to implement a legal framework for ESIA and related management plans. Governments may not be able to pay competitive salaries that are needed to retain skilled staff. However, many government officials really enjoy undertaking collaborative processes and find satisfaction in opportunities to develop capacity and advance their professional skills.

Overall, improvements to the legal system, stronger management of the process and development of collective visions can help reinvigorate a commitment to managing environmental and social impacts and reach common development objectives. Likewise, investing in the necessary human resources and capacity building to implement the legal framework can aid with both employee satisfaction and retention, and better project outcomes.
There are multiple avenues to incorporate good practices into your government’s legal framework. Key steps may include:

1. Calculating the costs and creating a budget for the legislation/regulation.
2. Undertaking a gap analysis to determine new resources required.
3. Securing funding for at least five years to effectively implement new or amended legislation.
4. Developing training programs.
5. Developing external advisory committees for providing input to governments on what is needed.
CHAPTER 4

THE PROSPECTING AND EXPLORATION PHASE
# CHAPTER 4: The Prospecting and Exploration Phase

Table 6. Key government and company responsibilities in the prospecting and exploration phase

<table>
<thead>
<tr>
<th>RESEARCH</th>
<th>INVESTIGATION / MONITORING / REPORTING</th>
<th>FEASIBILITY / CLOSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prospecting</td>
<td>Exploration</td>
<td>Advanced Exploration</td>
</tr>
</tbody>
</table>
| • Research and identification  
• Permitting (Exploration Plan) | • Exploration investigations and testing  
• Implement applicable environmental and social protection and management measures per permits; adapt measures as necessary | • Apply for additional permits and approvals for more intrusive exploration investigations and testing  
• Exploration Closure Plan  
• Continue to implement applicable environmental and social protection and management measures; adapt as necessary | • Feasibility Studies  
• Decision on whether to advance to mine planning  
• Implement Exploration Closure Plan / continue to implement applicable environmental and social protection and management measures |
| • Company researches and identifies mineral areas with potential for further investigation  
• Company applies for permits required | • Company undertakes exploration activities  
• Company abides by permit terms and conditions, with monitoring for effectiveness as applicable | • Company applies for additional permits or assessments as required due to expansion/more intrusive advanced exploration activities  
• Exploration Closure plan drafted as part of permitting requirements  
• Company abides by permit terms and conditions, with monitoring for effectiveness as applicable | • Company adopts the Exploration Closure Plan as necessary as part of adaptive management or to account for any changes  
• If continuing on to mine planning, the exploration activities may be sustained for further investigation  
• Company abides by permit terms and conditions, with monitoring for effectiveness as applicable |
| • Government reviews and approves | • Government inspects for compliance | • Government reviews and approves  
• Government inspects for compliance | • Government reviews and approves  
• Government responsible for monitoring post-mining transition as necessary  
• Government continues to inspect for compliance |

**PUBLIC AND STAKEHOLDER ENGAGEMENT**
### PERMITTING AND PUBLIC AND STAKEHOLDER ENGAGEMENT CONSIDERATIONS:

<table>
<thead>
<tr>
<th>Propecting</th>
<th>Exploration</th>
<th>Advanced Exploration</th>
<th>Feasibility and Planning (ESIA/Permit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Research and preliminary investigation activities are limited to desktop activities and non-intrusive field activities considered to have no environmental impacts.</td>
<td>- Adaptations and modifications to the monitoring and management measures for exploration may be due to: (1) changes to exploration plan; (2) permit terms and conditions; (3) new data or information; (4) new technologies or approaches; (5) effects on environment are not as predicted.</td>
<td>- Additional permits and authorizations may be required for more expensive and/or intrusive exploration activities.</td>
<td>- Decision on the economic feasibility of mining based on results obtained from exploration activities through completion of feasibility studies. Mine planning can continue should the feasibility studies confirm economic viability of the discovery.</td>
</tr>
<tr>
<td>- Should further exploration be warranted, all required permits will be applied for prior to undertaking exploration activities— including registering on Exploration Plan</td>
<td></td>
<td>- An Exploration Closure Plan may be required, with associated financial assurance, to ensure components are adequately closed and the land returned to a natural condition.</td>
<td>- Monitoring and management measures for exploration continue to be implemented; adaptations and modifications may apply.</td>
</tr>
<tr>
<td>- The company should consult with communities and Indigenous groups where prospecting on private or Indigenous lands (per applicable legislation if required).</td>
<td>- The company should continue to engage with communities, Indigenous groups on any proposed changes prior to their undertaking.</td>
<td>- Continue to engage with communities, Indigenous groups on progress and effectiveness of monitoring and management measures.</td>
<td>- Continue to engage with communities, Indigenous groups.</td>
</tr>
<tr>
<td></td>
<td>- Government inspections should continue verifying compliance with the agreed upon permit terms and conditions, as well as effectiveness of the measures.</td>
<td>- Government inspections should continue to verify compliance and effectiveness of the measures.</td>
<td>- Government inspections should be verifying compliance with the Exploration Closure Plan as well as effectiveness of the measures. Long-term monitoring of the site, if required, will be determined by the government, based on potential residual risks following closure.</td>
</tr>
<tr>
<td></td>
<td>- Communicate on the effectiveness of the measures as reported in required regulatory reporting.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Overview

This chapter outlines the early stages of the mining life cycle and its importance in regulatory and policy frameworks leading up to mine planning.

In this chapter you will learn why it is important to:

1. Distinguish between prospecting and exploration
2. Define social and environmental requirements for exploration
3. Ensure that exploration permits and approvals are subject to terms and conditions
4. Require environmental and social obligations to be met for permit renewal

The prospecting and exploration phase includes activities that aim to identify a mineral resource and define mineral reserves to determine whether a proposed project will be carried through to the mine planning stage and ultimately operations. This phase includes prospecting and research, exploration and advanced exploration activities in most jurisdictions.

Prospecting is focused on identifying areas of considerable mineralization with sufficient potential to warrant deeper investigation through more intensive exploration efforts. It is typically defined in national law to include only activities with minimal environmental impact. Initial prospecting includes a variety of techniques that generally have limited physical impacts. These techniques may include activities such as a prospector walking through an area to look for signs of potential mineral resources; conducting airborne geomagnetic surveys; sampling surface waters, stream sediment, rocks and soil to test for mineral content; and evaluation of satellite and other available data and information. These activities may cause social concerns or community conflict, for example, where companies enter on private or communal land or Indigenous territories without notice or consultation. But if they do not involve use of heavy equipment or building of roads, the environmental impact is usually minimal. This kind of research or prospecting activity frequently requires no permit or authorization from government, nor does it typically enter into the ESIA process. Prospecting will typically result in staking a mining claim if the potential for a mineral resource is identified. It usually does not require any kind of public consultation process, though good practice certainly requires notifying and talking to surface owners or nearby communities before proceeding. In Indigenous territories, it is likely that any presence on the ground may trigger a consultation requirement.

By contrast, most national laws define exploration as an activity with potential environmental impacts. The laws of most countries define those activities that may cause surface or subsurface impacts during exploration. Exploration consists of more detailed efforts to evaluate areas of mineralization to determine whether there are mineral deposits large enough and of high enough grade that they warrant consideration for commercially viable mining operations. The ultimate objective of exploration is to identify and characterize mineral resources that can be developed in a manner that is economically, socially and environmentally viable in accordance with the government’s legal framework. Exploration activities frequently include the development of access roads; camp sites; line cutting, pitting and trenching; mechanized surface stripping; the use of associated vehicles and equipment; use of water; and subsurface drilling. The stage of “advanced exploration” often involves an extension or expansion of exploration activities to include activities or components such as a broader network of drill holes that are typically concentrated in areas of interest; bulk sampling excavations; and greater networks of access roads, associated camp sites and work areas. Advanced exploration can also
include bulk sampling, underground exploration adits and field studies to support engineering design such as geophysics, hydrogeological, geotechnical and environmental investigations.

Exploration may last only a few months or may extend over many years and often does have environmental and social impacts. It typically requires an exploration or research permit from the government and involves some form of assessment of potential environmental impacts. Baseline environmental studies should be conducted during and even before the exploration or advanced exploration phase to determine what water quality and quantity and biological diversity were like before mining. Though a full ESIA process is typically not required for exploration in most jurisdictions, various permits are typically required to carry out exploration activities to minimize and regulate environmental effects (e.g., land-use permits, permits to use and/or discharge water, authorizations for water use or clearing activities, work permits for use or development of access roads). Some legal frameworks include tiered regulatory or permitting requirements depending on the type and level of activity to be undertaken as part of exploration, based on scientific and measurable thresholds or limits. Obtaining applicable approvals and permits usually requires a process of engagement with local stakeholders and providing basic information of what is known at the time of exploration.

State of Play

Confusion over the distinction between the prospecting and exploration phases is often problematic in legislative frameworks. While most mining laws require a licence or permit for prospecting and exploration, the differences and specific obligations related to each category are often not clearly defined. Companies may be concerned about committing substantial resources to environmental and social impact assessments and related management plans and public consultation in this phase, as confirmation of a mineral resource and revenue from mineral development is unconfirmed and possibly years away. Exploration may lead to mine development, but it usually does not as the results obtained may demonstrate that a project will not be viable to proceed to mine construction and operation. However, because these activities are often regarded as having less serious impacts than mine construction and operation, the legal framework may be shorter in approval timelines with a less demanding set of requirements in comparison with the full ESIA and public consultation that are required for mine construction and operation. The legal framework at the exploration phase should require a commensurate level of risk assessment and management planning.

Even the prospecting stage can be a critical phase for company–community relationship building and setting the stage for responsible mine management. Company representatives involved in prospecting and subsequent exploration activities may be the first “boots on the ground” in a given community, thus they are the first impression of a company or even of mining for local communities. This impression may be very long-lasting and set the tone for company–community relationships for the life of the project and beyond.

Key Government Actions: The prospecting and exploration phase

1. Distinguish Between Prospecting and Exploration

The legal framework should clarify the difference between prospecting and exploration, and the different legal and procedural requirements for each, with regard to environmental and social requirements. The

requirements should ensure that activity does not take place in excluded zones, as determined through the SESA process discussed above or other land-use planning process. Best practice is to identify in the law activities that involve little or no ground disturbance, little potential for other environmental impacts and no associated building of roads. Some of these activities, such as gathering data from satellites or airplanes or visual observation of rocks are in any case very hard for government to regulate. In general, if the distinction between prospecting and exploration is clearly and properly made, there is little rationale for spending either private or public resources on their assessment.

The law should require permits for exploration. The permit application should require analysis of possible environmental and social impacts specific to the exploration activities, and corresponding requirements for public engagement and consultation.

2. Define Social and Environmental Requirements for Exploration

No exploration activity should be permitted without written approval, based on an acceptable activities plan and at least a preliminary statement of anticipated environmental and social effects and resulting remediation.

Governments should include in their legislative framework the minimum requirements for applications for an exploration licence, including: a statement of anticipated environmental impacts; a monitoring plan to determine whether potential impacts have occurred; a mitigation and rehabilitation plan; a record of public engagement; and a remediation and closure plan for exploration activities. Remediation and closure requirements for the exploration phase should correspond to level of impact. The legal framework should also outline associated requirements for costing and triggers for when temporary and permanent closure should begin.

The extent of environmental and social effects of exploration may vary substantially in magnitude and these effects are often location- and mine-dependent. The legal requirements for the exploration phase may differ among countries, but they should all correlate with the level of anticipated environmental and social impacts.

3. Ensure that Exploration Permits and Approvals are Subject to Terms and Conditions

Permits required to undertake exploration activities should be time-limited with conditions and reporting requirements to appropriate regulators. Permits and approvals vary between countries, provinces or states for exploration, in addition to all other legislation and regulatory considerations (e.g., regulations regarding endangered species, heritage, workplace health and safety, blasting explosives, etc.). The table below highlights some examples of permits that may be required for the various activities during the exploration phase. Most permits will require monitoring to evaluate environmental and social impacts and the effectiveness of applied mitigation and management measures.
Table 7. Examples of typical permits and approvals issued for the exploration phase

<table>
<thead>
<tr>
<th>Permit Activities</th>
<th>Potential Details Requiring Terms and Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Title</td>
<td>Boundaries, definition of subsurface and/or rights and limitations, term of holding, work requirements, renewal requirements, transfer restrictions</td>
</tr>
<tr>
<td>Land Use</td>
<td>Definition of boundaries, approved and prohibited activities on the land, approved equipment and/or equipment restrictions, material use restrictions, closure and reclamation requirements, management plan requirements, timing, term of use, notification procedures, monitoring and reporting requirements</td>
</tr>
<tr>
<td>Water Use</td>
<td>Quantity of water, location of intake and/or discharges, intake control structures to protect fish and wildlife, management plan requirements, timing of intakes and/or discharges, erosion and sediment release control requirements, water quality restrictions, timing, term of use, notification procedures, monitoring and reporting requirements</td>
</tr>
<tr>
<td>Hazardous Materials</td>
<td>Listing of all hazardous materials, quantities, transportation requirements, storage requirements, reporting requirements</td>
</tr>
<tr>
<td>Transport, Storage and Use</td>
<td></td>
</tr>
<tr>
<td>Non-Hazardous Waste Disposal</td>
<td>Approved facilities design requirements, allowable quantities and materials, operational requirements, reporting requirements</td>
</tr>
<tr>
<td>Hazardous Waste Disposal</td>
<td>Approval facilities design requirements, allowable quantities and materials, operational requirements, reporting requirements</td>
</tr>
<tr>
<td>Contaminated Soil On-Site Treatment</td>
<td>Approval facilities design requirements, allowable quantities, operational requirements, testing and reporting requirements</td>
</tr>
<tr>
<td>Camp Operation</td>
<td>Number of people, approved facilities, timing of use, potable water treatment and testing requirements, first aid requirements, reporting requirements</td>
</tr>
</tbody>
</table>

The legal framework should address standard requirements such as periodic reporting and aspects to be addressed through reporting, as well as compliance inspections. It should also cover circumstances that would trigger the submission of notices of change or updates to management plans (e.g., due to changes to the exploration plan or program).

4. Require Environmental and Social Obligations to be Met for Permit Renewal

Any request for renewal or extension of an exploration permit and applicable approvals should include a certification of compliance with environmental and social reporting, mitigation plans, and other related obligations in the exploration phase per the stipulated terms and conditions and the legal framework, taking into consideration the ongoing plans. For example, reclamation need only be completed in areas that will not be further disturbed for a permit renewal to continue exploration. The certification process should be based on a review of the mining company’s exploration activities, including obligations to manage social, economic and environmental impacts. Failure to implement environmental and social management obligations should grant the government the right to prevent further activity under the permit, with clear guidelines and a process for company appeals to challenge the government’s exercise of such a right.
The process for addressing breaches and applying reasonable sanctions for unmet environmental and social management obligations in the exploration phase should be detailed in the legal framework and outlined or referenced in terms and conditions of respective permits and approvals.

**Public Participation in the Exploration Phase**

Public engagement and participation during exploration should be project-specific based upon:

(a) Whether Indigenous communities are involved
(b) The extent of impacts of exploration activities
(c) If the land is privately owned
(d) Environmental study requirements.

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**Example of Requiring Public Participation at the Exploration Phase**

**Neita Concession: Exploration, Participatory Surface Water Monitoring Program**

**Djabon Province, Dominican Republic, 2013–2014**

The Neita Concession is a mineral exploration concession, located in the northwestern region of the Dominican Republic, bordering the Republic of Haiti. Unigold Inc. held a 100 per cent interest in the Neita Concession by means of Mining Resolution I-12. Exploration activities in the Dominican Republic are regulated under the Mining Law (*Ley Minera de la República Dominicana* Nº 146-71), and the Implementing Regulation of the Mining Law (*Reglamento de Aplicación de la Ley Minera, N° 146*), which includes protection of the environment. An environmental permit was issued (and later renewed) by the Ministry of the Environment and Natural Resources (*Secretaría de Estado de Medioambiente y Recursos Naturales*) to the company to undertake active exploration activities. Through the General Law on Environment and Natural Resources (*Ley General Sobre Medio Ambiente y Recursos Naturales*), Law 64-00, the company, as concessionaire, has the unlimited right to utilize surface water in support of the exploration activity. The IFC became a partner in the development of the project. IFC Performance Standard 1 includes the requirement for participatory monitoring. In line with the Health, Safety, Environment, Labour and Community Policy agreed to by the company and the IFC, a participatory monitoring program was developed for the project between 2013 and 2014, focused on surface water.

Surface water was selected for the participatory monitoring program as it is a key environmental component of interest to stakeholders from environmental and public health perspectives: many local communities rely on the streams in the vicinity of the exploration activities for subsistence farming and recreation, particularly the Neyta and Gurabo rivers. The Participatory Surface Water Monitoring Program included a list of stakeholders and interested parties or groups invited to participate as observers during sampling efforts performed by company technical staff, as well as outreach mechanisms. Sampling stations were pre-

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determined in terms of accessibility, relevance and representativeness of the project and local communities. Participants included representatives from the ministries, the National Institute for Water Resources, regional and municipal representatives, representatives from local cattle farmers and others at the company’s discretion. The plan included a commitment to provide participants with an opportunity to review the results of the program through publicly available reports.

Participation in monitoring and data collection as part of exploration activities provides transparency and builds trust among local stakeholders in the company and the project. It is an example of a best practice mechanism for public engagement. By including interested stakeholders, in compliance with the Health, Safety, Environment, Labour and Community Policy and IFC Performance Standards, members of the local community and regulatory representative gained confidence in the project. Preliminary participatory monitoring results included in required environmental reporting under national legislation allowed for a greater understanding of the project and its activities among stakeholders, which facilitated discussions and led to faster timelines in obtaining other associated approvals. These preliminary results also informed the need to modify some sampling locations and parameters to be evaluated, to consider potential requirements for future project-related applications and to lead to a better characterization of the area around the project.
Examples from Legal Frameworks

Countries define and categorize impact assessment requirements for the exploration phase in different ways. Below are some examples.

**Afghanistan**

Afghanistan’s 2007 Environmental Law states that holders of mining exploration and mining exploitation permits “shall not initiate activities prior to receiving written authorization from the National Environmental Protection Agency.”

The 2014 Minerals Law requires applicants for a Reconnaissance [Research] License to include an Environmental and Social Impact Mitigation Report in the application.

Applicants for an exploration licence must submit the following before commencing mineral activities that may impact the environment:

1. A Mitigation and Rehabilitation Plan that provides a detailed description of the area to be impacted by mineral activities.
2. An analysis of the reasonably anticipated environmental and social impacts of the exploration activities.
3. A description, including cost estimates and schedules, of specific measures to prevent, reduce or mitigate the environmental and social impacts of the proposed mineral activities.
4. Measures to rehabilitate the impacted area following completion of exploration activities.
5. A Program for Work and budget of expenditures to be made during the licence or authorization term.
6. Financial guarantee documentation at a minimum, the financial guarantee must be adequate to cover the cost of the Mitigation and Rehabilitation Plan and the commitments contained in the Program for Work, Budget, Minimal Annual Spending, and Protection of the Affected Communities.

**Colombia**

In Colombia, if the exploration company does not continue to the exploitation phase, the company must complete mine closure and submit a study for “dismantling and abandonment.”

**Ecuador**

Ecuador’s Ministerial Agreement 37, the Environmental Regulation for Mining Activities, specifies requirements by stage of mining activity: prospecting requires no permit or environmental analysis; exploration activities require the approval of an “Environmental Form”; advanced exploration activities require an environmental impact declaration; and exploitation activities require an Environmental Impact Study, including an Environmental Management Plan. The exploration phase is granted for an initial period of up to four years. Prior to termination of the exploration phase, the company may request an additional period of four years, which constitutes an advanced exploration phase.

Peru’s legal framework includes three categories of Environmental Studies:

1. Category I: Environmental Impact Declaration (applicable for mining exploration activities)

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55 Afghanistan Environment Law, 2007 at Article 77.
56 Afghanistan Minerals Law, 2014 at Article 42.
57 Afghanistan Minerals Law, 2014 at Article 77; Afghanistan Mining Regulations, 2010 at Article 86.
58 See Colombia’s Resolution 428 of 2013
59 See Colombia’s Decree 1076 of 2015, Single Regulatory Decree of the Environmental and Sustainable Development Sector, Article 2.2.2.3.9.2.
60 Ecuador Ministerial Agreement 37, Environmental Regulation of Mining Activities, 2014 at Articles 11, 17, and 23.
61 Ecuador Law 45, Mining Law, 2009 at Article 37.
II. Category II: Semi-Detailed Environmental Impact Assessment (applicable for advanced mining exploration activities)

III. Category III: Detailed Environmental Impact Assessment (applicable for exploitation activities).  

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CHAPTER 5

THE MINE PLANNING PHASE
CHAPTER 5: The Mine Planning Phase

Figure 4. Key government and company responsibilities in the planning phase
Overview

When exploration identifies a mineral deposit of possible commercial interest, the company moves into the Mine Planning Phase where the next steps are to evaluate the potential for mineral development through further studies and assessments.

This chapter will discuss the importance of the following government actions:

1. Promote meaningful engagement and consultation, including building stakeholder capacity for participation
2. Avoid environmental and social stabilization provisions in laws and contracts
3. Establish a reasonable timeline for the ESIA process
4. Require environmental and social management plans in the mine planning phase
5. Require a mine closure and post-mining transition plan
6. Require and set guidance for acceptable financial assurance for remediation and mine closure
7. Provide clear guidelines for environmental and social reporting
8. Approve or deny the ESIA report and related management plans
9. Support development of grievance mechanisms
10. Support negotiation of company–community agreements, if used
11. Participate in multistakeholder mechanisms

A company’s mine planning starts with a Preliminary Economic Assessment (PEA; also known as a scoping study) followed by a Pre-Feasibility Study (PFS), and a Feasibility Study (FS). The technical and financial accuracy and level of design increases with each stage of study. Summaries of these studies are often published as a securities requirement for public companies listed on a public exchange; however, the reports are not typically provided to government and privately funded companies are not required to publish feasibility studies. A company typically makes a decision to proceed with permitting a project for development after completing a positive PFS. The ESIA typically requires at least PFS-level detail and some aspects of FS-level detail to effectively predict potential impacts. Project design details are typically required to be presented in the Project Description section of the ESIA documentation submitted to government.

The PFS stage often consists of the mining company developing a detailed mine and mine facility designs (including alternatives); conducting environmental and social baseline data collection; examining options for energy and water supply requirements and transportation routes, including access to markets; assessing major social challenges related to mine development; determining legal requirements for mine development; researching labour requirements and options for employee housing; and looking ahead to how the mine would most appropriately be closed. It is particularly important that baseline environmental and social data gathering start early in the process, often when the PFS is being conducted. The collection of baseline data requires time, and it is better to have more data than less because the detailed ESIA will be based upon all available data and information.

