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Georgia Mining Sector Development Programme, Phase I

Policy and Strategy

Best Practice Report

Georgia Mining Sector Development Programme

PREFACE

This Best Practice Report is the *second deliverable* submitted under this scope of work as part of the Georgia Mining Sector Development Programme, Phase 1: Policy and Strategy, following the earlier submission of an Inception Report and followed additional deliverables as described under the Terms of Reference.

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¹ Over the course of five working days.

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Acronyms and Abbreviations

ASI	Adam Smith International
CDA	Community Development Agreement
CIT	Corporate Income Tax
CORE	Canadian Ombudsperson for Responsible Enterprise
CRIRSCO	Committee for Mineral Reserves International Reporting Standards
CSR	Corporate Social Responsibility
DCF	Discounted Cash Flow
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECA	Export Credit Agency
EIA	Environmental Impact Assessment
EITI	Extractive Industries Transparency Initiatives
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
EU	European Union
GRI	Global Reporting Initiative
IBA	Impact and Benefit Agreement
ICMM	International Council of Mining and Metals
IFI	International Finance Institution
ISO	International Standards Organisation
MDA	Minerals Development Agreement
MoESD	Ministry of Economy and Sustainable Development
MRRT	Minerals Resource Rent Tax
MSHA	Mine Safety and Health Administration
NAM	National Agency of Mines
NAV	Net Asset Values
NCM	National Commission of Mines
Nedlac	National Economic Development and Labour Council
NGO	Non-government organisation
NPG	Independent Union of Miners (Russian language acronym)

NRO	National Reporting Organisation
OECD	Organisation for Economic Cooperation and Development
PDAC	Prospectors and Developers Association of Canada
PPE	Personal protective equipment
PPG	Personal protective gear
PSC	Production Sharing Contract
RAP	Resettlement Action Plan
RRT	Resource Rent Tax
SAWIMA	South African Women in Mining
SLP	Social and Labour Plan
UN	United Nations
US	United States
USAID	US Agency for International Development
VAT	Value Added Tax

1. Introduction

How governments structure and govern minerals sector development significantly impacts how and what type of private sector investment is attracted to the sector. In open markets, traditional banking and other market rules are applied while in controlled or semi-controlled economies, different restrictions on trade, pricing, corporate organisation and other aspects influence whether and how private investments are made. Over the past two decades many governments that formerly implemented mining development using state budget funds either through state-owned enterprises or other forms of state ownership (e.g., corporatized state companies, equity holding requirements) or control (e.g., price subsidies) have shifted away from budget support and instead now seek private investment in mineral exploration and exploitation.

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Most countries establish mining regimes in line with the context of broader national policy priorities. In the modern world, minerals development typically equates with revenue generation. When adequately structured and governed, minerals development can also contribute to other policy objectives including job creation, poverty reduction, improved energy and manufacturing, and generation of foreign direct capital.

1.1 Minerals as a source of development and growth

For centuries, minerals have been essential to the economic, industrial and social development and growth of countries. Copper and iron ore have been used in metal works from crafting basic tools evolving in their use in construction, engineering and chemical industries. Today minerals are used in buildings, computers, cars and rail.

The number of minerals required to produce products and contribute to needs in the modern world has increased and is anticipated to continue to increase. Experts believe that the world market will not run out of minerals but rather, that certain regions will experience depletion of minerals and changing market demand so that they will increasingly need to rely on other regions to purchase minerals. An example of how the minerals market shifts is reflected in today's market in which the European Union (EU) is emerging as a significant salt exporter (e.g., Netherlands, Germany), while the region's traditionally high ore production and ore trade figures reflect a decline in EU dominance in the world market.

Country rationale for developing minerals varies and typically centers on economics that contribute to overall development and growth. Different policy priorities are considered as mineral regimes are developed. Examples of rationale for minerals development provided below.

Mineral	Country(ies)	Illustrative rationale
Metallic minerals	European Union	<ul style="list-style-type: none"> • <i>Metals industries/manufacturing</i>: e.g., smelt, refine metal from ore, pig or scrap (copper, lead, silver, zinc).
Coal	Ukraine, Russia	<ul style="list-style-type: none"> • <i>Domestic energy and manufacturing</i>: reduce reliance on energy imports.
Gold	Sierra Leone	<ul style="list-style-type: none"> • <i>Job creation</i>: depletion of diamond deposits leaves miners without work, communities without income; new emphasis on gold mining.
Iron Ore	Afghanistan, Guinea, Pakistan	<ul style="list-style-type: none"> • <i>Generation of foreign direct income</i>: attracting large-scale foreign investment to export/smelt product.
Precious gems	Thailand, Sri Lanka	<ul style="list-style-type: none"> • <i>Job creation typically for remote regions</i>, revenue generation.
All minerals	Mozambique	<ul style="list-style-type: none"> • <i>Industrialization of the economy</i>: dramatic shifting from agricultural emphasis. (coal, industrial minerals, metallic minerals)

Examples of emerging types of mining

Throughout the world, an array of political and economic issues is being addressed as well as development of new technologies that require careful analysis.

Deep Seabed Mining (Global)

Mineral exploration of oceans has minimally commenced but is underway in various parts of the world. Primary minerals include polymetallic nodules, polymetallic sulfides, and ferromanganese crusts. The International Seabed Authority is based in Kingston, Jamaica and regulates deep seabed mining with emphasis on safeguarding marine life, sea environment and mitigation of negative mining impacts⁴.

Landfill Mining (e.g., Belgium)

Following years of waste removal and storage, commercial mining at landfill sites is underway in Belgium and other countries, primarily “mining” for wood, scrap metal and gypsum as well as in most European landfills, various construction materials from which mineral elements are reprocessed.

Asteroid (“Space”) Mining (e.g., Luxembourg)

It has been discerned that various minerals may be mined from asteroids or “spent comets” that include gold, iridium osmium, palladium, rhenium, rhodium, ruthenium, silver and tungsten as well as construction inputs such as aluminum, cobalt, iron, manganese, molybdenum, nickel and titanium. Following its work in satellite telecommunications, Luxembourg now seeks to exploit minerals from asteroids and other minor planets including near-Earth objects.

⁴ The Authority Secretariat conducts detailed resource assessments of the seabed areas reserved for the Authority and maintains a database (POLYDAT) as part of a larger Central Data Repository. <https://www.isa.org.jm/>

1.2 This Best Practices Report

The European Bank for Reconstruction and Development (EBRD) through its consultant, Adam Smith International (ASI) is implementing the *Georgia Mining Sector Development Programme*. The objective of the Programme is to provide conceptual, technical and practical support to the regulatory authorities responsible for the development, consultation and adoption of a modern mining sector strategy and policy framework, reflective of proven best practice, for the minerals sector in Georgia.

This Best Practices Report is the *second deliverable* submitted under this scope of work as part of the Georgia Mining Sector Development Programme, Phase 1: Policy and Strategy, following the earlier submission of an Inception Report and followed by additional deliverables as described under the Terms of Reference. As is useful, summary briefs and power point presentations have also been provided throughout this assignment.

Note: The nature of mining is dynamic; as such it is difficult to singularly cite “best practice” that address all mineral development⁵ aspects. It is however beneficial to learn from other country experience and to consider how various best practices have evolved over time. (See Annex 5) It is important that each mining jurisdiction adopt practices that not only reflect what is considered to be “best practice” but that is also practical to ensure context-specific approaches. Consultant TOR has been slightly modified to ensure that context-specific information is provided for use by Georgian officials. With respect to the Best Practice report, the TOR stated:

“The Consultant will identify and report upon international best practice for developing the sector through incentivising private investment in exploration and exploitation activities. The Consultant will examine a range of countries, focusing in detail on *three comparator countries* which have adopted and successfully implemented best practice strategies and policies. The three comparator countries will be decided in consultation with MoESD/NAM and EBRD. This review will cover all relevant aspects of best practice for the sector including, but not limited to, legal, regulatory, fiscal, institutional, environmental, investment, labour, health and safety and technical (**Best Practice Report**).”

Recognizing the various approaches to minerals development and related topics, rather than limiting the review to three comparator countries, it has been agreed with the EBRD and the National Agency of Mines (NAM) that *this report provides an overview of key issues and Best Practice by topic area, (some of which are consolidated in table format) under which relevant country experience (some of which are highlighted in text boxes) is given.* The nature of and time allotted for the task is intended to provide an initial overview from which discussion and continued review may be conducted.

⁵ In the English language, there are differences between “minerals development” and “mining development” that are not considered here; based on consultations, these terms are interchanged for purposes of this document.

2. Global experience in developing responsible and competitive mining sectors

As governments seek to develop responsible and competitive minerals sectors, important lessons have been learned. While it is impossible to provide a detailed review of these lessons, some important global minerals development trends are highlighted below.

2.1 Recognition that minerals development is dynamic

The global minerals market is dynamic because minerals are dynamic. Discovery of new mineral deposits, types of minerals and new mineral uses continues and is ongoing. For example, notions of computers and their minerals and metal requirements could not have been imagined fifty years ago – chromium, cobalt, copper, gallium, gold, iron, lead, manganese, mercury, palladium, platinum, selenium, silver and zinc help comprise the making of our computers!

Highlighted global minerals development trends

1. Recognition that mining is dynamic
2. Strengthened good governance
3. Geodata management
4. Environmental and social requirements
5. Greater attention on transparency
6. Improved stakeholder participation
7. Increased private investment
8. Public understanding and support

Countries that have embraced the inherent dynamism of mining development have established legislative and fiscal regimes that consider the economic anomalies of sector investments. *Minerals are non-renewable resources to only be developed once.* The regulation and management of mineral investments cannot take a “flat line” approach as is possible with the factory production of a commodity such as a car or television. Historically, the discovery of new types of ores has contributed to the requirement that sector governance be designed to adopt to new discoveries, e.g.: in 1961, in Nevada, USA, a new feature of gold was discovered (Carlin Au) described as “disseminated gold in sedimentary rocks”, similar at that time in Kazakhstan – “roll-front U” – “redox boundaries” in sandstones, granite. This dynamism of new mineral discovery impacts legislation, mineral prices and influences investor interest.

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2.2 Strengthened good governance

Primary global trends have been to strengthen good sector governance by reforming institutions, adopting clear legislation, and publishing sector policy frameworks that set out the core principles on which minerals will be developed. These include: clear and enforceable processes for regulatory oversight, improved government capacity and transparency requirements to implement mineral investments. The scope of governance improvements encompass: (1) *direct (core) mining aspects* around quality of extraction, land access and use, fiscal discipline and health and safety, (2) *mining-related aspects* such as environmental protection, water use and management, energy, transport and social safeguards that are specific to mine-affected communities as well as the

Scope of governance improvements

- (1) Direct (core) mining aspects
- (2) Mining-related aspects
- (3) Cross-sector aspects

citizenry at-large; and (3) *cross-sector aspects* such as community development, conflict mitigation, public information and post-mining actions (e.g., alternative livelihoods).

2.3 Geodata management

A lack of understanding geological resource information jeopardizes how minerals may be developed – in some cases introducing inappropriate exploration and exploitation methods, or in others, leaving valuable resources unmined due to lack of information. More exploration and understanding of a country’s resources assists government and investors gain insight into optimizing mineral production approaches while limiting environmental and social impacts. Government technical capacity to regularly inspect mining areas as well as analyze geodata to assess potential “commerciality” of accessing mineral reserves has proven essential for viable mining regimes. Hardware and software tools are widely available and used to improve mapping, data storage and testing. In addition, storage and testing facilities enable mining jurisdictions to track developments and gain insight into mineral quality.

2.4 Development and implementation of environmental and social requirements

Throughout the world, especially in the past two decades, a dramatic shift in mineral development has incorporated environmental and social requirements, reporting and enforcement as inherent parts of legislative and fiscal frameworks. Reputable international banks and financing organisations will not consider mineral investments absent compliance with stringent requirements throughout the life of the project’s financing. It is useful for government to itself have conducted adequate survey work or to have inherited geodata from past mine operators to have relatively detailed understanding of its mineral reserves. Regularized inspections, technically appropriate monitoring and practical reporting, conducted for the life of the operation, provides most information and opportunity to mitigate and remedy mining-related damage.

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2.5 Greater attention on transparency

Financiers, notably with respect to larger mineral investments, require significant due diligence and assurances to secure their lending, requiring open accounting systems and transparent financial operations. In addition, increased citizen participation and concern about the development of minerals and benefits sharing from those developments has directly contributed to increased regulatory and government oversight of how mineral rights are awarded and licencing processes. Countries have introduced various mechanisms including community contracts with mine companies (e.g., “community development agreements” CDAs) and improved labour contracts. To better monitor mining revenues, a global reporting standard and monitoring process established in 2003 has been adopted by more than fifty countries; this is the Extractive Industries Transparency Initiative (EITI). Inherent to the EITI process is the establishment of a “multi-stakeholder group” (MSG) in which civil society along with government and mine companies regularly meet and work together to implement a system of revenue reporting and review. Many countries have gained membership in the EITI as a starting point for improved revenue monitoring,

reporting and review. (See Annex 2); others have adopted the EITI principles, implemented as part of existing government oversight systems.

2.6 Improved stakeholder participation

Countries have established various mechanisms to build stakeholder communications and participation that include (1) minerals development as part of overall private sector dialogue (e.g., government, industry, civil society as in Canada, South Africa); (2) international non-government organisations (NGOs) targeting sustainable mining practices, environmental protection and human rights safeguards (e.g., Finland, Sweden); and (3) emergence of international and domestic industry and trade associations (e.g., Chambers of Mines (e.g., mine companies in Africa), Mine Worker Trade Unions (e.g., United States), and globally, Mining, Minerals and Sustainable Development (MMSD) project⁶ and the International Council on Mining and Metals (ICMM)⁷ (See Annex 3). Governments also participate in various mineral-specific international forums, e.g., World Coal Association.

2.7 Increased private investment

Due to the extremely risky and high cost of mineral exploration, countries that have been successful in maximizing revenue from their mineral resource base have recognized that it is preferable for the private sector to take on the costs of exploration as long as there is a reasonable risk/reward ratio for this activity. Especially in exploration activities that generate geological and other data for government, governance frameworks have shifted from managing state mining investments to regulating private investments. A consequence of invigorated private investment has been improved collection and analysis of geodata, essential to attracting and keeping investors operating in the market. In sum, private investment covers the high costs of generating geological data for government use; this shift has been dramatic for many countries.

Where private investment in place of State investment is underway, legislative and financial approaches to licencing, contract requirements, dispute resolution, and labour require new regulatory models. Emphasis must be given to monitoring and enforcement mechanisms that capture potential risks of private investment while also optimizing their benefits. Related to this trend has been even more recent attention on “bidding” or “tendering” mineral rights for private sector investment (more will be discussed later in this report).

Georgia

Georgia is committed to an economic policy approach that focuses on comprehensive implementation of the Association Agreement between EU and Georgia (whose integral part is the Deep and Comprehensive Free Trade Area). Government is committed to implementing economic policies that will ensure sustainable development of the country's natural resources.⁸

⁶ Started by nine of the world's largest mining companies who, as a result of the mining industry's reputation being under assault in the late 1990s, decided to examine the role of the minerals sector in contributing to sustainable development and how that contribution could be increased.

⁷ Comprises many of the world's largest mining companies as well as national and regional mining associations. <https://www.icmm.com/en-gb/about-us/member-commitments/icmm-10-principles>

⁸ Socio-Economic Development Strategy for Georgia, Government of Georgia, 2011.

The country’s Socio-Economic Development Strategy (2011) states that “[the] guiding principle of the country’s strategy for economic development is establishing the necessary conditions for a free private sector operating under an optimal, efficient and transparent government”.

3. Challenges to attracting investment

The question for all countries with potentially valuable mineral resources is, “how does the country maximize its revenue from mineral resources (that are valueless unless exploited) while providing a competitive and attractive regime for mineral investment?”. Fundamental features that have emerged in global minerals markets as essential to attracting investors have been categorized as (1) governance features and (2) physical features.

Governance features include security of tenure, transparency, reliability of licencing, environmental and social requirements, fiscal regime, skilled labour and security. These aspects include clear reporting standards, limited-to-no discretion in government decision-making with respect to the investments, and legislated violations and penalties implemented through transparent dispute resolution and judicial processes. Absent clear statement and understanding of these governance aspects and their risks, attracting legitimate investors is problematic.

Illustrative investment features	
Governance	Physical
<ul style="list-style-type: none"> • security of tenure • transparency and reporting • reliability of licencing • environmental/ social requirements • fiscal regime • skilled labour • dispute resolution/ judicial capacity 	<ul style="list-style-type: none"> • infrastructure (availability and cost) • established transportation routes • equipment supply • skilled labour and technical expertise

Investors may also rely on physical elements such as infrastructure (is it availability? What are the costs?), established transportation routes, equipment supply, and availability of skilled labour, managerial and technical expertise. Some fundamental investment-specific challenges that may be considered when attracting private investment in mining sector development are described below.

3.1 Type of investors

There are always investors that are prepared to invest in minerals – for the host country the fundamental issue is what type of investor and quality of investment will be extracting its minerals. Legislative requirements and detailed due diligence on investor eligibility, financing practices, technical experience, reporting and other cautionary safeguards are essential for optimizing minerals development. Rogue investors that seek to obtain a licence only to sell it and investors that seek only to export raw minerals without any value-chain approach may not be useful to a country’s objectives for minerals development.

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3.2 Investment approach and linkages

In today's market, there are different investor preferences, e.g.: (1) many investors seek to obtain a licence for quick extraction and raw mineral sale, while (2) others seek a longer-term operation that may include value-added processing and even the development of other mineral deposits, and (3) others may simply seek to obtain the licence and hold for future use or sale. *Note:* Despite being a common practice, no best practice is found in support of allowing investors to simply hold a licence without intent to mine. Investor preferences are not specific to either domestic or foreign investors.

Mongolia

For decades in Mongolia, coal licences have been issued to operators that refused to develop their coal deposits. Absent appropriate legislation (which was not in place at the time), this resulted in no revenue generation, no job created and government's inability to seek other private investors to develop those deposits. As a result, legislative amendments were introduced to support a "use it or lose it" approach giving licence holders a specified time period in which certain investment and mine development activities had to occur or jeopardize loss of the licence.

Many governments, notably in nascent mineral economies, place requirements on investors as an obligation of their mineral right to include "value-added" activities. ("Value-added" refers to any activity that will increase the value of a mineral, typically through some sort of processing or transformation). Where a mineral right also requires or includes "value-added" activities, they may be referred to as "weighted bids" that may include an array of core mining and non-core mining promises (e.g., roads, rail, port, power, schools). While on its face, value addition activities hold great value for the general public, in terms of government being able to ensure and enforce these obligations, there is less assurance. Absent regular monitoring and communication, mining-related "value addition" activities may not fully, or ever be developed as part of that mineral investment.

