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# Mineral Resource Governance in the 21<sup>st</sup> Century

GEARING EXTRACTIVE INDUSTRIES TOWARDS SUSTAINABLE DEVELOPMENT

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# **MINERAL RESOURCE GOVERNANCE IN THE 21<sup>ST</sup> CENTURY**

GEARING EXTRACTIVE INDUSTRIES TOWARDS SUSTAINABLE DEVELOPMENT



Coal industry, South Africa. Photo: Jassen Todorov © Getty images

## FOREWORD

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Well-managed income from extractive resources presents tremendous opportunities for supporting sustainable and inclusive development –particularly for low- and middle-income countries whose economies rely heavily on natural resources. In addition to generating government revenues, extractive projects can create jobs, build infrastructure and transfer technologies.

Yet natural resource extraction and use is not always done wisely, bringing a host of problems. As this report by the International Resource Panel shows, extractive operations can cause extensive and lasting damage.

Aside from such environmental disasters, resource rich nations face other issues when trying to use wealth from their natural resources to drive sustainable development. Volatility in commodity prices, limited national capacities, weak links to the rest of the economy, corruption and social unrest all undermine the transformative potential of extractive activities.

This report shows that good governance is key to managing environmental and social impacts, and unlocking the sector's potential as a catalyst of sustainable growth and development. Many of today's wealthiest countries were built on the back of natural resources. A modern example of a developing country making wise use of resources can be seen in Botswana, which has deployed its diamond deposits to promote broad-based development.

Significant efforts have been made to develop instruments to address governance gaps in the extractive sector. But we need broader and more collaborative governance for the industry to become an enabler of sustainable development. This report sets out principles and policy options that can help consolidate existing instruments, strike fairer deals, promote an equal share of benefits and ensure the protection of nature and people's lives.

I encourage everyone involved in the extractive sector to read this report, apply its recommendations and become part of the movement to create a better future for everyone.

Joyce Msuya  
*Deputy Executive Director  
UN Environment Programme*

## PREFACE

Extraction of mineral resources has risen markedly in recent decades and will continue to grow to serve the needs of a growing, more affluent and increasingly urban population. Greater resource efficiency and circularity need to be prioritized around the globe to reduce demand for virgin materials, as current trends of resource extraction and processing cause environmental impacts that would exceed the planetary boundaries (GRO 2019). Especially high-income countries must strive for absolute decoupling of virgin resource use from economic growth. Developing countries need to relatively decouple growth from resource use, but will continue to grow demand for virgin resources to develop their basic infrastructure. Therefore, despite decoupling, resource extraction will continue to grow until necessary infrastructures are in place and resource circularity is effective globally. The global transition towards clean energy production will accentuate this pattern as renewable energy sources require much greater amounts of metals, both of the common and rare types, than energy production from fossil fuels.

The future demand outlook for metals and minerals presents notable opportunities for countries endowed with these resources to harness their extractive wealth to advance economic development and human well-being. Nonetheless, for a majority of resource-rich developing countries, mining, oil or gas exploitation has not translated into broad-based economic, human and social development. This is partly owing to the 'enclave' nature of the extractive industry, with few links to the local economy, in most of the developing world. Moreover, the industry is disruptive and can lead to severe environmental degradation and disruption of social fabric, in some cases, even unleashing political dynamics that result in the deterioration of governance and serious conflicts.

In response, mining companies have in the past two decades increasingly sought to secure acceptance of their activities by local communities and other stakeholders, build public trust and prevent social conflict. Such attempts to earn a 'Social License to Operate' are important in recognizing the need for mining companies to bear responsibility for the negative social implications of their practices, and have resulted in an explosion of soft regulation aimed at addressing the adverse consequences of mining. Notwithstanding, the agenda of the social license framework depicts industry's pragmatic, minimum response to business risk arising from public opposition and social conflict. In addition, the report's review of close to 90 existing international instruments governing the mining sector concludes that they tend to present piecemeal efforts and, importantly, often fail to be implemented at the national level.

The report thereby calls for moving beyond the established paradigm of the 'Social License to Operate', towards a new governance reference point that enables public, private and other relevant actors in the extractive sector to make decisions compatible with the 2030 Agenda's vision of sustainable development. The new governance framework put forward in the report is referred to as the 'Sustainable Development License to Operate' which extends the Social License to Operate in several important ways. It is relevant to all actors in the extractive sector, and its implementation is a shared responsibility by 'host' and 'home' countries along the extractive value chain. Importantly, it addresses a broader subject matter integrating all pillars – people, planet, prosperity, peace and partnership – of sustainable development, and sets out principles, policy options and good practices for enhancing the extractive sector's contribution to achieving the Sustainable Development Goals. At national level, the International Resource Panel suggests that countries adopt a Strategic Development Plan with proposed actions by different

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stakeholders pertaining both to the mining sector as well as other sectors impacted by or impacting on mining, and mapped against the Sustainable Development Goals. The Plan could entail a mining law enshrining the principles of consultation, transparency and reporting, recognising the rights of local populations, and setting performance standards. It should also facilitate the creation of three core public institutions – an Environment Directorate, a Mining Directorate and a Geological Survey – to promote and regulate the development of mines and metals industries.

At the international level, the Panel discusses the creation of an International Minerals Agency, or the signing of an international agreement, to, inter alia, coordinate and share data on economic geology, mineral demand needs, and promote transparency on impacts and benefits. It is hoped that the UN Environment Assembly, the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development, and wider ongoing UN processes focused on reviewing progress towards the 2030 Agenda for Sustainable Development could serve as fora for negotiating an international consensus regarding the specific policy options and programmes for the implementation of the new global governance framework for the extractive sector set forth in this report.