If the PFS generates information indicating that there is a likelihood of successfully developing a mine, the focus will change to development of an FS. The main purpose of the FS is to make the business case for the project to potential business partners, investors and lenders. At this point, additional detailed baseline data programs will be completed for more accurate impact predictions in the ESIA. Given the remote nature of some mine sites, the collection of data can be a challenge and may require time to coordinate and execute.
Building on information from prior studies, the company should start preparations to conduct the formal ESIA, for submission to government, along with other required permitting applications.

The company will want to initiate permitting for mine development once a company decides that the project is technically and economically feasible. This is when the formal ESIA process may commence. The basic stages of the ESIA process are summarized below.

<table>
<thead>
<tr>
<th>Stages of Environmental and Social Impact Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Proposal.</strong> Based on this basic description of the proposed activity, the government can decide whether or not the project will require a full ESIA. The proposal should include the project locations, a physical description of proposed project facilities and activities over the life of the mine, a preliminary description of possible impacts and consideration of alternatives.</td>
</tr>
<tr>
<td><strong>2. Screening.</strong> The screening phase indicates if the proposal will be subject to an ESIA and what level of detail will be required. This process should proceed with regulations or guidelines that define criteria, clarify procedures and ensure an appropriate level of rigour for the type and scale of project, while avoiding unnecessary delays and costs. The type of mining activity, scale of mining activity and impacts on Indigenous Peoples are examples of possible indicators of the level of assessment needed for the project. Large-scale mining projects should be screened as projects large enough to warrant an ESIA process. The screening may also indicate a public hearing is needed if there is an exceptionally high level of public interest.</td>
</tr>
<tr>
<td><strong>3. Scoping.</strong> For projects requiring an ESIA, the scoping step will determine what topics the ESIA will cover. In some jurisdictions the ToR is outlined in the legal framework, typically in a regulation or guideline; in others, it is developed on a case-by-case basis in consultation with regulators and key stakeholders. In yet others, it is a hybrid approach that starts with a basic framework that can be supplemented by the particular circumstances and stakeholder input. The ToR should focus the assessment on key issues and impacts. The scoping process should include public participation—including those most likely to be affected by the project; consideration of possible alternatives; availability of baseline data; key social, economic and biophysical indicators; cumulative impacts; mitigation options; assessment methodology; and the time frame for the assessment.</td>
</tr>
<tr>
<td><strong>4. Assessment:</strong> The assessment process is a stage of &quot;advanced data collection, impact prediction, [and] evaluation of impacts and possible mitigation measures.&quot; The assessment may capture both adverse and beneficial impacts but should focus on the adverse impacts. Baseline data describes the current biophysical, economic and social conditions in the area, providing a foundation for assessment and impact prediction. This phase of the assessment is a rigorous scientific and technical study, informed by public participation and key stakeholders. In this phase the environmental and social monitoring plan and preliminary mine closure plan are presented as part of mitigating measures. The ESIA results are analyzed and presented in an ESIA report.</td>
</tr>
<tr>
<td><strong>5. Review:</strong> The ESIA report, including assessment data and analysis of the data, is provided to the relevant agencies and/or independent bodies for review. The review process must be transparent and provide opportunities for stakeholder input. The review should follow specific criteria that ensure &quot;completeness, accuracy, adherence to the terms of reference, compliance with regulated requirements and other criteria.&quot;</td>
</tr>
<tr>
<td><strong>6. Decision:</strong> The review results in a decision, which may be a recommendation to approve the proposal, to approve the proposal with conditions or to reject the proposal. The decision may be made at both the national and subnational levels of government. In such cases, the reviews should be harmonized.</td>
</tr>
<tr>
<td><strong>7. Operational Monitoring and Compliance:</strong> This phase includes all monitoring, inspections and modifications as needed to assess material changes in the project and ensure that the environmental and social management plans and mine closure plans are being implemented and the terms and conditions of the approval are met. Ongoing stakeholder engagement and engaging members of the local community in the monitoring process can improve environmental and social management during operations as well as in the mine closure and post-mining transition phases.</td>
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</tbody>
</table>

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State of Play

The ESIA is a planning and evaluation tool meant to ultimately inform decision-makers of whether or not to approve a mine application. It can be complex and involve many steps. However, if the process is well-defined in law with supporting policies and guidance material, then it can be effectively and efficiently undertaken. In comparison, insufficient or inadequate ESIA laws can cause many issues with regard to the assessment and management of environmental and social impacts of mines. Some common problems and recurring challenges that exist in ESIA legal frameworks include:

- Provisions granting a “right” to obtain the operations permit with the exploration permit
- Unreasonable deadlines for proper project assessments
- Automatic approval or rejection/denial of an ESIA report or environmental permit is allowed after the lapse of a deadline\(^{66}\)
- A Mine Closure and Post-Mining Transition Plan is not required as a condition to obtain the exploitation permit
- Guidelines or mechanisms for meaningful and ongoing public participation and consultation are not available
- An accessible grievance mechanism is not required as a condition of the exploitation permit
- Inadequate guidelines for well-designed environmental and social management plans (ESMPs) and mine closure plans.

\(^{66}\) See for example, Ecuador’s Mining Law, Law 45, which states that the Ministry of Environment must approve documents, studies or environmental licences within six months of submission if a holder of a mining right has satisfactorily complied with all requirements of applicable legislation. If a decision is not granted within this time frame, it is understood that there is no opposition or impediment to begin mining activities, but the government official who did not timely issue a decision will be dismissed (Ecuador Law 45, Mining Law, 2009, art. 78). However, Ecuador’s Ministerial Declaration 109 provides a shorter timeline of four months for approval and allows the review process to continue until an Environmental License is issued.
The Mine Planning Phase and International Arbitration

Legal disputes between foreign mining investors and host states involving the ESIA process and outcomes are growing increasingly common in international arbitration cases. In particular, several international arbitration tribunals have looked at ESIA-related issues in cases initiated by mining companies against a host state under an investment treaty. These cases are known as “investor–state dispute settlement” (ISDS).

The Mine Planning Phase is thus becoming a critical phase for implementing good practice in order to avoid disputes that may culminate in costly international arbitration. This emphasizes the importance of having clear and robust legal frameworks governing ESIA and environmental and social management.

The United Nations Conference on Trade and Development (UNCTAD) has recorded 942 publicly known ISDS cases as of December 31, 2018, among which the mining sector (excluding investments in crude petroleum and natural gas, and mining support service activities) accounts for 81 cases. Environmental and social issues were relevant in at least 10 mining cases, most either initiated or decided as recently as 2014 (see Table 8). In five of these cases, the investor claim arose directly from the rejection of an ESIA report or the denial of an environmental permit by the host State. ESIA-related issues could be involved in additional ISDS cases, including undisclosed settlements or pending cases for which limited information is publicly available.

Typically, legal frameworks require the formal approval of an ESIA report with related plans or a formal environmental permit as a condition to obtain the exploitation permit. In the ISDS cases where the ESIA process was the main or sole reason invoked by the host state to deny an exploitation permit, exploration permit holders have challenged the decisions on various grounds, including:

- Irregularities in the process for ESIA report approval or granting the environmental permit, such as lack of transparency, violation of national rules, and lack of clear procedures and guidelines on ESIA.
- Delay in the regulatory process for the ESIA report due to inappropriate political interference.
- Assurances in formal letters from senior government officials alleged as creating a “legitimate expectation” that (1) an environmental permit is forthcoming or (2) an exploitation permit will be granted before granting the environmental permit.
- “Preliminary” environmental permit approval from senior government officials alleged as creating an expectation that the “final approval is certain and imminent,” while the exploitation permit was already approved.
- Alleged lack of responsiveness and improper conduct of environmental officials.

Another five cases involve social and environmental issues outside the context of an ESIA process, occurring after the exploitation permit was granted. Examples include when governments, through executive, legislative or judicial measures, limit or cancel mining permits or contracts on the grounds of environmental concerns or social unrest. A more robust ESIA process and more comprehensive environmental and social management framework could have helped to prevent some of these problems.
Table 8. ISDS Cases in the mining sector involving ESIAs as of December 31, 2018

<table>
<thead>
<tr>
<th>Year Initiated</th>
<th>Case Name (with link)</th>
<th>Status</th>
<th>Compensation Awarded</th>
<th>Year of Award</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Cases arising from the rejection of an ESIA report or denial of environmental permit</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td><strong>Clayton/Bilcon v. Canada (PCA Case No. 2009-04)</strong></td>
<td>Award in favour of the investor</td>
<td>USD 300 million</td>
<td>Deferred to a later decision</td>
</tr>
<tr>
<td>2009</td>
<td><strong>Pac Rim v. El Salvador (ICSID Case No. ARB/09/12)</strong></td>
<td>Award in favour of the state (dismissed on the merit grounds)</td>
<td>USD 314 million</td>
<td>None</td>
</tr>
<tr>
<td>2011</td>
<td><strong>Crystallex v. Venezuela (ICSID Case No. ARB(AF)/11/2)</strong></td>
<td>Award in favour of the investor</td>
<td>USD 3.16 billion plus interest</td>
<td>USD 1.202 billion plus interest</td>
</tr>
<tr>
<td>2014</td>
<td><strong>Corona Materials v. Dominican Republic (ICSID Case No. ARB(AF)/14/3)</strong></td>
<td>Award in favour of the state (dismissed on jurisdictional grounds)</td>
<td>USD 342 million</td>
<td>None</td>
</tr>
<tr>
<td>2015</td>
<td><strong>Gabriel Resources v. Romania (ICSID Case No. ARB/15/31)</strong></td>
<td>Pending</td>
<td>USD 4.4 billion</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td><strong>Cases arising from cancellation of mining permits and related to environmental and social issues</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td><strong>Glamis Gold v. United States (UNCITRAL)</strong></td>
<td>Award in favour of the state (dismissed on the merits)</td>
<td>USD 50 million</td>
<td>None</td>
</tr>
<tr>
<td>2010</td>
<td><strong>Beijing Shougang &amp; others v. Mongolia (PCA Case No. 2010-20)</strong></td>
<td>Award in favour of the state (dismissed on jurisdictional grounds)</td>
<td>USD 60 million</td>
<td>None</td>
</tr>
<tr>
<td>2011</td>
<td><strong>Copper Mesa v. Ecuador (PCA Case No. 2012-2)</strong></td>
<td>Award in favour of the investor</td>
<td>USD 69.7 million</td>
<td>USD 19.3 million plus interest</td>
</tr>
<tr>
<td>2013</td>
<td><strong>South American Silver v. Bolivia (PCA Case No. 2013-15)</strong></td>
<td>Award in favour of investor</td>
<td>USD 385 million</td>
<td>USD 27.7 million plus interest</td>
</tr>
<tr>
<td>2014</td>
<td><strong>Infinito Gold v. Costa Rica (ICSID Case No. ARB/14/5)</strong></td>
<td>Pending</td>
<td>USD 321 million</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

*Source: Compilation based on data from UNCTAD’s Investment Dispute Settlement Navigator at [http://investmentpolicyhub.unctad.org/isds](http://investmentpolicyhub.unctad.org/isds) and from the Investment Arbitration Reporter at [https://www.iareporter.com](https://www.iareporter.com)*
Key Government Actions: The Mine Planning Stage

1. **Promote Meaningful Engagement and Consultation, Including Building Stakeholder Capacity for Participation**

Public participation and engagement are absolutely critical in ESIA and management. Good ESIA processes will ensure that a Public Engagement Plan is developed early in the ESIA process and is designed with input from the stakeholders themselves. The engagement process should begin as soon as possible, as this aspect is a cornerstone of building trust and possible collaboration and partnerships in the communities.

Public engagement and consultation are not just about the dissemination of information, but rather meaningful dialogue about the project and its potential effects. Engagement and consultation is a two-way process in which the company (or the government) discusses the potential effects of the project, the plans for engagement and monitoring, and the proposed mitigation measures with the affected community. There is a great deal of highly relevant local knowledge in communities that is important to the development of a quality project. Reaching out to gather information from the local communities about environmental conditions, local subsistence activities, local customs related to land rights, the existence of cultural sites of importance and other relevant factors is critical to good practice and success in project development.

The involvement of the public and Indigenous communities will likely require financial support from the government and companies. The studies and assessments of a proposed project are often complex, highly technical and lengthy. Affected communities should be provided support to help them review and understand the information that is provided through the process. This often requires the assistance of subject matter experts (consultants). In addition, the ESIA process is often lengthy requiring many meetings and consultations. The provision of funding should support the community’s ability to participate in these meetings, such as providing for transportation to and from consultation sessions and independent experts, if requested by the community.
Example of Requiring Stakeholder Engagement Planning for an ESIA at the Mine Planning Phase
Meliadine Project: Territory EA, Community Involvement Plan
Nunavut, Canada, 2014–2015

The Meliadine Project is owned by Agnico Eagle Mines Limited and located in the Kivalliq District of Nunavut, Canada, near the western shore of Hudson Bay. In the project, Agnico Eagle Mines Limited proposed to develop a gold mine, including a processing complex.\(^\text{67}\) The project went through a Nunavut Impact Review Board ESIA process\(^\text{68}\) and included a Community Involvement Plan (CIP).\(^\text{69}\) This is required under Article 12, Part 5 of the, Section 112 of the Nunavut Planning and Project Assessment Act, S.C. 2013, c. 14 (NuPPAA), and Nunavut Land Claims Agreement Duty to consult Aboriginal people under Section 35 of the Constitution Act of 1982.

In compliance with legislative requirements, the company undertook to actively consult with Inuit and other stakeholders in a meaningful manner to ensure they had substantive input to the decisions on the design and management of the Meliadine Project at the ESIA stage between 2014 and 2015. The CIP sought to facilitate two-way communication between the communities potentially affected by and interested in the project and the company. It encouraged public/community interaction to provide input during the project’s development and explored how best to deliver this information (e.g., the types of information required, translation and interpreting needs, timing of consultations, different formats, the possible need for community meetings). The CIP defined community and public stakeholders, as the territory of Nunavut is vast. Community was defined as “body of people living in the same locality” (seven communities in the Kivalliq Region), and Public was defined as “all the people of the Kivalliq region as a whole, Inuit and non-Inuit combined.”\(^\text{70}\)

This case study provides an example of legislative requirements to formally develop a stakeholder engagement plan, with a focus on Indigenous Peoples. Meaningful consultation leads to sustained constructive relationships with Inuit, Inuit organizations, communities and government over time. Such relationships foster the development of effective ways of sharing information with stakeholders and clear procedures that maximize participation. Active and ongoing participation of the communities past the environmental approval phase, as well as feedback received, is used to adaptively manage ongoing and future engagement and project management activities, such that the approach and results meet the needs of the communities.

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\(^{70}\) Ibid.
Ecuador’s Ministerial Declaration 109 of 2018 outlines several tools for public participation in environmental regulation, including:

- **a. Public Assemblies**: Gatherings with the population in the area of direct social influence of the project to discuss environmental studies in a way that is relevant to the local community. This is a dialogue space where questions about the project are answered and observations of the community are collected. In this assembly, the operator, the designated facilitator and the persons responsible for the survey of the environmental study must be present.

- **b. Environmental Education Workshops**: Workshops that allow the operator to know the perceptions of the population living in the area of direct social influence of the project, work or activity so that mitigating and/or compensatory measures may be included in the Environmental Management Plan.

- **c. Informative Workshop**: A mechanism used to reinforce the presentation of the Environmental Study … to the inhabitants of the area of direct social influence of the project, work or activity.

- **d. Distribution of informative documentation about the project.**

- **e. Website**: A mechanism through which all interested parties can access information on the project, work or activity.

- **f. Public Information Centre**: A local, easily accessible public space where the environmental study, as well as documentation that contains the description of the project and the corresponding management plans, are made available to the area of direct social influence of the project. The location may be fixed or rotating, but a representative of the operator and those responsible for the survey of the environmental study must be present. The information must be presented in a didactic and clear manner and, at a minimum, contain a description of the project, maps of the location of the activities, and infrastructure of the project, communities and properties.

- **g. Other mechanisms that are established for this purpose.”**

**Philippines**

In 2017, the Department of Environment and Natural Resources Issued Administrative Order 2017-15, Guidelines on Public Participation Under the Philippine Environmental Impact Statement System. The guidelines provide lists of who should be consulted and outline information that shall be provided through information and education campaigns and “procedures for how these shall be conducted, including field visits to project sites, meetings with traditional and political leaders, informal dialogues with community members, community meetings, and use of appropriate materials such as “film or video showing, printed media, or local radio.”

The guidelines outline the composition of a Multi-Partite Monitoring Team (MMT), which must include representatives of local government, “locally recognized community leaders who can represent vulnerable sectors including Indigenous populations, women and senior citizens,” local NGOs “with a mission specifically related to environmental management and/or to the type and impacts of the proposed undertaking/project,” and relevant government agencies. Note, however, that companies may utilize third-party environmental auditors instead of forming an MMT.

The Guidelines on Public Participation require publication of project impacts and monitoring reports on the Environment Management Bureau website. They also outline requirements for the company to provide funds for an Environmental Monitoring Fund, which must be established with the MMT. The guidelines also elaborate grievance redress mechanisms.

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2. Avoid Environmental and Social Stabilization Provisions in Laws and Contracts

Stabilization provisions are law or contract clauses that limit the application of certain new laws and regulations to a particular investor or require a government to compensate an investor who does apply them. Stabilization clauses are generally divided into two categories: fiscal and non-fiscal. The latter includes issues like environmental and social assessments and management, labour law and other non-fiscal issues. Such provisions can “freeze” specified domestic law applicable to an investment at the date the clause goes into effect, and in some instances for the life of the mining project. Where government compensation is required, this can create other obstacles to new legislation being adopted. Stabilization provisions can appear in mining and investment laws as well as in mining contracts in some developing countries. However, developed country governments do not allow such provisions, neither in full nor in limited forms.

The issue of stabilization has been on the global stage for some time. As stated in Principle 4 of the 2009 United Nations Guiding Principles on Business and Human Rights, “stabilization clauses, if used, should be carefully drafted so that any protections for investors against future changes in law do not interfere with the State’s bona fide efforts to implement laws, regulations or policies, in a non-discriminatory manner, in order to meet its human rights obligations.” This approach has not been restated in the recent OECD Guiding Principles on Durable Extractive Contracts. Here, in Guiding Principle VII, the use of non-fiscal stabilization clauses is clearly set out as undesirable, while there is also clear recognition that the cost to industry of complying with new laws should be deductible from income as business expenses.

The growing consensus on this indicates that stabilization clauses covering environmental and social topics should be avoided in mining contracts and legal frameworks. The reasons for this are many. One reason is that it leads to multiple special legal regimes governing foreign mining operations within a single jurisdiction, which complicates government’s role of monitoring, administrating and enforcing of the regimes. Consider also the difficulty of enforcing stabilized obligations for a foreign investor while applying a new, separate set of environmental and social standards to domestic businesses. This imbalance could result in misunderstandings among both company and community stakeholders, while making enforcement of the new legislation more challenging. Another reason is that litigation or arbitration could be very costly if a company complains that such a clause was not enforced: contracts with investors, for example, are often enforceable in


78 Guiding Principle VII states, in part: “Durable extractive contracts are consistent with applicable laws, applicable international and regional treaties, and anticipate that host governments may introduce bona fide, non-arbitrary, and non-discriminatory changes in law and applicable regulations, covering non-fiscal regulatory areas to pursue legitimate public interest objectives. The costs attributable to compliance with such changes in law and regulations, and wholly, necessarily and exclusively related to project specific operations, should be treated as any other project costs for purposes of tax deductibility, and cost recovery in production sharing contracts” (OECD Development Centre, 2019, p. 11).

79 Shemberg, 2008.
international arbitration. The cost of arbitration and amounts of awards can be extremely burdensome for governments.

The IGF Secretariat’s review of legal frameworks and contracts for this guide demonstrated that some developing country jurisdictions continue to use stabilization provisions on environmental and social topics. However, it is a good practice to avoid such provisions and instead develop alternative options to ensure predictability, rather than stability, in domestic legal frameworks.

3. Establish a Reasonable Timeline for the ESIA Process

Many jurisdictions provide a timeline for the ESIA process from commencement to final decision. The process of public engagement, review and consideration of ESIA reports, and approval of environmental certificates may take years for a large mining project. Timelines are important because delays may frustrate investors as well as other stakeholders with interest in a project. Delays and uncertainty pose a risk to investors and developers. However, governments need a reasonable amount of time to review ESIs and related plans, particularly for large projects or those with novel or unusual factors to consider (e.g., use of new technologies). The determination of a reasonable time period will depend on the level of complexity of the project and the availability of government resources.

Timelines help keep the ESIA process moving forward, but only a few legal frameworks explain procedures for what happens when the given time period lapses. This is important because government departments in many jurisdictions regularly fall behind. Some jurisdictions allow for automatic approvals where the time frame for review has lapsed. This is not a good practice and not recommended as it may result in insufficient management of environmental and/or social impacts. Some jurisdictions deal with this issue simply by allowing for the review process to continue until an environmental licence is issued.80

It is also common for ESIs to be incomplete, whether due to the adequacy of the underlying data or the quality of analysis. Poorly written applications with gaps and deficiencies are as common as government bureaucracy as causes of delay. A legislated timeline for the ESIA, if any, should take this issue into account when defining provisions for adjustments to the schedule and allow for the administration of the process to adjust as necessary. Not all information regarding a project is known at the start of the process, and project designs sometimes need to be adjusted as the review is proceeding; therefore, the ESIA process must be somewhat flexible. At the same time, reasonable causes for delays should be defined either in law or in supporting policies. For example, a common reason for delay of the review is the need for more research or data collection in order to address a substantive concern that arises in the assessment review. In order to ensure transparency and instill confidence in the review process, a list of valid reasons for possible delays should be made public to all stakeholders. Furthermore, the time limit should not start to run until the agency has reviewed the application and finds that the application is complete and complies with the law.

4. Require ESMPs in the Mine Planning Phase

While the ESIA itself is critical, the actual management of the effects of a mine project are only verified through monitoring and management plans. Some predicted effects of a project will be uncertain, and some effects may be anticipated to be significant. In all cases it is important to have management plans to address such concerns. Depending on the results of the impact assessment, management plans could include a water management plan, waste management plan, emergency response and spill contingency plan, hazardous materials management plan, biodiversity management plan, heritage management plan, transportation

management plan, air quality management plan, preliminary mine reclamation, closure and post-mining transition plan, environmental monitoring plan, cyanide management plan, adaptive management plan, community development plan. These should be written with stakeholder input. The plans should be reviewed and updated on a regular basis, taking into consideration compliance and performance data.

### Example of Requiring Management Plans through the ESIA and Resource Protection Legislation

**Rainy River Project: Provincial and Federal Environmental Assessment, Draft Management Plans**

**Ontario, Canada, 2011–2015**

The Rainy River Project, owned by New Gold Inc. and located in southwestern Ontario, Canada, aimed to develop a mine and milling complex for the production of gold with a projected mine life of 15 years. The project went through a provincial and federal ESIA (coordinated) process: an Environmental Assessment (EA) report was completed to permit the project for development of a gold mine and milling complex, in fulfillment of federal and provincial EA requirements. Data gathering and development of studies was undertaken between 2011 and 2015. Due to the scale and complexity of the project, the length and schedule of the environmental approval process was a concern for the company. Best efforts were made to identify opportunities to streamline processes into the permitting phase, including early consultation and consideration of including draft or conceptual management plans.