However, governments have also learned that "value chains" cannot be forced and it is important that current information of the market economics of integrated mineral investments is understood. It has also proven problematic in some mining jurisdictions where "value additions" are required and in fact, are not economical. It has proven essential to ensure that adequate market assessment is conducted before mandating specific value-addition requirements as part of any mineral investment.

Best practice has emerged that, where economically and otherwise viable, to identify exploration and exploitation investments that are not stand-alone but rather, are linked and even integrated into downstream investments. Finland, Sweden and others seek an "eco-system approach" where mineral production links to processing and value-addition activities.

3.3 Costs of investment

The “commerciality” or ability for a mineral investment to generate profit is the critical element for investors to consider when entering a market. This sometimes relies on the type and location of the mineral and in other cases, the surrounding labour costs, infrastructure costs, financing, utility expenses, insurance/bonds, taxes and fees, land leases, and/or on the governance and legislative framework. Mine security and geopolitical conditions, although typically not cited as a major factor for investors, but where they significantly increase the potential cost of the investment, will cause investors to pause, especially when competing markets exist.

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For example, the EU generally has a higher labour and energy cost than other mining markets; energy requirements to process minerals, specifically metals, are also high. While US costs are high labour, considerable use of technology has resulted in significant mine jobs reduction. This market has also found that although least cost return on investments appear to be via large open-pit mining, these are increasingly challenged by social and environmental requirements and restrictions. African and certain South Asian mineral investors are challenged with high costs of land leases and costs of rights of way as well as land security, all contributing to investor cost. Investors seek ways to offset costs by improved productivity, financial or other incentives in order to optimize profitability.

3.4 Duration of investment

Investors typically seek long-term exploration and exploitation opportunities. This is especially true for capital-intensive (e.g., large-scale) investments that require bank or other outside funding for which long-term development and operations are necessary in order to generate revenues over time to repay loan and financing costs. Even for smaller mines and quarries, operators prefer long-term security to support their investments in equipment purchases, labour training and other practicalities of their mining operations.

Best practice reflects that long-term durations for investments, subject to extension or renewal upon a showing of good performance and other requirements, safeguards how mines are developed. *For example*, equipment, technologies and methodologies for mineral exploration and exploitation are always improving which impacts efficiency, cost, and safety. These aspects should be well-monitored for the life of the investment.

3.5 Level of public understanding and support of the investment

Minerals development and investment is local and will be primarily shaped by the investor’s ability to operate at the mine site. As stakeholder participation increases in markets around the world, public participation beyond the mine site contributes to how well an investor can operate the mine. The initial level of public support for an investor at a mine site must be considered by government, the investor and citizens. This support should be monitored to understand how the

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public is positively or negatively impacted by the investment. Global market experience has demonstrated critical issues that require public understanding and buy-in of mining investments that include the following.

- a. *Ownership of minerals* – a fundamental issue that requires public understanding encompasses minerals ownership and how mineral rights may be awarded and transferred (e.g., licencing).
- b. *Access and use of land* –reconciliation of land rights and compensation issues related to minerals development is critical; this requires clear rules, communication and transparent grievance processes. Government must have a strong role in coordinating and monitoring these aspects.
- c. *Security of mine site and operations* – countries have experimented with an array of mine site security mechanisms including use of local police. A combination of informational, conflict mitigation and grievance mechanisms are required to provide non-violent opportunity to resolve conflict. Use of the “United Nations Voluntary Principles” (See Annex 4) is increasingly used to train local police forces; ultimately a combination of mine company, local community and government cooperation is essential.
- d. *Impact of fluctuating commodity prices* – mineral prices change depending on market demand, quality and accessibility; changes in prices can be significant and quickly occur which can result in greater uncertainty in the global mineral markets. These markets are often impacted by geo-politics and constantly affect the demand for metals and minerals. Governments continuously must address these uncertainties as they impact miners, mine communities dependent on the longevity of mining projects and post-mining livelihoods.
- e. *Cultural and other impacts on the mine community* - EU and Nordic countries reveal that a community’s relative acceptance of a mining project is, among other things, contingent on their trust of government. While achieving minerals investment, many countries have recognized the significant impacts of those investments on local culture. As is presently evident throughout African mining markets, foreign investment (e.g., Chinese mining companies) has generated not only mining income, but also the introduction of new languages, religion and ways of doing business into local mining communities.
- f. *Financial or other failure of the mine company*. Even where provisions are in place to support community development, including “corporate social responsibility” (CSR) mechanisms, outcomes of mine company responsibility toward a community, if the company is in financial or other difficulty, is generally not well-understood until it is too late. Suspension of investments may be addressed in the legislative framework but they are not, workers are left without employment, community programs are often halted, and government mining revenues may severely diminish.

West Africa

The West African Ebola virus epidemic (2013-16) was the most widespread outbreak of the virus in history mainly in the counties of Guinea, Liberia and Sierra Leone. This outbreak resulted in death and massive economic disruption including food insecurity and unemployment. Foreign mining companies withdrawing non-essential personnel, deferred

mining investments and severe cut back in operations. Some mining companies sought to/and did terminate their licences. New mineral policies and laws are now being prepared to include provisions on market failure, health and other potential impacts that may result in the suspension or termination of mine projects.

4. International best practice for developing the sector through incentivising private investment in exploration and exploitation activities.

The development of a country’s mineral resources depends on the policy environment that can attract or discourage investment into mineral exploration and mineral exploitation activities. Incentivising private sector investment in exploration and exploitation is therefore an important government objective. However, the most successful mining jurisdictions have recognized that responsible and competitive minerals sector must be created that generates revenues and other socio-economic benefits and that causes minimal to no harm to the environment. This section provides a brief description of the key factors to consider to implement government’s objectives.

4.1 Identifying Geological Potential

The mining potential of a country or a region is measured in terms of geological potential that will inform the level of foreign direct investment and contribution to exports, national revenue, employment and industry. A consistent and comprehensive understanding of what comprises geodata will facilitate government’s effort to develop a body of geodata that supports well-managed development of minerals, oil and natural gas. Some useful terms are provided below.

Useful Terms	
Term	Illustrative definition
Geodata	Information, individual items, samples and records obtained by observation, measurement, sampling and description of the Earth’s surface and subsurface, both onshore and offshore, and having an association with a location relative to the Earth including geographical and geological information.
Geodatabase	A database containing geoscientific, geographical, geophysical (i.e., gravity/magnetic), and spatial data and related information.
Ground truthing	The collection of information by direct observation.
ONE geology⁹	An international initiative of more than 100 Geological Surveys of the world that was launched in 2007 and that aims to improve the accessibility, interoperability and usefulness of global geoscience data via the web.
Universal Transverse Mercator (UTM)	A coordinate system to give location on the surface of the Earth that is not a single map projection but that uses a horizontal position representation that divides the earth into sixty zones.

⁹ <http://www.onegeology.org/>

Clear and accurate information and data about the location, potential quality, and estimated quantity of mineral reserves is essential to support strategic minerals development. Such information and data help investors and policy makers to assess, estimate and plan for levels of investment, potential sales markets, optimizing placement of infrastructure, land and water access, environmental protection requirements, likely social impacts, reporting and monitoring requirements, and development of human capital.

Geodata are part of a country’s information linkages and may be used to publicize the mineral wealth of a country; in some cases, use or sale of the data can generate revenues for government. For government and civil society, geodata provides additional insight into overall minerals development options including better understanding of potential areas for near- and long-term investments and for resource planning and conservation.

4.1.1 Defining geodata

Well-documented geodata provides important information for government and private sector to better understand the potential “commerciality” (ability to produce a profit) of developing certain minerals and to estimate how to know what level of investment is required to develop those minerals. Such data comprise the long-term national geoscience knowledge base of a country and information from this knowledge base is essential to minerals – and national - development.

Geodata information includes geoscientific, geographical, geophysical (i.e., gravity/magnetic), and spatial data and related information that is collectively referred to as “geodata”. Primary definitions of the types of geodata and information that are considered for the development of a country’s geodatabase are given below, additional categories may continue to develop.

Data type	Description	Examples
Geodata	Individual items and records obtained by observation, measurement and description of the earth’s surface or subsurface, onshore and offshore.	Raw data (e.g., field observations and measurements); Photographs; Samples and core materials; Borehole logs; Analytical data from measurement of both physical and chemical characteristics; Remotely sensed data; Geophysical data (e.g., airborne and offshore data); Resource and other mapping; and Data and information on licencing, land use, etc.
Interpretation and other data	Information developed through the addition of intellectual inputs to interpret data can also be considered as geodata.	<ul style="list-style-type: none"> • Maps (including geological, geochemical, geophysical, geotechnical) and plans, both analogue and digital, historic and current, and • Written reports and publications in both digital and analogue formats.

Metadata	Data providing additional data about other data; should follow a defined format that shall be prescribed by regulations.	<ul style="list-style-type: none"> • The date of the data collection; • Individual, institution or organisation responsible for the data collection; • Title/description of the data and how it was derived; • Data locations and scope; • For spatial data, coordinate information; • Format of digital data; and • Clear information on the ownership of the data and the terms and conditions for its use.
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4.1.2 Geodata policy

Governments recognize that the availability of good-quality geodata is fundamental to building a comprehensive understanding of the wider potential of the mineral potential of the country. This understanding not only contributes to attracting future investment for the development of minerals but helps to identify governance requirements and gaps that should be strengthened in order to ensure good governance of these non-renewable resources. Mining jurisdictions develop geodata policy to ensure the acquisition, storage, use, and long-term management and preservation of a country’s geodata relevant to minerals, oil and natural gas. Illustrative geodata policy topics include guidance on the acquisition, storage, analysis, use, transfer and sale of geodata, institutional oversight of the data, and types of geodata practices including data security.

4.1.3 Geological map

A geological map is a special purpose map to show geological features including three dimensional orientations. A comprehensive *geological map* of a country that is produced at a sufficiently detailed scale will provide information that can assist policy makes and lead to investment decisions. Geology and mineral potential map scales vary but *jurisdictions that have more detailed mapping typically benefit from more targeted mine development and investment*. For mining, map coverage of the entirety of a country is ideal, reflecting geological trends and mineral occurrences. Most detailed maps are based on information from exploratory work conducted by the national geological survey and exploration companies.

A geological map is a special purpose map to show geological features including three dimensional orientations.

Sierra Leone

Following an emerging trend in the diamond belts of Africa, Sierra Leonean diamond miners continue to mine depleted deposits for lack of other diamond deposit discoveries. The absence of geological data and mapping has contributed to this arduous work for some of the region’s poorest, with no financial return.

Airborne studies. Increasingly, nascent markets are not able to cover costs of expensive airborne geophysical assessments, on-the-ground survey work, and establishing storage and data facilities. In many cases, the World Bank and various Geological Surveys have come together to work with countries to establish this data and related data management protocols.

Country	Activity	Funding
Afghanistan	<ul style="list-style-type: none"> • Airborne Geophysical Survey • Data review and analysis 	<ul style="list-style-type: none"> • Gov't of Afghanistan • US Geological Survey/USAID
Mozambique	<ul style="list-style-type: none"> • Airborne Geophysical Survey • Data review and analysis 	<ul style="list-style-type: none"> • Some areas by investors • Responsible ministry • Advisors funded by Gov't
Sierra Leone	<ul style="list-style-type: none"> • Airborne Geophysical Survey • Data review and analysis 	<ul style="list-style-type: none"> • World Bank loan to Gov't • National Mining Agency • Advisors funded by Gov't

4.1.4 Geological survey

Countries around the world maintain a national “geological survey” as part of government. A geological survey is a function (typically operating as a stand-alone office) that is the provider of a geoscience information and laboratory services. They consider not only mining but other geological impacts. Geological surveys require government support to acquire, on a systematic and nationwide basis, data concerning the nature of the underlying geology and earth processes, and to interpret, analyze and present such data according to user requirements.

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A geological survey function within a government agency or stand-alone office is typically responsible for maintaining the country’s geological map but also for analysis of geodata, compilation of “data packages” about specific mineral deposits and other technical functions. Specifically, for government, this data can help build baseline understanding as to what type of investor is sought and where can private investment best help develop the minerals. National baseline studies can also contribute to understanding potential for value chain and development corridor approaches – e.g., copper and ore belts, coal lines, etc. *Note:* The European Association of Mining Industries, Metal Ores & Industrial Minerals and Euromines have stated that there has been a lack of investment in basic geological survey work and that the EU’s resource fundamental knowledge base is much weaker than it should be.

4.1.5 Geodata management

Investors seek profit. For mining, investors rely on data-driven development with commerciality as a central theme. As a first investigative step, investors determine whether geological mapping has been completed at an adequate scale across the entirety of the country or certain regions. Following this, investors will seek to access geodata either directly from government, or from private information services. The level of geodata detail, how it is managed and stored, fees for purchase and use all impact investor interest. Ease of access is improved in most markets using internet-based geodata sites.

Investors seek profit. For mining, investors rely on data-driven development with commerciality as a central theme.

Environmental and social consequences of how geodata is used for near and long-term development can be significant; accurate resource mapping and geodata analysis can mitigate intrusive resource development and better ensure that exploration activities are supported by geodata and not randomly conducted.

Different geodata management systems are used in the world. The primary purpose of a geodata management system is to record all exploration reports and related data. The system also stores non-licence related information such as historic maps and data, reports from consulting projects and any associated data. Such systems typically comprise a client-server application (e.g., intranet) and web site for public access. Different types of geodata bases are used. *This system is separate from the Mine Cadastre that holds basic licence information.*

4.2 Providing Effective Mineral Sector Regulation

While each country may adjust certain governance aspects to accommodate its specific context, certain fundamental regulatory principles have emerged as to implement good minerals development. Global experience demonstrates that the best practice for developing the sector is through incentivising private investment in exploration and exploitation activities. This is achieved through the establishment of a clear and predictable governance framework in which minerals may be developed. Highlights of this framework include:

Global experience demonstrates that the best practice for developing the sector through incentivizing private investment in exploration and exploitation activities is the establishment of a clear and predictable governance framework in which minerals may be developed.

- a. *Clarity* in legislative and financial requirements, institutional arrangements and overall regulatory processes including how mineral rights are awarded, monitored and grievance mechanisms.
- b. *Transparency* in actual regulatory operations at the mining agency and related agencies that mitigate opportunity for corrupt practices, guarantee public awareness and information on sector development, and appropriately manage revenues generated from sector investments
- c. *Fairness* that ensures all investments are treated the same in respect of how their operations are monitored, penalties and other requirements are enforceable and disputes resolved.

In 2009, the World Bank introduced a “Minerals Value Chain” approach¹⁰ to developing mineral governance regimes that has proven useful to orderly consider and address critical mineral development aspects. These include:

- (1) Awarding of rights;
- (2) Regulation and monitoring of operations;

¹⁰ Information available at <https://openknowledge.worldbank.org/handle/10986/18400>.

- (3) Collection of taxes and royalties;
- (4) Revenue distribution and management; and
- (5) Implementation of sustainable development policies and programs.

Underpinning these fundamental approaches is an array of governance topics that are briefly explored in this section.

4.2.1 Policy

Ideally, before drafting minerals legislation, government along with stakeholders will have considered a variety of issues that result in the production of a “minerals policy”. Countries that have prepared minerals policy have generally had an opportunity to consult with stakeholders and to address fundamental questions surrounding sector development. The core points of the policy may be summarized to include the following (also See Annex 1).

- Rationale for minerals development
- How government will manage the sector
- What and how the minerals value chain will be facilitated
- Role of stakeholders (government, industry, workers, civil society)

Mining jurisdictions vary in topics addressed by the “minerals policy” or “mining policy”. Some jurisdictions prepare mineral-specific policies (e.g., gold policy), or process-specific policies (e.g., licencing policy, geodata management policy).

Policy coverage	Examples	Country experience
All aspects of minerals	Upstream, midstream, downstream aspects	Liberia
General minerals coverage	National minerals policy	Afghanistan
Mineral-specific	Gold policy, Coal policy, Copper policy	Chile
Process-specific	Geo-data management policy, Tailings policy	Sierra Leone

As mineral markets develop, governments have adopted broader policy approaches that are not only mineral-specific but address a wider array of investment issues, Botswana provides a good and current example of this policy expansion.

Botswana policies
<ul style="list-style-type: none"> • No State or quasi-State companies in mining are allowed; • No import substitution policies; • Mineral revenues can be spent only for capital projects included in the national development plan, education and training, and health services; • Instruments of public saving are in the form of Public Service; • Operational Debt Management Fund and Revenue Stabilisation Fund; • Long-term national planning and national budget are linked; and • Well-enforced anti-corruption and trade policies.

4.2.2 Ownership of minerals

Clear regulatory guidance on ownership of minerals throughout the lifecycle of mining operations alleviates any confusion or public dispute. Many countries include the fundamental notion that the State has exclusive ownership over mineral reserves within their Constitutions while others rely on legislation.

Governance of how the ownership of minerals reserves transfers from State ownership to licence holder ownership of the *extracted* mineral resources must be clearly legislated. Official government assignment of sector regulation to a responsible government agency as the authorized agent of the State to grant mineral rights is essential.

Note: Considerable disputes arise in jurisdictions where mineral rights and surface land rights are not clearly distinguished. Generally, a surface right to land does not confer any claim or right to the minerals that may be subsoil or on the surface without a valid licence. In most countries, minimal use of construction materials found on a private owner’s land may be used for personal purposes but a licence is required to sell such materials.

4.2.3 Categorization and classification of minerals

While the overarching term “minerals” is commonly used to describe the mineral reserves and resources of a country, countries that have developed policies and legislation that recognize and understand the differences amongst various mineral types through mineral categories and classification. These distinctions help policy makers to better understand reserves and typically attract more appropriate investments that optimize how those minerals are developed. Best practice in developed markets has been to distinguish two types of minerals:

- a. *Fuel* -oil, natural gas, coal¹¹; and
- b. *Non-fuel* – this includes two categories
 - i. metalliferous (e.g., gold, silver, iron ore) and
 - ii. non-metalliferous (e.g., limestone, potash).

Global best practice distinguishes minerals and how they are mined depending on their mineral type and geological location; in general, this includes (1) mines and (2) quarries.

Useful Terms: Mines and quarries	
Term	Illustrative definition
Deposit	Any naturally or artificially occurring concentration of minerals.
Artificial Deposit	Any concentration of minerals derived from storage of low-grade ore, tailings, or waste rock which are or may become economically feasible to be processed.
Mine	<i>As a noun</i> , any place, excluding a quarry, at which mining activities take place. <i>As a verb</i> , any activity by means of which exploration, pre-production, development and exploitation of minerals which takes place from an identified deposit by means of surface or underground operations.