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## EXECUTIVE SUMMARY

### THE MINERAL RESOURCE GOVERNANCE TODAY: THE IMPERATIVE FOR CHANGE

There is a growing recognition that the extractive sector, if well-managed, can play a positive role in promoting broad-based development and structural transformation of economies. In the context of the current global development agenda, the sector has direct links to a large number of the 17 Sustainable Development Goals (SDGs) - specifically those relating to poverty eradication, decent work and economic growth, clean water and sanitation, life on land, sustainable and affordable energy, climate action, industry and infrastructure, as well as peace and justice. Mining generates significant revenue streams through taxes, royalties and dividends for governments to invest in economic and social development (Goal 1). Mining can help drive economic development and diversification through direct and indirect economic benefits, the development of new technologies and by spurring the construction of new infrastructure for transport, communications, water and energy (Goal 9). It can alter the lives of local communities, offering opportunities for jobs and training, while contributing to economic and social inequities if not appropriately managed (Goal 8). Moreover, mining requires access to land and water, which gives rise to significant and wide-ranging landscape impacts that must be managed responsibly (Goals 6 and 15). Mining activities are also energy- and emissions-intensive in terms of the production and downstream uses of mining products (Goals 7 and 13). Finally, mining can contribute to peaceful societies by avoiding and remedying company-community conflict, respecting human rights (including those of indigenous peoples) and by supporting the representative decision-making of citizens and communities in extractives development (Goal 16) (ibid).

Many of today's wealthiest and most powerful countries were built on the back of significant natural resource endowments and, in some cases, their economies are still largely based on the exploitation of extractive resources. Even among developing countries, this path to prosperity is being repeated in countries such as Botswana that have judiciously used diamond resources to promote broad-based development. Indeed, if managed prudently, mineral wealth presents enormous opportunities for advancing sustainable development -particularly in low-income countries.

In addition to generating vast amounts of government revenue through taxes, royalties and other levies, extractive projects can also yield benefits by, inter alia, fostering the emergence of competitive small and medium-scale enterprises that supply goods and services to the industry; opening up access to modern infrastructure and leveraging it to support a wider range of development objectives and boost productivity in other sectors; and facilitating the transfer of technologies and know-how, thus strengthening local human capital formation (which is the key to structural transformation).

However, mineral resources have attributes that make them difficult to manage and, for most resource-rich developing countries, mining, oil or gas exploitation has not translated into economic, human and social development. The extractive industry in most of the developing world is an enclave with few linkages to the local economy, which means missed opportunities to explore multiplier effects and deliver sustainable development by stimulating the larger economy and thus driving economic transformation. Moreover, the extractive industry is disruptive and can generate long-lasting and negative environmental, social, economic, cultural and political impacts, some of

which lead to severe environmental degradation and disruption of the social fabric, while others unleash political dynamics that can compromise governance and bring about serious conflicts.

Realizing the full potential of the mining sector as a catalyst for growth and development is therefore fraught with many challenges in mineral-rich developing countries. These include: the unevenly distributed and finite nature of mineral deposits; the volatility of commodity prices that have exposed developing countries to external shocks triggering macro-economic instability; the difficulties of managing large and volatile inflows of foreign capital; information asymmetries and technical complexities of large-scale projects that leave ill-equipped national administrations vulnerable to large multinational companies; conflicting stakeholder interests and lack of consensus between different stakeholders on what constitutes mineral-derived value and benefits. All of this potentially leads to social conflict; lack of accountability, transparency and risk of corruption; as well as geopolitical and global power asymmetries.

Furthermore, many mineral resources are traded in commodity exchanges dominated by a few locations in the developed world and a few trading houses - essentially creating a monopoly of sorts. These trading hubs largely coordinate and govern the value chain. They mediate between mineral production and manufacturing processes, and therefore have significant leverage in determining commodity pricing and how the value created is shared between the various actors. As a result of their role, they tend to capture significant rents.

It has long been recognized that governance is key for mitigating the adverse impacts and enhancing the positive economic, social and environmental outcomes of mining. There is already a plethora

of domestic, regional and international legal and regulatory frameworks, as well as formal and informal initiatives and instruments (including at company level), which are all aimed at improving governance of the extractive industry for increased economic prosperity and environmental protection. These include many commendable examples such as the Africa Mining Vision, the United Nations Guiding Principles on Business and Human Rights, the Extractive Industry Transparency Initiative (EITI), the Dodd-Frank Act, the Global Reporting Initiative (GRI), the Model Mining Development Agreement, the Initiative for Responsible Mining Assurance, the Natural Resource Charter, the development of indicators to measure resource governance and the wider work of the International Council on Mining and Metals (ICMM).

More specifically, and in order to manage the challenges in the sector and mitigate conflicts at project level, many mining companies have traditionally sought to obtain a "Social License to Operate (SLO)", in other words, the acceptance or approval of extractive operations by those local community stakeholders who are affected by them and those stakeholders who can affect their profitability. In essence, the SLO came about as a process aimed at managing risk of conflict at the local level and reputational damage at the national and international levels. Today, mining companies consider community acceptance to be as crucial as the formal licenses and permits granted by governments.

The fundamental critique of the SLO framework is that it was developed as industry's pragmatic response to business risk. Its agenda is limited to accommodating community demands to the minimum extent necessary to avoid public opposition and social conflict, and the associated costs of reputational damage and operations

delays or disruptions. It has been opportunistically used to serve the particular objectives and goals of companies, activists and governments. In essence, SLO defines the minimum of what a mining project can get away with in a particular location.

In general, most of the existing policy frameworks and instruments governing the mining sector represent piecemeal efforts and, importantly, often fail to be implemented at the national level. This means that existing governance approaches and instruments have not succeeded in bringing about a transition away from the 'extractivist' and anthropocentric model prevalent in the developing world, whereby the extractive sector is an enclave with few linkages to the local economy.

The adoption of the SDGs signalled the need to move beyond the concept of the 'social license to operate', which dominated the development discourse in the extractive industry throughout the end of 1990s and mid-2000s. The need for a new governance reference point arose from the limitations, inadequacy or even obsolescence of existing governance instruments (given their sectorial and one-dimensional nature) and from the necessity to translate the complex array of post-2015 global commitments into a manageable set of requirements to be used by decision makers involved in extractive sector governance.