The company undertook early consultation with stakeholders and the public to facilitate a coordinated consultation process as part of the EA requirements to align consultation activities between the federal and provincial processes, and to identify issues and concerns to be addressed in the ToR and overall EA application. Consultation with local, provincial and federal government representatives, as well as Indigenous groups, stakeholders and the public was conducted to identify all stakeholder concerns, including legal permitting requirements.

In particular, due to concerns and legal requirements around fish and fish habitat draft No Net Loss Plans were submitted at the EA stage to demonstrate the commitment to mitigate impacts on fish and fish habitat, which also streamlined the subsequent approval. No Net Loss Plans (NNLPs) were required under the federal Fisheries Act Section 35(2) and the federal Metal Mine Effluent Regulations (MMER) Schedule 2 Amendment, pursuant to subsections 34(2), 36(5) and 38(9) of the Fisheries Act, and were applied for separately following EA approval. Inclusion of draft NNLPs for fish habitat in the EA facilitated the impact assessment and advanced preparation for permitting.

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83 Ibid.
Mitigating Greenhouse Gas Emissions in the Mining Sector

The mining sector plays a crucial role in reducing greenhouse gas (GHG) emissions to meet Nationally Determined Contributions under the Paris Agreement and to enable progress toward SDG Goal 13: climate action. In addition to providing many of the materials needed for the green economy, mining companies are working to expand energy efficiency and the use of renewable energy, as well as adopt low-emission technologies. With support from the International Council on Mining & Metals, the World Economic Forum and other networks, mining companies are also working to improve efficient use and reuse of natural resources, support research and development of low GHG emission technologies, measure progress and report results. Governments can encourage these efforts by contributing to research on new technologies and strategies to reduce GHG emissions, publishing guidelines on GHG emission reduction for the sector, integrating GHG emissions and reduction strategies into ESIA and related management plans, and adding reasonable requirements for company adoption of emission reduction strategies.

Disaggregate Data by Gender and Use Data to Inform Environmental and Social Management Plans

Mining often has different impacts and benefits by gender. One way to understand the different impacts on women and men and on girls and boys is to disaggregate data by gender. These data can be used to inform more inclusive management plans and actions that promote greater gender equality. Terms of reference for ESIA should consider including requirements for analysis and mitigating impacts on gender to improve equality in the mining sector. Such efforts can help countries meet targets for gender equality under the SDG 5 on gender equality.

5. Require a Mine Closure and Post-Mining Transition Plan

The success of mine closure and the post-mining transition relies on actions that span the entire life of the mine. Social and economic objectives in particular may take a long time to achieve, so starting implementation of a comprehensive mine closure plan early is key. The preliminary mine closure plan should be required in the ToR for the ESIA and should include progressive rehabilitation, definition and measures for temporary closure, land-use objectives, stakeholder engagement strategy, measures to ensure chemical and physical stability, social closure components, research requirements to ensure long-term success, and preliminary cost estimates.

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84 The Paris Agreement 9 FCCC/CP/2015/10/Add.1) is available in all languages here: [https://unfccc.int/process/conferences/pastconferences/paris-climate-change-conference-november-2015/paris-agreement](https://unfccc.int/process/conferences/pastconferences/paris-climate-change-conference-november-2015/paris-agreement)


Legal Requirements for Mine Closure Plan

- a. Results from stakeholder consultations
- b. A clear, fully engineered plan from the outset
- c. Adequate financial assurance in place at all times
- d. Progressive rehabilitation
- e. Prepares for, alleviate and minimize adverse socioeconomic impacts on mine-dependent communities after the mine closes
- f. Anticipates post-mining employment and skills, business development needs
- g. Recreates or preserves valuable attributes and aesthetics of site and surrounding area
- h. Protects off-site environmental, health and safety for all (humans, fauna, flora, etc.)
- i. Minimizes or eliminates all potential sources (water, soil) of pollution after the mine closes (has an effective physical and chemical stabilization program)
- j. Integrated into and takes into consideration regional economic development plans
- k. Allows sustainable post-mining land use/utilization
- l. Integrates climate change impacts and needs for adaptation
- m. Sensitive to post-mining gender related issues

Example of Requiring a Closure Plan for an ESIA at the Mine Planning Phase

Ilovica-Shtuka Project: EIA, Closure Plan
Republic of Macedonia, 2018

The Ilovica-Shtuka Project, owned by Euromax Resources (Macedonia) UK Ltd., is located in southeastern Macedonia and is a proposed open-pit copper and gold mine with supporting facilities and an operating mine life of approximately 21 years.

An EIA was undertaken for the project per national legislation and European Bank for Reconstruction and Development Performance Requirements, as well as IFC Performance Standards, to permit the project for development. The company undertook stakeholder engagement activities, expanding provision of information on mine closure to develop a closure plan as part of the requirements for the EIA as part of the Environmental And Social Management System. A closure plan is required as part of the EIA under Section XI of the Law on the Environment (Environmental Impact Assessment of Certain Projects: Articles 79 to 94).

A stakeholder engagement plan was developed as part of the EIA process. Stakeholders included national and municipal governments and members of the public comprised of people living in the communities of Ilovica, Shtuka and Strumica, due to their proximity to the project site. The project description included the location of some key closure components (such as soil stockpiles) and closure alternatives. A conceptual closure plan was developed with key strategies to facilitate the impact assessment, meet legislative

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Example of Requiring a Closure Plan for an ESIA at the Mine Planning Phase
Ilovica-Shtuka Project: EIA, Closure Plan
Republic of Macedonia, 2018

requirements and lay down the framework for closure; it will be revised throughout the mine life. The conceptual closure plan included a reference to required closure funding, established through the FS for the project. Progressive rehabilitation of disturbed areas will take place where feasible. Stakeholder concerns were raised in general around potential impacts to the Sushica River (particularly with regard to groundwater contamination from the tailings management facility).91

This case study demonstrates the benefits of requiring closure planning at the ESIA stage within the legal framework for mining activities. Describing the operational procedures, training and design criteria for closure of the project, as well as identifying roles and responsibilities for closure and post-mining transition activities for the project through the conceptual closure plan provided a good foundation to facilitate the impact assessment process. Developing a conceptual closure plan as part of the EIA process allowed for its inclusion in stakeholder engagement activities to consider and incorporate relevant feedback and address concerns, leading to overall support for the project.92


A financial assurance fund for remediation and mine closure should be required prior to mine construction and operations. The fund can be used for mine closure and post-mining transition, including to cover costs related to any unexpected closure. Unexpected closures may be temporary or permanent and may occur at any time in the mine life from a variety of causes, such as collapse of market prices, fires or accidents, or the bankruptcy of a mining company. Financial assurance should be reviewed by a third-party analyst and reviewed at least every five years or when a significant change occurs to the mine plan.

Correct determination of the amount of the financial assurance is critical. But equally important is the form in which the assurance is provided. Typical forms include letters of credit, bank guarantees, insurance company guarantees or cash. A good financial assurance mechanism ensures that adequate funds are available quickly when needed. It is important that the assurance be provided in a form that is not dependent on the success of the mining operation. Self-bonding and corporate guarantees should not be used.

Financial assurance should be designed to allow accessibility of funds by government to undertake closure activities in case of failure of mining companies.

The financial assurance system is an important incentive for progressive rehabilitation during the mine life. Any assurance will have a cost to the company. The less work that remains to complete the closure plan, the lower the financial assurance amount can be. This in turn reduces costs for companies when they perform part of the reclamation early in the life of the mine and in an ongoing manner. Another advantage is that progressive rehabilitation allows the investor to integrate the amount of the financial assurance into the

91 Ibid.
economic modelling of the project and make informed decisions regarding the economics of the project. The costs for rehabilitation and closure are important factors in assessing the overall viability of the project.

Early collection of financial assurance is important to ensure that funds for remediation as well as unexpected closure are available. It is increasingly common for legal frameworks to require mining companies to post financial insurance as a prior condition for a permit to construct and operate a mine.93 Developing the financial assurance fund early and requiring mining companies to adjust available funds as needed over the life of the mine is the preferred approach.

7. **Provide Clear Guidelines for Environmental and Social Reporting**

Reports on progress implementing ESMPs in the operations phase should be made at least on an annual basis, and more frequently where the risk of impacts is higher. Environmental monitoring reports are especially important, and the results and implications should be discussed with stakeholders on an annual basis; monitoring results should be made available on a more regular basis (e.g., monthly or quarterly). The monitoring results should be used to update the management plans on a regular basis. Companies should integrate feedback from community and local government stakeholders into the report. All ESIA reports and plans should be made readily available to the public and easily accessible to members of affected communities. Regulations should clarify the content, language and methods of communicating information to the public and local communities. Government capacity to review and manage data is also critical.

8. **Approve or Deny the ESIA Report and Related Management Plans**

The legal framework should clearly state that exploitation activities may not begin without written authorization or certification from the environmental ministry and the ministry of mines. Requirements for such authorization or certification to conduct exploitation activities must include a full ESIA, ESMPs, and rehabilitation and mine closure plans with corresponding budgets. The approval process for ESIA and related plans is typically led by the environmental ministry.

The legislative framework should include a detailed process for approval or denial of environmental certificates based on ESIAs and related management plans. This guidance is important for procedural clarity. Decisions to approve or deny certificates and permits should be based on a rigorous review process, including input from a wide range of stakeholders.

The law should contain clear procedures for evaluating applications and granting or denying certifications and permits. Where a licence or permit is not approved, there should be a clear process for administrative appeal.

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What About the “Right To Obtain” an Exploitation Permit Granted in Some Mining Laws?

In several of the developing countries whose mining laws were reviewed, exploration permit holders benefit from a “right to obtain” or are “entitled” to obtain an exploitation permit through various formulations. While some mining codes do not subject this right to any conditions related to an ESIA process, others have explicitly limited this right to the fulfillment of process-oriented obligations under mining regulations, which may imply the automatic approval of an ESIA report or even that no approval of any type is required, prior to the granting of an environmental permit. The language of such provisions are various, for example: “The mining permit […] is granted by right to any holder of a research permit who has provided proof of the existence of a deposit within its perimeter.” Such “right to obtain” an exploitation permit is generally absent in the mining legislation of developed countries.

Furthermore, the same result is achieved when the legislation allows for the conclusion of contracts that cover both the exploration and exploitation phases. These contracts are problematic and are fortunately becoming less frequent. In fact, with this type of contract, the mining company is granted exploitation rights before the identification of an exploitable deposit and the conduct of an ESIA. Contracts of this type govern mines still in operation or that have been concluded recently.

A “right to obtain” an exploitation permit, particularly without any safeguards, could undermine the role of ESIA as a decision-making tool for government when assessing if a mining project should proceed to exploitation. This can minimize the role of ESIA, making the ESIA process purely procedural. If the right of government to make an informed decision on whether a mine should proceed or not is not clear in the laws and regulations (or contract), it might give rise to a claim that the denial of an exploitation permit based on environmental and social concerns frustrated an expectation that the exploitation permit will be issued.

It was reported often that such provisions aim to reassure the mining company that takes the risk to invest in an exploration project that it will be the only one that can apply for an exploitation permit in the area covered by the exploration permit. Governments that wish to achieve this objective could grant an exclusive right to apply for an exploitation permit, but that does not include any right to obtain it. The legal framework could further clarify that another exploitation permit for a similar project could not be granted to another mining company as long as the environmental, economic, social and technological conditions that justified the denial of an exploitation permit remain unchanged.

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94 This example from the Cameroon Mining Code (2016), Article 46 (1) is merely to provide one country example. (Non official translation. The original text in French is: “Le permis d’exploitation de la petite mine ou de la mine industrielle est attribué de droit à tout titulaire d’un permis de recherche qui a fourni la preuve de l’existence d’un gisement à l’intérieur de son périmètre.”)

95 See, for example, the contract for Ecuacorriente S.A., Mirador, in Ecuador (2012), available in Spanish on ResourceContracts.org at: https://www.resourcecontracts.org/contract/ocds-591adf-9316230710/view#/pdf
The Côté Gold Project, owned by IAMGOLD Corporation and located in northeastern Ontario, Canada, aims to develop an open-pit mine and milling complex for gold exploitation, extending over approximately 1,700 hectares with a mine life of approximately 16 years. The Province of Ontario does not require EA of mining projects in their entirety. Individual aspects of the project, however, required completion of provincial EA processes. The project went through a provincial and federal ESIA (coordinated) process and an EA report was completed to permit the project for development of a gold mine and milling complex, in fulfillment of federal and provincial EA requirements. Data gathering and development of studies was undertaken between 2013 and 2016. The company entered into a Voluntary Agreement to complete a single, streamlined and coordinated provincial EA process rather than undertaking multiple Provincial EA processes to meet requirements to allow issuance of approvals to construct individually. Per the Canada–Ontario Agreement for Environmental Assessment Cooperation, a voluntary agreement with the Ministry of the Environment and Climate Change (MOECC) to conduct a provincial EA under the Ontario Environmental Assessment Act (ONEAA) was entered into for the coordinated process alongside the federal EA under the Canadian Environmental Assessment Act (CEAA 2012).

ToR are required under the provincial EA process. If approved, the ToR, alongside the federal Environmental Impact Statement (EIS) Guidelines, provides the framework for the EA. Stakeholders were invited to discuss and comment on the Project Description and Draft ToR. Stakeholders were identified through early consultation processes conducted by the company, in coordination with federal and provincial authorities. A notice of commencement of the EA was posted in public media and company venues (such as the company website), and a draft ToR was issued to stakeholders for comments to identify issues and concerns to be addressed in the ToR and overall EA application. Consultation was undertaken with local, provincial and federal government representatives, as well as Indigenous groups, stakeholders and the public.

The EA considered the project as a whole and not just those aspects with Provincial EA requirements. A single body of information was used to inform both the provincial and federal EA processes, culminating in a single EA document, guided by the approved ToR and EIS Guidelines. This allowed for the coordination of legislative public consultation requirements and streamlined efforts to effectively engage stakeholders and avoid duplication and unnecessary delays through the EA processes. Coordinating meetings with stakeholders to review the draft ToR, in addition to its issuance per legislative requirements, proved instrumental in building an understanding of public, Indigenous and government authorities’ concerns to address in the EA.
The Ajax Project, owned by KGHM International Ltd. and at the planning and analysis phase, aimed to develop an open-pit copper and gold mine (including a milling complex) near the City of Kamloops in British Columbia, Canada, extending over an area of 1,700 hectares and a projected mine life of 23 years.99 The project went through a provincial and federal (coordinated) ESIA process, with data gathering and development of studies between 2011 and 2018, and an EA report was completed to permit the project for development of a copper-gold mine, in fulfillment of federal and provincial EA requirements.100 Per the Canada–British Columbia Agreement for Environmental Assessment Cooperation (2004), a Voluntary Agreement with the British Columbia (BC) Environmental Assessment Office to conduct a provincial EA under the BC Environmental Assessment Act was entered into for the coordinated process alongside the federal EA under the Canadian Environmental Assessment Act (CEAA 2012). The federal EIS Guidelines and the provincially approved Application Information Requirements provide the framework upon which the EA is based. In addition, BC formally adopted the UNDRIP, which is abided by under the provincial EA. A clause in UNDRIP states that all development must have the FPIC of Indigenous people in the area. As required under British Columbia's legal framework, the Ajax Project was the first to develop and submit a consultation plan for First Nation communities under the EA process.101

The mine would be located just two kilometres from a residential area at its nearest point, adjacent to the City of Kamloops. Early consultation per legislative requirements was undertaken to identify issues and concerns to be addressed in the Application Information Requirements and overall EA application. Consultation was undertaken with local, provincial and federal government representatives, as well as Indigenous groups, stakeholders and the public. Initially, the City of Kamloops' biggest concern was the potential hazards of a tailings pond in close proximity to the city and its residents, though these concerns were addressed through their own consultant. The remaining crucial concern for residents, and especially for Indigenous groups, was dust from the mine's operations.

This case study demonstrates how the ESIA process can be linked to mine planning, and how early public engagement can help inform design considerations to identify concerns before submitting the final ESIA application. Despite proposed mitigation and management planning included in the EA, in light of feedback received through consultation activities, both the provincial and federal governments ultimately issued negative decisions to the EA in 2017 and 2018, respectively, deciding against granting and Environmental Assessment Certificate for the project. Significant adverse effects to local ecosystems, air quality, Indigenous heritage and to the current use of lands and resources for traditional purposes by First Nations communities were cited by the provincial and federal authorities as outweighing any potential benefits of developing the mine.102

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100 Ibid.
**What about Resettlement? Avoiding and Managing Resettlement**

Displacement of local populations to make way for mining projects is perhaps the most difficult issue to manage in the mineral sector. The impacts of resettlement on local communities, if improperly managed, can leave communities at risk of landlessness by removing existing productive systems, activities and livelihoods. Moreover, improper management of resettlement, particularly where Indigenous groups are concerned, will almost certainly lead to litigation and conflict. Resettlement is a topic that must be so carefully managed that it cannot possibly be adequately covered in this guide, but it also cannot be overlooked or its importance understated.

The World Bank has issued guidance in its *Involuntary Resettlement Sourcebook,* currently in the process of being updated. The sourcebook states that “involuntary resettlement should be avoided where feasible,” and established three main objectives: (1) to avoid or minimize adverse impacts and to conceive and execute resettlement activities as sustainable development programs, (2) to give displaced persons opportunities to participate in the design and implementation of resettlement programs, and (3) to assist displaced persons in their efforts to improve their livelihoods and standards of living, or at least to restore these to pre-project levels. In sum, if resettlement must be undertaken, it is best practice to proceed with resettlement only in a way that leaves communities better off. Governments should require creation of a resettlement plan with such objectives as those listed above, developed in consultation with affected communities. Resettlement plans should include strategies, objectives, goals and costs associated with resettlement, as well as monitoring and evaluation post-implementation.

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**9. Support Development of Grievance Mechanisms**

A local-level grievance mechanism should be established early in the life of the mine and can be one way to address, monitor, and manage environmental and social impacts and benefits. The mechanism should be culturally relevant and accessible to the community. Frequent use of such a mechanism by community members can be a positive sign, indicating trust in the mechanism and its ability to manage and respond to seemingly “small” complaints before they become major conflicts.

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106 Ibid., p. 25.
107 Ibid., p. 63.
As with multistakeholder mechanisms, a grievance mechanism may be established in some cases by governments but are often established and conducted by the company through its offices on or near the mine site. Governments can provide guidelines for grievance mechanisms and other supportive frameworks to foster identification and resolution of local concerns before they escalate.

<table>
<thead>
<tr>
<th>Example of a Grievance Mechanism for an ESIA at the Mine Planning Phase</th>
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<tr>
<td><strong>Morelos Project: National, IFC and Equator Principals EIA</strong></td>
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<tr>
<td><strong>Morelos, Mexico, 2012–2014</strong></td>
</tr>
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</table>

The Morelos Project, owned by Minera Media Luna S.A., is located in the state of Morelos in Mexico and proposed to develop an open-pit gold mine on the Morelos Gold property. The project went through a national EIA (Estudio de Impacto Ambiental), which included compliance with IFC Performance Standards and the Equator Principles.

A grievance mechanism was developed for the project, as required under the IFC Performance Standards (Performance Standard 1 and 2) and as part of the company’s broader process for stakeholder engagement, quality and compliance assurance throughout the life of the project. The company considers grievance management as a business function with clearly defined objectives, assigned responsibilities, schedule and budget, senior management oversight and regular reporting. The grievance mechanism draws on five principles—simplicity, transparency, timelines, fairness and written records—to provide the company and affected communities with an alternative to external dispute resolution (legal or administrative systems). The mechanism is also intended to support planning for physical and economic displacement associated with the project. Residents of communities affected by the project and project-identified stakeholders are included in the grievance mechanism to address public grievances. A separate grievance mechanism for workers and their representative organizations would be established to address worker grievances and workplace concerns.

The grievance mechanism developed presented a process to receive, evaluate and address grievances from residents located in communities affected by the project as well as stakeholders. The grievance mechanism is a useful tool to hear public grievances related to the project and allow for providing feedback to the public on the number and type of grievances received and how the company has responded. This is tied to ongoing stakeholder engagement activities. Although the grievance mechanism was an IFC requirement in this case, governments should incorporate this requirement in national legislation to minimize risks when permitting projects that might not include international financing.
10. Support Negotiation of Company–Community Agreements, if Used

Company–community agreements, also known as impact–benefit agreements, community development agreements and by many other names, are increasingly used to manage the social, economic and environmental impacts of mining and to prepare for the post-mining transition. Such agreements are typically voluntarily negotiated and agreed between the company and community leaders, or between the company and local governments. Only a few jurisdictions have legal obligations for mining companies to conclude company–community agreements, but there are growing expectations from communities, mining companies and investors to have some type of agreement in place to manage mining impacts and benefits. The government can help facilitate such agreements by creating supportive legislative frameworks, establishing flexible guidelines for agreements and participating in mechanisms created by the agreements where appropriate. However, it is important that these agreements be negotiated to respond to the unique objectives, circumstances and desires of affected communities.

What About Corporate Social Responsibility?

A rapidly increasing number of jurisdictions require some level of requirements for corporate social responsibility (CSR) and/or company benefit sharing with communities. These requirements should align with socioeconomic management plans. Managing benefit sharing is important for many reasons, one being that actual or perceived inequalities in how benefits from mining are shared can result in inter-community and company–community conflict. Thoughtful work with stakeholders around CSR initiatives and benefit sharing agreements can also contribute to a successful post-mining transition and enhance sustainable development outcomes.

These objectives may also be achieved through a Community Development Agreement (CDA), further discussed below.

Another growing trend in some developing countries is the creation of Local Development Mining Funds (Fonds miniers de développement Local). Instead of CSR or CDAs, these funds are not negotiated nor voluntary. Their structures are fixed and harmonized in the law and include the contributors, amount and frequency of contributions, the beneficiaries, and the use and management of the fund. Usually, these “institutionalized” funds are managed by municipalities and the use should be aligned with national and local development plans. In any case, as for any trust fund, key principles should be reflected in the structure and management of funds to achieve objectives and ensure success. These include transparency and accessibility of contributions, transparency in use and management, alignment with local development plans, development priorities of the local community, and monitoring and evaluation of impacts.

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110 Countries with legislation mandating CDAs include Guinea, Mongolia, Papua New Guinea (although the country is considering new mining legislation that would shift this requirement), Sierra Leone and South Africa. Countries that have introduced CDA legislation include Egypt, Eritrea, Nigeria, Mozambique and Yemen. Countries that include CDAs in policy frameworks include: Afghanistan, Democratic Republic of Congo, Ghana, Namibia and Tanzania. Some countries require other forms of community agreements or corporate social responsibility.