¹¹ Many mining jurisdictions include coal as part of their minerals categorization/classification.

Mineral	Any chemical element forming a naturally-occurring substance, simple or complex, in solid, liquid or gaseous states; or as solution in water.
Associated minerals	Any concentration of minerals derived from storage of low-grade ore, tailings, or waste rock which are or may become economically feasible to be processed.
Tailings	The material remaining from the processing of Minerals such as any solid or liquid residues derived from them.
Quarry	A place where surface mining activities are carried out to extract construction materials or dimension stone (and may include processing of these products).
Quarry material	A non-metallic Mineral Substance which can be used as building materials, as ballasting and road building materials, in the ceramics industry, as fertilizers for plants to improve land cultivation, including natural sands and gravels, and sedimentary, igneous and volcanic rock. (<i>Note: definitions vary – this one excludes phosphates, nitrates, alkaline salts and other associated salts, which may be classified as mines in the same deposits.</i>)

Minerals are non-renewable. It is critical for regulators to understand the approaches to exploration and exploitation of different types of minerals (e.g., minerals and metals) and that there will be different consequences for mine safety, worker health and environmental impact. This is especially important with respect to prescribing methodologies, types of technology, defining the right size licence area and more. It is also important for government, as a matter of policy, to distinguish what minerals may readily be explored and exploited the private sector and what minerals may require additional scrutiny of investors, e.g., strategic minerals (See table below).

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Mineral type	Illustrative (general) definition
Base metal	Any ferrous and non-ferrous metal found in any form and condition, other than a precious metal.
Bituminous Sand or Clay	Sand, clay or other rock material containing naturally occurring hydrocarbons that have a viscosity determined under the same conditions equal to or less than [12] degrees.
Coal	A fossil fuel consisting of carbonized vegetable matter deposited in sedimentary basins including anthracite, bituminous coal, sub-bituminous coal and lignite. (Technically, coal is not categorized as a “mineral”.)
Construction materials	Crushed stone, dolomite, limestone, gravel, sand, clay, and such other minerals that are quarried and used for construction purposes. (<i>Note: ornamental stones may be excluded here due to potential high value but may be designated as construction materials from time to time in regulations.</i>)
Dimension stone	Materials, including but not limited to, granite, marble, dolerite, gabbro, sandstone and other minerals mined as regular-shaped blocks for construction of buildings.

Precious metal	Gold, silver, platinum, platinum group metals, and such other natural metallic minerals that may be designated as precious metal from time to time in regulations.
Gemstone	Any minerals consisting of one or more chemical elements which are precious and semi-precious and have market value, including diamond, emerald, sapphire, ruby, tourmaline, topaz, aquamarine, garnet, peridot, amethyst and such other minerals that may be designated as gemstones from time to time in regulations.
Strategic mineral	Defined from a national perspective so that a mineral that is strategic for one country (which must rely on imports to meet its needs) is not strategic for another country with a domestic source of supply. Generally determined by economic importance, military necessity, energy requirements, and accessibility to the mineral.
Rare earth element	A set of chemical elements listed in the international periodic table and prescribed in regulations (e.g., lithium may be listed)

4.2.4 Legislative certainty

Mineral investments are typically long-term, in some cases for decades. Economic competitiveness of a minerals sector relies on certainty; the more clear and predictable legislative frameworks for investors, the clearer their rights and obligations to operate. This clarity includes not only investment and financial aspects but environmental regulatory oversight, land access and use, labour relations, community/social impacts and resource management.

Clear laws (primary legislation) and regulations (secondary legislation) as well as protocols, guidelines, codes of conduct contribute to a stable regulatory framework that can provide incentive for legitimate investors. However, overly complicated and time-consuming regulations have proven to deter legitimate investors, notably in EU countries. Legislative certainty can be damaging to investments as was the case when the Organisation for Economic Cooperation and Development (OECD) imposed an array of export restrictions on certain minerals that has impeded certain investments. On the other hand, a lack of regulations typically provides opportunities for corrupt practices.

Central to good regulatory oversight is legislative certainty that includes (1) award of mineral rights, (2) licencing processes, (3) and rights and obligations of the investor, government and citizens. The United States has adopted a decentralized approach wherein each of its fifty States has considerable regulatory authority in mining while many European countries maintain a more centralized mining governance structure.

4.2.5 Award of mineral rights

- a. A *mineral right* gives a legal right to the owner of that right to explore, exploit minerals. In market terms, a mineral right is not “sold” – it is “awarded”. The global market is presently mixed with approaches to how mineral rights are awarded; each has different levels of transparency and time required to implement as illustrated below.

Illustrative approach¹²	Illustrative description	Illustrative pros/cons
“First come/first served” application	<ul style="list-style-type: none"> • If applicant is qualified and meets eligibility requirements, without bidding, an applicant can obtain rights. 	<ul style="list-style-type: none"> • Most open approach to award of rights. • Criteria should be detailed. • Legal regime should be very clear to ensure competency.
Preferred Bidders	<ul style="list-style-type: none"> • Government has identified qualified/preferred investors. 	<ul style="list-style-type: none"> • Some eligibility criteria used. • Typically, least transparent, reduces opportunity for new market-entrants.
Auction	<ul style="list-style-type: none"> • Short listed, qualified/eligible investors based on investment commitments (funding and more) 	<ul style="list-style-type: none"> • Can reduce new market-entrants. • A fast way to award rights. • Investment depends on what criteria is required.
Tender	<ul style="list-style-type: none"> • International/domestic transaction requirements. 	<ul style="list-style-type: none"> • Typically requires inter-governmental review. • How well transaction conducted will determine outcome; requires time, expertise. • Can be costly to prepare.
Integrated Project	<ul style="list-style-type: none"> • Mining and infrastructure/processing as one project. 	<ul style="list-style-type: none"> • Optimal where linkages can be well-timed, coordinated for technically qualified implementation. • Increased costs/investors do not always meet commitments.
	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •

b. *The duration of mineral rights* varies amongst markets; some commonalities amongst international mineral markets used to determine the duration of a mineral right/licence include:

- **Exploration vs. Exploitation** – it is common to provide for a shorter time period for exploration than for exploitation.
- **Large-scale vs. artisanal mining** - it is common that a large-scale mine, due to the time required to construct and implement full operations, will have a longer duration than artisanal mineral rights. Typical large-scale mining principles for duration are that it not be for less than five years and in most developed regimes, large-scale mining may continue for the commercial life of the deposit if the operator is in compliance with its legal obligations. In developing markets there is a tendency to limit the large-scale licence, typically to 25-30 years but it is renewable either for a set time period or for

¹² Reference to state-owned mining companies is not provided in this report.

the life of the deposit. In developed markets, mining is directly tied to longevity of the related land leases which in some places (USA) can be 99 years.

- **For the life of the deposit** – a standard phrase used in market settings in order to allow for extension of mineral rights/licences “for the commercial life of the deposit” and as long as the investor/licence holder is in compliance with its rights and obligations and remains “eligible” under the licence requirements.

c. *Types of minerals rights to be awarded.* Most mineral markets distinguish amongst those mineral rights that may be awarded, may not be awarded, and require additional steps if to be awarded, examples provided in the table below.

Mineral Type	Illustrative criteria to determine if rights may be awarded
Rare earth minerals	Will exploitation harm environment, economy?
Strategic minerals	What impact on the nation?
Energy minerals (e.g., coal)	Will development reduce domestic access to fuel/energy?
Of national importance	Will exploitation benefit nation near and long term?
Minerals near a village, public transportation	If exploitation negatively impacts local environment to the extent it cannot be rehabilitated, moratorium on such mining

d. *Investor eligibility.* Most mineral markets either under their mining laws or their general business laws provide legal guidance on investor eligibility. Basic conditions such as:

- Is 18 years old or more years of age;
- Is of sound mind;
- Is not currently a government officer (and has not been for a certain number of years, e.g., two years)
- Has not served time for any felony conviction;
- Is not bankrupt;
- Is not insolvent;
- Is not at the time of application/tender under arrest or indicted for a criminal offence;
- Has proven technical and financial capacity to implement the mineral activities.

In addition, especially in nascent mining markets, there are further distinctions for who can obtain mineral rights based on the size or type of deposit. *Artisanal mining rights* are often reserved only for domestic citizens either in the form of individuals or small operations or cooperatives (Mozambique, Afghanistan). In such markets, *large-scale mining rights* are typically reserved only for companies and not for individuals.

e. *Legal tools that confirm the mineral right.* Best practice has demonstrated that a licencing regime as the primary legal driver for how mineral rights are implemented (via licences) works. However, other legal instruments are also used in addition to licences or instead of licences, rely on other forms of awarding rights. A licence is typically the physical representation of a mineral right. However, other legal tools are also used to confer various rights that should not be confused as some convey a mineral right and others do not. Examples are provided in the table below.

Illustrative Legal Tool	Brief Description	Conveys mineral right
Licence	Legal authorisation that confirms the mineral right and conveys “mineral tenure”.	✓
Concession	A traditional form of contract that typically grants the company the mineral it extracts for which the company compensates the State through taxes and royalties. Where State allocates specific area, some mining jurisdictions refer to Mining Contracts/awards as “concessions”.	✓
Mining Contract	A written document which is enacted by the State and a <i>legal person</i> for the purpose of <i>exploration</i> and development of minerals and <i>exploitation</i> activities in which the rights and obligations of each Party are stipulated in accordance with the provisions of applicable law.	✓
Mining sector development Agreement (MDA)¹³	A written document which is enacted by the State and a <i>legal person</i> for the purpose of <i>exploration</i> and development of minerals and <i>exploitation</i> activities in which the rights and obligations of each Party are stipulated in accordance with the provisions of applicable law. Inclusion of <i>additional development requirements</i> (i.e., electricity, water, community development).	✓
Permit	Often used for mine-related authority such as “environmental permits”, “land permits”, “construction permits”, “water permits”.	Sometimes has same effect as “licence”
Authorisation	Some jurisdictions use “authorisation” in place of licence especially for small-scale and artisanal mining	Sometimes has same effect as “licence”
Field service contracts	Specialty firms with “niche” expertise hired by Mining Companies to conduct specific activities usually on time and materials basis (actual cost- plus overhead + profit), i.e., seismic studies, well testing, deep water exploration.	–
Goods and Services contracts	Cover a broad range of support to mining sector development that the Mining Company may not wish to do, does not have capacity to do or finds it more economically or socially prudent to outsource. From technical aspects such as mine design, seismic mapping, and mine construction/well works to provision of cafeteria and transport services.	–

4.2.6 Licences

Throughout the world, mineral licences have been issued to provide clear information about the location and type of mineral deposit, and the legal rights and obligations of the operator and land

¹³ In Liberia, considerable confusion has been caused by use of the term “MDA” to indicate “licence”.

owner (e.g., government). Legislation should prescribe the conditions for acquiring mineral rights in combination with government adopting a common licencing system for the administration of minerals development. In preparing a licencing regime, it is necessary to consider how the licences help to frame requirements for certain phases of mineral development. In some countries (e.g., Mexico), foreign investors are required to set up a domestic mining company to which the licence (in Mexico “the mining concession”) is issued.

The United Kingdom

The United Kingdom does not have a specific regulatory regime for mining. Instead, mine investments/developments are guided by a variety of common laws that primarily address coal, gold and silver, oil and gas, and other minerals. The State is not the owner of minerals, but rather the landowner is; as such in place of licencing, agreement is made between the investor and land owners. Nonetheless, government planning permission, environmental and other approvals are required from local mine authorities.

Where countries use a licencing regime, general licence categories of mining help government and investors define and adequately manage mineral resource development specific to that phase of the mining investment. The general categories include:

Licence category	Summary description
EXPLORATION PHASE	
Reconnaissance	Short-term investigation of a mineral deposit/area that does not require invasive drilling or ground work and may include aerial studies.
Prospecting/ Exploration	Any activity carried out to discover minerals in order to demarcate the quality and quantity of the deposits contained within a licence area, or to evaluate the possibilities of their commercial exploitation.
Retention	The ability of a holder to “retain” its mineral rights for a limited period of time; typically required when market, emergency health or other dire events transpire that make mining commercially non-viable.
EXPLOITATION PHASE	
Exploitation	Any activity by means of which feasibility studies, pre-production development, extraction and processing of minerals take place from an identified deposit by means of surface (open pit) and/or underground operations from a deposit; and all other activities incidental thereto including the design, construction, installation, fabrication, operation, maintenance and repair of any mining plant or other infrastructure, facilities and equipment and the mining, excavation, extraction, recovery, handling, beneficiation, processing, milling, stockpiling, transportation, export and sale of minerals

Within these licence categories, specific licence types and permits may be included, e.g.:

- Dredging licence/permit – (e.g., deep sands) - USA
- Radioactive minerals permit – Sierra Leone

- Tailings licence - Kosovo
- Construction materials permit - Pakistan
- General purpose lease - Australia

Some jurisdictions issue mineral-specific licences, e.g., for gold, quarries. It is common in some global markets to issue licences according to a defined mine size, e.g.: (i) Large-scale exploration/mining; (ii) Small-scale exploration/mining; (iii) and Artisanal prospecting/mining. Jurisdictions vary in how these deposits are defined, examples of various approaches are below.

- Size of deposit – e.g., by square hectares/kilometers
- Depth of deposit – e.g., by meters
- Projected volume/tonnage to be produced
- Type of mineral (i.e., precious gemstones, precious metals, solid minerals)
- Number of employees/mine workers
- Type of technology – a common approach to distinguish artisanal mining which in many jurisdictions is defined as “not using mechanized equipment”; note that in more developed markets, this is not the case and artisanal mining may use a variety of modern technologies.

Licensing the exploration of minerals. There are generally four steps in the exploration process to discover a mineral deposit: (1) exploration planning, (2) regional reconnaissance and surveys, (3) prospecting and ground surveys, and (4) the verification of anomalies. Considerable expense and time may be allotted to exploration.

Investors seek a “seamless” licencing process in which an exploration operator can, upon commercial discovery of a mineral deposit, transition all or part of its exploration to exploitation operations.

Investors seek a “seamless” licencing process in which an exploration operator can, upon commercial discovery of a mineral deposit, transition all or part of its exploration to exploitation operations. In other words, investors do not want to spend time and money during exploration without guarantee that they have the first right to develop any viable mineral deposit within that exploration area.

Useful Terms: Legal instruments commonly used in mining	
Term	Illustrative definition
Contract	A legally binding document entered into by the State and other legal person to conduct mineral exploration and exploitation or other mineral activities as described in the contract under provisions of the applicable law.
Licence	The legal right to conduct exploration and/or exploitation of minerals granted pursuant to the provisions of the applicable law.
Lease	A formal permission to the lessee from the lessor to use land and/or water stated in the lease solely for the purposes of mining or mineral activities.
Lessee	A person or persons who receives the use and possession of land from a lessor in exchange for funds and has the right to enjoy the premises for the term of the Lease and to use the property for purposes agreed upon with the lessor.
Lessor	The person or persons who grant a land lease.

Licencee	The person(s) who has the legal rights to conduct exploration and/or exploitation activities in accordance with provisions granted to them through a “licence” issued by the government and who is responsible for all terms and conditions of the licence and to operate in accordance with the law.
Perimeter	The boundary of an area demarcated on the land surface in accordance with the licence description (depth is otherwise defined).

- c. *Artisanal Mining*. Primarily in emerging mineral markets, artisanal mining has traditionally been recognized to reduce poverty. However, in line with developed markets, it is increasingly recognized that artisanal mining investments may generate the same or more revenues than some larger-scale mine operations. Still, depending on the country, some special consideration is given to artisanal mining.
- i. *Family business*. Artisanal mining is associated with very small mining operations, often operated by family or community groups. Small-scale mining has a similar identification in certain markets but in other markets may be defined as much larger mining. Increasingly in emerging mineral markets, artisanal and small-scale mining are grouped together and identified as “ASM”. Primarily in emerging markets, artisanal mining rights are reserved for local citizens. It is typical that artisanal operations are family-controlled and have some historic background. Formalisation of such operations is presently underway throughout parts of Asia and Africa.
 - ii. *Cooperatives*. In many countries, notably in Latin American and Africa, artisanal miners operate, not individually but as cooperatives – some are formal, and others are not. These typically include miners, valuers, traders and transport structures that work as a company without the legal requirements of a company. The benefits of this arrangement are that people have employment; the downside of this approach is usually reflected by:
 - Workers have not job security;
 - Valuation of products is typically below true value and traders’ benefit;
 - Health and safety are at its lowest level due to no investment in modern equipment or modern mining methodology know-how.
 - iii. *Formalisation*. In developing mineral markets, there is increased emphasis on formalizing – e.g., licencing and registering - existing artisanal and small-scale mining operations, especially illicit operations. The rationale for formalization includes:
 - Improved revenue generation from these operations;
 - Environmental protection (i.e., reduce use of mercury, improve water cleanliness);
 - Miner Health and Safety;
 - Opening the market (typically undertaken by local families and/or powerful groups).
 - iv. *Overlapping claims*. Countries regulate the overlapping of mine claims in different ways; in some countries, artisanal miners are permitted to carry on mining atop and alongside larger scale operations presuming no interference in larger operations.

Some countries have encountered citizen grievances when a new larger mine licence is issued where artisanal mining (legal or illegal) was ongoing. The State is often charged with dispute resolution, compensation and sometimes violence results.

4.2.7 Reporting of reserves

An array of global initiatives and standards are in place throughout the global mining market. An essential component of market-based reserves reporting is criteria that not only considers reserves but the “commerciality” of those reserves. Systems also consider the phases of reserve and resource development and that these estimates will change during the lifecycle of mining operations. Assessment of mineral quality, accessibility and other factors are critical to ensuring that accurate reserves are reported.

While there is not always consistent application of some of these, it is useful to be aware of them in determining any benefit from them. CRIRSCO¹⁴ (Committee for Mineral Reserves International Reporting Standards), established in 1994, is a standard promoting international best practice in the reporting of mineral exploration results, mineral resources and mineral reserves¹⁵. Members are National Reporting Organisations (NROs) responsible for developing mineral reporting codes, standards, guidelines (Australia (JORC), Chile (National Committee), Canada (CIM), Europe (PERC), Mongolia, Russia (NAEN), South Africa (SAMREC) and USA (SME).

4.2.8 Mine security

Global experience has proven that mine security should not be taken lightly; countries have experienced violence at mine sites stemming from unpaid striking miners (South Africa) to political demands (Poland, Romania, former Soviet Union) to unsafe working conditions (USA). Typically, a mine company is responsible for the security of its own operations. However, in highly volatile or unpredictable mining environments, government often takes on some role in providing mine security. In such case, in partnership with mine companies, government works with mine companies to provide security within defined parameters and time frames to ensure safe access, transit, operations and enforcement of mining project boundaries. Application of the UN Voluntary Principles (See Annex 4) to secure mine safety for communities has been adopted in many locations.