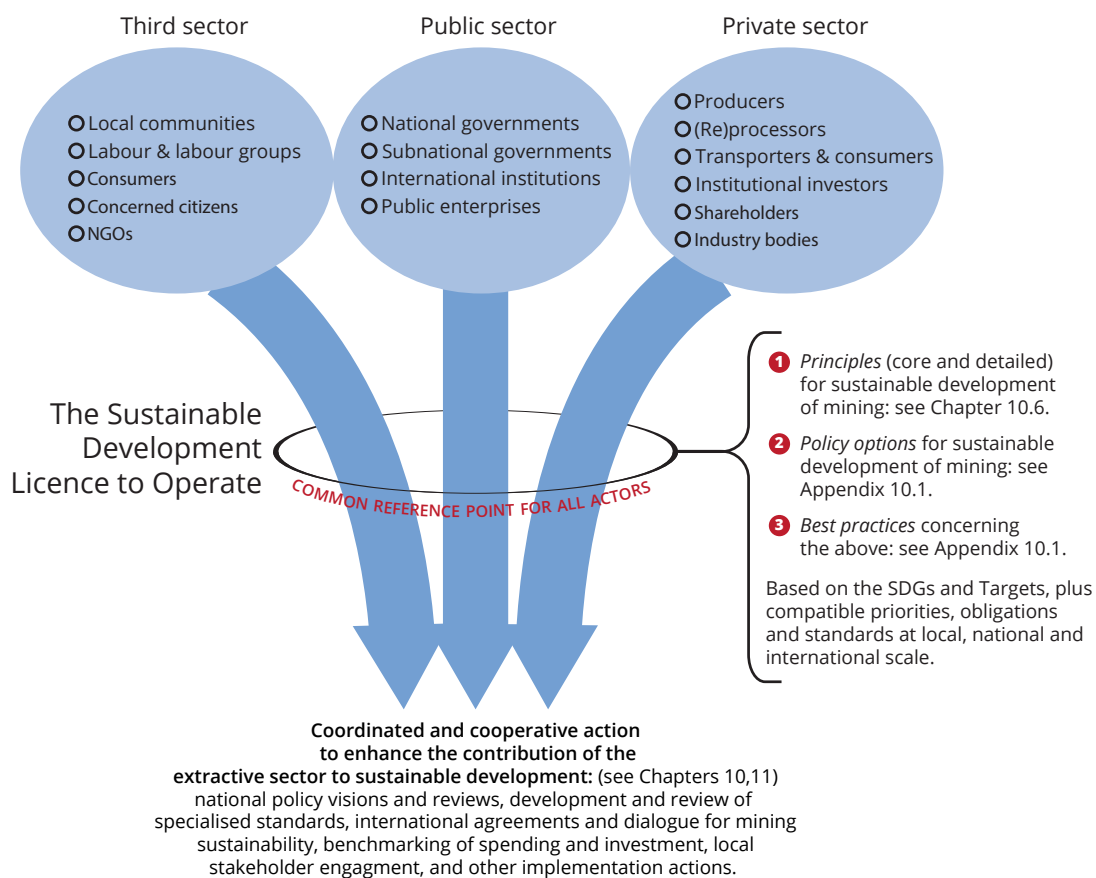
In response to these new imperatives set by the 2030 Agenda for Sustainable Development, there needs to be a shift towards a new multi-level, holistic, integrated and multi-stakeholder governance framework composed of formal and informal arrangements. The framework should encompass governance institutions and mechanisms that act at the international, regional, national, local and project levels, and that are implemented by a range of actors. Such a framework would improve

understanding of how mining activities should be regulated and how resource rents could be used to improve economic and human development, at the same time as safeguarding the availability of resources and protecting the natural environment for current and future generations. In doing so, the new framework needs a systemic integrated approach to account for complex inter-linkages and trade-offs between different natural resources, economic sectors, eco-systems and development priorities and outcomes.

Such new global governance architecture needs to serve ongoing economic development, structural transformation and economic diversification in resource-exporting countries. It should address not only resource security, but also resource efficiency and decoupling of resource use - as well as the environmental impacts from economic growth. To achieve this, sustainable development approaches would need to be based on new metrics where success is measured against a quadruple bottom-line: on the strength of economic outcomes, sound environmental management, the respect of social values and aspirations and adherence to the highest standards of governance and transparency.

The new framework is the 'Sustainable Development Licence to Operate' (SDLO). The SDLO builds on the Social Licence to Operate (SLO). It is also designed to improve the net societal benefits of mining, and is not necessarily meant to function as a licence in the compulsory or regulatory sense. However, the proposed SDLO extends the SLO concept in several important ways. It addresses a broader subject matter covering the nexus of all environmental, social and economic concerns that fall within the remit of the SDGs and related targets; it is relevant to all actors in the extractive sector across the public, private and civil society sectors; its implementation is a shared responsibility across nations and

## KEY COMPONENTS OF THE SDLO AND ILLUSTRATIVE IMPLEMENTATION ACTIONS



Source: Pedro et al. (2017)

different actors along the minerals value chain; and it sets out not only minimum standards of practice but also a set of internally consistent principles, policy options and good practices for enhancing the extractive sector's contribution to achieving the SDGs. The figure below illustrates the key components of the SDLO and associated possible implementation actions.

## COMPLEX ISSUES, INTRICATE DYNAMICS AND MANY OPPORTUNITIES FOR ACTION

### *Security of Supply*

Extractive resources will continue to play a central role in driving the global economy despite moves to decouple economies and increase recycling. Demand will be largely driven by emerging economies as populations and incomes are growing

to form a global middle class that is increasingly living in cities. These trends are going to drive demand for infrastructure and durable goods: the key drivers of demand for minerals. As much as the recent commodity boom has waned, demand for minerals is solid and securing supply remains a major concern going forward.

New supply challenges are emerging. The global transition towards carbon-clean energy production technologies will be an important driver of the demand for minerals and metals. Energy production from renewable energy sources requires much higher amounts of metals than energy production from fossil fuels (in terms of the common and rare types). As the fourth industrial revolution unfolds - underpinned by information and communication technologies - demand for new materials is rising (thereby creating new challenges of securing supply).

#### ***Artisanal and small-scale mining***

Export minerals and large-scale mining receive more attention due to their more direct macroeconomic benefits and concerns over security of supply. However, other extractive activities (especially the artisanal and small-scale mining (ASM) and development minerals sectors) are an important form of livelihood for many marginalized poor people. ASM in particular has increasingly become a source of income for many disadvantaged households. Recent years have seen an unprecedented and widespread shift from agrarian to informal mineral extractive economies. In 2016, the IIED estimated the number of people supported by ASM-related activities to be 100 million to 150 million and growing.

Policymakers equating the expansion of large-scale mining with 'development' have established an extractive model that favours large corporate operators over the ASM sector. Indeed, ASMs are seen as illegal or operate in the margins of legality having little security of tenure. Attention is increasingly focused on the environmental degradation caused by ASM. This activity needs to be recognized as a distinct sector that requires a totally different approach from a policy and governance perspective. Many of the approaches previously taken with ASM treated it as a subset of large-scale formal mining and did not consider its very specific issues.