11. Participate in Multistakeholder Mechanisms

Multistakeholder mechanisms are typically comprised of key stakeholder groups, including representatives of mine-impacted local communities and Indigenous communities, local government and the mining company. They can provide oversight for public engagement and consultation, and can aid with monitoring and implementation of ESMPs, resettlement plans and mine closure plans. Multistakeholder mechanisms can also help build mutual understanding and opportunities to identify and promptly address environmental and social issues.

While the government may initiate development of multistakeholder mechanisms, they may also be established through a company–community agreement. In either case, the participation of government in the mechanism can aid government in better understanding issues and opportunities related to social and environmental aspects of the mining project. Governments may also issue guidelines for use of multistakeholder mechanisms in the ESIA and ESMPs for the mining sector.
CHAPTER 6

THE CONSTRUCTION AND OPERATION PHASES
## CHAPTER 6: The Construction and Operation Phases

Table 9. Key government and company responsibilities in the construction and operation phases

<table>
<thead>
<tr>
<th>PLANNING</th>
<th>IMPLEMENTING / MONITORING / REPORTING</th>
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<tbody>
<tr>
<td><strong>Planning (ESIA/Permit) Phase</strong></td>
<td><strong>Construction Phase</strong></td>
</tr>
<tr>
<td>• Project Description</td>
<td>• Adapt and implement ESMPs for Construction</td>
</tr>
<tr>
<td>• ESMPs</td>
<td></td>
</tr>
<tr>
<td>• Company drafts a Project Description and preliminary ESMPs as part of the ESIA</td>
<td>• Company proposes changes to ESMPs as necessary, resulting in a final ESMP ahead of Construction</td>
</tr>
<tr>
<td>• Company applies for additional permits required</td>
<td>• Company monitors effectiveness</td>
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<td></td>
<td></td>
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<tr>
<td>• Government reviews and approves</td>
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PUBLIC AND STAKEHOLDER ENGAGEMENT
### Permitting and Public and Stakeholders Engagement Considerations

<table>
<thead>
<tr>
<th>Planning (ESIA/Permit) Phase</th>
<th>Construction Phase</th>
<th>Transition and Commissioning Phase</th>
<th>Operations Phase</th>
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</thead>
<tbody>
<tr>
<td>• The Project Description should be considered a requirement under the ESIA law to facilitate the assessment. Review of a draft Project Description, including the preferred alternatives for mine components, at the onset of the ESIA process helps inform the rest of the process and terms of reference. ESMPs may be conceptual / preliminary at this stage.</td>
<td>• Adaptations and modifications to the conceptual / preliminary ESMPs for construction may be due to: (1) changes to mine plan; (2) permit terms and conditions; (3) new data or information; (4) new technologies or approaches; (5) effects on environment are not as predicted.</td>
<td>• ESMPs as applicable to construction continue to be implemented to the end of the respective activities. ESMPs as applicable to operations are implemented.</td>
<td>• Long-term monitoring of the site per the Operations ESMPs. Ongoing adaptation of the ESMPs as appropriate, based on: (1) changes to mine plan; (2) new data or information from ongoing monitoring; (3) new technologies or approaches; (4) effects on environment are not as predicted.</td>
</tr>
<tr>
<td>• The company should consult with communities and Indigenous groups in designing the ESMPs. This can also help inform the alternatives assessment for mine components.</td>
<td>• The company should continue to engage with communities, Indigenous groups on any proposed changes before they are included in the final ESMPs for Construction. Government inspections should be verifying compliance with the agreed upon ESMPs, as well as effectiveness of the measures.</td>
<td>• The company should continue to engage with communities, Indigenous groups on any proposed changes before they are included in the updated ESMPs for Operations. Communicate on the effectiveness of the measures as reported in required regulatory reporting at the end of Construction. Government inspections should be verifying compliance with the agreed upon ESMPs, as well as effectiveness of the measures.</td>
<td>• The company should continue to engage with communities, Indigenous groups on any proposed changes before they are included in the updated ESMPs for Operations, and communicate on the effectiveness of the measures as reported in required regulatory reporting. Government inspections should be verifying compliance with the agreed upon ESMPs, as well as effectiveness of the measures.</td>
</tr>
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</table>
Overview

While defined as two distinct stages of the mining life cycle, construction and operations entail similar activities from the perspective of implementation of the ESMPs after the ESIA process is complete and all respective approvals for mine development and exploitation have been secured by a company.

This chapter will discuss the following key government actions:

**Construction and Operations Phases**

1. Ensure ongoing community engagement and capacity building
2. Provide clear inspection requirements and adequate human resources for compliance checks and enforcement
3. Issue guidelines for use of participatory environmental and social monitoring mechanisms
4. Communicate results of compliance and enforcement to communities and the public

**Construction Phase**

5. Collaborate with local governments to manage the impacts and benefits of the construction work force
6. Require management of impacts of construction

**Operations Phase**

7. Provide guidelines for management of acid rock drainage
8. Conduct regular review of progress reports, conduct site inspections and monitor implementation of management plans
9. Require updated assessments and amended plans and permit conditions where there are material changes to mine plans or impacts
10. Require progressive rehabilitation and ongoing preparation for environmental and social aspects of the post-mining transition

Construction of mine sites involves establishing required infrastructure and facilities for operations to proceed and implementation of an Environmental and Social Management System. Operations can commence once the construction activities are completed and any new or additional permits are approved. Operations include production and processing activities while continuing to implement the Environmental and Social Management System. Where governments have set up a strong framework for ESIA and management, the construction and operations phases involve similar or continuous steps to implement management plans, progressive rehabilitation, reporting and—where changes to the mine plan are material—revising and implementing amended plans.

The main construction activities commonly associated with mine development typically involve:

- Construction of access roads
- Site preparations and clearing, which involves the removal of vegetation and grading of the mine site, as well as diversion of surface water in and around the mine site
- Preparing the staging areas that would house project personnel and equipment
Building mine infrastructure on-site for the operations, including waste containment and mineral processing facilities and often including a camp for mine personnel.

Other infrastructure construction activities, e.g., the construction of power lines where feasible to supply electricity to the site, roads, the enhancement of port facilities to receive or transport equipment and materials, or construction of airstrips and rail lines.

The construction activities of mine developments often create major changes to the landscape at the mine site, along transportation routes to the site, as well as in the surrounding natural environment. The effects of construction activities, as identified and assessed in the ESIA, are specific to each mine project and can include many different and varying issues. However, acknowledging this, some important concerns often associated with mine construction activities that require monitoring and management plans may include:

- Negative impacts on water quality of nearby water bodies due to sedimentation during clearing and site preparations, road construction and building infrastructure on-site. This is a direct result of soil and sediment erosion, which can often occur when the land has been cleared of natural vegetation.
- Altered aquatic habitats due to sedimentation as a result of erosion, which can affect valued components such as fish and aquatic species.
- Noise pollution due to vehicle engines, the clearing of land, site preparation such as the movement of rock during clearing, which often involves drilling and blasting.
- Reduced air quality as a result of activities such as excavation, blasting and transportation of materials, which can have effects on both human and ecosystem health.
- Possible resettlement of homes and even entire communities.
- An influx of construction workers and the possible changes this can bring to the community structure and impacts on local infrastructure and services.

During the operations phase, a mine produces and beneficiates or concentrates ore to bring the product to market. It can range over several years or decades depending on the extent of the mineral resource to be exploited. The main activities include:

- Ore extraction (typically through surface or underground mining methods)
- Waste rock disposal
- Ore processing and associated activities (grinding and crushing; ore separation through physical or chemical methods)
- Tailings disposal
- Water management
- Operation of supporting services and auxiliary facilities (e.g., employee accommodations, offices, warehouses, maintenance areas and laboratories).

Immediate, short- and long-term activities must be managed, in compliance with applicable terms and conditions of all related approvals. Common operations activities and impacts that require monitoring and management plans include:

- Negative impacts on nearby water bodies due to accidental release or spills from vehicles, equipment and/or waste facilities, and water storage/treatment ponds can affect water quality, aquatic habitat and valued components such as fish and aquatic species.
- Noise pollution due to vehicle engines and use of equipment and machinery as part of ore extraction and processing activities, including blasting.
- Diminished air quality as a result of vehicle engines and use of equipment and machinery as part of ore extraction and processing activities, including blasting and transportation of materials, which can have effects on both human and ecosystem health.
- On-site water management, which can include contact water ponds, treatment facilities and storage/treatment ponds.
- On-site waste facility management, which can have effects on both human and ecosystem health in the event of accidental release.

Effects emanating from the operations-phase activities add to those from construction and often affect water quality and quantity, as well as landscape at the mine site, along transportation routes to the site and in the surrounding natural environment. Some facilities initiated at construction (e.g., tailings facilities, waste rock storage areas) will expand as the mine develops over the mine life. This would have been evaluated and assessed at the ESIA stage, resulting in the development of appropriate monitoring and management measures. The legal framework needs to be inclusive of these requirements while outlining the government’s role and capacity for enforcement and compliance to ensure the integrity of the environment and local communities.

State of Play

The construction phase can be challenging, as environmental impacts become greater and the main economic benefits from mining have not yet started to flow to governments and local communities, as they do under the operations phase. This is also where some of the negative impacts of mining on local communities can occur. Once construction starts, the company is typically under considerable pressure to move forward quickly. It is therefore quite important that necessary controls, consultative mechanisms and grievance processes be in place before this process starts; these are a key element in the ESIA process. Efforts to put these key ESIA elements in place after the fact typically have limited success. If communities are engaged prior to the construction phase, and engagement continues, expectations may be managed and community skills and knowledge can both inform and be informed by the project.

While there are many short-term jobs during the construction phase of mine development, very frequently companies do not know how to contract and train local labour, or they are not encouraged to do so, and so construction phase labour may be imported from elsewhere. If the workers are from elsewhere and community members receive few opportunities, considerable tensions can develop in community–company relations. Workforce issues are complicated by emerging technologies that may increase safety and efficiency but may vastly reduce the number of employees.

Governments may face some obstacles with implementation of the rule of law at both the construction and operations phases. Maintaining and providing ongoing training for the human resources needed to carefully review and approve reports, conduct inspections, track progress on management plans and stay current on knowledge of new mining technologies can be very challenging. Balancing the sometimes competing needs of economic development, environmental protection and socioeconomic development can also be difficult. However, with collaborative efforts, governments can often work with companies and communities to build a common understanding and find solutions.

Operations presents many opportunities to implement progressive rehabilitation while providing positive short- and long-term socioeconomic development outcomes for communities. Large-scale mines are one of the biggest energy consumers in the industrial sector. Governments can work with companies to advance research and progress on technologies that reduce greenhouse gas emissions at mine sites while expanding the use of
renewables, increasing energy efficiency and expanding access to energy sources with low GHG emissions for communities around mines.

**Key Government Actions: The Construction and Operations Phases**

1. **Ensure Ongoing Stakeholder and Community Engagement and Capacity Building**

The construction and operations phases present many opportunities for engaging with local communities. Using grievance mechanisms, multistakeholder and participatory mechanisms, and continued public engagement at this stage offers an opportunity to proactively identify and manage issues before they become serious. Overlooking these opportunities often leads to conflict between companies and communities that could otherwise be avoided. Participatory mechanisms and ongoing community engagement can be expensive, but failing to take these prudent steps can prove more costly for companies in the long run.112

The construction and operations phases also present opportunities for local employment and use of local services. This is a time to advance the capacity of local communities so that they can more successfully navigate the impacts and benefits of the mining project. Starting a participatory monitoring mechanism for environmental and social issues of greatest concern that involves local community members very early in the life of the mine can effectively avoid conflict and build trust among stakeholders. The mechanism should be proactive, not reactive, and attempt to identify and solve problems collaboratively.113 In some cases, these mechanisms are agreed and established as part of company–community agreements, or they can follow on from engagement and participatory programs initiated at the ESIA stage.

The engagement process and information sharing will not work very well if they are ignored over long periods of time and only activated when there is some kind of crisis or adverse event. There needs to be an ongoing process of communication, dialogue and discussion through the mine life with the community and stakeholders. This process can be set out in a negotiated company–community agreement. Some sites have also had success with community advisory councils, participatory or independent monitoring programs, or regular community meetings for mutual exchange of information.


Example of Requiring Community Monitoring Participation for an ESIA at the Mine Planning Phase
Meliadine Project: Territory Environmental Assessment, Community Involvement Plan
Nunavut, Canada, 2015

The Meliadine Project is owned by Agnico Eagle Mines Limited and located in the Kivalliq District of Nunavut, Canada, near the western shore of Hudson Bay. The company plans to actively engage communities, leading to their participation in design and implementation of monitoring programs for the project, over the life of the mine. For communities to effectively participate, local capacity must be developed to generate, deliver and use ecological and socioeconomic monitoring information. The CIP included community stakeholders, defined as “body of people living in the same locality” (seven communities in the Kivalliq Region), and public stakeholders, defined as “all the people of the Kivalliq region as a whole, Inuit and non-Inuit combined,” as the project is not expected to have significant effects outside of Nunavut. The CIP outlines means for the public/communities to be involved in monitoring the positive and negative effects of the project on the ecological, social and cultural sustainability of their community and traditional lands. The company is collaborating with communities, the Kivalliq Inuit Association, the Government of Nunavut, and other agencies and organizations to actively involve community members in their monitoring programs. Participation of local community members in monitoring programs is documented in the annual reports submitted to the Nunavut Impact Review Board.

Participation of local community members in monitoring programs has enhanced understanding of the project and its day-to-day activities while building capacity among regular participants. It is a best practice mechanism and legislated requirement in many jurisdictions. The challenge is in retaining participants where capacity has been built—the quality of data collected can vary depending on familiarity with the project and the participant’s experience with relevant monitoring methodology. This can be mitigated by having a technical expert involved in the monitoring activities regularly alongside public participants.

2. Provide Clear Inspection Requirements and Adequate Human Resources for Compliance Checks and Enforcement

The term “compliance” should be defined in the environmental law, and generally means the state of conformity with the law. Governments may try to achieve compliance of their environmental laws through various means, including enforcement. Enforcement should be defined by each country; however, as an example, Environment and Climate Change Canada’s enforcement activities include:

- “Inspection to verify compliance
- Investigations of violations
- Measures to compel compliance without resorting to formal court action, such as directions by the minister or enforcement officers, ticketing and environmental protection compliance orders by enforcement officers

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114 See page 74 for more background on the Meliadine Project.
115 Ibid.
• Measures to compel compliance through court action, such as injunctions, prosecution, court orders upon conviction and civil suit for recovery of costs.”

“Follow-up” is an umbrella term that has been used to describe various processes that are implemented following the authorization of a project, and can include activities such as monitoring, audits, evaluation and adaptive management. Follow-up programs are critical to the impact assessment process; these are programs that are implemented following authorization of a project as it moves into the construction phase. Follow-up programs are aimed at determining how successful the ESIA was at predicting the potential impacts and the effectiveness of the mitigation. On the other hand, compliance monitoring involves specific activities on the part of the regulator to ensure that conditions of an authorization for a project to proceed are being met. Follow-up and compliance monitoring may be related in that many of the proposed mitigation measures will be adopted by regulatory authorities into authorizations as conditions of a permit. The key difference may be that, depending upon the compliance program, it may only go so far as to check to see if mitigation was properly implemented, whereas follow-up programs should be specifically designed to understand the success of the mitigation in achieving its intended outcome. As well, if the mitigation is found to be ineffective, often measures are adapted to better manage observed effects of the project that are undesirable or unacceptable.

Governments can take proactive measures to promote compliance as a means to improve upon an effective tool in securing conformity with their environmental laws. Promotion can take the form of education programs, training, provision of technical information and issuing codes of practice.

Inspection requires not only clarity of legal requirements, but also highly trained human resources and sufficient financial resources for equipment, travel, continuing education, etc. to conduct inspections. Some legal frameworks set up a fund for independent third-party inspections through which companies provide funds, with clear methods for oversight and transparency of use of funds. Creating complex requirements in laws, regulations and permits has very limited benefits where government is not able or willing to conduct inspections at the mine site and undertake ongoing regulatory review to ensure that environmental, social and other commitments are being met. This is a key weakness in many countries’ management of the minerals sector: the government wants to promote mining for the revenue and other development benefits it may bring, but is unable or unwilling to dedicate the resources necessary to do its part.

Enforcement of a given framework can be much more difficult than getting the best framework in place. Enforcement requires adequate human resources and investment in their capacity building on an ongoing basis. The process of inspections should be clear, including a process for review by the company and government, and procedures for the company to dispute findings in inspection reports. And again, government must still have the capacity to do some inspection of its own, to “check the checkers.”

Offering appropriate incentives can also be a useful tool to promote compliance. Paying for this is an essential part of attaining the benefits of mining. If a government wants the benefits, but is unwilling to pay for them, it is the community, and especially its poorest members, that pay involuntarily for the government’s failure to manage the impacts of mining. The resulting injustice is often at the core of mine-related community conflicts.


Some legal frameworks set up a fund for independent third-party inspections through which companies provide funds, with clear methods for oversight and transparency of use of funds.

The government’s role is in part to ensure that the project is staying within environmental regulatory limits, complying with applicable terms and conditions, and meeting social commitments that are essential components of its contribution to sustainable development. In part, the government’s role is to build and maintain citizen confidence that the project is actually following the rules. While there is a role for self-reporting by the company, self-reporting alone is completely inadequate to assure compliance or to build citizen confidence. Where it is evident to the citizens that government is not inspecting and maintaining oversight, they will not have confidence that the mine is being appropriately managed, and the likelihood of conflict is much increased.

3. **Issue Guidelines for Use of Participatory Environmental and Social Monitoring Mechanisms**

Governments can provide frameworks and guidelines for participatory monitoring mechanisms. Using participatory monitoring mechanisms for environmental and social issues of greatest concern to local community members can be an effective way to avoid conflict and build trust among stakeholders. As noted in the Mine Planning chapter, these mechanisms work best when initiated very early in the life of the mine with the input and participation of local communities. Participatory mechanisms should be proactive rather than reactive and attempt to identify and solve problems collaboratively. In some cases these mechanisms are agreed to and established as part of company–community agreements.

Opportunities to establish participatory mechanisms, activate multistakeholder mechanisms, use grievance mechanisms and continue community engagement should be sought throughout the construction and operations phases. Implementation of these mechanisms can avoid or minimize conflict between companies and communities. Participatory mechanisms and ongoing community engagement can be expensive, but failing to take these prudent steps can be even more costly.

The construction and operations phases present many opportunities for sustaining positive relationships with local communities. Developing and using grievance mechanisms and multistakeholder mechanisms at this stage also offers an opportunity to proactively identify and manage issues before they become serious. The construction phase also presents opportunities for local employment and use of local services. This is a time to advance the capacity of local communities so they can more successfully navigate the impacts and benefits of the mining project.

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119 Davis & Franks, 2014.
Public Participation in the Construction and Operations Phase

Establishing participatory environmental and socioeconomic monitoring and multistakeholder mechanisms is important throughout the mine life cycle and is best continued through the construction and operations phases. As with all phases of the mining project, sharing information with communities and having a mechanism for ongoing dialogue and to collect community concerns and address grievances is important.

In the operations phase, public participation should be required whenever there are any material changes or updates to environmental and social impact management plans or to mine closure plans, as required in the legal framework of many jurisdictions. Participatory monitoring mechanisms and multistakeholder management mechanisms established early in the life of the mine should be fully operable during the operations phase. Reports on progress implementing management plans should be made available to the public in an easily accessible location.

4. Communicate Results of Compliance and Enforcement to Communities and the Public

Governments need to be seen as independent, diligent and working in the public’s best interest to protect the environment and human needs. Regular and transparent communication on project compliance and enforcement is key to achieving public trust.

Communication can take many forms, but it needs to be accessible to all potential stakeholders. Communication can be through public registries on an EA process website during the planning stage and may move to the website of the department overseeing the permit (e.g., ministry of mines) for communicating compliance reports, non-compliance orders, etc. However, governments should not only rely on digital communications, as this may not be accessible to all key stakeholders. Participatory monitoring results should also be published and can reside in the same website. Ministries should also consider communicating compliance reporting and enforcement measures in newspapers or newsletters in local government offices for communities with limited Internet connectivity. Communication methods must be culturally appropriate. Communication should be regular and kept current, and it should tie into a government grievance mechanism.

5. Collaborate with Local Governments to Manage the Impacts and Benefits of the Construction Work Force

In the mine life cycle, an exploration work force may be only 100 people, even at the stage of advanced exploration. Once the mine enters production, there may be only a few hundred employees, even at a big mine. By contrast, there may be several thousand workers present during the construction phase. These workers typically have these characteristics:

- They are overwhelmingly male.
- They are from somewhere else.
- They are present without their families.
- They know they are only present for a short time and will in a year or two be living somewhere else.

In many parts of the world, they have other characteristics of concern. Among these may be very high HIV infection rates, prevalence of drug or alcohol problems or high incidence of other infectious diseases. Companies try to manage these in a variety of ways. Many mines have fly-in-fly-out rotation shifts for
employees living elsewhere. Some companies try to maintain “closed camps,” where workers are not allowed to leave the construction camp during their shift, or “dry camps” (i.e., no alcohol), though the success of these strategies is variable to limited. Many such sites around the world are surrounded by informal settlements full of drinking establishments, prostitution, open availability of drugs and open sewers, leading to the spread of sexually transmitted diseases and other social issues.

It is possible to reduce these problems by recruiting and training more local labour in the construction phase. This reduces the number of workers who must be imported while building capacity in the lead-up to operations, consequently stimulating economic activity in the local community. But it requires a focused effort. Governments must have reasonable requirements for local hiring to ensure that companies realize this is a priority. Governments can support building capacity for local skills development, including building the capacity of women to work for mines in the construction and operations phase. These issues and opportunities can be addressed in management plans, company–community agreements and skills development programs.

6. Require Management of the Impacts of Construction

Often, a major mining project will require the construction of numerous ancillary facilities not directly related to mine extraction and waste facilities. These may include:

- Electric power plants and transmission lines
- Water storage and pumping facilities, or aqueducts
- Air strips for landing and takeoff near the mine site
- Road or rail facilities
- Sewage treatment or other waste disposal facilities
- Cell phone towers or other communications equipment
- Residential areas for mine employees
- Other kinds of infrastructure.

In general, the less developed the region is, the more ancillary infrastructure will be required and the greater the impacts will be in the construction phase. If this phase is not carefully planned with appropriate engagement and support of local governments and institutions, many potential benefits can be lost. There are many examples of cell phone towers, railroads, or water plants that only benefit the mine, when with some additional foresight and planning they could serve the broader development needs of the region.

Sometimes the ESIA process for these various facilities is separate: the power plant or the railroad require an impact statement separate from the impact statement for the mine. In general, it is better practice to combine as much of the ESIA process and public consultation as possible in a single assessment, coordinated by government among all the respective regulatory authorities.