South Africa

On August 16, 2012, the 25th anniversary of a nationwide miners’ strike, following mine strikes throughout the country, at least 17 people were killed and almost 80 injured by security forces at the Marikana mine amidst the country’s platinum belt. As contract negotiations failed, this event pitted the national police against the national union of mine workers during which miners were considered “criminals” and violence was covered up by the authorities. The outcome has been increased citizen engagement in mining development, information and monitoring although improvements should still be made.

¹⁴ <http://www.crirSCO.com/>

¹⁵ For oil and natural gas, **PRMS** (Petroleum Resource Management System) is an example of an *integrated reporting system* that provides the basis for classification and categorization of all petroleum reserves and resources. System encompasses the entire resource base but is focused primarily on estimated recoverable sales quantities.

4.3 Ensuring the Strength and Capacity of Institutions

The establishment of clear government institutional arrangements with clearly defined roles and responsibilities is essential for good governance. These institutions must be staffed with technically competent professionals, appropriately financed, and equipped with necessary software and hardware. For transparency, it is important that these institutions are free to conduct their work free from politics and excessive executive intervention; this has proven to be critical for attracting long-term investments and implementing a sound minerals regime. Institutional strengthening is an ongoing challenge that should reflect sector development; ongoing efficiency improvement and knowledge building are important.

4.3.1 Federal and sub-national institutional authority

Many countries maintain a dedicated government agency responsible for policy-making and regulatory oversight specifically of minerals. In some countries, this is a federal institution while in others, sector institutions are more decentralized, e.g., to the subnational structures (provincial/regional/State/district) and in others, a combination of institutions regulate the sector. Processes applied to mineral investments should not duplicate provincial processes and federal intrusion into provincial jurisdiction. Examples of country approaches are below.

Federal/Provincial/Regional Mining Regime	Federal Mining Regime
Australia	Afghanistan
Canada	Chile
Pakistan	Kenya
United States	Mozambique

Australia

Australia’s constitution provides for a federal system of Government; this results in a division of jurisdiction over mineral resources between: (1) Commonwealth and (2) State (7 States and 2 Territories). Onshore mining is primarily a State Government matter, although the development of a mining project requires consideration of certain Commonwealth laws. It should be noted that the scope of a State’s powers is ultimately subject to Australia’s written Constitution (which sets out the division of powers between States and the Commonwealth). While most institutional oversight and mining related legislation is conducted by the States, some ancillary issues are federally regulated and legislated.

4.3.2 Lessons learned in establishing mine institutions

Countries have had different experiences with establishing core mining agencies. In surveying various approaches to utilizing this type of governance structure, some important lessons may be learned, highlighted provided below.

- a. *Governments rely on established structures.* Most Governments encounter funding

challenges when introducing a new institution. Governments rely on established structures focusing on strengthening definition of institutional roles, authorities and building staff capacity.

- b. *General oversight mechanisms can include mining.* Instead of or in addition to creating mineral specific institutions to address certain topics, many governments also rely on broader institutional coverage that will apply to all businesses and infrastructure. Examples of these broad coverage areas typically include environment, taxes, labour, land, resettlement, social protection.
- c. *Mineral-specific oversight can be useful.* In cases where a certain mineral or resource is of such potential financial or strategic value that it will benefit from closer government oversight, dedicated authority may be established to temporarily or permanently oversee that topic.

Examples of mineral-specific institutions
Chile
In 1976 Chile established the Chile Copper Commission, recognized as a reliable source providing timely assessments of leading sector issues and problem-solving policy, strategy, and action proposals. The commission “Cochilco” operates under the Ministry of Mining and tracks statistics on copper pricing, market trends in addition to preparing and reviewing draft legislation. Cochilco conducts investment promotion and advises government on matters concerning copper production, value chain developments and related industrial minerals. It has been positively recognized by private and public sector as a useful, common ground, through which copper development is supported.
Sierra Leone
In 1985 a mineral-specific institution was established in the “Gold and Diamond Office” (now the Gold and Diamond Division within the National Revenue Authority; technical function coordinated with Mine Division). This office was charged with the functions of: (1) valuation of gold and diamonds for export; and (2) collection of export charges, taxes and royalties on behalf of Government. In the wake of civil war, the Government of Sierra Leone quickly learned that legitimate export markets were not interested in purchasing “blood diamonds”; this office became important since the 2000 UN Security Council Resolution 1306 on conflict diamonds. To date, this office handles certification of all diamonds legally exported from Sierra Leone. And, in response to the country’s changing minerals market, as diamond deposits are increasingly “mined out”, more emphasis on establishing “green” (environmentally and socially friendly) gold development and oversight is underway.

- d. *Avoiding duplication of roles is imperative.* Jurisdictions that have introduced new or revised institutional arrangements have recognized that without clear and well-developed institutional definitions, duplication of efforts can result, creating confusion in the minerals and petroleum market. Where duplication and confusion of institutional roles has occurred, markets have typically experienced increased opportunity for corrupt practices.
- e. *Institutional beneficiaries must be clear.* Countries’ experience has proven that whatever

government institution is established, it is part of the government and public expectations are that government will serve the entire society including government, civil society, workers and private sector. When certain institutions are created to address a mining-specific topic that impacts the country, clear mandate, authority and scope is required.

- f. *Politics matter.* The sector requires a champion in Government that will shepherd sector developments to meet policy objectives. Changing national and other political priorities may result in the change of sector development priorities, institutional arrangements and types of investment.

Examples of strong Presidential leadership in mining sector development
Botswana
Botswana demonstrates a governance framework where a combination of consistent political leadership, effective economic management, strong voice to civil society, clear sector policies and strong emphasis on institutional roles, revenue management. A change in Presidential leadership almost overnight replaced State mining investments and centralized regulation to promotion of private investment and an array of open market institutions, many of which have been innovative and used by other countries (See Section 3.5).
Tanzania
In August 2018, President John Magufuli has approved a series of changes since his election in late 2015 that have impacted the Tanzanian mining industry. In July 2017, he suspended the issuance of all new mining licences until the new mining regulatory regime was in place.

4.3.3 Administration of the minerals sector

Three core functions have emerged as essential to government administration of the minerals sector, these are:

- a. *Geological Survey*¹⁶. The Geological Survey is responsible for the overall exploration of mineral resources in a country in consultation and collaboration with existing mining operations. This includes: the retrieval and maintenance of geodata and maintenance of geodatabases. The Geological Survey cooperates with exploration and exploitation companies, licence holders and subnational mining authorities. Geological Survey information, services and goods may be provided at a cost.
- b. *Mine Cadastre*¹⁷. The Mine Cadastre is responsible for the licencing and registration of all mineral investments/licences. [Note: While it may coordinate with the Land Cadastre, it is different and only focused on minerals¹⁸]. A “cadastral map” is maintained by the Mine Cadastre that indicates where licences (or permits, contracts, leases, concessions) have been issued or are under review of application. The Mine Cadastre prepares and issues reporting requirements for mine operations through which it will monitor mine operations.

¹⁶ A stand-alone office or in some jurisdictions, a function implemented by the mining agency.

¹⁷ Also referred to as “Cadastre”, “Mining Cadastre”, and in some jurisdictions, “Licencing Office”.

¹⁸ And oil and gas, mineral waters.

- c. *Mine Inspectorate*. Globally, as an institution, the Mine Inspectorate plays a uniquely important role in monitoring and enforcing the health and safety regime. [Note: The Mine Inspectorate is commonly confused with a financial inspection function; this is not intended but rather, the Mine Inspectorate is a technical monitoring and enforcement institution.] Mine companies will/should have their own in-house inspectors. The Mine Inspectorate is responsible for monitoring and enforcing the adequacy of (1) worker health (e.g., ensuring protective gear is appropriate, safe working conditions, accessible medical facilities, supplies, and care) and (2) mine safety (e.g., mine design, exploration and exploitation methodologies, quality of equipment, services, supplies and procedures).

The Mine Inspectorate is commonly confused with a financial inspection function; this is not intended but rather, the Mine Inspectorate is a technical monitoring and enforcement institution.

- i. As part of the governance framework, the institutional placement of the Inspectorate varies in countries. Most common, the Inspectorate is part of the government agency responsible for mining; in developed markets the Inspectorate is often as a stand-alone independent agency. In some countries the same Inspectorate for underground mining operations also assesses, for example, underground transportation and telecom issues.
- ii. The Inspectorate provides an opportunity for a country to train local staff and to provide local employment. Dedicated institutional training for inspectors is often housed at local universities, vocational institutes and stand-alone inspectorate training facilities. Inspectors are often rotating so as not become dedicated to (or too familiar with) one mineral project; regularized and daily mine inspections comprise developed market operations.

4.3.4 General institutional framework

- a. *Government agencies*. Throughout developed mineral markets, various aspects of implementing mining development are carried out by different government agencies. Some countries have a complicated array of institutions while others maintain a more centralized “ministry of mines” structure. In either scenario, the array of issues that require some sort of institutional oversight are extensive; examples of the topic areas and illustrative roles are provided below.

Government institution topic area (federal/subnational)	Illustrative role/responsibility in the minerals sector
Minerals and mining	Overall minerals sector regulation, licencing, investment monitoring and enforcement, mine safety and worker health, geodata management, mapping.
Finance	Fiscal requirements, financial reporting, financial inspections and audits, collection of royalties and payments, revenue management, foreign investment issues, customs, export promotion.
Environment	Overall environmental regulation of mine and mining-related activities, e.g., bonds and payments, impact mitigation, remediation, waste removal, rehabilitation, mine closure.
Labour	Worker rights, salaries, wages, entitlements, fair labour standards, grievance processes.
Land	Land lease regulation, notice, consultation, compensation, resettlement, grievance processes.
Energy/Water	Electricity supply, water access/use.
Forestry	Use of timber, removal of trees.
Culture	Safeguarding and preservation of cultural/historic relics, archaeological treasures.
Social protection	Community liaisons, safeguards, benefits sharing.
Defence	In some countries, provision of mine and transport security. Depending on mineral, some certification for extraction may be required (e.g., materials used in the production of fertilizer, radioactive materials).
Public works	In some countries is responsible for construction materials, quarries.
Urban/rural planning	Local development issues, local infrastructure, zoning, time of day operations. In some countries, “regional development”.
Transport	Construction and use of roads, rails, waterways, ports, air transport.
Foreign affairs	In some countries review and approval of international mine contracts, oversight of foreigners working in-country (visas).
Education	Provision of mine-related (technical and commercial) curricula and programs to develop local skills and expertise. Includes mid-level professionals and government capacity programmes.

b. *Additional government oversight* of mining sector development, especially in emerging markets, is common and is extremely varied, examples are provided below.

Government institution	Illustrative role in mining sector	Country
Office of the President	Review and in some cases an approval role over mineral investments	• Tajikistan
Cabinet	Approval of certain mineral investments may be required.	• Tanzania*
Parliament	Large-scale mining investments require review and ratification by Parliament.	• Mozambique

High Authority	Institutions intended to act along with but outside of existing mining sector structures.	<ul style="list-style-type: none"> Guinea – National Commission of Mines
Special Commissions	Established with a specific mandate relevant to a specific mineral investment (e.g., large-scale, strategic) for dedicated and time-limited technical and other review and consultation.	<ul style="list-style-type: none"> Pakistan – copper contract
Inter-governmental agency committees ¹⁹	Increasingly used in emerging mineral markets to promote information-exchange and discussion including but also outside of the mining ministry in order to promote comprehensive governmental understanding and harmonized policies to support mineral investments.	<ul style="list-style-type: none"> Afghanistan – Inter-ministerial Commission on Mining (defunct) until 2016 reviewed all mine investments, royalties, tenders.
Attorney General	In some countries plays a standard role and in others is more closely involved in reviewing and advising on mining investments.	<ul style="list-style-type: none"> Ethiopia

Examples of additional government oversight
<p>*Tanzania</p> <p>Tanzania is seeking a larger return from its vast mineral resources by overhauling the fiscal and regulatory regime of its mining sector. The government began the overhaul last year, unsettling some foreign investors. On 1 June 2018, Tanzania also announced that it would no longer sign new mineral development agreements (MDAs), which guarantee a stable tax regime for existing mine companies. <i>In August 2018 the</i> Government of Tanzania announced that it will now only issue large-scale mining licences after cabinet approval. “The announcement is part of a series of measures aimed at tightening control over the mining industry in Tanzania. The East African country previously issued licences for large-scale projects through its mining ministry, but then delegated powers to a newly-appointed mining commission under new regulations passed in January 2018.</p>
<p>Guinea</p> <p>The establishment of the “National Commission of Mines” (NCM) was created to reduce corrupt practices in the mining sector; it examines decisions made by the “Center for Promotion and Development of Mining” (in effect the Ministry of Mines and Geology that issues mining titles). Under the NCM is the (1) Strategic Committee of the NCM (Ministries) that handles political and strategic aspects of revising mining agreements and (2) Technical Committee of the NCM is an 18-member committee with representatives from key ministries and worker unions that reviews mining contracts and provides recommendations to the NCM Strategic Committee. Guinea also recognized the need to manage government shares in mining companies and to establish a clear institution that would participate in negotiations on behalf of government in the form of the Société Guinéenne Patrimoine Minier. (Despite these various roles, it is not clear that corrupt practices have reduced.)</p>

¹⁹ Russia established the Inter-ministerial commission coal in early 1990s to restructure the sector.

4.3.5 Role of the State²⁰

It is important that the role of the State in mining development is clearly set out and understood. Best practice has emerged to reflect the role of the State as policy-maker and regulator.

- a. *State as policy-maker.* Best practice reflects that through a responsible government agency (e.g., Ministry of Mines), the State is best positioned to develop, implement and promote good governance and transparency in how the minerals sector is managed, revenue generated, and social and environmental protections monitored and enforced.
- b. *State as regulator.* Best practice reflects that the critical State role is the facilitation and regulation of investment in the mining sector to support prospecting, exploration, exploitation, sale, processing, and export/import of minerals and mining-related materials (e.g., chemicals necessary for certain activities/processing).

State policies and practices may support controls on mineral supply and prices. Where foreign investment occurs, there are incidents where governments seek to nationalize those assets to become State mining assets. The Government of Chile did this with its copper investors in the 1970s; Pakistan with steel mill private holdings in 2011. Such policies and practices have inhibited good investment and sound development of mining revenues.

- c. *State as investor.* Despite a trend away from the notion of State-owned mining companies in the 1990s and 2000s, recent years there has been renewed interest by countries to reconsider whether the State should retain an interest in mineral investments or establish a State-owned company. The rationale given for this interest is to improve safeguarding of resources with more State oversight and to ore directly allow the State to generate revenues from mining and downstream processing. Especially for metal supply, governments have understood this to be vital to economic security. While many of the former Soviet Union minerals came under private investment, especially the metals market which experienced significant pricing downturns in the 1990s was not considered profitable.

Since the mid-2000s, metal prices have risen and increased interest from various governments to re-engage as investors has emerged, e.g., the Russian government regaining control over Norilsk Nickel. The trend includes South American countries of Bolivia, Ecuador and Venezuela and African countries of Namibia, South Africa and Zimbabwe. In some countries (e.g., Mozambique (coal), Guinea (iron ore)) there is a trend to renegotiate private mining contracts. In China the many different levels of State control, national, regional and local, together with the gradual changes in the Chinese economy and the introduction of private ownership.

- d. *State as investment promoter.* Various approaches are taken to promoting and attracting private investment in the mining sector. Most successful are where government and industry convene to participate in investment promotion activities, international fora and generate informational materials that publicize the mine investment opportunities that may be held in a country. Globally, mining conferences are conducted each year where countries

²⁰ Review of the State as owners or equity-holder is not discussed in this document. Especially over the past two decades, governments have dramatically shifted from support of State mining companies to instead rely on private sector mineral investments.

rent “information booths” and conduct investor meetings as part of mining investment promotion. Examples include the annual Prospectors and Development Association (PDAC) of Canada²¹ and African Mining Indaba.²²

4.4 Establishing a competitive fiscal regime

International experience has demonstrated that one of the most essential elements for investors is a clear and stable fiscal regime in which to invest.

4.4.1 Balancing government and investor interests

Governments and investors share the mining objective to generate revenues. Shifting risk and sharing costs should be carefully managed by both. Best practice reflects that certain trade-offs are made by each party and that establishing a clear, predictable and fair fiscal regime will provide benefits and sharing of risk for both government and mining investors. Based on the established fiscal and other rules of a country that will shape the mining investment. *Best practice demonstrates that mine companies and governments should have the financial modeling tools and capacity to value the mining investment in that context.* One such tool (but not the only one) is the “Discounted Cash Flow” model, described below.

Discounted Cash Flow (DCF) Model

The Discounted cash flow (DCF) is the primary valuation method for development properties and producing mines that provides a value reflective of the current net economic benefit of expected cash flows and net asset values (NAV). DCF outcomes often influence project design and investment decisions. *While used throughout the world, experts recognize that DCF does not always consider the exploration potential of a mine project and other variables (changes in quality of resource).* Because the model is static, it relies on one cash flow model, one project, one production policy with static debt and tax payments. Criticism is given to this static model that in fact likely does not adequately capture cash flow as financing structures, policies and the overall investment climate is subject to change during the life of the model. Where impacts of mineral/commodities markets are at play, the DCF model can be greatly impacted. Mine valuation experts continue to improve the DCF approaches.

4.4.2 Approaches to establishing a competitive fiscal regime

Designing fiscal arrangements that encourage a stable fiscal environment and efficient resource development maximizes the magnitude of the revenues to be divided requires considerable time and review. Countries implement a vast array of fiscal instruments to protect government and investor interests; in general, these may be categorized as:

- a. *Profit-based fiscal instruments* - allow government to share in the upside of highly profitable projects, but also increase government’s share in the project’s risk as government may receive no revenue if the project is not profitable.

²¹ <https://www.pdac.ca/> (to be conducted March 2019)

²² <https://www.miningindaba.com/> (to be conducted February 2019)

- b. *Product-based fiscal instruments* - ensure the government receives at least a minimum payment for its mineral resources, an example of this is royalties.

Licence requirements, development agreements and government's fiscal rules typically shape the fiscal regime in which a mining investment is made. Some of the key issues included in these fiscal instruments include bonuses, royalties, taxes and fees, insurance, non-mining costs, accounting methods and procedures.