Moreover, context-specific legal and policy frameworks for ASM are required, and the importance of ASM must be reflected in international, regional, national and local agendas, policies and plans. The private sector and other stakeholders are urged to implement transparent practices across the supply chains and support ASM integration into local, national, regional and international supply chains. Governments are called upon to create the necessary business-operating environment to accelerate these transitions. The introduction of appropriate technologies, as well as the use of gender-focused instruments, are considered important factors in improving ASM.

#### ***Development minerals***

Development minerals are those that are mined, processed, manufactured and used domestically in industries such as construction, manufacturing and agriculture. While they are generally low value (compared to export minerals), these minerals are crucial for the domestic economy. They also employ many people and especially women. However, since

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they are not usually traded and are informally mined and consumed locally (where they are produced), they are not usually given attention by policymakers.

Development mineral issues tend to be subsumed under export minerals. However, there are several factors that make development minerals different from export minerals. While export mineral value chains are highly globalized, development mineral value chains are generally local. Export minerals are traded in global commodity markets that tend to be very volatile. Industrial minerals and construction materials are typically not subject to price volatility and are less exposed to external shocks. Development minerals are well integrated into the local economy as they supply key raw materials for construction and other local industries. Export minerals are very unevenly distributed and thus produced by a few countries. In contrast, development minerals are much more abundant and widely distributed.

These differences mean that a distinct governance framework is needed for development minerals. However, the lack of attention for this sector has given rise to unsustainable mining practices. For example, uncontrolled sand extraction is already having environmental and economic consequences. Some of the strategic policy directions needed include: (i) policy and legal recognition of its unique contribution to local, domestic and regional economies and the potential for structural transformation of developing nations (the sector is excluded from many mining acts); (ii) the need for concerted action from all stakeholders to overcome the environmental, social, labour and other challenges facing the sector; (iii) formalization; (iv) extension services (by government and by mining associations); (v) geological data inventories;

(vi) access to finance (especially micro-finance), trade fairs and technology exhibitions; and (vii) simple occupational health and safety (OHS) and environmental standards as part of licensing.

### ***Impacts of mineral extraction on environment and livelihoods***

Mineral extraction involves disturbing the environment, and this can disrupt major biodiversity services and associated livelihoods. The frequently severe and enduring impacts of mining activities on the natural environment have been widely reported. For instance, surface mining often cuts back forest and other vegetation cover, removes topsoil and introduces heavy machinery (which can be particularly damaging in fragile environments). Habitat removal can lead to population declines in a number of species. This can in turn alter the structure and function of ecosystems, thereby affecting the provision of a range of ecosystem services (with potential negative impact for female users), including water regulation, pest control, pollination, food provision and protection from storms, floods and coastal erosion. Chemicals and other harmful substances used to process ores can enter waterways and the natural environment when not managed appropriately. There is often an extensive amount of mine waste that can be toxic in nature, posing a significant risk when storage facilities fail to contain the waste.

The trend towards mining lower-grade ores increases the potential impacts of extractive activities. Mining lower-grade ores will lead to larger amounts of waste and higher energy and water demands. These demands increase exponentially with declining ore grades. As easily accessible reserves become depleted, exploration is moving

into more remote and often fragile areas. Deep-sea mining is one example of a new and challenging frontier for mineral extraction, especially with respect to its impacts.

#### *Making sense in a crowded space*

Efforts to improve governance have resulted in the launch of a plethora of instruments. However, these have not been able to rise to the challenges involved. The failure to use countries' resource wealth to generate sustainable growth could be seen as the central challenge facing current governance systems. This is being amplified by new additional challenges. Centralized power in the form of national government is being dissipated upwards, downwards and horizontally. New information and communication technologies are leading to increased pressure from informed citizens for a greater say in decisions. The importance of extractive corporations from emerging countries in the global marketplace is growing. As global power has shifted from G8 to G20, the diversity of G20 nations implies a less homogenous approach to issues of natural resource governance.

Some of the challenges with existing instruments include:

- As instruments tend to respond to a particular challenge, many tend to be sectorial and narrow;
- Risk management and security of supply still inform many of the instruments;
- Compliance is expensive. Many instruments tend to be voluntary, which results in low compliance;
- The piecemeal and narrow focus, plus a lack of coordination with other stakeholders, can lead to unintended consequences; and
- They undermine the regulatory role of governments by claiming that voluntary self-regulation is more effective.

## **THE CASE FOR A NEW GOVERNANCE FRAMEWORK**

### *Towards greater and shared value and benefits*

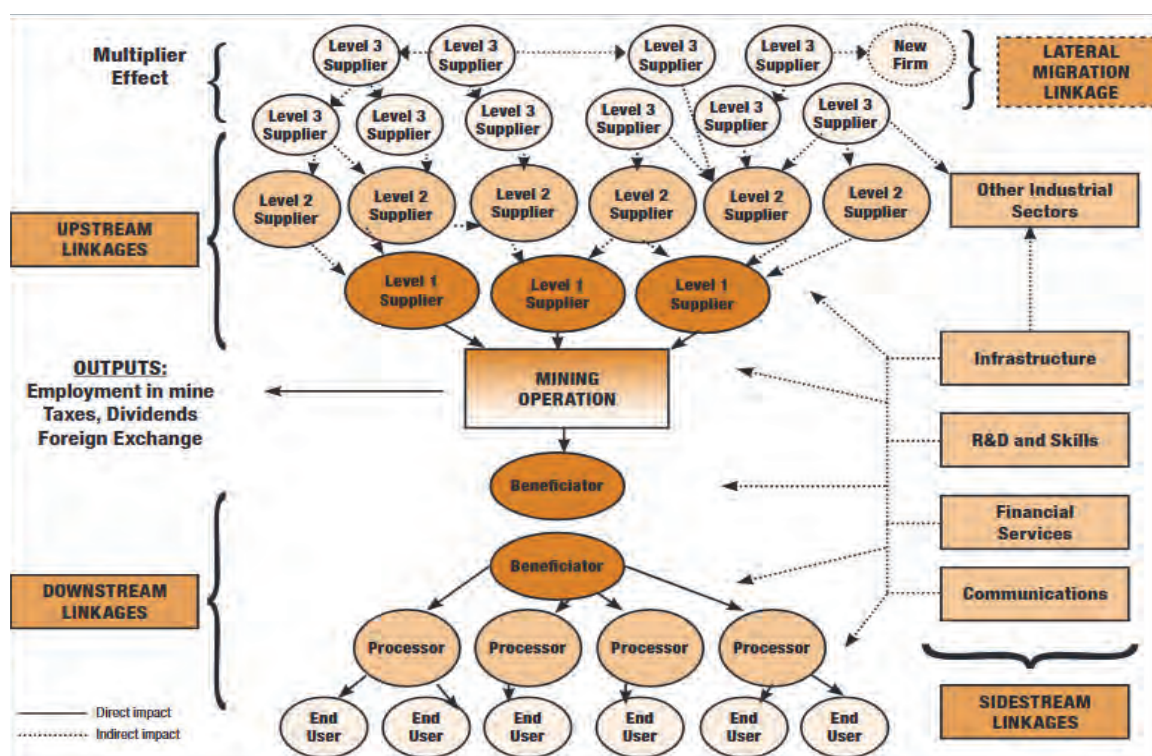
The SDLO is based on an unequivocal recognition of planetary boundaries and the need to align the value and benefits to all stakeholders in host and home countries while delivering a fair share of benefits to everyone. This should support broad development objectives including poverty reduction, economic diversification and structural transformation without harming the environment and disrupting the social fabric of impacted communities.