7. Provide Guidelines for Management of Acid Rock Drainage

“ARD may occur at or be derived from many parts of an operation, including:

- Runoff from surface excavations for access roads, drains and site facilities;
- Drainage or seepage from underground excavations for mine access, exploration, development and extraction;
- Runoff from open-pit mines – exposures in pit walls, berms and the mine floor;
- Seepages of contaminated ground into surface or underground mines;
- Percolation through and drainage from rock masses fragmented by block caving or subsidence;
• Runoff and/or drainage from stockpiles of ore awaiting processing;
• Runoff and/or drainage from waste rock storages including coal rejects piles;
• Seepage or overflow from tailings storage facilities; and
• Runoff from spillages or remnants of mineral concentrates around stockpiles, bins, conveyor transfer points, etc.”120

Prediction

During the ESIA process, there is therefore a great deal riding on our ability to predict the development and intensity of this phenomenon. Authorities responsible for the ESIA process are presented with a variety of methods used to predict ARD and the results by companies seeking permits. There are approaches to this problem that are very unreliable, and others that are better, but none that is perfect.

Authorities should insist that companies submitting ESIA and permit applications present ARD prediction information gathered according to recognized and reliable methodologies.121 These are difficult and technical issues. Governments permitting mines where there is a potential for ARD need technical advice of their own, independent of the company. If they do not have it in house, they need to pay for the expertise. If they do not have the funds to do that, they need to have a procedure under which the company seeking the permit provides funds for an independent ARD assessment.122

Managing ARD

Numerous technical approaches may be used to prevent, reduce, control or treat ARD. Because of the autocatalytic nature of the reaction and its duration, prevention is the best ARD management approach. But “prevention, while theoretically possible, proves to be economically or practically unachievable in many circumstances.”123 Any assertion that the company seeking the permit has, despite the presence of acid-forming material, designed a mine that will not require ongoing active water treatment should be viewed with skepticism. At mines with known ARD potential, active mine water treatment is also needed. Some ARD management approaches are focused on measures that can be taken during operations to reduce the risk that ARD will form or minimize its extent. Others are aimed at long-term control after mining operations cease. Because companies generally want to reduce their ongoing expenditures at a site that is no longer generating revenue, there has been much research and testing on isolation of acid-forming materials, artificially created wetlands that may help neutralize acid waters, and routing clean water around acid-generating materials, etc.124

The reality is that, despite strenuous efforts for designing waste rock and tailings storage or passive neutralization strategies, “there still may be acidic streams that require treatment before discharge to the environment.” The presumption should be that, where there is high potential for ARD, ongoing active water treatment will be necessary for many years into the future.

Financing Long-Term ARD Treatment

If active water treatment is going to be needed, one option is to deny the permit. If the government nevertheless wants to grant the permit, then the question is how it will assure that the costs of treatment are internalized, not just in the present, but far beyond our lifetimes. Failure to adopt measures to ensure internalization of those costs will result in their being imposed on society in general, or on downstream water users, which is inconsistent with achievement of SDG 6: clean water and sanitation.

Realistically, if someone will have to pay for treatment hundreds of years into the future, we must acknowledge that there are no mining companies that have been around for even one century. It is a great leap of faith to presume that today’s corporations will be with us, continuing to pay the bills for water treatment, a century from now.

Financial assurance for premature closure and post-closure water treatment is especially important for mines with known ARD potential. The financial surety should be reviewed and updated at least every five years during operations and shortly before mine closure. Guidelines for post-closure financial surety for long-term monitoring, maintenance and water treatment can be found in the Initiative for Responsible Mining Assurance’s Standard (2018). The financial assurance must guarantee that the funds will be available regardless of the company’s financial situation during or after mining.

8. Conduct Regular Review of Progress Reports, Conduct Site Inspections and Monitor Implementation of Management Plans

As part of enforcement of a given framework, regular reporting on monitoring results and compliance with regulatory requirements and applicable terms and conditions from permits and approvals are essential, with the associated review and compliance checks by regulating authorities. The legal framework should clearly establish reporting requirements and timelines.

It is often inadequately understood how dynamic the mine operation phase may be. As mining continues, the ore body is better defined. Experience with processing the ore teaches a great deal about what grades and types of ore can lead to the most economic recovery. New technologies may appear. More sophisticated understanding of ground stability can lead to mine redesign. Higher (or lower) market prices may lead to the ability to recover lower (or only higher) grades of ore. Cultural remains may be encountered that need to be preserved.

Good mine management will constantly evaluate ongoing management and reporting commitments and requirements, and make the necessary changes to ensure protection of human health and the environment. ESMPs and monitoring and reporting requirements must be regularly re-evaluated, based on monitoring results and discussions with stakeholders.

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9. Amend and Renew Permits; Require Updated Assessments and Amended Plans Where There are Material Changes to Mine Plans or Impacts

A material change in the mine plan, mining technology or otherwise should trigger review or revisions of permit conditions. The details required to be submitted to government for review will vary depending on the nature, magnitude and extent of the change. A large change in the mine plan may require submission and review of a comprehensive ESIA and updated management plans; however, smaller changes may require submission of key details, an effects assessment limited to key details, and revisions to the related mitigation and management plans.

All permits should have an associated term or expiry date. Government policies, legislation and/or permit terms also need to be in place to manage changes in project ownership, set triggers for permit amendments, and manage renewals. The term or expiry date of a permit should manage the risks for both the company and the government. The permit term should be long enough to cover the life of the mine, allow for renewals in case the mine life is extended and provide certainty for investors. Trigger thresholds for review or revisions of permit conditions should be concrete and define a material change. Examples of triggers could include a percent or absolute change in production rate or total material mined, or a percent or absolute change in land disturbance. The triggers should be quantitative, consider the type of material being mined, the method of mining, and land planning and development metrics for the region or country. Trigger thresholds have been set in many countries based on a review of observed effects, which can provide a starting point for developing or revising triggers.

Regular review of permit compliance reports and observations of trends in monitoring data can be another trigger for review or revisions of permit conditions. For example, permit conditions of approved water management measures and effluent discharge criteria may need to be changed if there is an increasing trend in water quality parameters of potential concern. Even if the water quality is still in compliance, an increasing trend may result in future non-compliance. In this case, the permit terms related to the water management program should be reviewed, then a meeting should be set with the company to determine the root cause for the observed data trend and discuss what changes may be needed to the operations and/or permits. This is a proactive approach to governance that can work to maintain public and investor trust in the government.

Some legal frameworks also include annual or biannual updates to management plans regardless of material changes, responding to any new information, data collected, stakeholder input and lessons learned.
Sierra Leone’s Requirements for Modification of Environmental and Social Impact Assessments are provided in the country’s Environmental and Social Regulations for the Mineral Sector of 2012, Section 85. The requirements state that “an EIA or ESIA shall be amended or modified in the following cases:

a) or the implementation of mine development at completion of the exploration phase, and before the commencement of mining activities;
b) for increments of mineral production greater than 50% of the production estimated in the original EIA, in small-scale mining operations;
c) for increments of mineral production greater than 30% of the production estimated in the original EIA, in large-scale mining operations;
d) for increments of mineral production in small-scale or large-scale mining operations having new environmental impacts or involving disturbance of new areas;
e) for the construction and operation of new beneficiation facilities not included in the beneficiation plant original layout;
f) for the modification of existing beneficiation facilities due to introduction of new mineral processes or increment of production capacity greater than 50%;
g) for the construction of tailing ponds, rock deposits, furnaces, chimneys, leaching pads or other facilities not included in the beneficiation plant original layout;
h) for the introduction of new equipment or variations of technology in mining or beneficiation facilities having new environmental impacts or affecting new areas ...”

10. Require Progressive Rehabilitation and Ongoing Preparation for Environmental and Social Aspects of the Post-Mining Transition

Most large-scale mining companies now incorporate progressive rehabilitation in their mine closure and rehabilitation plans, and this approach is required in many jurisdictions. Progressive rehabilitation saves valuable time and resources, and gradually builds toward a successful mine closure and post-mining transition. Environmental rehabilitation and action toward socioeconomic objectives of mine closure should be implemented over the life of the mine. Where part of the rehabilitation work is done during the construction or operations phase for components no longer required to continue production and processing, this reduces the

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risk to society of an unplanned closure. This increases the return of part of the financial assurance, and thus benefits the operator.

### Example of cross fertilization: Learning from institutional stakeholders on Public Participatory Monitoring
**Neita Concession: Exploration, Participatory Surface Water Monitoring Program**
**Djabon Province, Dominican Republic, 2013–2014**

The Neita Concession is a mineral exploration concession located in the northwestern region of the Dominican Republic, bordering the Republic of Haiti. Unigold Inc. held a 100 per cent interest in the Neita Concession by means of Mining Resolution I-12. Exploration activities in the Dominican Republic are regulated under the Mining Law (*Ley Minera de la República Dominicana N° 146-71*), and the Implementing Regulation of the Mining Law (*Reglamento de Aplicación de la Ley Minera, N° 146*), which includes protection of the environment. An Environmental Permit was issued (and later renewed) by the Ministry of the Environment and Natural Resources (*Secretaría de Estado de Medioambiente y Recursos Naturales*) to the company to undertake active exploration activities. Through the General Law on Environment and Natural Resources (*Ley General Sobre Medio Ambiente y Recursos Naturales*), Law 64-00, the company, as concessionaire, has the unlimited right to utilize surface water in support of the exploration activity. The IFC became a partner in the development of the project. IFC Performance Standard 1 includes the requirement for participatory monitoring. In line with the Health, Safety, Environment, Labour and Community Policy agreed to by the company and the IFC, a participatory monitoring program was developed for the project between 2013 and 2014, focused on surface water.

Surface water was selected to develop a participatory monitoring program for the project as it is a key environmental component of interest to stakeholders from an environmental and public health perspective, as many local communities rely on the streams in the vicinity of the exploration activities for subsistence farming and recreation, particularly the Neyta and Gurabo Rivers. The Participatory Surface Water Monitoring Program included a list of stakeholders and interested parties or groups invited to participate as observers during sampling efforts performed by company technical staff, as well as outreach mechanisms. Sampling stations were pre-determined in terms of accessibility, relevance and representativeness of the project and local communities. Participants included representatives from the Ministries, the National Institute for Water Resources, regional and municipal representatives, representatives from local cattle farmers and others at the company’s discretion. The plan included the commitment to provide participants with an opportunity to review the results of the program through publicly available reports.

Participation in monitoring and data collection as part of exploration activities provides transparency and builds trust among local stakeholders in the company and the project and is an example of a best practice mechanism for public engagement. Preliminary participatory monitoring results allowed for a greater understanding of the project and its activities among stakeholders, which facilitated discussions and led to faster timelines in obtaining other associated approvals.
# CHAPTER 7: Final Stages of Mine Closure and Post-Mining Transition

Table 10. Key government and company actions in the final stages of closure and post-mining transition

<table>
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<tr>
<td>Preliminary Closure Planning and Design</td>
<td>Implement Final Closure Plans</td>
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<tr>
<td>Company drafts a Preliminary Plan as part of the ESIA</td>
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<tr>
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<td>Company is no longer responsible for the site if granted “exit ticket”</td>
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<tr>
<td>Government reviews changes and approves Final Closure Plan</td>
<td>Government responsible for monitoring</td>
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### NOTES RELATED TO EACH PHASE AND KEY ACTION:

- **Planning (ESIA/Permit) Phase**
  - The Preliminary Closure Plan should be considered a requirement under the ESIA law and should be assessed as part of the assessment.
  - The company should consult with communities and Indigenous groups in designing the Plan.

- **Implementing Final Closure Plan**
  - Adaptations and modifications to the Preliminary Closure Plan may be due to: (1) changes to mine plan and/or operations; (2) new data or information; (3) new technologies or approaches; (4) effects on environment are not as predicted.
  - The company should continue to engage with communities, Indigenous groups on any proposed changes before they are included in the Final Plan.

- **Post-closure Phase**
  - After implementation of the Plan, the company continues to monitor and adapt to findings.
  - The government inspections should be verifying compliance with the agreed upon Plan, as well as effectiveness of the Plan.
  - Continue to inform communities and Indigenous groups of progress.

- Long-term monitoring of the site will be determined by the government based upon any potential residual risks following closure.
Overview

The purpose of this chapter is to provide guidance to governments and policy-makers on crucial elements to consider in the final stages of mine closure and post-mining transition.

This chapter will discuss why it is important to:

1. Require ongoing action to implement mine closure plan and prepare for (temporary and permanent) mine closure
2. Address both social and environmental aspects of mine closure in closure guidelines
3. Monitor progress on the mine closure plan, including review of reports; require updates to the mine closure plan as needed
4. Conduct on-site inspections for compliance with permit conditions
5. Monitor adequacy of financial assurance and update as needed
6. Provide clear conditions for “exit tickets,” relinquishment and management of residual risks
7. Inspect and monitor implementation of the mine closure plan and complete final inspection prior to relinquishment.

Mine closure is one of the most important aspects of environmental, social and economic management in mineral resource governance, yet many jurisdictions do not have comprehensive legal frameworks for mine closure, or do not effectively implement existing frameworks.

Mine closure involves the end of mineral extraction, processing, and transportation activities. It usually includes the removal of the mine site facilities and infrastructure and rehabilitation of the landscape as closely as possible to pre-mining conditions and/or a productive land use agreed to with local communities and government. Mine closure and reclamation, including ecosystem restoration, not only improves the landscape of the area but also aims to minimize soil, air and water pollution.

A mine that cannot be closed properly should not be opened. Yet, mine closure and the economic and social dimensions of the post-mining transition are often not considered in the initial phases of mining projects or are inappropriately monitored and implemented during operations. Inadequate closure planning often results in mines operating with inadequate closure plans and related financial assurance, or being simply abandoned and leaving behind unmanaged environmental and socioeconomic legacies.

Planning for a sustainable mine closure and post-mining transition is a process that can last for decades or longer and spans the entire life of the mine.\(^\text{127}\) There is now a consensus among practitioners that closure plans should be prepared before mining operations begin.\(^\text{128}\) Mine closure and post-mining transition planning must address not only the environmental aspects of mine closure, but also the social and economic aspects of

\[^{127}\text{Intergovernmental Forum on Mining Minerals Metals and Sustainable Development. (2013, October). Mining policy framework}\]

closure. Planning for the environmental aspects of closure is now several decades old.\textsuperscript{129} Planning for the social and economic aspects of closure is newer, however, and the approaches may be less certain.

Some key considerations for the socioeconomic aspects of mine closure include:

- Where the mine is an important part of the national economy, the planning needs to occur at the national, not just the local, level. Some mines are the single largest taxpayers in the countries where they operate, and losing that revenue while at the same time acquiring all the costs of dealing with unemployment and social dislocation can be economically challenging for the country.
- There are two basic types of strategies for dealing with the local economic and social impacts. Some mines are simply so isolated and disconnected from the rest of the national economy that it is difficult or impossible to generate or maintain a local economy that might replace mining as the mine closes. In these kinds of operations, the strategy needs to be built around helping mine employees and other local residents transition to life in another location.
- Where communities existed before mining commenced, there may well be a basis for economic diversification and construction of a local economy that can survive mine closure. This takes concerted action over a long period of time.

Mine closure often has devastating socioeconomic impacts on communities: the local tax base, real estate values and government’s ability to provide key services often plummet when the mine closes. Proper planning for the post-mining transition, however, can be a key driver in promoting long-term sustainable development outcomes of mining. Therefore, governments should collaborate with mining companies and local stakeholders to manage the socioeconomic impacts of mine closure.

There are often misconceptions about when mine closure will occur. Mine operators may make estimates of the mine life based on knowledge of the ore body and economic assumptions. But the great majority of mines do not close because the ore body is exhausted—they close because of market conditions, accidents or technological changes. Thus, a mine with a projected 20-year life might close in 40 years, or in three years. Companies and governments must be prepared for closure from the outset and keep closure requirements in mind throughout the mine life cycle.

Mine closure can be either temporary or permanent. Even after a mine is “closed,” improved technology, higher prices, renewed interest in a commodity or other factors may also cause further exploitation of old mine sites. It is probably in the interest of society that this be the case and that minerals be produced from already disturbed areas rather than “greenfield” sites. Further exploitation of old mines may also have the advantage of restarting operations in areas with previously installed infrastructure, such as roads, rather than having to build all the infrastructure at a new site.

Mine closure can be long anticipated or it can be sudden, based on unforeseen events. Unforeseen events sometimes affect only a single mine, such as where there is a fire, explosion or other accident that creates so much damage that it is not financially viable to reopen. However, unforeseen events sometimes affect many mines, such as in cases where the market price of a commodity drops precipitously.

Where there are many mines in a region all producing the same commodity, multiple closures resulting from a price collapse may lead to regional or even national economic downturns, leaving government with few

\textsuperscript{129} Ibid.
resources to combat the resulting unemployment or environmental problems. The financial resources must be in place to close the mine properly, even in conditions of sharp economic downturns. Thus, financial assurance should be established prior to construction to cover the inevitable cost of mine closure or the unplanned interruption of mining activities. Mechanisms for financial assurance might include letters of credit, bonds or funds, insurance policies or other financial instruments.

Sudden Closure and a Way Forward: Turning an Abandoned Mine into Silver and Gold in the Dominican Republic

Pueblo Viejo is one of the largest gold mines in the world, located in the Sánchez Ramírez Province of the Dominican Republic. It was originally operated by Rosario Dominicana, a state-owned mining company. Initial production began in 1975 and produced more than 5 million ounces of gold and 22 million ounces of silver. Operations stopped in 1991 due to low gold and silver prices and lack of needed technology to process the ore. The mine was abandoned, leaving behind a trail of polluted local water sources.

In 1998, the Dominican Republic passed a mining regulation with requirements for mine closure, Regulation No. 207-98 for the Implementation of Mining Law No. 146. This regulation requires progressive rehabilitation, as well as ongoing reporting and revision of mine closure plans. Then in 2000, the Dominican Republic passed Law No. 64-00, the General Law on Environmental and Natural Resources. This law requires companies to provide financial assurance for closure and post-mining transition expenses. Specifically, it requires a performance bond equal to 10 per cent of the total cost of “physical works and investments” needed to carry out the environmental management plan. (Law 64-00, Art. 47). The law also requires community engagement on the mine closure plan during the EIA process (Law 64-00, Art. 38).

In 2001 the government invited tenders to remediate and construct new infrastructure at the mine and resume production. Placer Dome of Canada initially took on the project and was acquired by Barrick Gold in

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131 Ibid.

Sudden Closure and a Way Forward: Turning an Abandoned Mine into Silver and Gold in the Dominican Republic

2006. The project is now operated by Canada-based Barrick Gold and Goldcorp, who by 2009 had to invest USD 4 billion in clean up, install new water systems in and develop the mine. Gold production commenced in August 2012.

The tailings from the Rosario mine, stockpiled in the 600 metre-long Las Lagunas tailings dam, had not been processed with the best technology and held significant value. Thus, in 2001, the government also invited tenders to reprocess these high-grade, gold-silver refractory tailings. Australia-based PanTerra Gold Limited, formerly EnviroGold Limited, won the bid in 2004 and signed a development agreement with the Government that year to reprocess tailings. The Las Lagunas Gold Tailings Project operates under a profit-sharing arrangement that shares 25 per cent of the company’s operating profit with the government from 2016, after the company recovered construction costs. The project has made use of new environmentally friendly technologies to recover gold and silver and is expected to recover 435,675 ounces of gold and 3.9 million ounces of silver.

This case study demonstrates that changing legislation and innovative strategies can remedy past liabilities for a country; however, it should be noted that in both these cases there were significant resources in place to make these two operations profitable for the investors. This might not be the case with other historic properties and liabilities. Legislation may need to be adjusted and other creative solutions developed to manage historical liabilities that have less value.

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133 Mining Technology, n.d.a
134 The Economist, 2013.
138 IISD, 2014, p. 6
139 Mining Technology, n.d.b; IISD, 2014, p. 3; Ibid., RPA, 2018, p. 23-1.
State of Play

The extensive research undertaken to support development of this guidance document\textsuperscript{140} has shown that almost all the legal frameworks studied set out some requirements for reclamation and mine closure, with costs for reclamation and closure borne by the company.

Legal frameworks vary widely in the level of detail in requirements. Some legal frameworks require the ministry of environment to approve a mine closure plan, while others require approval from the ministry of mining or from both ministries. The timing of finalizing mine closure plans also varied widely in the jurisdictions studied. Some jurisdictions have few, if any, requirements for updating mine closure plans. Others provide more detailed requirements.

Most frameworks require an estimate of rehabilitation and mine closure costs in feasibility studies and/or the application for an environmental licence. Too often, costs are not based on engineering detail, and in practice prove to be inadequate. This then means that the amount of the financial assurance is inadequate.

The timing of providing funds for financial assurance varied widely. Most jurisdictions have little detail in their legal framework regarding oversight and decision making related to mine closure funds, yet lack of clarity and transparency regarding the use of funds can be a source of conflict. Most jurisdictions also lack clear requirements regarding when a company’s obligations for mine closure are fulfilled and under what terms any remaining financial assurance may be returned to the company.

A survey of more than 70 countries at the IGF Annual General Assembly in 2018 regarding their legal framework on mine closure and reclamation showed that only a few countries have clear guidelines for environmental clearance or an “exit ticket” after closure and rehabilitation of the mine site. In most jurisdictions, either legislation is not clear on the issue or the topic is not covered in the legal framework. In some instances, exit tickets are not required by national legislation.

In general, in most countries, the environmental elements of the plan tend to be better understood and developed than the economic and social portions. Most countries acknowledge the importance of the social and economic transition post-mining transition, but are still wrestling with how to do this. The key question in the economic and social dimension appears to depend on the circumstances of the mine. In some cases, the region around the mine has a diversified economy—or can develop one—and trying to build the local economy to absorb mine employees when the mine closes may be realistic. In other situations, the basic building blocks of a local economy are simply not present, and the plan needs to be oriented toward helping workers and other local residents transition to employment elsewhere.

The closure of a mine is a dynamic process subject to changing technology, changes in climate and other variables. Review and revision of mine closure plans throughout the mine life cycle are necessary to adapt to change and to new information. Mine closure plans are thus living documents that need continuous improvement through regular revisions, audits and updates during the life cycle of the mine.

\textsuperscript{140} IGF, 2019.
Good practices, including industry-leading practices, require that planning for mine closure starts before operations and continues throughout the life of the mine until final closure and relinquishment. A closure plan should be required before government issue of any mineral exploitation permit. Governments should make sure that requirements for mine closure are clearly set out in the legal framework and require ongoing implementation of closure plans over the life of the mine. It is undeniable that all technical information will not be available at the mine planning stage or even at the beginning of operations. However, as information becomes available throughout the successive phases of the life cycle of the mine, a good regulatory framework will require that closure plans are updated based on current information. Mine closure plans should address economical, ecologically sound and socially sustainable mine closure based on current data and informed by local communities. A good closure and post-mining transition plan is one that also involves input from affected communities and other local stakeholders in order to understand local priorities and opportunities for land use and sustainable development outcomes.