Key issues addressed in fiscal instruments

- Bonuses
- Royalties
- Taxes and fees
- Insurance
- Non-mining costs
- Accounting methods and procedures

4.4.3 Levels and forms of government intervention

The type and extent of government intervention in mineral investments is often tied to governments objectives for developing the sector. Governments typically intervene in private investments to ensure that its objectives are satisfied, these may include ensuring that a mineral is developed or that the mineral supports industrial and manufacturing growth. Government may also seek investments to ensure local job creation, revenue generation, to make the country secure militarily by exploiting minerals for production of munitions/arms, or to make the country less reliant or self-sufficient on a certain mineral (e.g., strategic minerals, coal for energy).

Most investors will seriously consider the level and form of government intervention with respect to impacts on their fiscal arrangements. A variety of government interventions can be used to guide private investments in mineral exploration and exploitation, notably used in advanced open markets. These interventions can have positive and negative impacts; some examples are provided below.

Example of government intervention	Brief Description
Trade regulation	Mechanisms designed to decrease the flow of imports into a country that may include mineral import bans, requirement for minerals import licence, and taxes on minerals that are imported.
Taxation	Investors expect royalty taxes on minerals produced; governments must determine how those royalties will be applied (e.g., at sale, on volume) and at what levels (e.g., percentage of value of production, finished product). Additional taxes can come into play such as profit taxes (a tax on net profits or income) and capital value taxes (taxing the value of the property owned by the company).
Tax stabilisation	Government may allow (by law or in a contract) for the stabilisation of all or part of a national fiscal system of taxes, fees and duties to be applied to a minerals investment. "Tax stabilisation" is the process of becoming firm and unchanging generally to assist government to avoid dramatic changes in prices, employment and often used as a financial incentive to attract investment. These provisions should be clearly indicated in law or the

	contract. Typically, where the contract and law provisions are in conflict, the law will prevail.
Investment promotion incentives	Government-sponsored promotion activities that may include favorable loan conditions, guaranteed rates of return, direct trade subsidies, government underwriting of private sector risks. Granting free tax status to a mining investor for a limited or perpetual timeframe has been tested in various markets. Some countries grant regulation exemptions to encourage exploration.
Subsidies	In addition to State-owned companies being subsidized by budget funds, government may intervene to provide direct grants and low-interest loans to encourage companies to make certain investments or to take specific actions (e.g., develop a factory to process minerals in order to create local employment).
Price fixing	Investors are not keen where government determines all or part of how minerals are priced, still, this form of government intervention is not uncommon.
Benchmark pricing	Generally used for comparison, the price per unit of a commodity traded in the international marketplace, set by a country or a producers' organisation that exports the largest amount of that commodity or in a general market such as the London Metal Exchange.

4.4.4 Illustrative mining taxation, payments and costs

It is impossible to provide a detailed review of mining taxation and payments in this document; information provided herein is illustrative and should be explored in greater detail. Recognizing that each mining tax regime differs, international practice generally delineates mining taxation and payments as follows.

- a. *Corporate income tax (CIT)*— as a business operation in country, CIT is typically applied to mining investments; some countries include “tax stabilisation” provisions in law that provide different forms of “tax holiday” or “tax forgiveness” for investors.
- b. *Land lease* – categorized as a rent payment/income.
- c. *Bonus payment* – paid for the right to extract; may be made as lump-sum or multi-year payments. Categorized as income to recipient/tax laws and contract guide tax handling; typically, no deductions allowable.
 - i. Although a bonus payment may be categorised as “rent” by the payor, it is not considered “passive” as rent activity is typically for any activity which payments are made for the use of tangible property. *The bonus payment is not made for the use of tangible property. It is made for the acquisition of an economic interest in a*

<p>Illustrative categories</p> <ul style="list-style-type: none"> ● Corporate income tax ● Land lease ● Bonus/premium payment ● Royalty ● Working interest ● Additional expenses ● Capital expenditure ● Operational expenditures ● Revenue expense ● Economic/resource rent ● Other taxes
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- reserve*. In the US, rent of land or other non-depreciable property is not treated as passive and therefore bonus payments have been legally determined not to be rent.
- d. *Royalty* – categorised as (investment) income tax/deduction of related expenses and depletion including any production tax may be allowable.
 - e. *Working interest* – reported for the gross receipts, expenses and depletion; direct and indirect expenses including overhead, legal and administrative, taxes and other operating expenses. Not subject to investment income tax, is subject to employment tax (for workers claimed under this interest).
 - f. *Additional Expenses* - these include overhead, certain legal and administrative fees, environmental and water testing fees. Only taxpayers who have a working interest in the extraction operations may deduct business expenses such as depreciation, tangible or intangible costs, utilities, car and truck and travel from the mine site. Taxpayers who own working interests may be able to deduct expenses to reduce their natural resource income. This applies to taxpayers who have working interests in extraction operations.
 - g. *Capital expenditure* - is the use of funds by a mine company to acquire physical assets to improve its value or increase its long-term productivity. This includes purchases of buildings, warehouses, equipment, trucks. Capital expenditure is considered an investment in the company and should be recorded as an asset on the company's balance sheet that may be deducted over future years as a "depreciation expense" calculated by the asset's "useful life". There are usually, in tax law, capitalisation limits depending on how much equipment costs versus how much the company paid for it (e.g., more or less than the market cost of the equipment).
 - h. *Operational expenditures* - are costs incurred by the mine company in its course of day to day business; they are not capital expenditures. These expenditures are categorized as "expenses" and cannot be "depreciated".
 - i. *Revenue expense* – where capital expenditures are considered an investment in a company to increase its earnings, revenue expenses are like operational expenditures in that they are short-term expenses used to meet the usual needs of running a business. *Capital expenditures are recorded as an asset on a company's balance sheet. Revenue expenses are listed with its liabilities.*
 - j. *Economic Rent* – or "*resource rent*" is unearned income. This means that it has no clearly associated cost of production and is basically above normal profit. The company benefits from how well it develops, manages and uses the resource.
 - k. *Other taxes* – depending on the country, other taxes including at the subnational level may be levied. In Pakistan a "forestry tax" is required; some jurisdictions also require tax payments on financing of mining projects.

4.4.5 Tax/Royalty Regime²³

Best practices reflect that a tax/royalty regime provides a predictable and consistent framework in which mining revenues may be generated, this includes the following.

1. a royalty to secure a minimum payment,
 2. the regular income tax that is applicable to all companies, and
 3. a resource rent tax to capture a larger share of the most profitable projects.
- a. *Royalties.* A royalty is a type of tax in mining that is typically defined in law with the intent that the investor will make this payment as compensation for having the mineral right. Royalties are either specific levies (based on volume of minerals extracted) or “ad valorem” levies (based on the value of minerals extracted). They secure revenue for the government *as soon as production commences* and are generally considered to be easier to administer than most other fiscal instruments. Types of royalties vary as illustrated below.

Type of Royalty	Brief Description	Illustrative Market
Unit-based Royalty	<ul style="list-style-type: none"> Fee levied per unit volume or weight at mine-mouth (not easily applied to concentrates). 	Varies
Uniform Royalty	<ul style="list-style-type: none"> Use of same royalty and/or same approach to royalty for minerals. 	formerly Botswana
Specific Royalty	<ul style="list-style-type: none"> Per mineral based on contract to include specifics, i.e., ore quality, etc. 	Australia
Contract-specific Royalty	<ul style="list-style-type: none"> Negotiated; increasingly rare as investors/government and civil society seek more predictability, transparency. 	China, Angola
Value-based Royalty	<ul style="list-style-type: none"> Value determined in various ways, i.e., at mine mouth, based on sales, based on revenues generated from sales, based on projected recoverable minerals. 	Tanzania
Profit-based	<ul style="list-style-type: none"> Investors prefer; based on quantity of mineral production, or sales/revenues; good for government when mineral prices are high. 	Varies
General income tax	<ul style="list-style-type: none"> No royalty, instead rely on corporate tax. 	Mexico, Sweden, Zimbabwe
Hybrid royalty	<ul style="list-style-type: none"> Unit-based with profit Value-based as minimum tax 	Ghana Some regions in Canada, Dominican Republic

²³ Mineral resources may be developed under tax/royalty regimes or under production sharing contracts (PSCs). In the case of minerals, production sharing is rare and not considered here.

Government-reference royalties	<ul style="list-style-type: none"> Government must keep up; developed tax regimes or clearly set out in contracts. 	Australia, United States
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- b. *Income Tax*. Best practice reflects that income tax should be levied on mining and non-mining companies. The base of the income tax—taxable profits—requires a matching of income with the expenses necessary to produce that income. Many countries provide an incentive for mineral exploration and development by allowing immediate recover of exploration costs and quick recovery of development costs (e.g., within five years of investment). This approach reduces investor risk. Tax calculations must be considered when assessing what types of debt financing is allowable, applicable tax deductions, etc. Many international investors will receive a tax credit for any income tax paid abroad.
- c. *Resource Rent Tax (RRT)*. A tax on profits (e.g., applied Australia, Ghana and Papua New Guinea) An RRT can improve contract stability because it automatically provides additional revenue in highly profitable projects.

Australia

Adopted in 2014, a Minerals Resource Rent Tax (MRRT) was levied on profits generated from the mining of non-renewable resources and was a replacement to an earlier “super profit” tax. The tax was 30% on “super profits” from iron ore and coal production; the law was repealed in 2014.

4.4.6 Fiscal Stability Clauses

Given the nature of mining investments—long term and large-scale—a concern for investors is to guard themselves against changes to the financial premises of the project. One risk is unexpected tax policy changes, and investors often seek to minimize this by the inclusion of a fiscal stability clause in the project agreement. While this can seem to the government as an attractive and, in the short run, inexpensive way of minimizing investor risk, it may have a quite negative impact by limiting the government’s flexibility to set tax policy in the future. This can be further exacerbated if the practice spreads to other sectors in the economy. Fiscal stability clauses can take many forms.

- a. *“Freeze” the tax system at the time of the project agreement*. However, if the tax system is later changed, this will imply special treatment of individual taxpayers—the cost of such special treatment needs to be weighed against the investment that may have been induced.
- b. *Guarantee the total investor take*: Assuring investors that even if taxes change, the fiscal portfolio of the investment will not be modified, and government will cover any outside costs. This is risky – Pakistan provided guaranteed rates of return and taxes for certain foreign mining investments that, while managing to attract investors, are unlikely for government to afford and to maintain.
- c. *Investor-incentive provisions*. Not best practice, sometimes used to provide extreme protection to investors, e.g., massive reduction in taxes or other fiscal requirements.

4.4.7 Indirect Taxes

Best practice has shown that where a clear and stable fiscal regime is in place, mineral investments are treated as any other business or industry investment. However, many countries do allow for “fiscal incentives” to attract investment. Examples of such fiscal incentives that are not always best practice, below.

Illustrative indirect tax incentive	Notes
Exemption from import taxes/duties	Many emerging markets offer temporary or even “life of project” exemptions on the import of equipment, supplies and other mining-related items.
Exemption from re-export	Where a mine company has (for example) leased equipment for temporary use, some countries allow re-export of that equipment without duty.
Reduced customs duties	In the export of certain minerals, governments sometimes reduce customs duties (rationale is that royalties provide adequate tax base)
Value-added tax (VAT)	Especially large-scale mining investments seek to export raw minerals and semi-processed or processed (finished) products; some countries remove VAT requirements or develop special terms around VAT refunds.

4.4.8 Summary concerns and best practices

- a. *Concerns.* Mineral investments can be complicated; investors are often more prepared to adjust expenditures and use other accounting tools to their benefit that government capacity can sometime address. Some important topics that must be considered when preparing a mining investment include the following.

Topic	Description	Issue
Beneficial ownership	The actual owner or controlling interest on whose behalf a transaction is conducted.	Often, mine companies use local or regional offices without full disclosure of actual ownership; government due diligence is critical to fully understand how a company is structured and owned.
Transfer pricing	An accounting practice that allows for the transfer of costs amongst different entities operating under the same ownership.	This approach can result in mine companies using another company, held under the same ownership, in a more tax-friendly venue, to pay taxes in that jurisdiction leaving the host mining country without the tax revenue.
Ringfencing	Ringfencing is an accounting approach that is a limitation on how income and tax deductions for tax purposes are used.	Different activities (upstream/downstream) should be treated separately and require different payments

b. *Best practices.* While no mining fiscal regime is identical, it is possible to identify the core fiscal principles that are recognized as best international practice, as summarized below.

Fiscal Practice	Brief description of good practice
Payment type	INVESTOR REQUIREMENTS
Bonus	<ul style="list-style-type: none"> • Tax deductions (if possible).
Performance guarantees/bonds	<ul style="list-style-type: none"> • For performance of licence/contract and environmental commitments; use of reputable bank, insurance/surety company. • If use of Letter of Credit/escrow, proof that accounts are funded.
Fees	<ul style="list-style-type: none"> • Licence fees, forestry/timber, environmental • Amount and time for payment due prescribed in regulations • Vary in different mining markets.
Royalties	<ul style="list-style-type: none"> • Clearly published royalty rates and procedures (not contract-based). • Percentage-based royalties (production volume reporting). • “End-product” royalties (i.e., finished product).
Tax Stabilisation	<ul style="list-style-type: none"> • Assurance to investor of stable tax terms for defined period or life of licence/contract (e.g. five-year tax holiday).
Customs	<ul style="list-style-type: none"> • Incentives that may include reduced customs fees for rental equipment import/export, other incentives if published and equally applied to similar mine-related investments.
Land leases/Surface Rent	<ul style="list-style-type: none"> • Paid directly to land owner/occupant. • Surface rent rates may be regulated (markets vary). • Compensation for land use, access. • Resettlement costs as matter of public policy and law.

4.4.9 Collection and monitoring of royalties and revenues

Countries vary in how royalties are collected and used but fundamentally, best practice reflects collection via independent bodies (e.g. not the mining agency) and use of wire transfer (not cash payments).

	FISCAL DISCIPLINE
Channeling funds/revenues	<ul style="list-style-type: none"> • Ministry of Finance/Treasury function. • Clearly published gov’t institutional roles for collection, monitoring, enforcing and channeling funds/revenues generated from mining.
Audit	<ul style="list-style-type: none"> • Defined periods of audit; requirement for independent audit; assurance not to burden investment with redundant audits.
Revenue management	<ul style="list-style-type: none"> • Clear program for revenue management including allocation, savings, re-investment schemes.
Clear reporting requirements	<ul style="list-style-type: none"> • Clearly published reporting requirements that apply to similar investments and are not onerous for investors but sufficient to indicate status of real operations. • EITI reporting may be included here.

Examples of revenue management mechanisms
Tanzania
Tanzania emphasizes mining revenues and reporting. The Tanzania Minerals Audit Agency was established in 2009 as a semi-autonomous, specialized agency that reports to the permanent Secretary of the Ministry of Energy and Minerals with its chief objective to increase collection of revenue from mining companies. Legislative emphasis has included adoption of the Tanzania Extractive Industries (Transparency and Accountability) Act in 2015 that requires that any minerals related information to be reported or submitted to its local or foreign stock markets shall equally be reported or submitted to an Executive Committee.
Botswana
In addition to a Ministry of Minerals, Energy and Water Resources that implements licencing and other regulatory matters, Botswana established the Botswana Unified Revenue Service (Mining taxes and dividends, reports to Parliament and Office of the Auditor-General), Directorate on Corruption and Economic Crime, and Pula Fund, all having roles in extractives revenue oversight. In particular the Pula Fund is managed by the Reserve Bank with focus on diamond revenues and is legislatively to operate without government interference.

4.5 Using Mining as Economic Catalyst

For Government, establishing direct and indirect value chain linkages to minerals is typically of interest (e.g., direct – jobs, pensions/entitlements, on-site health care, and indirect – electricity, new roads, schools, educational opportunities). This generally includes not only the mine-affected community but more broadly, regional and national economics.

4.5.1 Identifying linkages

As part of mining sector development many countries have developed policies, schemes and incentives that integrate mine development with other economic and growth opportunities. Different terminology (*alternative terms commonly used in African mining regimes are presented below in italics, parenthesis*) is used in some regions but the “value-chain” of mineral development remains the same.

Mineral development stage	Illustrative description
Upstream <i>(backwards)</i>	Involves exploration for and extracting of raw minerals, e.g., locating mineral resources, bringing those minerals to the surface or removing them from land or water, and may include providing the minerals to a process facility or manufacturer or trader.
Mid-stream <i>(side-stream, horizontal linkages)</i>	Activities that are directly and indirectly connected to mining, and may include transportation, processing, warehousing and storage, and infrastructure development.
Downstream	The stage(s) in the mineral value chain after the ore is extracted. This stage further includes the actual sale of that product to other businesses, governments or private individuals. Examples of downstream activities include washing, smelting, refining, polishing, cutting, and export.

4.5.2 Approaches to using mining as an economic catalyst

Different approaches are taken to using mining as an economic catalyst, some examples are provided below.

- a. *Large-scale investments.* The most obvious example of how countries use mining as an economic catalyst is in the development of key large-scale mines. This approach is widely seen as a “one-stop” approach to generating revenues and other societal benefits. In Africa use of “development corridors” that link large-scale mining with access to highways, ports and other infrastructure and in Asia the same concept is less advanced, commonly referred to as “resource corridors”.
- b. *Clusters.* In short, clusters are “organized business collaborations”. The fundamental principle of the cluster business model is that economic development is improved by strengthening the overall competitiveness of an entire business sector (e.g., mining). Starting in the 1990s, various types of businesses and industries adopted a “cluster model” for their operations; in Asia, this included mining and in Europe, mineral manufacturing such as the steel industry. The approach requires contributions from government, private sector and strong policy-making to facilitate required conditions such as infrastructure, site planning, setting standards, and ensuring viable financing. Industry associations, the European Commission, OECD and country departments of trade all have a role in developing a cluster approach.

Europe

The “European Cluster Observatory²⁴” established in 2007 and financed by the European Commission, provides information on cluster policy and initiatives throughout 32 countries. Following this the EC commenced the European Cluster Excellence Program from which a Secretariat was established which benchmarks cluster performance. Formal cluster organisations operate throughout Europe (e.g., Northeast of English Processing Industry Cluster). The Secretariat’s work includes Europe and part of North America and Asia.

- c. *Cooperatives and other business structures.* There are different types of “mining cooperatives” that require additional review. In Bolivia, a history of mining cooperatives (at least since the 1930s), most workers are part of mining cooperatives which traverse trade union and investment return benefits while in Mozambique cooperatives are used to help gold miners in remote locations consolidate their minerals for sale at fair pricing. Government’s role has been to create, as a matter of policy often with legislative confirmation, these business structures that are intended to protect mine workers and communities.
- d. *Incorporation into local development plans.* As part of economic planning, some countries make specific effort to include mining development as part of development planning that guides the development of a locality being administered by a local government authority. Sierra Leone is currently taking this approach which has benefited national government in

²⁴ <http://www.clusterobservatory.eu/index.html>

gaining better insight into local priorities and helping localities understand and integrate into the broader regional and national economy.