A holistic and integrated governance framework for the extractive industry should cover the entire value chain of the extractive sector, that is, from licensing of mineral terrains, geological mapping, mineral exploration, mine development, mining, mineral processing and refining, ore transportation, manufacturing of end-use products, to recycling and mine closure.

Translating mineral wealth into lasting economic and social gains requires a broad range of policies to transform mineral resources extraction from an enclave industry by linking it with the wider economy through local content and value addition, among other routes (see below).

How a country benefits from resource extraction crucially depends on the policies adopted throughout the entire policy value chain for extractive resources and on the decisions taken by several key actors in the sector. This is shown in the figure below. For governments, the key challenge here is having the right institutions and capacity to manage the extractive sectors well and invest the resource rents wisely to generate equitable and lasting benefits for all.

## LINKAGES IN THE MINERALS INDUSTRY AND THE RELATIONSHIP BETWEEN FIRMS



Source: Lydall (2009).

## CONCEPT OF A POLICY VALUE CHAIN



Source: World Bank (2009).

However, decision-making in the extractive sector is a complex global, national, regional and local architecture of relationships among individuals and institutions. Although there is no perfect system of governance, there can nonetheless be an effort to align different interests while respecting the objective limits imposed by the physical world and the need for justice and equity that guarantee the an ongoing consensus.

An important feature of the extractive sector is the influential role played by transnational corporations (TNCs), including State-owned enterprises from other countries. Each of these actors pursues a different set of interests. The divergence in expectations between stakeholders has been a key driver of conflict in the extractive industry. Thus, the operationalization of the SDLO framework requires careful consideration of the views and expectations of all the key actors, as well as a recognition of spatial boundaries, power relationships and normative frameworks. These all play out in the mineral value chain. Increasing consumer demand for sustainable products is moving governance challenges to the customer level and to the full product life cycle (disposal/recycling level). What happens after a resource is extracted, processed and transformed into a product, used and finally disposed are therefore now legitimate governance concerns.

In establishing a new governance framework for mining, it is essential to understand the sector within the broader context of a national economy (and its development objectives and strategies). This means managing the potential impacts of mineral resource extraction on other parts of the economy (such as on the artisanal and small-scale mining sector), as well as maximizing linkages between the mining sector and other parts of the economy (including

through job creation, local procurement of goods and services, downstream use of mined goods and shared infrastructure). This will require a long-term comprehensive, holistic strategy that goes beyond industry regulation to also include investment in education and training, as well as other policies for creating an enabling environment.

In the case of low-income resource-rich countries, governance strategies need to focus on breaking away from the enclave nature and extractivist model of the mining sector. Countries need to build forward and backward linkages with other socioeconomic sectors, build infrastructure and capacity for greater value addition along the value chain and promote regional partnerships and integration. A range of structural reforms and industrial policies need to be implemented to help achieve structural transformation and economic diversification. Developed countries and the global community need to afford developing countries sufficient policy space to do so, including through reform of the international trade and investment regime that constrains the use of the full range of policy instruments to achieve resource-based industrialization at the local level.

## STEPS TO OPERATIONALIZING THE SDLO

### *Principles and policy options*

The SDLO provides guidance on how to enhance the extractive sector's contribution to sustainable development through a set of principles and policy options, anchored in a clear and explicit recognition of planetary boundaries and the need to decouple natural resource use, environmental and social impacts from economic growth in a projected scenario of increased resource intensity up to 2050. An important element of the SDLO is the recognition that mining activities can impact men

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and women in a different manner. Special attention should be paid to the role of women in artisanal and small-scale mining, their growing representation in large-scale mining employment and the adverse environmental and social impacts of mining that can disproportionately affect women. A gender-lens therefore needs to be adopted in governing the mining sector in order to maximize its development contribution, whilst also promoting female empowerment and gender equality that are central to achieving the Sustainable Development Goals. A similar need for differentiated analysis and policies may also arise with respect to other marginalized groups such as indigenous peoples.

Overall, the essential principles for the operationalization of the SDLO are:

- SDLO is not a substitute for laws and regulations but makes a strong case for ensuring that the policies, laws and regulations in the extractive sector respond to shared visions and are fully aligned with national development plans and aspirations in a coherent manner. It seeks to standardize contracting laws through a generalized legislative framework that includes standardized forms. It argues for the use of competitive bidding processes in licensing mineral terrains, where relevant.
- As extractive industries place large demands on natural resources (such as land and water) and lead to pollution and environmental destruction, there is a need for a systems-thinking approach that accounts for the nexus between resources so as to steer policy efforts towards integrated natural resource management along the extractive value chain. Government policies need to incorporate environmental protection from the outset, with strategic environmental impact assessments, integrated spatial planning/ landscape planning and natural capital accounting being crucial elements.
- The SDLO framework seeks to integrate local, national and international governance issues. At the local level, there is a need to move away from charity-driven corporate social responsibility activities to implement inclusive business models in which local communities participate in decision-making, their rights are protected and they benefit from extractive activities.