Financial Assurance as a Tool for Preventing Orphaned and Abandoned Mines

The very existence of orphaned and abandoned mines across many jurisdictions is a stark reminder of past failures of legal frameworks or the inadequacy of the related mine closure plans. Abandoned and improperly closed mines result in high costs to governments and communities around those mines. Sometimes valuable water supplies are contaminated to the point that they are no longer economically usable. Examples of impacts may include lead or mercury ingestion by local populations, ongoing livestock mortality, loss of fish in rivers, continuing wildlife mortality, blowing dust, or hazards to life and property from unstable abandoned tailings dams.

Governments may find themselves bearing the responsibility and costs of rehabilitation in such cases. While companies may have legal liability to correct these conditions, mineral prices are notoriously volatile, and even large companies may quickly deteriorate and become insolvent. Pursuing a bankrupt company gains very little, and governments too often wind up paying the bills—or bills are paid by local residents through unnecessary health impacts, loss of productivity of land, loss of access to clean water, loss of economically valuable fish populations or otherwise.

Only the system of financial assurance has improved this situation. Financial assurance is an indispensable tool to ensure the availability of economic resources to cover any planned or sudden closure of mining activities.

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Key Government Actions: Final stages of mine closure and post-mining transition

Managing mine closure and post-mining transition activities implies that key steps have already been taken in the previous mine life phases to avoid creating ghost towns, ongoing water quality impacts, social dislocations and long-term environmental impacts of mining activities.

Minimum Requirements for a Mine Closure Framework

- A detailed mine closure plan must be in place, containing a vision and objectives of what the post-mining conditions should look like. Sometimes this may mean trying to restore pre-mining conditions. Other times it may mean leaving the site in conditions suitable for other beneficial post-mining land uses, from solar farms to office buildings to historical museums.
- Stakeholder input should be integral to defining the post-mining land-use objectives.
- Long-term physical and chemical stability must be an underlying principle of the closure plan. Minimizing social impacts should also be integral to the closure plan. The law should prohibit any significant surface disturbance until the closure plan is approved.
- The closure plan must be developed to a level of engineering detail that allows accurate calculation of the costs of implementing it.
- There must be some appropriate form of financial assurance that is adequate to ensure that the mine closure plan can be implemented by government if the mining company becomes insolvent or is otherwise unable or unwilling to implement the closure plan.
- Resources must be available for periodic inspection of the mine to ensure that the conditions on the site remain consistent with conditions foreseen in the closure plan.
- Any major change in mine operations should first require review of the mine closure plan to ensure that it is still appropriate in light of the proposed changes.
- A clear definition of roles and coordination between national agencies and governmental regulatory bodies is critical for the design and successful implementation of a mine closure policy or regulatory framework.

1. Require Ongoing Action to Implement the Mine Closure Plan and Prepare for (Temporary and Permanent) Mine Closure

Mine closure plans should be implemented in an ongoing and continuous manner to respond to temporary and permanent mine closures. The prices of many minerals are cyclical. There are times of prosperity and high prices, and times of economic hardship and low prices. These cycles affect not just the mining company itself, but the regional economy. Where there are multiple mines in the region producing the same commodity, many mines may feel the impact at the same time, and the regional economic effects are accentuated. In some cases, where a mine or group of mines are a pillar of the national economy, nationwide economic effects may be felt.

It is fairly common for mines to close during periods of economic downturn, then reopen when prices recover. When a mine closure is intended to be temporary, the dynamic is different from a permanent closure. A main objective of temporary closure is to preserve access to the remaining ore body and keep mining equipment and facilities protected and in good condition. Since it is presumed that the site will start operating again, actions such as covering the area with topsoil and reseeding it are generally not part of a temporary closure. This is
quite different from a permanent closure, which usually involves things like removing mining equipment and revegetating disturbed areas.

Problems can occur when a mine closure is intended to be temporary but turns out to be permanent. Even a temporary closure should meet some basic criteria, such as preventing sediment from entering water courses, putting secure gates on underground openings to prevent access, securing explosives, controlling blowing dust, etc. These measures are not adequate for a permanent closure. Problems occur when:

- A mine closes for what is believed to be a short period, but the closure goes on for many years.
- The conditions on the site deteriorate.
- It appears that the cost of reopening the mine is increasing because equipment is no longer usable, or major site work is necessary to reopen. At the same time, newer and more modern mines may have opened that can produce more efficiently at lower cost.
- The company’s financial condition deteriorates.

A planned temporary closure can transition into an unplanned permanent closure.

Dealing with these circumstances requires, at a minimum:

- Financial assurance, adequate to ensure a permanent closure, must remain in effect throughout the temporary closure.
- Frequent inspections of the site are needed to ensure that conditions are not deteriorating to the point that the financial assurance is no longer adequate.
- There needs to be some limit on the length of the period of temporary closure, and it needs to be enforced. Five years may be appropriate, or a five-year period with one five-year renewal.

In any case, when the time limit is up, it is time to implement permanent closure and ensure that all the elements in the closure plan are completed.

2. Address Both Social and Environmental Aspects of Mine Closure in Closure Guidelines

Effective and sustainable mine closure plans take into account both environmental and socioeconomic criteria. If improperly managed, socioeconomic impacts of closure can be devastating for local communities who rely on employment, revenue and other benefits of mining. Local governments will almost certainly receive less revenue, whether the revenue they receive is their own local taxes, a percentage of taxes that the national government receives or payments under a company–community agreement. At the same time, demands on local government for social spending, for efforts to ameliorate unemployment, are likely to grow. Businesses that provided food and other services to the mines may go out of business unless they have put into action a transition plan to aid them in reaching a broader consumer base.

In any case, the community’s socioeconomic objectives should inform mine development and management plans, including plans to address environmental aspects of mine closure. In some cases, a transition is possible, where the community can shift to other kinds of economic activities. In other cases, such as those where the mine is in an isolated location and there is just no way to generate economic activity, the best plan may be to help local residents transition to living somewhere else. This may be the case, for instance, where there was no community before mining started and the community owes its very existence to the mine.
Understanding a community’s anticipated future uses of land, for example, could inform design of mine infrastructure. Likewise, understanding community interests, strengths and cultures can help inform the types of capacity building, training and local job creation initiatives that will aid in community benefits during the mine life and support a successful post-mining transition.

**Government Strategies for Closure**

Governments should collaborate with mining companies and local stakeholders to prepare for the socioeconomic impacts of mine closure. There are many useful strategies governments may adopt, all of which are more successful when planning and implementation begin early in the life of the mine and build momentum over time. These strategies should be implemented continuously and updated regularly, including at the time of the post-mining transition.

Some useful strategies include:

**Stabilization Funds:** Governments in areas that are highly dependent on revenue from natural resource extraction may establish a fund in which revenues are deposited when mineral prices are high then utilized during periods of low mineral prices. Chile’s Economic and Social Stabilization Fund is a well-known example at the national level, but there are such funds at the state or local level as well. These funds help governments maintain a stable tax base, sustain services over periods of low pricing and avoid the temptation to overspend in periods when mineral prices are high.

**Permanent Trusts:** National or local governments in jurisdictions around the world utilize permanent trusts to save a portion of revenue from natural resource development to benefit future generations. Norway’s sovereign wealth fund, created largely with oil revenues, has a value of USD 1 trillion and is now the largest sovereign wealth fund in the world.

**Employment and Skills Training:** Investment in preparing communities for employment and skills in areas that are likely to transcend the life of the mine should be a focus of funding and strategic effort early in the life of the mine and far in advance of mine closure. These strategies are time- and resource-intensive, and have the greatest benefit if implemented early in the mine life.

**Planning for Economic Diversification:** Local governments and communities should lead the process of planning for relevant ways to diversify their local economies, aligned with local interests, objectives and values. This work can be supported by funding from federal or regional sources or other donors, and may be informed by broader development strategies.
Technical Assistance: National governments can establish a fund through resource revenues and/or assistance from development banks, donors, and aid agencies, to help with implementing the strategies above as well as others.

Post-Mining Use of the Mine Property. There are some situations where the mine property can be used for other economic activities that can be the basis for local economic activity. There needs to be more imagination, and more public involvement, in looking at the question of post-mining land use.

In the same way that it is important to address environmental remediation in a progressive and ongoing way throughout the life of the mine, action on socioeconomic aspects of the mine closure plan should commence early, at least by the time construction of the mine begins, to optimize efforts. Participatory planning, education, training and local job creation all take significant time. Delaying action until the end of the mine life will be far too late to sustain positive socioeconomic impacts.

The Sullivan Mine: Collaborative Benefit Enhancement to Support Sustainable Economic Development after Mine Closure

Teck’s Sullivan Mine in Kimberley, BC is a good example of a mine’s legacy of social and economic benefits going beyond the life of the mine closure. The Sullivan Mine operated for over 90 years and employed nearly 3,500 people at its peak, accounting for more than half the population of Kimberley. The mine closed in 2001, and the potential for a negative effect on the local community was significant. However, through community and company partnership and planning the community continued to survive and thrive beyond the mine closure.

In the late 1960, Teck and the community began developing plans to diversify the economy and sustain the area after mine closure. Discussion over time broadened to include the town’s tax base, diversifying employment and transitioning to a tourism-based economy. Teck used landholdings in the region to facilitate investment in recreational infrastructure and resort development. This led to the development of a ski hill, golf courses and a new resort community. The town was able to transform itself into a year-round resort area and attract other investments for further business opportunities.

In 2010, the City of Teck announced plans to launch the SunMine project, a solar energy test program, which has now been built on the former mine site, making use of the roads and remaining mine infrastructure that was not decommissioned. The project is anticipated to produce 1.6 gigawatt hours of electricity.

A key lesson from this case study is that collaboration and partnership between community leaders, local government and industry is critical for success.

3. Monitor Progress on Mine Closure Plan, Including Review of Reports; Require Updates to the Mine Closure Plan as Needed

Governments should regularly monitor implementation of mine closure plans, require and review associated reports, and require updates to the mine closure plan. A variety of circumstances should trigger the amendment of closure plans. One is where inspections disclose some form of noncompliance that will add to the cost or difficulty of closure. An example might be the discovery, through closure/post-mining transition monitoring, that the mine-influenced water is affecting water quality locations not anticipated in the initial closure plan. Or newer technologies such as leaching with cyanide, sulfuric acid or other reagents may have been introduced. Making these important changes without first seeking a permit amendment is a violation in

most jurisdictions. But in addition to whatever penalty may be appropriate, it will be necessary to amend the permit and possibly develop a new EIS to ensure it corresponds to the actual circumstances on the ground. Most systems distinguish between small technical amendments to the closure plan, which typically require only limited analysis, and more significant amendments that require public notice and consultation. Any time that there is an amendment to the permit, the closure plan should be reviewed to ensure it is still appropriate. And there should be a periodic review of the closure plan even where none of these circumstances is present. Such a review should be done at least every three years, with some taking up to five.

The legal framework should require periodic reporting on the status of closure plans and periodic inspection of key elements in the closure plan. There should be periodic updates to the mine closure plan, particularly when there are changes to the mine plan or new data, and reporting on the adequacy of the financial assurance, given current and anticipated conditions of the site.

The process must ensure that regulators have up-to-date and adequate data for quality control of closure activities, including a current estimate of closure costs. Reporting on implementation of mine closure and post-mining transition plans should also discuss ongoing engagement with community stakeholders, including actions taken by companies to address community concerns regarding mine closure and post-mining transition issues.

The regulatory framework should provide clear requirements regarding when reports must be submitted and what must be covered, circumstances that trigger the submission of additional reports (e.g., material changes to the mine plan) and what must be included in the report.

4. Monitor the Adequacy of Financial Assurance and Update as Needed

There is a consensus that mining companies bear the financial responsibility of mine closure activities and that such funds should be managed in a transparent manner. Only a well-designed and practical financial assurance model will ensure that economic resources are sufficient for closure.

The financial assurance must:

- Be calculated based on sound engineering rather than negotiated or determined politically.
- Be guaranteed by mechanisms that allow the government to access the funds promptly and efficiently when they are needed.
- Not include equipment salvage value as a source of funding for closure.
- At every stage, be adequate to pay for rehabilitation of the site if the company should fail.

A good financial mechanism is one that can be utilized and adjusted throughout the life cycle of the mine to reflect the actual costs of closure activities. Financial assurance should be designed to allow government accessibility to the funds either to undertake strictly closure activities in case of the failure of the mining company.

Good practice requires that the closure plan be developed to a level of engineering detail that permits accurate calculation of the cost of implementing the closure plan. Good practice also requires that:

- Sites be inspected frequently enough for early detection of any changes in mine operations that will affect the closure plan or the cost of implementing it.
- The closure plan must be re-evaluated and the adequacy of the financial assurance be reviewed any time there is a significant change in mining operations.
5. **Provide Clear Conditions for “Exit Tickets,” Relinquishment and Management of Residual Risks**

After a mining project has reached the end of production, mining companies would like to reach a point where they can “relinquish” all legal and financial responsibility for the site. Relinquishment marks the end of the relationship between a host country and a mining company and confirms the termination of liability of mining companies. Responsibility should remain with the project proponent into post-mining transition to ensure the mine has reached or is about to reach a steady state of physical, chemical and biological stability.

Potential liabilities that need to be checked, accounted for and potentially managed beyond relinquishment may include the following:

- Long-term physical stability of tailings dams
- Safety hazards from residual mine facilities including underground mines, open pit high walls, pit lakes, unstable rock dumps, settling ponds, unmaintained access roads, etc.
- Potential acid generation and/or chemical leaching from underground mines, open pit wall rock, mine rock storage piles, tailings, leach pads, etc.
- Chemical leaching from buried waste and/or underground storage tanks, or from residual materials left on-site
- Residual hydrocarbon or chemical contamination from historic spills
- Maintenance of long-term water treatment facilities
- Continued maintenance requirements for reclaimed areas where the vegetation may not be self-sustaining.

Relinquishment is embedded in the mine closure legislation of many countries. However, the concept is proving difficult to apply. The idea is that mines can be brought to a state of physical, chemical and biological stability after some post-mining transition monitoring period which allows the government and the company to “walk away” from the site without future concerns.

There are three basic problems with relinquishment. First, there are a considerable number of sites where “walk away” closure cannot be achieved with any currently understood technical approaches. Maintaining acceptable conditions on the site and preventing offsite pollution will require ongoing human monitoring and remedial action at these sites, as well as expenditure of funds, often for a very long time. Second, there are some very significant limitations in our ability to predict, in advance, what mines will need this kind of ongoing active maintenance. It appears that the predictions that companies make during the permitting stage are very frequently too optimistic.147 Third, given the inherent uncertainties, it is not at all clear what mechanisms exist that can ensure that ongoing costs of maintaining environmental conditions at a site are internalized and borne by the operators if we are talking about ongoing costs that need to be paid decades—or even centuries—after the mine closes.

As governments have become aware of the extent of these ongoing post-mining transition environmental liabilities, there have been legal changes, such as the United States’ Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or “Superfund” legislation), which has allowed governments to pursue former operators for these costs many years after operations have ceased.


Legal frameworks should provide clear guidelines and requirements for relinquishment. Relinquishment occurs when ownership, residual liabilities and responsibility for a former mine site can be returned to the corresponding jurisdiction, original owner or transferred to a third party, following completion of closure activities and satisfying any agreed success criteria.

Relinquishment should be determined at each project level after the determination that all closure objectives, activities and criteria have been met. At the outset, the legal framework for the closure plan should require that the proponent indicate the expected timeline for relinquishment and publication of a notice. At the same time, regulatory frameworks should offer a pathway to final relinquishment or a relinquishment process that also includes what is expected from the proponent and the situation in which relinquishment might not be feasible. Responsibility for ongoing liabilities, transferable liabilities and residual risks must be clear, especially for situations where relinquishment is a managed process, such as cases requiring passive or active long-term care. Uncertainty can lead to heavy financial, environmental and social burdens for governments for abandoned mines.

Granting environmental clearance or exit tickets should be transparent and involve all relevant government and community stakeholders. For example, a notice or application for relinquishment can made public as well as the formal acceptance of cessation of responsibility approved by regulators. Additional consideration to be integrated into development of legislation and policies might include:

- Criteria for defining physical, chemical and biological stability in the long-term
- Terms and evidence requirements for relinquishment
- Criteria for calculating long-term monitoring and maintenance costs
- Contingency plans and funding mechanisms to cover any uncertainty in the prediction of future liabilities (e.g., future unexpected acid generation and metal leaching)
- Mechanisms for returning or retaining financial guarantee and required self-sustaining financial mechanisms to pay for long-term monitoring and maintenance costs after relinquishment, if this is allowable
- Requirements for post-mining transition monitoring and reporting to demonstrate readiness for relinquishment
- Public notification requirements and grievance mechanism
- Final government and third-party expert inspection and audit requirements to verify property conditions prior to relinquishment.

6. Inspect and Monitor Closure Plan Implementation of Mine Closure Plan and Complete Final Inspection Prior to Relinquishment

In addition to clear reporting requirements, legal frameworks should allow regulators to conduct inspection and audits to determine whether a mining company’s mine closure obligations have been fulfilled or not. The regulatory framework should lay out the objectives of the inspection and monitoring goals as well as the expectations from regulators when undertaking those inspection activities. To avoid misunderstandings and denials of access to sites or data, regulators should explore the best ways to communicate to the mining company the goals of mine closure and post-mining transition monitoring activities. However, this should not

prevent regulators from initiating unannounced inspection visits or activities. Some jurisdictions have set requirements for a performance measurement framework that describe the role of stakeholders involved in the process. The process of data collection and how it is used is also important. Access to closure monitoring data from the mining company and efficient data management from government agencies will be as important as the capacity to accurately analyze those data. Several practical steps for preparing a cost-efficient and effective mine closure and post-mining transition monitoring program could include:

1. Having a full understanding of the objectives and requirements of the inspection/audit/monitoring program.
2. Requiring public access to key documentation and monitoring data in mine closure and post-mining transition reports.
3. Involving and empowering local communities through training and skills development to assist with monitoring and data interpretation related to mining activities affecting their communities. This role can be designed in addition to the traditional monitoring by governments, especially for socioeconomic issues and in areas with communities with traditional environmental monitoring knowledge. When local community members aid in data collection there is greater trust in the resulting data. A tripartite approach comprised of local communities, the mining company, and central and local government representatives can also be contemplated.150
4. Building capacity within government to inspect and monitor closure plan implementation. Mining inspectors and auditors should be equipped to effectively evaluate the activities undertaken to implement the closure plan and determine if it was successful, needs improvement or if there is a gap. Technical skills (engineering, social, environmental, etc.) are required to validate models or scenarios anticipated by companies and to assess risks.
5. Considerable human, financial and technical capacities should be allocated to monitoring activities, including mine closure activities. A practical strategy might include allocating a portion of the mining revenue to monitoring and inspection activities, especially in the context of mine closure and post-closure.
6. Supporting mechanisms for information sharing with communities and opportunities for communities to provide feedback on mine closure plans.

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Annex

Good Governance Checklists

Chapter 3 Checklist: Laying the Foundation for Good Governance of Environmental and Social Impacts: Preparing for the permitting process

1. Develop a National Vision for Sustainable Development Through the Mining Sector

*Questions:*

- What do your national constitution, environmental law and mining law say about sustainable development to inform your vision?
- What do current local, regional and national development plans say should be integrated into your national vision for sustainable development?
- What key national and subnational governments, Indigenous groups, local community, company, NGOs and other stakeholders should be involved in establishing the vision?

*Tools and Strategies:*

- Set up a sustainable development task force.
- Engage key stakeholders from the national government, local government, civil society organizations, communities in mineral-rich regions, companies, etc.
- Gather input from key stakeholders, particularly communities in mineral-rich areas, to understand their short-, medium- and long-term development objectives.
- Collect and review development plans on national and subnational levels and assess how mining can contribute to these development plans and aid in economic diversification.
- Review the SDGs and assess how mining in your country can contribute to reaching national SDG targets.
- Maintain ongoing efforts across sectors to gather data, monitor and publicize progress toward development objectives, and promote informed public discourse regarding progress toward development objectives.


*Questions:*

- Are international, national and subnational sources of law aligned to avoid contradictions?
- Are national and subnational laws and policies, with input from key stakeholders, used to implement the goals, objectives and obligations under international treaties?
- Where contracts are used, are they aligned with relevant international, national and subnational laws and policies?

*Tools & Strategies:*

- Conduct a review of international, national, and subnational laws and policies related to environmental and social impact management and the minerals sector to ensure alignment.
• Complete a legislation, policy and capacity gap analysis.
• Develop a working group to regularly review and monitor alignment of international, national and subnational laws.

3. Adopt a Comprehensive Legal Framework for Permitting, ESIA, and Related Social and Environmental Management Plans Before Mining Permits are Issued

Questions:

• Does your legal framework include well-defined objectives, incorporating principles of sustainable development?
• Does your government make a single authority responsible for the ESIA process and coordination of all stakeholders involved?
• What authority makes the final decision at the end of the assessment?
• Does your legal framework ensure that mining exploitation activity proceeds only after completion of an ESIA, approval of an ESIA report and related management plans, and written authorization or certification from the environmental ministry?
• Does your legal framework include supporting guidelines (e.g., a list of projects subject to ESIA)?
• Do you have a process established to coordinate expert input from relevant ministries?
• Are cooperative agreements in place with other jurisdictions if necessary?
• Does your legal framework require evaluation and management of both environmental and socioeconomic factors?
• Where obligations for ESIA and related plans arise from different government ministries and different eras, are the obligations consistent? Are the procedures aligned?
• Do your mining laws, investment laws or mining contracts avoid stabilization clauses on environmental and social topics?
• If different types of related impact assessments are required (environmental, social, health, etc.), are the requirements and procedures aligned where possible, to avoid inefficiencies and unnecessary duplication of efforts?
• Are preliminary reclamation and mine closure plans required prior to beginning mining operations, including clear reporting and inspection requirements, and clear guidelines to determine when the company’s mine closure obligations have been fulfilled?
• Is adequate financial assurance for mine closure and rehabilitation required before significant land disturbance, as part of the FS and/or application for an environmental licence? Are there transparent frameworks for review, management and disbursement of such funds, and circumstances under which any remaining funds may be returned to the company post-mining transition?
• Are robust public engagement requirements clearly set out for ESIA and ESMPs, requiring public input and participation at key stages throughout the life of the mine, and certainly when there is any major change in mining operations?
• Does the legal framework include clear guidelines for content and frequency of reporting on environmental and social plans, as well as updating environmental and social impact assessments?
• Are ESIA, ESMPs and related reports made available to the public and readily accessible to affected communities? Have you established a transparent and easily accessible public registry where all project-related information is stored?
• Are clear approval criteria and timelines for approving ESIA reports and plans, with clear descriptions of what department(s) are responsible for approvals, provided in the legislative framework, along with the process for appealing decisions related to the reports and plan?
• Are requirements and time frames for periodic updates to assessments and ESMPs clearly specified, including but not limited to when there is a material change to the work program for the mine?
• Are monitoring, inspection and evaluation criteria related to environmental and social management clearly specified?
• Are grievance mechanisms required?
• In cases of noncompliance, are reasonable sanctions or penalties clearly laid out in the law, along with administrative remedies?