4.5.3 Mobilising finance

Absent government funding, mine companies typically require financing. For decades, high commodity prices resulted in continued access to cash and financing for minerals development. However, with mineral markets and mineral prices fluctuating, banks have retracted in their lending and are increasingly cautious to finance mine projects based on debt. Raising finance requires innovation and can often jeopardize project start, implementation and completion, examples of different approaches:

- Debt-based financing (commercial bank loan)
- Equity-based financing (commercial bank or lender holds some ownership)
- Consumer-financed (e.g., steel company provides advance payment for forward supply)
- Bridge/temporary financing (used to cover near-term costs, often paid as lump sum)
- Segmented financing (financing phases and different equipment using different instruments)

For emerging markets, some additional financing options may be available although they tend to be time-consuming and not necessarily adequate to cover large-scale mining investments. These include various international finance institutions (IFIs) and export credit agencies (ECAs).

4.5.4 Role and treatment of foreign investment

A proactive and favorable foreign investment regime, coupled with a well-defined system of laws and procedures, is seen as fundamental in encouraging large-scale investment in major mining projects. In part, this is achieved through a regime which does not prohibit foreign investors from acquiring mineral rights. For example, the Australia Government mining policy promotes “open inward investment structures” that are not overly restricted by regulation. This aspect of Australia’s mining culture is generally endorsed by all levels of Government, irrespective of political persuasion.

In emerging minerals markets, it is important that the role of foreign investment especially in large-scale mining be well understood and assessed. It is likely that the extent of investment required for large-scale mining – which can surpass billions of US dollars – will call for foreign investment. With this investment, certain legal and other conditions must be considered; some examples below.

Consideration of Foreign Investment	Issues
Project Financing	<ul style="list-style-type: none"> • Project finance structure – does it suit immediate or long-term returns?
Financial guarantees	<ul style="list-style-type: none"> • Letters of Credit? Bank or Financial Institutional lending? What are the requirements for long-term?

Leverage of Company	<ul style="list-style-type: none"> • Will foreign investor use this mining investment as leverage for other international financing elsewhere?
Cultural attachments	<ul style="list-style-type: none"> • What social behavior, religion and other social attributes does this foreign investment bring to the province/country?
Currency	<ul style="list-style-type: none"> • Clarity on what currency shall be used, conversion rates
Payment of workers, goods, supplies	<ul style="list-style-type: none"> • Clarity on what conversion shall be used to make domestic payments

4.6 Managing Impacts of mining on people and the environment

4.6.1 Mining impacts

Mining is a natural resource extraction activity that can impact the environment (soil, air, water, flora and fauna) and people. Impacts can be both negative and positive. Depending on how mineral investments are managed, they can bring positive impacts in the form of regularized land and environmental management, economic wealth, strengthened technical and commercial skills and overall improved quality of life. Managing the socio-economic benefits and risks of mining investments and creating a platform for community development must be considered from the onset of the mine operation. Illustrative examples include those below.

Managing the socio-economic benefits and risks of mining investments and creating a platform for community development must be considered from the onset of the mine operation.

- a. *Pollution from mine waste* dumped into water systems or not well contained at source; air pollution from un-rehabilitated gold dumps; or soil contamination from acid rock drainage, are a few common problems that can negatively affect communities living near mines.
- b. *Ethnic migration*. For those residents living further away from a mine but that are still “feeder” communities for the mine, there may be socio-economic problems of in-migration of other ethnic groups, or simply an invasion of many people into an established settlement area seeking work.
- c. *Town infrastructure may be compromised* due to increased usage (e.g., roads, airports, electricity) and access to energy and water resources may become highly competitive. This can lead to an increase in violence and substance abuse.
- d. *Shift in livelihoods and skills*. The pattern of traditional activities such as farming (especially food crop production) can be altered with the arrival of an industrial mining project. Often communities that have been agriculturally-driven (e.g., Mozambique, Sierra Leon, Papua New Guinea) turn toward mine-related industrial development for higher income streams; this can significantly alter the local culture and affect food security.

The impacts of mining on people also include miners and mine workers who undertake the mining, processing, and mine-related work. These workers can be subject to a range of hazards that may include rock falls or wall instability in deep level gold mines, toxic waste spillages, above-normal sounds, exposure to high levels of dust, and explosions, e.g. due to methane gas combustion in

underground coal mines. Toxic spills, explosions, sinkholes or other impacts from mining can also affect the health and safety of the community.

4.6.2 Managing Mining's Impacts on Socio-Economic Development

Natural resource extraction policies worldwide have evolved gradually but steadily since the concept of Sustainable Development was ratified by world leaders at the United Nations Rio Conference on Environment and Development, 1992. Attention to the environment was the first principle of sustainable development to be operationalized in resource extraction; however, the longer-term socio-economic contribution of a non-renewable resource such as minerals, has become a critical component of a mining jurisdiction's intention to sustainably develop its mineral sector.

International standards have been developed by industry, government and through multi-stakeholder mechanisms as a response to this global pledge to ensure that development does not occur at the expense of the environment. Some of the socio-economic development models have emerged to include the following.

- a. *Community development agreements (CDAs)*. Notably over the past decade companies have increasingly been required (either by law or voluntarily) to contribute to socio-economic development of mining-affected communities. A CDA is a legal commitment entered by a licence holder and the mine community to define their mutual relationships and obligations, and is intended to manage stakeholder expectations, is agreed upon and entered by the Parties and may be amended from time to time. In some countries, government plays a monitoring role in CDAs but is not a signatory to a CDA. Use of CDAs does not need to be limited to large-scale mining but does require community and mine company action. Increasingly countries are developing CDA regulations to guide the process for consultation and terms of the CDA (In recent years, Kenya drafted such regulations).

Northwest Territories and Yukon (Canada)

In addition to the fiscal revenues from mining, community development agreements have also been frequently used since the 1980s. These are commonly referred to as “**Impact and Benefit Agreements**” (IBAs). Even though they are not regulated in law, more than 150 community development agreements have been signed in the country. Overall, they have helped to increase the local capture of benefits, and the involvement of indigenous peoples.²⁵

- b. *Local content requirements*. Typically legislated or as a matter of policy that require use of local citizens for employment and local procurement of goods and supplies where available. Increasingly, African mining jurisdictions have adopted national legislation in support of specific local content requirements. Ghana has established a “Local Content Commission” responsible for the monitoring and evaluation of mine and other companies with respect to local content requirements; the Commission can levy and collect fines for non/poor performance.

²⁵ Mining, Regional Development and Benefit Sharing, Lulea University of Technology. Sweden: rapport mining and regional development_low.pdf

- c. *Benefits sharing mechanisms.* Specific and formal agreements related to mining developments that are intended to benefit the mining-affected community; these approaches vary and may include the following.
- i. *Sovereign Wealth Funds* – tools to promote management of revenues generated from mining to ensure that there is near and long-term funding available for domestic use.
 - ii. *Community Development Funds* – established to provide locally based funding targeting mine-affected communities; by law, Liberia and Sierra Leone have required use of these funds but actual implementation of them has been very challenging.
 - iii. *Company based funding* – the mine investor leads the funding for agreed upon social improvements; Mongolia has allowed companies to lead the way, but funding is not necessarily predictable or evenly available (one mine company may perform better than another).
 - iv. *Project-based funding* – government and investor agree on dedicated project development as part of a social obligation such as construction of schools, health clinics, roads. Typically, these projects benefit the investor in the immediate mine area as has occurred in Mozambique.
 - v. *Community development agreement.* As noted above, these are generally relevant for large-scale mining, a common “benefits sharing” mechanism throughout many African markets (i.e., Guinea, Kenya, Sierra Leone) is the “community development agreement” (CDA).

<p>Examples of “benefits sharing” mechanisms</p> <ul style="list-style-type: none"> • Sovereign wealth funds • Community development funds • Company-based funding • Project-based funding • Community development agreement
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Canada

In 2018, Canada, a world-class extractives destination, is establishing a new federal Canadian Ombudsperson for Responsible Enterprise (CORE) and Mining Ombudsperson Office. Following years of civil society calls for higher oversight of extractives and other business operations, and years of Canada relying on Corporate Social Responsibility (CSR) protocols, these oversight mechanisms are being instituted. It is too early to assess their viability or success, but some information is available²⁶.

Government has recognized that nearly two-thirds of the world’s public mining companies are listed in Canada and that Canadian mining and exploration companies are present in more than 100 foreign countries. CORE will initially investigate mining, oil, gas and textile businesses and expand to other business types in years to come; its primary concern will be to investigate and address business ethics violations. With respect to Canadian mining, oil and gas companies operating abroad, the high authority will have an advisory and investigatory role to increase company accountability, promote gender sensitivity investigation, reporting and resolution as well as to promote citizen participation.

²⁶ Note: in earlier years the Government of Canada established a “CSR Desk” in the Foreign Affairs Department.

4.6.3 Social Licence to Mine

The concept of a “social licence to mine” was formulated by a Canadian gold mining company, Placer Dome in the late 1990’s. This concept recognized that the communities located around a mine site have the power to sabotage a mining project through various forms of civil unrest. Negative publicity about a mining project in one part of the world quickly spreads to all other parts of the world through increasingly effective social networking platforms. When a mine receives this type of negative publicity, the share value of the company’s stock and cost of finance can be affected significantly. Ensuring that communities see the visible benefits of mineral extraction in mineral rich areas they often consider to be their own is the main underpinning of a “social licence to mine”.

Finland

Finland adopted its Mining Act in 2011; the Act is modern and corresponds to the principles of sustainable use and development and the need to secure the prerequisite. The Act requires actions for ore prospecting and mining activity as well as environmental perspectives, citizens’ rights, landowners’ rights and municipalities’ opportunities to influence issues. The Finnish mining sector scored top positions in 2012 and 2013 in Fraser Institute’s Survey of Mining Companies, in which more than 100 jurisdictions around the world participated. Various policy factors were evaluated, such as environmental regulations, socioeconomic conditions and labour availability. Still, even today, the mining sector’s rapid growth in Finland has triggered public debate. Common concerns include conserving environment and social effects; to address these issues, Finnish industry together with the government and various stakeholders have started processes to strengthen the **social acceptance** of the mining industry.

4.6.4 Voluntary or mandatory socio-economic obligations

The framework for providing governments and mining companies a method and way to measure success of private sector contributions for socio-economic development varies widely across the world. For purposes of this review, three categories of how these obligations are levied may be as (a) high income developed markets; (b) low-middle income developing markets; and (c) low-income new and developing markets.

- a. *High income developed markets.* Generally, high income countries (with high literacy rates and adequate access to health care) that have enough financial capacity to provide basic services and infrastructure to all communities do not legislate mining companies to provide socio-economic development contributions on a site-by-site basis. Rather, the tax revenue from these mining operations is consolidated into one revenue account and the government makes decisions on how to distribute this revenue to its citizens²⁷. In many high-income developed mining markets, mine companies themselves initiate socio-economic programs to safeguard their operations and long-term reputation.

²⁷ Note: The exception to this rule is where aboriginal or indigenous peoples have legal land use and natural resource rights, development agreements or specific socio-economic provisions may be required by law. Examples of these are Australia, Canada, and Finland.

Europe

The European Association of Mining Industries, Metal Ores & Industrial Minerals has emerged as an association of mine companies have come together in different structures (e.g., Euromines www.euromines.org) Without any government legislative or other directive, this Association has undertaken research on mineral policy best practices and features examples of good environmental and social practice on its website²⁸.

Canada

The Canadian government has been reluctant to legislate socio-economic development contributions (also known as corporate social responsibility or CSR). It has chosen to encourage Canadian mining companies to subscribe to prominent international standards, e.g.:

- *International Finance Corporation (IFC) Performance Standards on Social & Environmental Sustainability* for extractive projects with potentially adverse social or environmental impacts.
- *The United Nations Voluntary Principles on Security and Human Rights* for projects involving public or private security forces; and
- *The Global Reporting Initiative (GRI)* for CSR reporting by the extractive sector to enhance transparency and to encourage market-based rewards for good CSR performance.

This approach has been controversial, and many civil society groups believe that the Canadian government should legislate CSR contributions. However, in Canada's northern territories where diamond mining has flourished, the Canadian Aboriginal Minerals Association has developed Impact and Benefit Agreement templates. Although these fall short of being legally required through the Northwest Territorial and Yukon governments, federal legislation states that Aboriginal communities in these territories must agree to the development of a mining project. Therefore, there are strong incentives for companies to develop these agreements.

- b. *Low to middle income developing markets.* By contrast, for countries that are low to middle income, and where government does not have the resources to provide services and infrastructure, especially in remote areas where mining usually takes place, the private sector is often expected to contribute directly to socio-economic development.

This development can be focused on a municipality where mining takes place such as in South Africa. South Africa requires a company to provide a Social and Labour Plan (SLP) as part of its mining licence application. The SLP must be coordinated with the municipality's development objectives through its Implementation Development Plan and be focused on the so-called "feeder communities" that may be located far from the mine, but where mining labour is sourced.

- c. *Low income, new and developing markets.* As new mining markets develop, there is a strong tendency by government to legislate either by law or by contract, the socio-economic benefits that it expects to be generated from an investment. This is presently most apparent in new large-scale foreign investments, primarily copper in Guinea, Afghanistan, and Pakistan where, on paper, an array of commitments for electricity, roads,

²⁸ http://ec.europa.eu/environment/resource_efficiency/pdf/Euromines.pdf

schools, and job creation are made but in fact, are poorly monitored and likely not to emerge as part of the mining investment.

4.6.3 Environmental protection and management

For decades there has been an on-going global dialogue on the seemingly opposite values of resource development and environmental protection. Given the highly visible impacts of mining on the natural environment and the resultant effect of the high-speed worldwide communication of accidents or toxic waste spillages, companies have been quick to understand that environmental damage would impact swiftly on reputation and consequent share value. Governments for the most part have responded to a strong and emerging “green” society that is well funded, vocal and effective. Due to mine company desire, citizen outcry and government will, the majority of mining and environmental management regimes include provisions for environmental protection.

4.6.4 Environmental strategy, legislation and institutional arrangements

Governments, notably those already engaged in mining, typically have identified key strategic objectives for investments and how they may impact the country’s environment. Requirements for environmental protection associated with mining are usually included in a national environmental act and regulations. Some smaller jurisdictions may include general environmental provisions across different legislative instruments. Further, most mining legislation contains some degree of environmental protection requirements, notably the requirement for an “Environmental and Social Impact Assessment” (ESIA) and Management Plan.

Note: In the past, jurisdictions implemented separate environmental and social mining regimes and reviews. However, in the past two decades, due to the cross-over impacts of these topics, a trend to combine assessment and actions to mitigate and remediate environmental and social impacts has been implemented.

The institutional arrangements around approval of these and on-going monitoring can either be found the responsibility of the regulator of environment or the regulator of mining or the regulator of industry. There is often a need to formalize (e.g., in regulations) the separate and joint responsibilities amongst more than one regulatory body. Without clear roles and responsibilities in this regard, the enforcement of environmental regulations in the mining sector can be problematic.

Examples of legislative and strategic guidance
<p style="text-align: center;">Nordic Countries</p> <ul style="list-style-type: none">• Structure of environmental legislation varies within Nordic Countries. Finland’s environmental provisions are spread over various laws, whereas Sweden has created a consolidated Environmental Code. However, the provisions are very similar as they are based on EU legislation. For example, there is a Mine Waste Directive (2006/21/EC) and permitting is to be undertaken based on various established principles: precautionary principle, best available technology, polluter pays, etc. These principles are contained in the Industrial Emissions Directive (2010/75/EU).

- **Environmental and Social Impact Assessment (ESIA).** The EU requirements for an ESIA are contained in Directive 2011/92/EU and specify that an environmental and social impact assessment of a proposed industrial activity must be carried out before the proponent is licenced to commence development. The ESIA assesses impacts on flora, fauna and public health. The directive specifies that a baseline assessment of the state of the environment must be undertaken as part of the ESIA. This is an important feature of the EU Directive, as not all countries world-wide require this important feature. The requirements for minimal environmental disturbance such as exploration, requires a less onerous assessment.²⁹

Finland

The Minerals Strategy includes a strategic objective as “**reducing environmental impact and increasing productivity.**” This strategic objective contains three action proposals: (1) that the material and energy efficiency of machinery, equipment and processing technologies should be improved; (2) that green economy businesses should be developed with the cooperation of small and medium sized enterprises and research institutes; and (3) that it is crucial to establish mechanisms of cooperation among local residents, companies and regulatory authorities.

4.6.5 Environmental management tools

Best practice reflects that a clear mix of tools have helped to clarify company obligations and government’s regulatory oversight of mining investments. Each jurisdiction must balance bureaucratic requirements with realistic time-based actions that will ensure environmental protection. Some examples of environmental management tools are below.

- a. *Licensing and permits.* Either within the mining licence or as part of a separate environmental licence or permit, certain regulatory requirements may be indicated. These may include clear timelines for performance, e.g.:
 - Water use, access, potable vs. industrial
 - Waste storage, removal
 - Tailings – storage, removal, use
 - Soil reclamation programs
 - Forestry – replanting requirements
 - Materials usage (and preclusion of extracting certain materials)
 - Allowable chemicals (e.g. not mercury)
 - Use of explosives – i.e., the use of dynamite has deleterious impacts on environment and should be specifically addressed as part of environment as well as mine health and safety guidelines/regulations.

²⁹ Mining in Nordic Countries: A Comparative Review of Legislation;
https://books.google.co.za/books?redir_esc=y&id=rLQCgAAQBAJ&q=environmental+legislation#v=snippet&q=environmental%20legislation&f=false

- b. *Environmental and Social Impact Assessment (ESIA)*³⁰ This is the primary tool that governments use to assess whether a mining activity has significant environmental and social impacts and whether a company can adequately mitigate these effects. In most countries, but not all (e.g. Ethiopia), the ESIA is the responsibility of the operator. Environmental legislation typically includes requirements for different categories of anticipated environmental impact.

Where there is minimal impact anticipated (non-penetration of the surface through exploration activity, for example), a full-blown ESIA would not be required. Similarly, most legislation recognize that artisanal and small-scale mining's impacts are not as significant as those presented by large-scale mining. This consideration as well as understanding of the limited resources of the proponent may indicate that this activity does not usually warrant an ESIA. Many jurisdictions require an Environmental Statement or other lesser form of ESIA for these less impactful types of mining.