At the *national level*, host governments have a critical role to play, including:

- the award of exploration and ownership rights;
- devising concession agreements that ensure companies operate responsibly;
- mainstreaming strategic environmental assessments;
- domesticating natural capital accounting;
- adequately incorporating social and environmental assessments in national and local development plans;
- designing effective fiscal regimes;
- ensuring transparency and accountability; and
- channelling extractive rents into national and local public investment.

Home countries also have a key role to play by:

- improving regulation of the activities of trans-national corporations (TNCs); making international investment laws fairer;
- tackling illicit financial flows;
- combating commodity price volatility; and
- ensuring a fair deal for host countries (through, inter alia, international transparency and accountability initiatives and the regulation of tax havens).

At the *international level*, policy action is needed to set global standards in a number of areas of the extractive sector – in the form of rules and regulations, voluntary instruments and reporting obligations. These include:

- coordination of policies and instruments and agreement on international standards (for example, on transparency and global codes of conduct);
  - influencing incentives and behaviour;
  - technology transfer; and
  - financial regulation (including to regulate the financialization of commodities and to curtail illicit financial flows).
- All groups of stakeholders should participate in decision-making through, inter alia, information exchange, media campaigns and collaboration with institutions such as those with oversight roles. Industry should engage in collaborative social dialogue on each extractive project by formulating an agenda that balances its own commercial needs with societal expectations.
  - In order to implement laws and policies governing the extractive sector, transparency is a necessary

but not sufficient prerequisite. Information on contracts and licenses, social and environmental impacts assessments, royalties, tax payments, revenues and expenditures should be easily accessible. Civil society organizations, labour unions, researchers and other stakeholders can also play an important role in analysing data, reporting on findings and thus demanding accountability across all levels.

## OPERATIONALIZING THE SDLO

The SDLO should not be considered as a new instrument but rather a framework that: articulates governance issues across the whole extractive value chain, provides a means of organizing existing governance instruments and assigns responsibilities to various parties. The SDLO framework seeks to create a more coherent governance landscape by advocating a concerted consolidation of existing relevant instruments, ensuring sustainable development is the overriding objective, as well as pointing to areas where new instruments might be needed and how a particular instrument will interact with others.

The SDLO is a partnership of the key stakeholders in the extractive value chain to ensure mining is carried out sustainably while meeting the twin goals of sustainable development for exporting countries and security of supply for importing countries. Importantly, it is essential to recognize that there is no 'one-size-fits-all' solution, and very different policy solutions may apply to countries with differing industry characteristics, challenges or stages of economic development. Differentiated governance approaches are needed, for instance, in countries where standards and guidelines can be easily implemented, compared with others with a significant artisanal and small-scale mining sector,

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or those with high levels of corruption, or that are affected by conflict and war. Governance strategies thus need to be tailored to a particular country's socioeconomic, geopolitical, historical and cultural background.

The operationalization of the SDLO can be pursued through the following three pathways that are not mutually exclusive:

- i. a global international agreement that commits countries to a governance framework much like the SDGs commit countries to sustainable development;
- ii. a global platform for continued dialogue and advocacy on cross-cutting issues; and
- iii. regional platforms to engage host and home regions to reconcile issues of sustainable development and security of supply through regional PACTs such as the Africa Mining Vision and the EU Raw Materials Initiative.



Chuquibambilla open pit copper mine, Chile. Photo: roccomontoya © Getty images

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## Glossary

<b>Brownfield exploration</b>	In mineral exploitation, "brownfield exploration" designates exploration in areas near already known mineral deposits and/or exploration for lateral/ in-depth extensions of known deposits.
<b>Construction minerals</b>	Typical construction minerals are aggregates (sand, gravel and crushed natural stone), various brick clays, gypsum and natural ornamental or dimension stone
<b>Dutch Disease</b>	The expression "Dutch disease" describes the various negative impacts on the Dutch economy (inflation, rising value of the local currency (hampering exports) and surging labour costs) that arose as a consequence of the discovery and the rapid development of the Dutch Groningen gas fields in the early 1960s. The expression was coined by the United Kingdom journal "The Economist".
<b>Extractivism</b>	Activities that remove large quantities of natural resources that are not processed in the countries where they are extracted (or where they are processed only to a limited degree), especially for export. The extractivist mode of accumulation refers to the exploitation of raw materials needed primarily to fuel the development and growth of industrialized and emerging nations. It typically generates few benefits for the countries where extraction takes place, due to the resulting limited demand for domestic labour, goods and services; lack of value addition and linkages to the rest of the economy; depletion of finite resources; environmental destruction; and incentives for 'rent-seeking' behaviour that undermine effective and democratic governance.
<b>Exploration</b>	All the activities related to the search for new mineral deposits and the related development activities up to the completed feasibility study.
<b>Feasibility study</b>	A feasibility study is a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable modifying factors, together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate, at the time of reporting, that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a pre-feasibility study.
<b>Geological stocks</b>	Potential, so far undiscovered, mineral concentrations contained in the upper part (Between the surface and +/- 3 km depth) that, pending successful exploration, will supply future needs (especially for metals). Tentative evaluations of geological stocks have been performed for some metals, such as copper.
<b>Greenfield exploration</b>	In mineral exploitation, "greenfield exploration" designates exploration in areas with no known mineral deposits
<b>Home country</b>	This is used to refer to the country wherein the mining company is registered. It is important to note that, with the emergence of the global value chain for minerals and metals, the distinction between home and host country can be blurred.
<b>Host country</b>	This is used to designate the country where the minerals and metals are exploited. The caveat noted above for home country also applies here.
<b>Metallurgy</b>	The science and art of separating metals and metallic minerals from their ores by mechanical and chemical processes; the preparation of metalliferous materials from raw ore (United States Bureau of Mines). Note: biological processes such as bacterial leaching may also be used to recover metals from certain ores. In this report, the use of the term includes closely related refining activities needed to purify the raw metal obtained from the metallurgical process, in order to meet required metal purity standards.
<b>Metals</b>	In most cases, an opaque, lustrous, elemental substance that is a good conductor of heat and electricity. It is also malleable and ductile, possesses high melting and boiling points, and tends to form positive ions in chemical compounds (United States Bureau of Mines). For the sake of simplicity, in this report the expression "metals" includes the metalloids, as these mostly occur as by-products of metals and are recovered during the metallurgy or the refining processing of metallic ores.
<b>Mineral deposits</b>	A geological concentration of minerals of proven economic value.
<b>Mineral reserve</b>	A mineral reserve is the economically mineable part of a mineral resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at pre-feasibility or feasibility level that include application of modifying factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified. The public disclosure of a mineral reserve must be demonstrated by a pre-feasibility study or feasibility study.