**Tools & Strategies:**

• Assess your laws and their compliance with good practice. Engaging an independent third party to conduct such an assessment may be useful to ensure objectivity.
• Develop and/or revise enforcement and penalty terms for the legislation.
• Complete a regulatory impact analysis for required legislative changes.
• Develop a comprehensive plan for legislative change based on the gap analysis completed to align international, national and subnational legislation and policies. The plan should include details on:
  o Required legislative additions, deletions and revisions
  o Implementation plan including provisions for “grandfathering” (i.e., allowable exemptions) and compliance schedules
  o Delegation of responsibilities and logistics for drafting and consulting on changes
  o Budget
  o Revision and implementation schedule.
• Adopt the appropriate legal instruments or mechanisms, based on feedback from key stakeholders: revise laws or regulations; adopt new laws or regulations; and adopt guiding documents as needed.
• Develop standard terms and conditions for approvals and permits for each stage of mine development. Conditions can be modified or added to on a project-specific basis.

4. Clarify Roles and Opportunities for Collaboration Across Ministries

**Questions:**

• Are mechanisms for collaboration and communication between the authority responsible for granting environmental permits and the authority for granting mining permits in place?
• Are the roles of the environmental ministry and mining ministries and other organs of government in the ESIA and permitting process clear?

**Tools & Strategies:**

• Develop an inter-ministry working group that meets regularly to identify opportunities to collaborate, share experience and work together to improve responsible governance of environmental and social impacts and benefits in the minerals sector.
5. Conduct a Strategic Environmental and Social Assessment for the Mining Sector

**Questions:**

- What are existing environmental, social and cultural constraints in land-use planning and mine permitting in key areas of mineral interest?
- What are the opinions and concerns of key stakeholders, including those in national government, local government, civil society organizations, communities in mineral-rich regions, companies and others?
- Does the legal framework clearly specify where exploration activity may not take place (e.g., on cultural heritage sites and some types of protected areas)?
- Are the excluded zones integrated into the mining cadastre or territorial cadastre and accessible to the public and investors?

**Tools & Strategies:**

- Set the key objectives of the Strategic Assessment, which could include, for example:
  - Assessing the key environmental and social challenges and opportunities.
  - Assessing the cumulative impacts of mining in combination with other industries, infrastructure and land uses, and developing associated land management plans for sustainable development.
  - Identifying the policy, legal, regulatory, institution and capacity needs for mining and associated infrastructure and industries.
  - Developing and assessing specific measures to improve sustainability.
- Discuss with and collect knowledge and input from key stakeholders.
- Draft recommendations regarding zones that will require special management regimes or even be excluded from mining activity in the mining cadastre.
- Seek further input from the key stakeholders on the draft recommendations.
- Finalize the defined zones that will be excluded from mining activity.

6. Establish Guidelines for Public Engagement and Consultation

**Questions:**

- Does the legal framework provide detailed requirements and guidelines for public engagement and consultation, particularly regarding consultation with Indigenous Peoples, where applicable?
- Where the interests of Indigenous Peoples are affected, are the requirements and guidelines aligned with international frameworks such as the ILO Indigenous and Tribal Peoples Convention 169\(^\text{151}\) and the UNDRIP?\(^\text{152}\)

**Tools & Strategies:**

- Conduct a review of public engagement and consultation requirements related to ESIA for the minerals sector compared with good practice.

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• Identify critical timing to incorporate consultation in the updated legal framework for the ESIA process and permitting.
• Define responsibilities for consultation (i.e., government or company) in legislation or policy.
• Discuss with key stakeholders how consultation requirements may be improved and develop plans to implement needed improvements.
• Set legal and/or policy requirements for a range of culturally appropriate communication methods and strategies for public engagement during the ESIA and permitting process. Methods could include radio, videos, social media, public forums, and use of graphics and information presented in creative formats to communicate with a wide audience.
• Define criteria and guidelines for how government will consider and incorporate consultation results in the ESIA, permitting and decision-making processes.

7. Create Guidelines for Participatory Environmental and Social Monitoring

Questions:

• Does your legal framework provide guidelines for a participatory environmental and social monitoring involving local community members?
• Do the guidelines cover capacity building? Health and safety precautions? What other criteria are important to local communities and should be monitored?

Tools & Strategies:

• Share examples of successful participatory monitoring mechanisms in your minerals sector.
• Support opportunities for communities to learn from one another and to share experiences.
• Set guidelines and/or conditions for participatory monitoring in consultation with stakeholders and the company.
• Set up a transparency mechanism for sharing results of the participatory monitoring.
• Periodically review the participatory monitoring program and make revisions based on the results. The periodic review could be considered as a requirement of the company’s adaptive management plan.

8. Ensure that Adequate Human Resources are in Place, Along with Ongoing Training Programs

Questions:

• What human resources are currently available to implement the legal framework for ESIA and related environmental and social management plans? On national levels? Subnational levels? What human resources are needed?
• Do subnational staff have adequate support to meet their obligations, particularly those who are working in remote areas?
• What are your training and retention strategies?
• Do you have a sustainable source of funding for human resources training programs?
  o Are the funds aggregated from different mines to avoid a direct link between a mining company and the financial support of a specific training program?
  o Is use, management and reporting of funds conducted in a transparent manner?
Are mechanisms in place to ensure durability of funds so that training programs are not entirely dependent on revenue from the mining sector?

- What ongoing training and capacity-building support can you provide to government employees to ensure they are prepared to manage environmental and social impacts in the mining sector?
- Is your government working to advance gender equality in procedures to recruit, train and support human resources? How could this be improved?

**Tools & Strategies:**

- Establish ongoing training programs for inspectors and others to understand and monitor impacts of current and new technologies, social impacts and environmental impacts, taking into consideration current and anticipated impacts of climate change.
- Contract technical experts to help with inspections and review of monitoring reports where there are gaps in capacity.
- Continuously work to improve budgets for human resources and training programs.
- Identify additional sources of funding for budget shortfalls (e.g., requiring companies to fund independent reviews, inspections and/or audits).
- Establish programs to advance gender equality in recruiting, training and retention of employees.
Chapter 4 Checklist: The Prospecting and Exploration Phase

1. Distinguish Between Prospecting and Exploration

*Questions:*

- Does the legal framework provide a clear definition for prospecting? Exploration?
- Does the law establish clearly that activities with a high potential for impact require analysis of possible environmental and social impacts specific to the activity?
- Where a high potential for environmental and social impacts does exist, are requirements for public engagement and consultation specified?

*Tools & Strategies:*

- Review your legal framework.
- Maintain current knowledge of new techniques for exploration and advanced exploration that may have greater, or lesser, environmental and social impacts than prevalent methods in your country.

2. Define Social and Environmental Requirements for Exploration

*Questions:*

- Does your legislative framework include appropriate minimum requirements for exploration licences, commensurate with the level of environmental and social risk of the given exploration plan?
- Does your framework require at least the following requirements for an exploration licence:
  - Statement of anticipated environmental and social impacts?
  - Mitigation and rehabilitation plan?
  - Record of public engagement and participation of local communities where environmental and social impacts are high?
  - Costing and a timeline of measures to be implemented to prevent, reduce or mitigate environmental and social impacts?
- Does the legal framework prohibit exploration activity without written government approval?

*Tools & Strategies:*

- Review your social and environmental requirements for the exploration phase to ensure that they are not so rigorous that they deter exploration, but they are rigorous enough to manage environmental and social impacts that may be associated with some advanced exploration techniques.
- Provide training to key ministries regarding exploration techniques and emerging technologies.
- Seek feedback from local communities and Indigenous groups regarding how they wish to be engaged or consulted regarding exploration activities.

3. Ensure that Exploration Permits and Approvals are Subject to Terms and Conditions

*Questions:*

- Are exploration permits time-limited?
• Do exploration permits include conditions and reporting requirements, including on environmental and social impacts where applicable, to appropriate regulators?
• Do exploration permits require monitoring to evaluate environmental and social impacts and effectiveness of applied mitigation and management measures?

Tools & Strategies:

• Review the terms and conditions of issued exploration permits to ensure that they are time-limited and include management of environmental and social factors.
• Transition permit renewals and new permits to include any identified gaps in management of adverse environmental and social impacts.

4. Require Environmental and Social Obligations Must be Met for Permit Renewal

Questions:

• Does the application or request for renewal or extension of an exploration permit require certification of compliance with environmental and social obligations in the exploration phase?
• Do permit denials follow clear guidelines?
• Where permits are denied, does the legal framework allow for company appeals?

Tools & Strategies:

• Create guidelines for environmental and social management in the exploration phase that are focused on advanced exploration.
• Create standard permit conditions for exploration.
Chapter 5 Checklist: The Mine Planning Phase

1. Promote Meaningful Engagement and Consultation, Including Building Stakeholder Capacity for Participation

**Questions:**

- Is a public engagement plan in place that includes capacity building for community stakeholders?
- Is capacity building provided both early in the project and throughout the life of the mine?
- Is the capacity building directly responsive to the needs and objectives of the community?

**Tools & Strategies:**

- Develop a budget for capacity building.
- Conduct a survey of community needs and objectives for capacity building.
- Develop a capacity-building program with input from community stakeholders.
- Implement the capacity-building program, modifying as needed at periodic intervals based on further input from community stakeholders.

2. Avoid Environmental and Social Stabilization Provisions in Laws and Contracts

**Questions:**

- Does your legal framework grant legal stability to mining project terms and conditions? Which laws and contracts?
- Does your legal framework provide for environmental and social stabilization provisions in laws and contracts for the mining sector?
- Are the nature, scope and duration of your stabilization clauses coherent and consistent in your domestic laws and in contracts?

**Tools & Strategies:**

*First or immediate steps:*

- Conduct an assessment on the scope, duration, impacts and need for stabilization provisions in your legal framework.
- Remove all environmental stabilization provisions from your legal framework.

*Additional steps:*

- Review large stabilization provisions to limit their scope to fiscal matters and/or limit their duration.
- Consider removing stabilization clauses from your legal framework.
3. Establish a Reasonable Timeline for the ESIA Process

**Questions:**

- Is there clear process and timelines for completing the proposal review, scoping, ToR, report preparation, review and comment periods, and decision stages of the ESIA process?
- Are any time limits for government action reasonable in light of the scope of the particular project and the human and financial resources of the reviewing agencies? Are you regularly meeting timelines? Why or why not?
- Do time limits begin only when a complete ESIA report has been submitted?
- Is the legal and procedural framework free of any “automatic” approvals where the time frame for review of an ESIA or related management plan has lapsed?

**Tools & Strategies:**

- Review the ESIA process and make amendments with clear timelines.
- Prepare or revise guidance on the ESIA process and requirements for each stage.
- Review actual timelines for review of ESIA and modify legislation and government resources and capacity to ensure reasonable timelines are expected and followed.
- Assess the current level of human resources for review of ESIA and related plans. Where gaps in level of resourcing and needed skills are identified, develop a plan to address these gaps.

4. Require ESMPs in the Mine Planning Phase

**Questions:**

- Are ESMPs required in the mine planning phase?
- Are the ESMPs developed directly as a result of the impact assessment linking potential impacts directly to proposed mitigation and management measures?
- Is approval of these plans required prior to approval of the exploitation permit?
- Are the plans used to address all key environmental and social issues identified through the ESIA process?
- Are the plans developed with input of affected communities?
- Do the plans address measures to mitigate greenhouse gas emissions?
- Do the plans respond to the different impacts of mining by gender, including ongoing monitoring of impacts disaggregated by gender?

**Tools & Strategies:**

- Review requirements for ESMPs in the mine planning phase to ensure they align with good international practice.
- Develop guidance for ESMPs.

5. Require a Mine Closure and Post-Mining Transition Plan

**Questions:**
• Does your legal framework require a mine closure plan before the construction and operation phases may proceed?
• Do your requirements for mine closure plans include social and economic factors, with ongoing implementation throughout the construction and operation phases, in preparation for the final mine closure phase?
• Do the mine closure objectives include long-term physical and chemical stability of the property?
• Do your requirements for mine closure plans include community consultation?

**Tools & Strategies:**

- Review the requirements and guidelines for mine closure plans to ensure that social and economic factors are considered; the plan is required before construction and operation may proceed.
- Consider creating guidelines for factors to consider in mine closure plans, including environmental and social factors.


**Questions:**

• Does the legal framework require the company to establish a financial assurance fund for remediation and mine closure prior to mine construction and operations?
• Is the mechanism for financial assurance in a form that is quickly accessible if needed?
• Does the legal framework encourage progressive rehabilitation as an incentive to reduce overall costs of mine closure?

**Tools & Strategies:**

- Provide ongoing training on evaluating costs of mine closure and ensure that financial assurance is adequate to meet the costs of closure, whether unexpected or planned closures.

7. Provide Clear Guidelines for Environmental and Social Reporting

**Questions:**

• Are reports on implementation of ESMPs in the exploitation phase made at least on an annual basis?
• Are reports required more frequently where high to medium range risks have been identified?
• Are reports made readily available to the public? Are they easily accessible to members of affected communities?

**Tools & Strategies:**

- Develop or amend your guidelines for environmental and social reporting to ensure they are aligned with good practice.
- Set up or improve methods for disseminating monitoring information.
8. Approve or Deny the ESIA Report and Related Management Plans

**Questions:**

- Does the legal framework clearly state that exploitation activities may not begin without written authorization or certification from the environmental ministry and ministry of mines?
- Do the requirements for authorization or certification include:
  - A full ESIA?
  - An ESMP with a corresponding budget?
  - A rehabilitation and mine closure plan with a corresponding budget?
- Does the legal framework contain clear procedures for evaluating applications, and for approving or denying the environmental licence and the exploration permit?
- Where a licence or permit is not approved, is there a clear process for administrative appeal?

**Tools & Strategies:**

- Review your legal framework for gaps in the ESIA process.
- Consider drafting guidelines, if not already available, for development of (a) ESMPs and (b) mine closure plans in the mine planning phase.
- Review the process for approval, denials and appeals of environmental certificates and related permits to ensure that the process is clear and transparent.
- Develop comprehensive standard approval terms and conditions that can be revised and added to on a project-specific basis.

9. Support Development of Grievance Mechanisms

**Questions:**

- Does your legal framework support development of local-level grievance mechanisms early in the life of the mine?
- Are such mechanisms in your country designed in a way that is culturally relevant and accessible to the community?

**Tools & Strategies:**

- Consider providing or improving guidelines for local-level grievance mechanisms.
- Ensure the system is in place to effectively respond to and track grievances.

10. Support Negotiation of Company–Community Agreements, if Used

**Questions:**

- Where have company–community agreements been utilized in your country? What do stakeholders have to say about these agreements?
- If utilized, are the agreements negotiated to respond to the unique objectives, circumstances and desires of affected communities?
- Would it benefit your government to increase support for such agreements to manage the impacts and benefits of mining?
Tools & Strategies:

- Meet with stakeholders to discuss use of company–community agreements in the minerals sector.

11. Participate in Multistakeholder Mechanisms

Questions:

- Are multistakeholder mechanisms utilized in your mineral sector?
- Are government stakeholders active in these mechanisms?

Tools & Strategies:

- Consider drafting or improving guidelines for multistakeholder mechanisms in the minerals sector.
- Prepare guidelines for how stakeholder input is integrated into the ESIA review and decision process.
Chapter 6 Checklist: The Construction and Operation Phases

1. Ensure Ongoing Community Engagement and Capacity Building

Questions:

- Are you ensuring that companies are meeting obligations for community engagement and capacity building?
- Is the government actively fulfilling its role in multistakeholder mechanisms?
- Are mechanisms for community engagement and capacity building being implemented? What are lessons learned for this project? For other projects? Can these lessons be incorporated into your legal framework or guidance?

Tools & Strategies:

- Conduct an assessment of community engagement and capacity-building requirements and guidelines.
- Learn from other stakeholders about their experience utilizing engagement and participatory mechanisms.

2. Provide Clear Inspection Requirements and Adequate Human Resources for Compliance Checks and Enforcement

Questions:

- What follow-up programs do you have in place, such as monitoring, audits, evaluation and adaptive management programs? Do these programs evaluate the success of mitigation actions to achieve intended outcomes?
- Does your government promote compliance through education programs, training, provision of technical information and issuing codes of practice?
- Do you have not only clear legal requirements but also highly trained human resources and sufficient financial resources for inspection in place?
- If your government utilizes third-party inspectors who are paid with company funds, are the appropriate methods for oversight and transparency of these funds in place?

Tools & Strategies:

- Conduct a review of your inspection requirements and related human resources.
- Develop programs to promote compliance, such as trainings, technical guidance and issuing codes of practice.

3. Issue Guidelines for Use of Participatory Environmental and Social Monitoring Mechanisms

Questions:

- Is the government actively promoting use of participatory environmental and social monitoring mechanisms?
- Are the participatory mechanisms proactive and not reactive, attempting to identify and solve problems collaboratively?
Tools & Strategies:

- Consider elaborating guidelines and/or principles for effective participatory mechanisms.

4. Collaborate with Local Governments to Manage the Impacts and Benefits of the Construction Work Force

Questions:

- Does your law and policy framework promote recruiting and training local labour in the construction phase?
- What requirements do you have for local hiring? Are these reasonable given the capacity and availability of the local workforce?
- What is your government doing to build the skills of communities around mines, particularly to build the capacity of women to work for mines in the construction and operations phases?

Tools & Strategies:

- Review your requirements for local hiring.
- Assess and improve support for local skills development for the mining sector, including programs that support training women to work in the sector.

5. Manage Impacts of Construction

Questions:

- Do the ESIA and related management plans capture impacts and potential benefits of roads, power plants and other related projects?

Tools & Strategies:

- Ensure the ESIA process includes impact assessment and development of mitigation and management plans for all related activities (e.g., roads, power lines, transportation), resulting in more streamlined environmental and social management.

6. Conduct Regular Review of Progress Reports, Conduct Site Inspections and Monitor Implementation of Management Plans

Questions:

- What are the requirements and timelines for progress reports in your legal framework?
- What guidelines for review are provided in your legal framework? Do these need to be updated?
- Are monitoring results tracked over time and linked to actual impacts?
- Are non-compliance orders issued and corrective action tracked when needed?

Tools & Strategies:

- Review requirements for progress reports and updates to management plans in your legal framework.
- Develop programs to improve the efficiency of reporting and tracking monitoring and implementation of management plans.
7. Amend and Renew Permits; Require Updated Assessments and Amended Plans Where There Are Material Changes to Mine Plans or Impacts

Questions:

- Do material changes in the mine plan trigger requirements for review or addendums to the ESIA and related plans?
- Does your legal framework require annual or biannual updates to management plans regardless of material changes, responding to any new information, data collected, stakeholder input and lessons learned?

Tools & Strategies:

- Review your legal requirements for updating ESIA and related plans.

8. Require Progressive Rehabilitation and Ongoing Preparation for Environmental and Social Aspects of the Post-Mining Transition

Questions:

- How is your government working to ensure that environmental rehabilitation and action toward socioeconomic objectives of mine closure proceed over the life of the mine? Do these requirements need to be clarified in your legal framework and policies?

Tools & Strategies:

- Consider issuing guidance on progressive rehabilitation and progress toward the socioeconomic objectives of mine closure.
- Provide guidance to companies and other stakeholders regarding the benefits of progressive rehabilitation and management of the socioeconomic effects of closure.
Chapter 7 Checklist: Final Stages of Mine Closure and Post-Mining Transition

1. Require Ongoing Action to Implement the mine closure plan and Prepare for (Temporary and Permanent) Mine Closure

Questions:

- Does your legal framework require ongoing implementation of mine closure plans?
- Are frequent inspections of the mine site required during temporary closure to ensure that conditions are not deteriorating to the point that the financial assurance is no longer adequate?
- Does your legal framework require financial assurance adequate to ensure permanent closure to remain in effect throughout temporary closure?
- Does your legal framework place a limit on the period of temporary closure and enforce this limit?
- Does your legislation define temporary and permanent closure triggers?

Tools & Strategies:

- Review and amend your legal framework to ensure that it adequately addresses both permanent and temporary mine closure.

2. Address Both Social and Environmental Aspects of Mine Closure in Closure Guidelines

Questions:

- Does your legal framework address both social and environmental aspects of mine closure?
- Do you require mining companies to begin to implement socioeconomic aspects of the mine closure plan early, at least by the time construction begins, to optimize efforts?

Tools & Strategies:

- Draft guidelines for managing environmental and socioeconomic aspects of mine closure and continuously improve them based on lessons learned.

3. Monitor Progress on the Mine Closure Plan, Including Review of Reports; Require Updates to the Mine Closure Plan as Needed

Questions:

- Does your government regularly:
  - Monitor implementation of mine closure plans?
  - Require and review periodic reports?
  - Require updates to the mine closure plan?
- Does your legal framework require periodic updates to the mine closure plan, particularly when there are changes to the mine plan?
- Do you require regular reporting on the adequacy of the financial assurance, given current and anticipated conditions of the site?

Tools & Strategies:
• Review and amend your legal framework to ensure that requirements for monitoring, periodic reports and updates to the mine closure plan are clear, including clear roles for government.

4. Monitor Adequacy of Financial Assurance and Update as Needed

Questions:

• Does your legal framework require that the financial assurance:
  o At every stage, remain adequate to pay for rehabilitation of the site if the company should fail?
  o Be calculated based on sound engineering rather than negotiated or determined politically?
  o Is in a form that allows the government to access the funds promptly and efficiently when they are needed?

• Are mine sites inspected frequently enough for early detection of any changes in mine operations that will affect the closure plan or the cost of implementing it?

• Does the legal framework require that companies re-evaluate the adequacy of the financial assurance any time there is a significant change in mining operations?

• Does legislation require regular updates of mine closure plans and cost estimates?

Tools & Strategies:

• Review your legal framework to ensure that the closure plan and financial assurance are regularly reviewed and adjusted to cover costs of mine closure.

5. Provide Clear Conditions for “Exit Tickets,” Relinquishment, and Management of Residual Risks

Questions:

• Does your legal framework provide clear guidelines and recommendations for relinquishment?

• Is the process transparent, involving both government and community stakeholders?

Tools & Strategies:

• Review and amend requirements for relinquishment and exit tickets in your legal framework to ensure they are clear and require input from affected communities and local government stakeholders.

6. Inspect and Monitor Implementation of Mine Closure Plan and Complete Final Inspection Prior to Relinquishment

Questions:

• Does your legal framework require government to conduct inspection and audits to determine whether a mining company’s mine closure obligations have been fulfilled or not?

• Does your regulatory framework detail the objectives of the inspection and monitoring goals, as well as government’s expectations when undertaking inspection activities?

• Are unannounced inspection visits allowed under your legal framework?

• Do you require access to key documentation to confirm data shared by mining companies under reporting requirements?
• Do you have the human resources and skill needed to inspect and monitor closure plan implementation?
• Do you have mechanisms to support information sharing with communities and opportunities for them to provide feedback?