- c. *Environmental and Social Management Plan (ESMP)*³¹ is prepared by the proponent to mitigate the environmental and social impacts identified in the ESIA. Monitoring of environmental impacts must be undertaken throughout the life-cycle of the mine. Some countries train community members (e.g. Northern Canada through the Impacts and Benefits Agreements) to monitor soil, water and air quality as a participatory approach to ensuring that the proposed environmental mitigation measures are continuously effective.
- d. *Mine Closure Planning.* Mine companies traditionally have commenced mine closure planning well after a mining operation commences production. Depending on the size of the reserve and the projected life-span of the mine, it may be too late to prepare adequately at this stage of mining. Relatively recently, mining jurisdictions are requiring that companies provide for at least a mine closure concept document at the time of application. Mine closure post production can take from two to ten years, but it can take longer if more follow-up monitoring or treatment of waste dumps, etc. is required. Early mine closure planning should involve the workforce, the communities affected, government and other related stakeholders. There have been many advances in mine closure planning templates over the past few years. These can be considered for governments wishing to provide more explicit regulation over this final phase of a mine's lifecycle.

³⁰ Initial use of an Environmental Impact Assessment (EIA) has, over the past decade, in most jurisdictions evolved to also include social impacts.

³¹ Initial use of an Environmental Management Plan (EMP) has, over the past decade, in many jurisdictions evolved to also include social management plans.

Canada (Vancouver Island, British Columbia)

Island Cooper Mine operated from 1971-1995 as the third largest copper mine in Canada. Copper, gold, silver, molybdenum and rhenium were produced resulting in more than one billion tons of minerals and an oval-shaped 400 meter's deep open pit. In addition to extraction, mineral processing of the ore, stockpiling of waste rock and reciting of tailings took place (in the seabed). Planning for the mine closure commenced in 1969 before the mine was constructed. Throughout the life of the mine the closure plan was updated and included provisions for purchase of remaining buildings, port facilities and manufacturing activities to safeguard local livelihoods. An underwater tailings disposal system was one of the first in the world and considered to have less environmental impact than on-land. However, the waste rock dumps resulted in "acid rock drainage" (ARD) and a specialized water management program was implemented. The mine was the first in the region to participate in the contaminated site regulation process and received a Certificate of Conditional Compliance.

- e. *Up-front payment for reclamation.* Many countries have implemented the requirement for mining proponents to provide up-front funding for environmental rehabilitation at mine closure. This requirement has been linked to the problem of "orphan mines". When companies have not provided funding for environmental rehabilitation, they may simply abandon the mine site when the deposit is exhausted, omit the formal process of certification for decommissioning, and simply unbundle the company under whose name the mining project was registered. This is a problem for countries with relatively weak governance, although this problem still occurs in developed country mining regimes when projects are in remote areas and the government may not wish to pursue a lengthy legal battle to recover environmental management costs, especially where post-closure damage to the environment may occur within a relatively short time-frame. Countries have used different types of financial surety mechanisms.

Reclamation Bond

To assist mine companies in securing financial coverage for its annual and final rehabilitation, decommissioning and mine closure liabilities, a "reclamation bond" may be obtained. When a mine company fails to comply with the conditions of the reclamation bond contract, someone can make a claim against the bond. If the claim is determined to be valid, the insurance company will pay out the other party to cover the costs. Unlike insurance claims which are not expected to be paid back, performance claims must be reimbursed. The company is responsible for every penny paid out on a bond claim. Globally, there are generally three types of reclamation bonds:

- (1) Corporate surety bond;
- (2) Collateral bond (cash, certificates of deposit, letter of credit, liens in property, government bond, investment grade securities (stock); and
- (3) Self-bonds (legally binding corporate promise without separate surety or collateral that meets certain financial tests).

Unlike other performance guarantees, Reclamation Bonds have many stakeholders. They may be regulated through a government agency, but the company must typically consider the needs of

multiple landowners and users, water and soil quality, and ecological functioning. At a minimum, a Reclamation Bond is a *contract* among three parties.

- a. *Company* – considered the Principal that obtains the Reclamation Bond to reassure those on the other side of the contract that the company will fulfill your contractual obligations (the cleanup of the mining site.)
- b. *Obligee* – the other party who is protected by the bond (Government)
- c. *Obligor/Surety* – the company (or entity) who issues the surety bond.

Examples of reclamation bond legislation
Canada
All Canadian provincial, territorial, and federal governments have legislation in place to provide financial insurance for reclamation in the event the mine operation is unable to do so. If a mining company declares bankruptcy before the mine is closed, the responsible government agency would use the security deposit to cover the eventual costs of repair, maintenance, cleanup and closure of the mine’s site. If the mining company conducts the proper cleanup and site reclamation, the financial security deposit is returned to the company.
United States
In the US, mine companies must comply with high standards for operations and reclamation; the Surface Mining Control and Reclamation Act governs US mining activities. When it comes to reclamation and management of the mine project during its lifetime, companies have multiple obligations to protect landowners and the ecological integrity of an area over time. Permit applications must include detailed operation and reclamation plans to outline how the area will be managed during mining operations and cleanup and information on performance bonds.

4.6.8 Labour

Management of the impacts of the mining activity also extends to the mine workforce. Issues around mine labour can be divided into (1) mine safety and worker health; (2) fair labour practices; (3) trade unions, and (4) specific labour category issues (e.g., artisanal miners, children, women).

Key mine labour issues
1. Mines safety and worker health
2. Fair labour practices
3. Specific labour category issues

- a. *Mine safety and worker health.* Mine labour issues vary, according to the size, age and type of mining. For example, in older mines that have not been regulated to ensure that modern health and safety standards are implemented, there may be financial constraints or lack of will on the part of the operator to comply with health and safety regulations. Some mines are marginally profitable which, absent close regulatory inspection, may result in lesser expenditures on creating a safe working environment for workers. Companies may take “shortcuts” in terms of ensuring that the mine workplace is free from hazards, air pollution, extremely high temperatures, inadequate ventilation, unstable infrastructure or an excess amount of water. These companies may not provide personal protective equipment

(PPE)/gear (PPG) or employ current technology and equipment to reduce work place hazards or to improve work conditions, generally. Best practice has clearly indicated that mine safety and worker health must be well regulated, monitored, inspected and enforced.

To regulate these health and safety issues in industrial mines, many countries have subscribed to the International Labour Organisation (ILO)’s C176 Safety and Health in Mines Convention, 1995. While developed several decades ago, it remains the “gold standard” for countries wishing to develop their own mine health and safety regulations.³²

Some countries develop mine specific health and safety legislation while other jurisdictions provide an over-arching framework that can be applied to any industrial activity. The former Soviet Union was known world-wide for having one of the most comprehensive health and safety codes for underground mining (also applied to underground water and transport) in the world but similarly recognized for lack of meaningful enforcement.

Examples of mine safety regimes
United States
In 1977, Government adopted the Federal Mine Safety and Health Act in response to increased recognition that mining work presented safety risks and health dangers beyond the norm of standard occupations, the Act established a new government agency, the “Mine Safety and Health Administration” (MSHA) as well as an independent federal MSHA review commission to oversee MSHA activities. The Act requires annual mine inspections, clarifies miner rights and responsibilities, mine rescue standards, and training requirements. Since this enactment and attention to mine-specific conditions, death and incident rates have dramatically decreased.
Finland
The Mining Act requires a “mining safety permit” be obtained prior to commencement of mine operations. The mine company is obligated to comply with legislative details that include submission of an application for a safety permit that will be reviewed by mining and other regulatory authorities (e.g., the Radiation and Nuclear Safety Authority). Mine companies are required to track and report on all serious accidents, incidents, dangerous situations and death. The mine inspectorate is responsible for investigations and enforcement.

Even in jurisdictions that do not require special permitting for health and safety on a mining operation, a plan similar to that of an ESIA for the mitigation of social and environmental impacts of a mining project is required usually as part of the licencing process. Best practice reflects that before a licence is issued, a "*Mine Health and Safety Plan*" is submitted by the investor to the appropriate regulatory authorities for approval. Such a plan, where legislation is in place, should comply with that legislation and include a detailed description of the potential health and safety hazards for any project based upon the specific activities being or to be carried out, prepared by the licence holder. The plan should include response plans for such hazards is designed and implemented through provision of technically appropriate equipment, better implementation of relevant measures, and adoption of accurate methods. As the mining project continues, the plan should be updated for regulatory approval.

³² International Labour Organisation:
http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C176

b. *Fair Labour Practices.* While developed mining markets have implemented an array of mine labour-specific labour requirements, the majority of the world's miners require more regularized and clear application of fair labour practices. The sometimes cyclical and uncertain nature of mining as an industry has permitted companies to loosely implement labour protections. These include:

- Defined working hours
- Clear wage and overtime
- Danger pay where applicable
- Provision of personal protective gear
- Provision of health services (during tenure at mine and for life in many case)

How these issues are addressed varies between (1) mine labour provisions and (2) general labour law provisions. There are also instances where mine contracts and licences include labour requirements.

Even at the hiring stage, the methods an industrial mine uses to source labour can be controversial. A typical model to employ miners (e.g., in Afghanistan, Egypt, South Africa) is via “labour brokers” or “gangs” for mine work and use of “contractors” for different aspects of mine development, such as shaft sinking. Where labour brokers are employed between the mine company and the mine workers, attention must be paid to the legal responsibilities of the mine in terms of liability for worker's health and safety, and for fair working conditions and lay-off provisions. Equally, where legislation clearly states the responsibilities of mine contractors in terms of setting fair wages and decent working conditions, less worker strike and grievances are typically filed. Some mines employ what is termed “casual labour”, paying staff using an hourly, daily or monthly rate, but without any security of employment, health care or associated benefits.

c. *Trade unions.* In many developed markets, mine workers are organized in trade union structures and have a benefit of “collective bargaining” for their contracts through which their working wages, hours and overall working conditions are equitably negotiated periodically. This provides the worker and mine management with a forecast of operational costs and clear understanding of rights and responsibilities. Where labour unions are not in place, a more ad hoc and uncertain approach is typically taken by mine management that can result in uneven wage rates across one mining sub-sector such as gold. This can foment dissatisfaction and result in strikes and other forms of worker resistance.

Where labour unions are not in place, a more ad hoc and uncertain approach is typically taken by mine management that can result in uneven wage rates across one mining sub-sector such as gold.

Examples of Mine Trade Unions
Former Soviet Union
The Independent Union of Miners (NPG) was established in 1989 and was politically active throughout the changes of the early 1990s. Unlike the State trade union, the NPG broadened membership from coal-face workers to include all non-management mine workers. This approach resulted in increased membership (although comparatively small to the State union) and energized collective bargaining.
United States
Established in the late 1880s, the United Mine Workers of America is best known for representing coal miners but today the union also represents health care workers, public employees, manufacturing workers and truck drivers. To date the union has been a powerful force in securing fair labour practices, pay increases and benefits. The union fights for worker rights but also advocates for improved infrastructure, health care and quality of life.
South Africa
The National Union of Mineworkers in South Africa plays a central role in miners wage negotiation (with the Chamber of Mines), has gender, community development and health and safety committees, and lobbies government when mines threaten to downscale or close prematurely. When these downscaling efforts are necessary, the union takes an active role in mitigating the negative effects on workers and communities. Organized labour in South Africa is a key part of the tri-partite body, Nedlc ³³ that comes together formally to discuss and implement a range of industrial policies related to workforce, workplace and the community.

d. *Specific labour categories.* Jurisdictions have addressed specific labour categories in different ways, generally reflecting the local economic and social environment. For purposes of this overview, four categories that may be considered:

- i. *Artisanal and small-scale miners.* Depending on how artisanal and small scale are defined by a mining jurisdiction, specific attention to the miners at these mines is given. For many countries (South America, Africa) artisanal mining is essential for poverty reduction and local employment in remote regions. Some countries only allow nationals resident in-country to obtain these types of mining licences.
- ii. *Forced labour* means any work or service not voluntarily performed, that is extracted from an individual under threat of force or penalty;

Child labour is typically prohibited however in many remote mining areas, children provide important income through mining and programs integrated education to remove children from mines and allow their parents to have sufficient funds to manage their households are introduced.

NOTE: In developed mining markets and increasingly in emerging mining legal regimes, criminality is being attached to forced and child labour. Best practice

³³ The National Economic Development and Labour Council (Nedlac) is the vehicle by which Government, labour, business and community organisations will seek to cooperate, through problem-solving and negotiation, on economic, labour and development issues and related challenges facing the country. Nedlac is established by the National Economic Development and Labour Council Act, No. 35 of 1994, and will operate in terms of its own constitution.

demonstrates that neither the use of “forced labour” or “child labour” are beneficial to the overall development of society.

- iii. *Women.* Many countries have recognized that the mining industry faces serious and chronic skill shortages due to many factors, not least of which is that the industry has suffered from negative perceptions, particularly where operations are still quite low-tech. Advanced mining regimes in Canada and South Africa, for example, have recognised that the exclusion of women due to out-dated attitudes means that a significant portion of the population cannot be harnessed to provide necessary skills, particularly in geology and mining engineering. Pakistan legislation provides for pregnancy leave and childcare provisions at the mine site (although virtually no one takes advantage of same) while the international female mining professionals continue to build linkages, e.g., women in international mining and country-specific women in mining associations³⁴.

South Africa, through its requirement for a Social and Labour Plan as part of the mine licencing process, requires that 10% of technical mine employees must be female. To meet this objective, companies have analysed workforce characteristics to understand better why females have not been attracted to the industry. Changes in ablution facilities, modified personal protection clothing, adaptation of some work duties for women’s skills sets and attractive maternity leave policies have meant that more women are entering the mining workforce. There is an active female association of women involved in the mining sector, South African Women in Mining (SAWIMA).

South Africa

SAWIMA has its own constitution, which sets out that it should, amongst others, lobby for the acceptance by finance houses of prospecting and mining licences as collateral security, mobilize women into becoming active participants in the sector, establishes female miners’ needs, and provides training and technical support to women miners. It interacts and networks with other institutions in the mining sector. It facilitates marketing of mining products, both in South Africa and abroad. An investment wing, “South African Women in Mining Investment Holdings” was established in 2003, to enable the association to function effectively and expedite participation of women in the economic growth of the sector.

4.6.4 Social protection

In the past decade, globally, more attention has been given and frameworks developed to protect citizens’ interests relevant to mining. Today the more common approach incorporates social impacts alongside the environmental impacts. However, two primary social protection categories must be addressed, as follows:

- **Category 1: Involuntary Resettlement of Communities** – (a) when communities are located close to a mine site and must be relocated because the community housing and infrastructure comprises part of a mine lease area, and/or (b) community members are

³⁴ <https://www.womeninmining.org/> and <https://www.internationalwim.org/>

inhabiting lands that will suffer significant impacts from the mining activity due to their close proximity to the site.

- **Category 2: Economic Activities due to a Mining Operation** - a community may be living far from a mine but has livestock (e.g. cattle) grazing lands or food crops located in areas over a mining lease area or close to the area. The second category of activities are known as resettlement of economic generating activities.

The need for a company's resettlement in both these instances should be identified in the Social Impacts Assessment that comprises part of the overall ESIA.

Citizens residing in mining areas, sometimes entire communities, have been resettled in order to accommodate mining operations. Globally, resettlement activities have produced mixed and sometimes undesired results for citizens. Countries require comprehensive policy or laws guiding mine-induced resettlement including specific compensation amounts and grievance mechanisms. These go beyond requirements that companies should have an approved resettlement action plan that will guide their resettlement actions as part of their mineral rights acquisition process. Monitoring and ensuring full implementation of these action plans must be in place.

Many experts suggest that the actual resettlement process should follow an international standard: the most commonly used one has been issued by the World Bank (Resettlement Action Plan). A **Resettlement Action Plan (RAP)** is a document based on a social impact assessment that is prepared by the investor in consultation with affected communities of mining activities. The RAP includes details about adequate financing to cover social impacts including but not limited to costs of resettlement and compensation for resettled individuals, training programs and other social support. Resettlement activities and compensation guidelines are provided in various international best practices, notably the World Bank Involuntary Resettlement Guideline OP 4.12, Involuntary Resettlement.³⁵ The IFC Performance Standards on Environmental and Social Sustainability and the Equator Principles also provide guidance for companies on Involuntary Resettlement. This should also be referenced in the Social Management Plan component of the ESMP.

A Resettlement Action Plan (RAP) is a document based on a social impact assessment that is prepared by the investor in consultation with affected communities of mining activities.

NOTE: In nascent and undeveloped markets, these international standards have proven to be complex and its actual implementation often lag behind the events of the day at the mine site.

In many countries, the scope of resettlement guidelines, policy and law may include all economic-resettlement (as is the case in Pakistan). Some highlights include (1) that citizens have reasonable notice of resettlement and related compensation; and (2) compensation for resettlement shall have the goal of restoring quality of life to the same or better level for those being resettled and may include housing, transportation, employment, school and health access, compensation for loss of income, livestock, and in any event, will be calculated and delivered in a fair and reasonable manner.

³⁵ World Bank Policy Directive on Involuntary Resettlement:
<https://policies.worldbank.org/sites/ppf3/PPFDocuments/090224b0822f89db.pdf>

Sweden

Sweden's export of minerals as well as increasing mining supply and equipment manufacturing companies (e.g., Atlas Copco and Sandvik) make significant economic contributions to the Swedish economy but impacts of overall mining and manufacturing are raising concern. The Nordic countries seek to improve cross-border cooperation around sustainable mining in the Interreg Nord area. The "SusMinNor Project" has been commenced to assess social and economic impacts on the region aiming to improve inherent tensions between mining and society. Assessment of impacts on both local and regional economics will be addressed including potential to adversely impact communities and the environment.

4.6.5 International organisations

Numerous international organisations operate throughout the world that are specific to mining and mining-related topics such as trade, environment and labour. Some organisations cover broad sector issues such as the International Council on Mining and Metals (ICMM), while others are mineral-specific such as the "World Coal Association" and the "World Gold Association" and others emphasize regional mining areas such as "Euromines". Relevant to extractives, examples of international protocols include the Kyoto Protocol, Forced Labour Convention, and Conventions on Oil Pollutants and many others. Anecdotally, best practice shows that active participation and awareness of international mining-related organisations activities can improve the knowledge base and investment linkages of a mining jurisdiction.

Use of international standards such as those issued by the International Standards Organisation (ISO) or EITI has also become a predictable measure of how well established a mining market is. The ISO is an international standard-setting organisation that works in 162 countries to promote industry and commercial standards and which regularly publishes guidelines, protocols and standards relevant to mining that are of importance for environmental protection, equipment and methodologies.