<b>Mining</b>	The science, technique and business of mineral discovery and exploitation. Strictly speaking, the word denotes underground work aimed at the severance and treatment of ore or associated rock. Practically, it includes opencast work, quarrying, alluvial dredging and combined operations, including surface and underground attack and ore treatment (United States Bureau of Mines).
<b>Ore</b>	An assemblage of minerals from which at least one economically valuable substance, most frequently a metal (copper, gallium, gold, iron or zinc), can be extracted further to chemical and/or physical processing of the ore (see the terms "ore processing" and "metallurgy". Typically, an ore comprises several minerals ("ore minerals") of which only one, or a few, have an economic value. All other minerals have no economic value.
<b>Ore processing (equivalent to "ore beneficiation" or "ore dressing" frequently found in the literature)</b>	Especially for the production of metals, ore processing tends to be a specific combination of biological and/or chemical and/or physical processes needed to separate the economically valuable ore minerals from the other, valueless minerals present in the ore. This separation results in the production of a concentrate of economic minerals and ore-processing waste that will have to be disposed in the form of tailings (in specifically engineered reservoirs called tailing ponds). In the case of construction materials, such as sand and gravel, processing is frequently limited to some crushing, sorting and washing operations.
<b>Pre-feasibility study</b>	A pre-feasibility study is a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method (for underground mining) or the pit configuration (for an open pit) has been established and an effective method of mineral processing has been determined. It includes a financial analysis based on reasonable assumptions on the modifying factors and the evaluation of any other relevant factors that are sufficient for a qualified person, acting reasonably, to determine if all or part of the mineral resource may be converted to a mineral reserve at the time of reporting. A pre-feasibility study is at a lower confidence level than a feasibility study.
<b>Refining</b>	The purification of crude metallic products (United States Bureau of Mines). This activity is closely related to metallurgy, and aims to remove residual impurities contained in metallic melts and to meet market specifications on maximum allowed impurities.
<b>Resource curse</b>	Negative relationship described by several authors between resource abundance and poor economic and/or environmental and/or social performance.
<b>Resource nationalism</b>	Resource nationalism can take multiple forms. Resource nationalism can be defined as anti-competitive behaviour by individual nations, designed to restrict the international supply of a natural resource, for instance to maximize the value-added generated on their territories. It can also be politically driven to exert control over the supply chains depending on specific minerals and metals through financial control of key producing countries, generally in order to develop a competitive advantage or geopolitical leverage. Resource nationalism is frequently expressed by tariff and non-tariff barriers restricting the free trade of minerals or metals. Resource nationalism is likely to have a greater effect on global terms of trade when a natural resource is only produced in a few countries. In these markets, countries can affect global prices for raw materials and have the most to gain from resource nationalism. In these cases, there is potential for the main producers (companies or countries) to act together to manipulate global prices.
<b>Sovereign wealth fund</b>	Resource revenue that is sequestered in a special fund by mineral-rich countries. These special-purpose financial vehicles aim to help ensure proper management of resource revenues. SWFs can have a number of components that may include: a stabilization fund, which captures in excess a pre-determined commodity price (used to project flows for budget purposes) and releases these funds to support the budget when the price falls below the predetermined price; a development fund that captures a portion of the resources flows and puts them in a fund to focus on long-term projects such as infrastructure; and a heritage fund, which captures the resources and saves them for future generations. These funds are long-term investments to be drawn by future generations.
<b>Third sector</b>	Civil society, research institutions, local communities, NGOs, concerned citizens, consumers, workforces and labour groups.

## Acronyms

Acronym	Meaning
<b>AC</b>	Aarhus Convention
<b>ACET</b>	African Center for Economic Transformation
<b>ACP</b>	African, Caribbean and Pacific Group of States
<b>AFP-JIJI</b>	Joint Activities Of The French "Agence France-Press" And The Japanese "JIJI" Press Agencies
<b>AGAM</b>	An Initiative for Good Governance
<b>AKVG</b>	Akwé: Kon Voluntary Guidelines
<b>ALBA</b>	Ahafo Local Business Association
<b>ALP</b>	Newmont Ghana's Ahafo Linkages Program
<b>AMD</b>	Acid Mine Drainage
<b>AMV</b>	Africa Mining Vision
<b>APR</b>	Annual Performance Report
<b>ARM</b>	Alliance for Responsible Mining
<b>ASGM</b>	Artisanal and Small-Scale Gold Mining
<b>ASI</b>	Aluminium Stewardship Initiative
<b>ASM</b>	Artisanal and Small-Scale Mining
<b>ASX</b>	Australian Security Exchange
<b>AUC</b>	African Union Commission
<b>AZE</b>	Alliance Zero Extinction
<b>BANANA</b>	Build Absolutely Nothing Anywhere Near Anything
<b>BBOP</b>	The Business and Biodiversity Offsets Programme (BBOP)
<b>BEPS</b>	Base Erosion and Profit Shifting
<b>BGS</b>	British Geological Survey
<b>BIG-E</b>	Batumi Initiative on Green Economy
<b>BITs</b>	Bilateral Investment Treaties
<b>BMBF</b>	German Federal Ministry of Education and Research
<b>BRICS</b>	Brazil, Russia, India, People's Republic of China and South Africa - Grouping Of States
<b>CAPEX</b>	Capital Expenditure
<b>CASM</b>	Communities and Small-Scale Mining
<b>CBD</b>	Convention on Biological Diversity
<b>CCCMC</b>	China Chamber of Commerce of Metals, Minerals and Chemicals Importers and Exporters
<b>CCSI</b>	Columbia Center on Sustainable Investment
<b>CCUWL</b>	Convention Concerning the Use of White Lead in Painting
<b>CERCLA</b>	United States Comprehensive Environmental Responsibility Compensation and Liability Act
<b>CFGs</b>	Conflict-Free Gold Standard
<b>CFLs</b>	Compact Fluorescent Lamps
<b>CFSI-CFS</b>	Conflict Free Sourcing Initiative-Conflict Free Smelter
<b>Chinese DD</b>	Chinese Due Diligence Guidelines for Responsible Mineral Supply Chains
<b>CIL</b>	Coal India Limited
<b>CMVs</b>	Country mining Visions