**Tools & Strategies:**

• Consider allocating a portion of the mining revenue to monitoring and inspection activities related to mine closure and post-mining transition plans.
• Support mechanisms for information sharing with communities and opportunities for communities to provide feedback on mine closure plans. Considerable human, financial and technical capacities should be allocated to monitoring activities, including mine closure activities. A practical strategy might include allocating a portion of the mining revenue to monitoring and inspection activities, especially in the context of mine closure and post-mining transition.
### Key Terms

#### ESIA and Related Processes for the Mining Sector

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<tr>
<th>Key Term</th>
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<tr>
<td><strong>Exploration and Feasibility</strong></td>
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<tr>
<td><strong>Exploration</strong></td>
<td>The Exploration Phase may overlap with the Research/Prospecting/Reconnaissance phases. It involves field work for rock and soil sampling and use of small to heavy machinery to identify and quantify mineral resources. More intrusive methods to obtain bulk samples and to carry out testing are usually referred to as advanced exploration to further define mineral reserves from a mineral resource or further evaluate the geologic discovery to determine whether it should proceed to scoping and feasibility. The exploration phase in its entirety may last a year or many years and does not necessarily lead to mine development.</td>
</tr>
<tr>
<td><strong>Feasibility Studies</strong></td>
<td>Feasibility studies gather the information required for a decision on whether and how to proceed further in the development of a potential mineral resource. They may vary from a PFS (to demonstrate economic viability and establish mineral reserves) to an FS (a detailed study of how the mine will be built, including costs). These studies estimate costs from mill costs to complete assessments that may include a market analysis, a mining plan with ore grades and mining costs, metallurgical testing, process development, plans for the mill, cash flow analysis, etc., on measured and proven mineral reserves for a mineral resource. An FS will have a higher confidence level than a PFS.</td>
</tr>
<tr>
<td><strong>Research/Prospecting/Reconnaissance</strong></td>
<td>The Research/Prospecting/Reconnaissance Phase involves the process of searching for economically exploitable mineral deposits and is referred to by the different terms presented across various international jurisdictions. This process may involve field inspections, analysis of aerial photography and satellite imagery, and a range of methods to conduct an analysis to evaluate the land’s geology and soil, sediment and water quality to identify potential mineral resources. Prospecting may involve a range of tools from small hand tools to bulldozers and drilling machinery.</td>
</tr>
<tr>
<td><strong>Scoping/Preliminary Economic Assessment (PEA)</strong></td>
<td>A scoping study or PEA is an early-stage conceptual assessment of the potential economic viability of mineral resources to define a possible metallurgical circuit for a project.</td>
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156 Newmont Goldcorp, 2013.


158 Ibid.


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<tr>
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<tr>
<td>Mine Planning</td>
<td>Alternatives assessments for projects are typically undertaken as part of the ESIA process and legislatized as such in some countries, though they are sometimes undertaken ahead of the ESIA as part of mine planning through PFS and FS studies. The alternatives assessment process should objectively and rigorously assess all feasible options and methods for a project. Screening criteria include potential environmental effects, social acceptability, engineering feasibility and cost.</td>
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### Key Term

#### Closure and Rehabilitation Plan

The process of closing a mine involves converting an operating mine into a closed mine in an orderly, safe and environmentally sound manner. The closure and rehabilitation plan, which is always applicable to the particular mine site and separate from ESMPs, explains how the site will be closed and returned to its state prior to exploitation. This plan is concerned with the mining facilities themselves, the conditions of the immediate environment and the socioeconomic parameters. As part of the ESIA process in most jurisdictions, a conceptual or preliminary closure plan is presented to facilitate the impact assessment, based on standard industry practices. Plans are revised post-ESIA based on input from public and stakeholder engagement. They will account for any changes required through adaptive management strategies to address site-specific conditions ahead of mine closure and to fulfill legislative requirements that may fall under separate acts (e.g., EIA vs. mining acts; see the Mine Closure and Post-Mining Transition definition).

The closure plan and final rehabilitation should include: (i) a summary of the main points and conclusions, including closure targets, timetables and financial assurance; (ii) a description of the context of the closure that includes the history of the mining company and its operations; (iii) a detailed description of the mining facilities; (iv) a description of the social and environmental characteristics of the area concerned, including the resources most likely to be affected by the closure; (v) a presentation of the closure plan that includes: the Schedule of Operations; the cost; plans (schematics) of an appropriate scale and detail to clearly display the proposals, including the final provisions for the site; and the technical appendices, which must provide the research details concerning the proposed techniques and methods.

Success criteria entail specifications, measurements and requirements that, if met, denote success of the closure activities in meeting closure objectives. These criteria may be numerical or narrative and may include a time component or be linked to specific management or monitoring activities.

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#### Environmental Impact Assessment (EIA) / Environmental and Social Impact Assessment (ESIA)

EIA can be defined as “the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made.” EIA is more recently often referred to as ESIA, especially when there is a specific social and/or community aspect to it. When EIA includes health impacts, it may be referred to as environmental, social, and health impact assessment.

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165 Natural Resources Canada, 2013.


167 ICMM, 2018.

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<td><strong>Environmental and Social Impact Study</strong></td>
<td>The environmental and social impact study is a step in the ESIA process and is also referred to as the ESIA report, EA report or EIS in some jurisdictions. The study refers to the process of environmental authorization instituted in national legislation that usually obliges large-scale projects to carry out an impact assessment and hold consultations. It involves several stages: preliminary sorting, framing or analysis of the scope of the study, carrying out the impact study, and developing management and monitoring plans. A proper impact study is a rigorous scientific process that aims to: (i) document the different issues and how the environment functions to better appreciate its vulnerability in regards to the project; (ii) integrate environmental concerns into project design; (iii) inform and raise public awareness and involve the community in the decision-making process in order to enhance the social acceptability of the project and ensure its sustainability; (iv) inform the administrative authority as related to the approval or rejection of the project taking into account economic, environmental and social issues, as well as mitigation or improvement and monitoring measures; (v) provide the technical, human and financial resources necessary for implementing the monitoring plan, the monitoring itself and its integration into local development actions.</td>
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<tr>
<td><strong>Environmental and Social Management Plan (ESMP)</strong></td>
<td>The enforcement of a mining project ESIA should lead to the development of an ESMP as part of the ESIA process, which allows the mining operator to devise actions that will enable it to: respect the regulatory framework applicable to the project; mitigate the negative impacts of the project on the biophysical and human environments; monitor activities and project impacts; make any necessary corrections or improvements as appropriate; and maximize the project’s benefits. ESMPs provide an understanding of the potential for mitigation and the extent to which mitigation measures may address potential environmental effects, which is necessary to meaningfully determine the level of impact of a project. The ESMP constitutes the project’s environmental specifications and serves as a reference document for the holder of the exploitation permit as well as for the state’s monitoring body. The ESMP should include at least: i) the mitigation, compensation and enhancement implementation plan; ii) the environmental and social monitoring program; iii) the stakeholder capacity-building plan; iv) the ESMP’s budget; and v) the process by which the ESMP will be integrated into the project.</td>
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| Financial Assurance for Mine Closure and Rehabilitation | Financial assurance is a written agreement under which a mining company agrees to pay a certain amount of money if it does not perform certain activities properly at closure (e.g., restoration). This is an insurance mechanism, an element of governance, a solution to the bankruptcy or failure of the operator and any resulting abandoned mines, a question central to the post-mine issues, and a question of responsibility for future generations. Several other forms of acceptable financial assurance exist and should be considered carefully in terms of their financial implications for the mining company. “Third-party guarantees such as irrevocable/unconditional bank guarantees and insurance bonds are common, as are renewable letters of credit. Cash deposits, trust funds, collateral and insurance policies are also used, as well as alternative options such as parent company guarantees, balance sheet tests and financial strength ratings.” | 174 Natural Resources Canada, 2013.  
175 ICMM, 2018, p. 49  
| Participatory Monitoring and Evaluation | Participatory Monitoring and Evaluation may include the involvement of stakeholders in scientific sampling methods and analysis and/or observation, group discussions or adaptation of engagement techniques by a company, all with the aim of strengthening validation of methods and results or to track changes in the physical and socioeconomic environment over time in relation to a project. |  |
| Permitting                            | National and local regulatory permits, licences and other requirements for common activities related to mining construction and operation are usually required, and this process typically follows the ESIA process. This requires applications to different regulatory bodies or ministries at different governmental levels, which generally rely on the information presented through the ESIA process and/or additional information specific to regulatory approvals. |  |
### Key Term | Definition
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**Public and Stakeholder Engagement** | Public and stakeholder engagement is a legislated requirement of the ESIA process in several countries and financial institutions. It is emerging as a means of describing a broader, more inclusive and continuous process between a company and those potentially affected by a range of activities and approaches, spanning the entire life cycle of a project.  
“Public [and stakeholder] participation may be defined as the involvement of individuals and groups that are positively or negatively affected by [or interested in] a proposed intervention (e.g., a project, a program, a plan, a policy) subject to a decision-making process.” Its purpose in the EA is to enable citizens to participate in making decisions that impact their quality of life. In addition to taking into account the concerns of the communities in the establishment and implementation of policies and development projects, it also time allows for citizen participation and the sharing of local and traditional knowledge related to the physical environment and the social fabric.  
A stakeholder engagement plan is a formal strategy to communicate with project stakeholders to seek their input and ultimately gain their support for a project. It is generally developed for the ESIA process.

**Resettlement Action Plan** | The Resettlement Action Plan specifies the procedures that should be followed and measures that should be taken to relocate and adequately compensate affected individuals and communities. It identifies all the people affected by the project and justifies their displacement, having taken into consideration any alternatives that would minimize or avoid this dislocation. Additionally, it defines the eligibility criteria applicable to the parties concerned, sets the compensation rates for the loss of assets and defines the levels of support for relocation and reconstruction of affected households. It should be remembered that the fundamental principle of resettlement activities is that they must result in tangible improvements in the economic situation and social well-being of the affected individuals and communities.

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181 Ibid., note 48, p. 2.


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<tr>
<td>Scoping</td>
<td>Scoping under the ESIA process, as opposed to scoping/PEA at the exploration and feasibility phase of a project, determines which impacts are likely to be significant and should become the main focus of the impact assessment. Scoping identifies data availability and gaps, and it documents scientific evidence and advice as well as public and stakeholder feedback. It also identifies valued components and determines the appropriate spatial and temporal scopes for the assessment. This step can drive other steps that typically form part of the ESIA process, such as the development of ToR or help inform alternatives assessments.</td>
</tr>
<tr>
<td>Social Impact Assessment (SIA)</td>
<td>SIA is “the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions.”</td>
</tr>
<tr>
<td>Stakeholder</td>
<td>A person or group that is influenced by, or can influence, an operation. Stakeholders typically include national and local government representatives, conservation groups authorities, Indigenous representative and NGOs.</td>
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| **Strategic Environmental Assessment (SEA)** | “SEA is a range of analytical and participatory approaches that aim to integrate environmental considerations into policies, plans and programmes and evaluate the interlinkages with economic and social considerations.”
“More specifically, SEA is a tool to: structure public and government debate in the preparation of policies, plans and programmes; feed this debate through a robust assessment of the environmental and, where required, social and economic consequences; ensure that the results of assessment and debate are taken into account during decision making and implementation.”
“The purpose of SEA is therefore to help understand the development context of the strategy being assessed, to appropriately identify problems and potentials, address key trends, and to assess environmental and sustainable viable options (i.e. that act cautiously or prevent risks and stimulate opportunities) that will achieve strategic objectives.”
SEA is also described as a formal and comprehensive systematic process for assessing the environmental effects of policies, plans or programs, as well as any alternatives, which results in a written report, the conclusions of which are used in decision making by the relevant public authorities. It is a tool to help development planners design investment strategies, programs and projects that are environmentally sustainable for a region/state/province or country as a whole. |
| **Valued Component**                         | For the purposes of impact assessment, valued components are components of the natural and human environment considered by a company, the public, stakeholders, Indigenous groups and other technical specialists involved in the assessment process to have scientific, ecological, economic, social, cultural, archaeological, historical, aesthetic or other importance. |
| **Construction and Operation**               |                                                                                                                                                                                                                                                                                                                                         |
| **Construction and Development**             | The Construction and Development Phase involves building all the roads and infrastructure needed for the mine, including infrastructure needed for environmental management and to house employees. |

195 Glasson & Therivel, 2013.
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<tr>
<td>Environmental Monitoring or Audits</td>
<td>The systematic and documented verification process to objectively obtain and evaluate collected evidence (audit evidence) to determine whether activities, events, conditions, environmental management systems or any related information is in accordance with the pre-established criteria (audit criteria). This process starts at construction but is continuous over the entire life cycle of a project. Environmental monitoring is typically carried out per ESMPs developed through the ESIA process, and these may be periodically updated through applicable adaptive management strategies to ensure compliance with legislative, environmental and socioeconomic commitments made by a company.</td>
</tr>
<tr>
<td>Operation</td>
<td>Typically the longest phase of the mine life cycle, the Operation Phase “involves extracting ore from the deposit and processing it to obtain mineral products of value to society, such as metals”. Operation includes management of wastes and other resources, as well as monitoring, typically in line with the ESMPs.</td>
</tr>
<tr>
<td>Tailings Management</td>
<td>“Tailings are a by-product of mining consisting of the processed rock or soil left over from the separation of the ore from the rock or soil within which they occur.” Tailings are managed in engineered facilities that are planned, designed, constructed, operated, closed and maintained in the long-term post-mining transition period to prevent impacts on the environment, human health and safety, and infrastructure.</td>
</tr>
<tr>
<td>Waste Management</td>
<td>Waste management relates to the handling and storage of rock or mineral of no economic value that must be removed from a mine to keep the mining scheme practical and economical. Waste management includes storage facilities that are planned, designed, constructed, operated and closed to prevent impacts on the environment, human health and safety, and infrastructure.</td>
</tr>
<tr>
<td>Water Management</td>
<td>Mining uses water for activities such as mineral processing, drilling, dust suppression, tailings slurry transport and employee needs. Water management objectives are generally to minimize potential impacts to the quantity and quality of surface water and responsible water use.</td>
</tr>
</tbody>
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200 Glasson & Therivel, 2013.  
### Key Term | Definition
---|---
**Mine Closure and Post-Mining Transition**

| **Abandoned and Orphaned Mines** | “Orphaned or abandoned mines are those mines for which the owner cannot be found or for which the owner is financially unable or unwilling to carry out clean-up.” Such mines often lead to serious negative environmental, social and economic impacts, and might result in high costs for governments and communities. |
| **Decommissioning** | Decommissioning is “the process of taking infrastructure out of active service, which begins at the end of its utility for site activities and ends with the removal of unwanted infrastructures and services.” This can include demolition or disassembly of buildings and other structures, or divestment of a part or all assets to a third party. |
| **Divestment** | The “process by which the company sells a part or all of its assets. This can occur during any stage of the mining project, and entails a process of transfer of ownership, infrastructure, liabilities and closure responsibility.” |
| **Ecosystem Restoration** | Ecosystem restoration is the “re-establishment of ecosystem structure and function an image of its prior near-natural state [i.e., similar to baseline conditions], or replication of a desired reference ecosystem,” facilitated by human intervention. This activity can take several years, depending on the complexity of baseline conditions or the reference ecosystem, and may include reintroduction of native species and revegetation, removal of non-native species, erosion control measures and associated monitoring activities. |
| **Environmental Release or Environmental Ticket** | When the mining company meets the decommissioning requirements of the government authorities and fulfills all the commitments of its closure plan, it receives from the authorities a written certificate called an “Environmental Release” or “Environmental Ticket,” which releases the company from its responsibilities. The site is then considered to be closed. |

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210 [ICMM, 2018](https://www.icmm.com/). p. 68.


212 Natural Resources Canada, 2013.
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<tbody>
<tr>
<td>Mine Closure and Post-Mining Transition</td>
<td>Mine closure is a process that begins at an early stage of mine development to manage environmental, social and economic impacts(^{213}) and benefits of mine closure and the impacts that will remain after the mine has closed. Mine closures may be temporary and sudden,(^{214}) for example in the case of a severe weather event or major downturn in the market for a particular commodity, and/or may be permanent. This phase involves developing a mine closure plan, ensuring adequate funding to implement the plan, monitoring and implementation of the plan, and planning for the social transition for mine employees, local communities and future generations.(^{215}) “National and local legislation may provide specific closure design requirements and regulatory standards for some environmental aspects” (e.g., soil and groundwater).(^{216}) Mine closure plans and financial assurance are typically completed as part of the ESIA process and form part of overall approvals for mine development. Closure plans developed during the ESIA process are often conceptual and can evolve and be updated per final mine plan designs. Ensuring regulatory compliance and risk analysis through adaptive management strategies by companies is critical to achieving mine closure and post-mining transition objectives.</td>
</tr>
<tr>
<td>Mine Reclamation</td>
<td>Mine reclamation is the process of rehabilitating land that has been mined to a natural and economically usable state that is stable and self-sustaining, after considering beneficial uses of the site and surrounding land. This includes reinstatement of degrees of ecosystems and function where ecosystem restoration is not the objective.(^{217}) This process may also include remediation and ecosystem restoration activities, which may require a few to many years to complete.</td>
</tr>
<tr>
<td>Orphaned Mines</td>
<td>Orphaned mines, as opposed to abandoned/legacy mines, are mine sites “where the owner cannot be found or is financially unable or unwilling to carry out” remaining site remediation or closure activities.(^{218})</td>
</tr>
<tr>
<td>Post-Mining Transition</td>
<td>Post-mining transition refers to “the period after the completion of all works needed to implement the closure of the site” and includes monitoring and maintenance activities. Monitoring and maintenance are required to maintain and manage infrastructure and rehabilitation until relinquishment is possible, and environmental and socioeconomic monitoring against success criteria.(^{219}) This phase can last a few to several years depending on monitoring and maintenance needs and associated environmental commitments made during the ESIA and closure plan development.</td>
</tr>
<tr>
<td>Progressive Closure</td>
<td>Progressive closure “involves the implementation of closure activities during the operating life of a mine providing opportunities to test and demonstrate the effectiveness of closure activities, validate success criteria and build trust with communities and regulators. It provides opportunities to generate learnings that can be incorporated into closure planning throughout the mine life cycle.”(^{220})</td>
</tr>
</tbody>
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\(^{213}\) ICMM, 2018.
\(^{214}\) ICMM, 2018.
\(^{215}\) ICMM, 2018.
\(^{217}\) Ibid.
\(^{219}\) ICMM, 2018, p. 68.
\(^{220}\) Ibid.
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<th>Definition</th>
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<tbody>
<tr>
<td>Remediation and Impact Management</td>
<td>Remediation and impact management is the process of treating or removing contaminants from a site, and may include the treatment and removal of soil, groundwater, sediment or surface water for the general protection of human health and the environment. This process generally occurs parallel to or after decommissioning, and prior to rehabilitation or ecosystem restoration.</td>
</tr>
<tr>
<td>Relinquishment</td>
<td>“Relinquishment occurs when ownership, residual liabilities and responsibility for a former mine site can be returned to the corresponding jurisdiction or original owner, or transferred to a third party, following completion of closure activities and satisfying any agreed success criteria. If ongoing maintenance and management is required [in continuation of post-mining transition activities], the responsibility for this under relinquishment would also transition to the new responsible party.” Partial relinquishment refers “a part of the site [being] transferred to a third party, and the remaining area or areas remain the responsibility of the mining company.” “Relinquishment of a site in a stepwise fashion, typically over a number of years as discrete portions of the site are closed and brought to a condition suitable for relinquishment.”</td>
</tr>
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</table>

Notes:

Key terms are presented in order per phase or process from concept to closure of the mine. Key terms referring to some activities can apply to more than one phase or process (e.g., public and stakeholder engagement).

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222 ICMM, 2018, p. 59.
223 Ibid., p. 68.
224 Ibid., p. 68.
Additional Sources

1.0 ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)………………………………………………………………………140
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PREFACE

This document comprises the results of a literature review on relevant good practice guidance and standards on technical issues of Environmental and Social Impact Assessment (ESIA) in the mining sector. As the list comprises literature from many sources, the terminology and acronyms used to describe ESIA are variable and also include environmental assessment (EA), environmental impact assessment (EIA) and impact assessment (IA). Most of the documents referenced are freely available and accessible on the internet. In a few cases, articles were identified but were only available for purchase; for these references, the hyperlinks to the abstract and the page with information for purchasing the full article are provided.

Due to the extensive diversity of subtopics within the realm of ESIA, the literature is broken down into various categories of types of impact assessment and related emerging issues such as gender and climate change. For several of these topics, there is no mining-specific guidance (such as in health impact assessment) or references, and so more generic guidance documents on the subject have been provided. As mining closure is an increasingly important topic, these references are separated out in the bibliography. This bibliography is not meant to represent an exhaustive list of references on the various topics included in it, but rather is meant to provide some of the more recent articles, papers and reports that may provide a solid basis for anyone who is starting to investigate and research these areas of interest, particularly as they relate to large-scale mining development.

1.0 ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)


2.0 SOCIAL IMPACT ASSESSMENT (SIA)


### 3.0 RESSETLEMENT AND LIVELIHOOD RESTORATION


### 4.0 HEALTH IMPACT ASSESSMENT (HIA)


### 5.0 CULTURAL/HERITAGE IMPACT ASSESSMENT


### 6.0 SOCIAL LICENSE TO OPERATE (SLO)


**7.0 INDIGENOUS PEOPLE AND IMPACT ASSESSMENT**


8.0 HUMAN RIGHTS IMPACT ASSESSMENT (HRIA)


The entire issue is dedicated to articles related to the HRIA, and include the following papers:

- Kemp, D. & Vanclay, F. Human rights and impact assessment: Clarifying the connections in practice.
- Graetz, G. & Franks, D. M. Incorporating human rights into the corporate domain: Due diligence, impact assessment and integrated risk management.
- Watson, G., Tamir, I., & Kemp, B. Human rights impact assessment in practice: Oxfam’s application of a community-based approach.
- Boele, R. & Crispin, C. What direction for human rights impact assessments?


9.0 GENDER AND IMPACT ASSESSMENT


10.0 MINE CLOSURE


11.0 CLIMATE CHANGE AND IMPACT ASSESSMENT


12.0 OTHER USEFUL RESOURCES


WEBSITES

There are many websites available related to mining, ESIA and related topics. Below is a list of a few of the key associations’ websites, along with a research institute in Australia that is renowned for its work on socially responsible mining.

**International Association for Impact Assessment (IAIA):** [www.iaia.org](http://www.iaia.org)

**International Association for Public Participation (IAP2):** [http://www.iap2.org](http://www.iap2.org)

**International Council on Mining and Metals (ICMM):** [www.icmm.com](http://www.icmm.com)
Mining Association of Canada (MAC): www.mining.ca

Prospectors and Developers Association of Canada (PDAC): www.pdac.ca

Sustainable Minerals Institute, University of Queensland: www.smi.uq.edu.au

MiningResettlement.org: www.miningresettlement.org