4.6.6 Conflict management, dispute and grievance resolution

An array of approaches is taken throughout the world to mitigate mine-related conflict and resolve grievances and disputes. Jurisdictions with least conflict have established clear rules and procedures that include time-based notice provisions, independent review and appeal opportunities to ensure that parties' claims are heard. These include (1) avoidance of courts where possible and (2) use of independent resolution mechanisms that do not solely rely on the discretion of a responsible government agency/ministry. Governments typically install a variety of mechanisms to address specific aspects, examples include:

- *Claims panel* to assess and determine conflicting/overlapping mineral rights.
- *Dispute resolution mechanism* in the Community Development Agreement.
- *Labour-management grievance processes*, in law and posted at the mine site.
- *Inter-ministerial committee oversight* of mine-related commitments.
- *Participation in international dispute resolution* (e.g. New York Convention).

Annex 1

Key Mineral Policy Issues

No	Issue	Illustrative considerations
1	Objective	<i>Provide clear description of Government priorities and practices</i>
2	Basic features of the Mineral Policy	<ul style="list-style-type: none"> • <i>Sector developments to benefit population</i> • <i>Importance of geo-science information/data</i> • <i>Transparent operations</i> • <i>Institutional arrangements and coordination</i> • <i>Environmental and social protection</i> • <i>Market-based operations?</i> • <i>Infrastructure development</i>
3	Legal and regulatory framework	<ul style="list-style-type: none"> • <i>General information on legal basis for sector operations</i> • <i>Hierarchy of legal tools to guide sector investment and operations</i> • <i>Detailed regulatory/rules (technical, fiscal)</i> • <i>Mining and non-mining (environment, transport, water, social, infrastructure, land)</i> • <i>Transparency framework (all phases of development)</i>
4	Ownership, Licence rights and obligations, types of investment	<ul style="list-style-type: none"> • <i>What types/kinds of investors does Government seek?</i> • <i>Government and/or private investment?</i> • <i>Domestic and/or foreign investment?</i> • <i>How will licences/leases be awarded and issued?</i> • <i>How/may licences/leases be transferred?</i> • <i>Role of Cadastre and registration of licence/lease issues?</i> • <i>Is there any policy on local ownership, revenue return?</i> • <i>How are investments protected?</i>
5	Institutional arrangements	<p><i>General guidance on Government structures and overall governance arrangements including:</i></p> <ul style="list-style-type: none"> • <i>Regulatory oversight (i.e., upstream, midstream, downstream activities)</i> • <i>Payments</i> • <i>Collection and allocation of revenues</i> • <i>Environmental and social regulatory oversight</i> • <i>Civil society</i>
6	Role of the State	<ul style="list-style-type: none"> • <i>As regulator?</i> • <i>As investor?</i> • <i>Investment promotion</i>

7	Geodata	<ul style="list-style-type: none"> • <i>What is in place and what is needed?</i> • <i>Type of system</i> • <i>What are the rules for public access?</i>
8	Survey and Exploration of minerals	<ul style="list-style-type: none"> • <i>Who will carry this out (i.e., Geological Survey, private sector, other institutes – foreign?)</i> • <i>Research and academic work?</i>
9	Exploitation of minerals	<ul style="list-style-type: none"> • <i>Who will carry this out?</i> • <i>Are there any policy preferences for how? (i.e., modern technology, job creation approaches, strategic emphasis of certain minerals)</i>
10	Sale and processing of minerals	<ul style="list-style-type: none"> • <i>Which institution is responsible?</i> • <i>Are there any policy limitations? (i.e., to whom minerals shall be sold?)</i> • <i>Are there any policy preferences (i.e., how certain minerals should be used/processed?)</i>
11	Protection of Investments	<ul style="list-style-type: none"> • <i>What is Government policy on insurance, bonds, expropriation, excessive taxation, transfer of profits, etc.</i>
12	Technical development of minerals	<ul style="list-style-type: none"> • <i>What is Government policy on mine plans, type of equipment/machinery preference?</i> • <i>Any prohibition on second-hand/used equipment?</i> • <i>Any requirements to “share” technology?</i>
13	Financial aspects of mineral development	<ul style="list-style-type: none"> • <i>What is Government policy on financial return, tax payments, access to finance, fees and penalties, royalties, incentives?</i> • <i>Revenue management – what is Government overall policy to receive and allocate revenues generated from mineral activities?</i> • <i>What are financial benefits for local community? District? Province? Federal? Investor?</i>
14	Land Access and Use	<ul style="list-style-type: none"> • <i>What are compensation requirements for use of land?</i> • <i>Categories of land (private, public, community)</i> • <i>Resettlement notice, grievances, compensation.</i> • <i>Lease and surface “rent” payment.</i> • <i>Protected areas?</i> • <i>Compensation for damaged land.</i>
15	Reporting Requirements	<ul style="list-style-type: none"> • <i>What is Government policy on investor, Government agencies, and other reporting?</i>
16	Equipment, machinery and supplies	<ul style="list-style-type: none"> • <i>What is Government policy on import/export of equipment, machinery and supplies?</i> • <i>Does Government have a policy preference on types of equipment, machinery and supplies?</i>

17	Environmental and social management of mine operations	<ul style="list-style-type: none"> • <i>What are Government policy priorities for safeguarding environment, communities, land?</i> • <i>What are policies on consultation?</i> • <i>What are Government development policies to ensure that revenues generated from mining in the mine community directly benefit near- and long-term development, economic growth in the community? In the country?</i>
18	Utilization of minerals	<ul style="list-style-type: none"> • <i>Does Government have policy preference on how minerals should be used?</i> • <i>What is the definition of “strategic minerals”?</i> • <i>Any restrictions on certain minerals (i.e., radioactive, strategic)</i>
19	Mine-related development	<i>What is Government policy preferences regarding infrastructure (power, roads) and industrial development related to mine operations?</i>
20	Health and safety	<ul style="list-style-type: none"> • <i>What institutions are responsible?</i> • <i>What are Government policy priorities for health and safety?</i> • <i>What is worker health and safety policy priorities?</i> • <i>What is level of modern capacity to inspect mine operations?</i> • <i>What is the policy on training and certification?</i>
21	Security of mines and mineral operations	<ul style="list-style-type: none"> • <i>What is overall Government policy on whether is ensures security of investment?</i> • <i>What is Government role in the security of mine property?</i> • <i>What are the conditions for Force Majeure?</i>
22	Conflict mitigation, dispute and grievance resolution/courts	<ul style="list-style-type: none"> • <i>What is Government policy (generally)?</i>
23	Export and Import of minerals	<ul style="list-style-type: none"> • <i>Government policy on investor ability to export minerals (i.e. raw, semi-processed, finished?)</i> • <i>Government policy on import of minerals</i> • <i>Are there pricing policies?</i>
24	Development of the Mineral Sector	<i>What is Government policy on-</i> <ul style="list-style-type: none"> • <i>Research and development</i> • <i>Training young and mid-career professionals</i> • <i>Knowledge transfer abroad/consulting opportunities</i>
25	Provincial and District and Federal roles/responsibilities?	<ul style="list-style-type: none"> • <i>How are these distinguished? By law? By policy?</i> • <i>How may these be complemented and leveraged?</i> • <i>Mechanism to resolve inter-Governmental disputes?</i>

26	Public Consultation and Participation	<ul style="list-style-type: none"> • <i>What meaningful mechanisms may be in place?</i> • <i>Regularized communication?</i> • <i>Use of media, civil society groups, educational institutes?</i>
27	Minerals and the Global Market	<ul style="list-style-type: none"> • <i>What is Government policy on participating in international mining organisations?</i> • <i>Can mine communities establishment “sister-partnerships”?</i> • <i>Can the country’s mining communities work more effectively together to develop mineral resources?</i>
28	Effectiveness of Mineral Policy	<ul style="list-style-type: none"> • <i>When is this Policy effective?</i> • <i>How does this Policy fit into the overall Policy and Legal Scheme supporting the minerals sector?</i>

Annex 2

Extractive Industries Transparency Initiative (EITI)

Established in 2003, the **Extractive Industries Transparency Initiative (EITI)** is a global standard developed and overseen by an international multi-stakeholder board, consisting of representatives from governments, extractives companies, civil society organisations, financial institutions and international organisations. The standard requires information along the extractive industry value chain from the point of extraction, to how the revenue makes its way through the government, to how it contributes to the economy (e.g., how licences and contracts are allocated and registered, beneficial ownership, fiscal and legal arrangements, production volumes, pricing and payments, where revenues allocated, and economic contribution, including employment. Following a process to gain membership, EITI is implemented in more than 50 countries, each required publish to an annual EITI Report. EITI Principles are listed below.

EITI Principles

1. We share a belief that the prudent use of natural resource wealth should be an important engine for sustainable economic growth that contributes to sustainable development and poverty reduction, but if not managed properly, can create negative economic and social impacts.
2. We affirm that management of natural resource wealth for the benefit of a country's citizens is in the domain of sovereign governments to be exercised in the interests of their national development.
3. We recognize that the benefits of resource extraction occur as revenue streams over many years and can be highly price dependent.
4. We recognize that a public understanding of government revenues and expenditure over time could help public debate and inform choice of appropriate and realistic options for sustainable development.
5. We underline the importance of transparency by governments and companies in the extractive industries and the need to enhance public financial management and accountability.
6. We recognize that achievement of greater transparency must be set in the context of respect for contracts and laws.
7. We recognize the enhanced environment for domestic and foreign direct investment that financial transparency may bring.
8. We believe in the principle and practice of accountability by government to all citizens for the stewardship of revenue streams and public expenditure.
9. We are committed to encouraging high standards of transparency and accountability in public life, government operations and in business.
10. We believe that a broadly consistent and workable approach to the disclosure of payments and revenues is required, which is simple to undertake and to use.
11. We believe that payments' disclosure in a given country should involve all extractive industry companies operating in that country.
12. In seeking solutions, we believe that all stakeholders have important and relevant contributions to make – including governments and their agencies, extractive industry companies, service companies, multilateral organisations, financial organisations, investors and non-governmental organisations.

Annex 3

International Council on Mining and Metals (ICMM) Principles

ICMM member companies commit to a set of 10 principles, eight supporting position statements and transparent and accountable reporting practices.

- 1. Apply ethical business practices and sound systems of corporate governance and transparency to support sustainable development**
 - Develop and implement company statements of ethical business principles, and practices that management is committed to enforcing.
 - Implement policies and practices that seek to prevent bribery and corruption.
 - Comply with or exceed the requirements of host-country laws and regulations.
 - Partner with governments, industry and other stakeholders to achieve appropriate and effective public policy, laws, regulations and procedures that facilitate the mining, minerals and metals sector's contribution to sustainable development within national sustainable development strategies.

- 2. Integrate sustainable development in corporate strategy and decision-making processes**
 - Integrate sustainable development principles into company policies and practices.
 - Plan, design, operate and close operations in a manner that enhances sustainable development.
 - Implement good practice and innovate to improve social, environmental and economic performance while also enhancing shareholder value.
 - Encourage customers, business partners and suppliers of goods and services to adopt principles and practices that are comparable to our own.
 - Provide sustainable development training to ensure adequate competency at all levels among our own employees and those of contractors.
 - Support public policies and practices that foster open and competitive markets.

- 3. Respect human rights and the interests, cultures, customs and values of employees and communities affected by our activities**
 - Ensure fair remuneration and work conditions for all employees and never use forced, compulsory or child labour.
 - Engage constructively with employees on matters of mutual concern.
 - Implement policies and practices designed to eliminate harassment and unfair discrimination in all our activities.
 - Ensure all employees, including security personnel, are provided with appropriate training and guidance on cultural issues and human rights.
 - Minimize involuntary resettlement and compensate fairly for adverse effects on the community where resettlement cannot be avoided.
 - Respect the culture, customs and heritage of local communities, including indigenous peoples.

- 4. Implement effective risk-management strategies and systems based on sound science and which account for stakeholder perceptions of risks**
 - Consult with interested and affected parties to identify, assess and manage all significant social, health, safety, environmental and economic impacts associated with our activities.
 - Regularly review and update risk-management systems.
 - Inform any parties potentially affected by significant risks from operations and spell out the measures that will be taken to manage such risks effectively.
 - Develop, maintain and test effective emergency response procedures in collaboration with potentially affected parties.

- 5. Pursue continual improvement in health and safety performance with the ultimate goal of zero harm**
 - Implement a management system focused on continual improvement of the health and safety of employees, contractors and people in the communities where we operate.
 - Take all practical and reasonable measures to eliminate workplace fatalities, injuries and diseases among employees and contractors.
 - Provide all employees with health and safety training and require employees of contractors to undergo the same training.
 - Implement regular health surveillance and risk-based monitoring of employees- Rehabilitate and reintegrate employees into operations following illness or injury, where feasible.

- 6. Pursue continual improvement in environmental performance issues, such as water stewardship, energy use and climate change**
 - Assess positive and negative, direct and indirect, and cumulative environmental impacts of new projects – from exploration to closure.
 - Implement an environmental management system of continual improvement to review, prevent, mitigate or ameliorate adverse environmental impacts.
 - Rehabilitate land disturbed or occupied by operations in accordance with appropriate post-mining land uses.
 - Provide for safe storage and disposal of residual wastes and process residues.
 - Design and plan adequate resources to meet the closure requirements of all operations.

- 7. Contribute to the conservation of biodiversity and integrated approaches to land-use planning**
 - Respect legally designated protected areas.
 - Disseminate scientific data on and promote practices and experiences in biodiversity assessment and management.
 - Support the development and implementation of scientifically sound, inclusive and transparent procedures for integrated approaches to land-use planning, biodiversity, conservation and mining.

- 8. Facilitate and support the knowledge-base and systems for responsible design, use, re-use, recycling and disposal of products containing metals and minerals**
 - Advance understanding of the properties of metals and minerals and their life-cycle effects on human health and the environment.

- Conduct or support research and innovation that promotes the use of products and technologies that are safe and efficient in their use of energy, natural resources and other materials.
- Develop and promote the concept of integrated materials management throughout the metals and minerals value chain.
- Provide regulators and other stakeholders scientifically sound data and analysis regarding our products and operations on which they can make regulatory decisions.
- Support the development of scientifically sound policies, regulations, product standards and material choices that encourage the safe use of mineral and metal products.

9. Pursue continual improvement in social performance and contribute to the social, economic and institutional development of host countries and communities

- Engage at the earliest practical stage with all likely affected parties to discuss and respond to issues and conflicts concerning the management of social impacts.
- Ensure that appropriate systems are in place for continual interaction with affected parties; ensure that minorities and other marginalized groups have equitable and culturally appropriate means of engagement.
- Contribute to community development from exploration to closure in collaboration with host communities and their representatives.
- Encourage partnerships with governments and non-governmental organisations to ensure that programmes (such as community health, education, local business development) are well designed and effectively delivered.
- Enhance social and economic development by seeking opportunities to address poverty.

10. Proactively engage key stakeholders on sustainable development challenges and opportunities in an open and transparent manner. Effectively report and independently verify progress and performance

- Report on economic, social and environmental performance and contribution to sustainable development.
- Provide timely, accurate and relevant information.
- Engage with and respond to stakeholders through open consultation

Annex 4

Voluntary Principles

Established in 2000, the Voluntary Principles on Security and Human Rights (<http://www.voluntaryprinciples.org/what-are-the-voluntary-principles/>) are a set of principles designed to guide companies in maintaining the safety and security of their operations within an operating framework that encourages respect for human rights.

The Voluntary Principles are the only human rights guidelines designed specifically for extractive sector companies. Participants in the Voluntary Principles Initiative — including governments, companies, and NGOs — agree to proactively implement or assist in the implementation of the Voluntary Principles. The voluntary principles are framed to guide Companies in maintaining the safety and security of their operations within an operating framework that ensures respect for human rights and fundamental freedoms. Highlights below.

- (1) **Risk Assessment – ensuring the ability to assess accurately risks present in a Company’s operating environment is critical to the security of personnel, local communities and assets; the success of the Company’s short and long-term operations; and to the promotion and protection of human rights. Effective risk assessments should consider the following factors:**
 - Identification of security risks.
 - Potential for violence.
 - Human rights records.
 - Rule of law.
 - Conflict analysis.
 - Equipment transfers.

- (2) **Interactions Between Companies and Public Security.** In cases where there is a need to supplement security provided by host governments, Companies may be required or expected to contribute to, or otherwise reimburse, the costs of protecting Company facilities and personnel borne by public security. Voluntary principles to guide relationships between Companies and public security regarding security provided to Companies:
 - a. **Security Arrangements, e.g.,** companies should consult regularly with host governments and local communities about the impact of their security arrangements on those communities.
 - b. **Deployment and Conduct, e.g.,** the primary role of public security should be to maintain the rule of law, including safeguarding human rights and deterring acts that threaten Company personnel and facilities. The type and number of public security forces deployed should be competent, appropriate and proportional to the threat.
 - c. **Consultation and Advice, e.g.,** companies should hold structured meetings with public security on a regular basis to discuss security, human rights and related work-place safety issues.

- (3) **Responses to Human Rights Abuses.** Companies should record and report any credible allegations of human rights abuses by public security in their areas of operation to appropriate host government authorities. Where appropriate, Companies should urge investigation and that action be taken to prevent any recurrence.

Annex 5

Illustrative Resources

Hundreds of thousands informational materials are available to demonstrate best practice, information and approaches to mining development, in addition to sources cited throughout this document, some additional examples are highlighted below.

1. Global Minerals reports on world market
 - a. <https://ihsmarkit.com/products/minerals-report-suite.html>
 - b. BGS - <http://www.bgs.ac.uk/mineralsUK/statistics/worldStatistics.html>
 - c. <https://www.arcgis.com/home/item.html?id=9a07a5d5a347490aa138e68e00163694>
2. Geological Survey
 - a. One Geology <http://www.onegeology.org/>
3. Europe
 - a. The European Network of Mining Regions
 - i. <http://www.enmr.nu/files/partners.html>
 - ii. http://www.enmr.nu/files/regional_studies.htm
 - iii. http://www.interreg4c.eu/uploads/media/pdf/5_ENMR_Roadmap.pdf
 - iv. Minerals Policy Guidance for Europe https://www.min-guide.eu/sites/default/files/project_result/MIN-GUIDE_D2%20%20policy%20governance%20frameworks_final_0.pdf
 - v. <https://ec.europa.eu/growth/tools-databases/eip-raw-materials/en/content/mining-regions-eu>
 - vi. Resource Efficiency Waste Prevention Implementation Fund - <http://www.nortonrosefulbright.com/knowledge/publications/28747/finding-finance-in-the-mining-and-minerals-sector-a-guide-for-mine-developers>
4. Canada
 - a. <http://mining.ca/resources/guides-manuals>
5. World Bank
 - a. <http://www.worldbank.org/en/programs/mingov>
6. African Mining Vision
 - a. <http://www.africanminingvision.org>