Acronym	Meaning
<b>CMA</b>	Canada Mining Association
<b>CMN</b>	Commonwealth Mining Network
<b>COCHILCO</b>	Chilean Copper Commission
<b>CONNEX</b>	Strengthening Assistance for Complex Contract Negotiations (Connex Initiative)
<b>COP</b>	Conference of the Parties
<b>CRAFT</b>	Code of Risk-mitigation for ASM Engaging in Formal Trade
<b>CRAMRA</b>	Convention on The Regulation of Antarctic Mineral Resource Activities
<b>CRIRSCO</b>	Committee for Mineral Reserves International Reporting Standards
<b>CSIRO</b>	Commonwealth Scientific and Industrial Research Organisation (Australia)
<b>CSO</b>	Civil Society Organization
<b>CSR</b>	Corporate Social Responsibility
<b>CSS</b>	Country-Specific Sector
<b>CTC</b>	Certified Trading Chains
<b>CWA</b>	Compact With Africa
<b>DAC</b>	Development Assistance Committee Of The OECD
<b>DI</b>	Devonshire Initiative
<b>DDI</b>	Diamond Development Initiative
<b>DDS</b>	Diamond Development Standards
<b>DFID</b>	Department for International Development (United Kingdom)
<b>DoE</b>	United States Department of Energy
<b>DRC</b>	Democratic Republic of Congo
<b>DVC</b>	Downstream Value Chain
<b>ECLAC</b>	United Nations Economic Commission for Latin America and the Caribbean
<b>EEZ</b>	Exclusive Economic Zone
<b>EGRC</b>	Expert Group on Resource Classification
<b>EHS</b>	Environmental Health and Safety
<b>EIAs</b>	Environmental Impact Assessment
<b>EICC</b>	Electronic Industry Citizenship Coalition
<b>EITI</b>	Extractive Industry Transparency Initiative
<b>EICC-ESWG</b>	EICC-Environmental Sustainability Working Group
<b>EIP</b>	European Innovation Partnership on Raw Materials
<b>E-LCA</b>	Environmental Life Cycle Assessment
<b>EMP</b>	Environmental Management Plan
<b>EO</b>	Equitable Origin
<b>EPs</b>	Equator Principles
<b>ETP SMR</b>	European Technology Platform on Sustainable Mineral Resources
<b>EPA</b>	Environmental Protection Agency
<b>EPASL</b>	Sierra Leone's Environmental Protection Agency
<b>EPIFIs</b>	Equator Principles Financial Institutions
<b>EPRP</b>	European Partnership for Responsible Minerals
<b>ERA</b>	European Research Area
<b>ERA-MIN</b>	Research And Innovation Programme on Raw Materials to Foster Circular Economy
<b>ERPM</b>	European Partnership for Responsible Minerals
<b>EU</b>	European Union

<b>Acronym</b>	<b>Meaning</b>
<b>EVC</b>	Extractive Value Chain
<b>Fairmined</b>	Alliance for Responsible Mining (ARM)-Fairmined Standard
<b>Fairtrade</b>	Fairtrade Gold and Precious Metals
<b>FATF</b>	Financial Action Task Force
<b>FDI</b>	Foreign Direct Investment
<b>FDI</b>	Foreign Direct Investment
<b>FET</b>	Fair and Equitable Treatment
<b>FIASMEC</b>	Fraser Institute Annual Survey of Mining and Exploration Companies
<b>FORAM</b>	Towards a World Forum on Raw Materials
<b>FPIC</b>	Free, Prior and Informed Consent
<b>FRP</b>	Framework for Responsible Mining
<b>FST</b>	Future Sustainable Technologies
<b>FTAs</b>	Free Trade Agreements
<b>GBAI</b>	The Global Battery Alliance Initiative
<b>GDP</b>	Gross Domestic Product
<b>GEF</b>	Global Environment Facility
<b>GEF-GOLD</b>	Global Opportunities for the Long-term Development of the Artisanal and Small-Scale Gold Mining Sector
<b>GHG</b>	Greenhouse Gases
<b>GMI</b>	Green Mining Initiative (GMI)
<b>Green Lead</b>	The Green Lead Initiative
<b>GRI</b>	Global Reporting Initiative
<b>GRO</b>	Global Resources Outlook
<b>GSRM</b>	Guidelines for Social Responsibility in Outbound Mining Investments
<b>HDI</b>	Human Development Index
<b>HEI</b>	Health in the Extractive Industries
<b>HIE</b>	High-Income Economies
<b>HRD</b>	Human Resources Development
<b>HREE</b>	Heavy Rare Earth Elements
<b>IC</b>	Integrated Circuits
<b>ICGLR</b>	International Conference on the Great Lakes Region
<b>ICGLR-RINR</b>	ICGLR – Regional Initiative Against The Illegal Exploitation of Natural Resources
<b>ICMC</b>	International Cyanide Management Code for the Manufacture, Transport, and Use of Cyanide in the Production of Gold
<b>ICMM</b>	International Council on Mining and Metals
<b>ICT</b>	Information Communications Technology
<b>IFC</b>	International Finance Corporation
<b>IFC-GPHJCEI</b>	IFC – ‘A Strategic Approach to Early Stakeholder Engagement – A Good Practice Handbook for Junior Companies in the Extractive Industries’
<b>IFC-PS</b>	IFC Performance Standards on Environmental and Social Sustainability
<b>IFFs</b>	Illicit Financial Flows
<b>IFRS</b>	International Financial Reporting Standards for Extractive Sector
<b>IGF-MPF</b>	Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development /Mining Policy Framework
<b>IGO</b>	Intergovernmental Organization
<b>IIAS</b>	International Investment Agreements
<b>IIED</b>	International Institute of Environment and Development

Acronym	Meaning
<b>ILO</b>	International Labour Organization
<b>ILO169</b>	ILO169 - Indigenous and Tribal People Convention 1989
<b>ILO176</b>	International Labour Organisation Convention on Mine Safety and Health (1995)
<b>ILOSTAT</b>	United Nations Labour Organisation Department of Statistics
<b>IoT</b>	Internet of Things
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>IR</b>	Infrared
<b>IRA</b>	Indigenous Rights in the Arctic
<b>IRCI</b>	Integrated Resource Corridors Initiative
<b>IRMA</b>	Initiative for Responsible Mining Assurance
<b>IRP</b>	International Resource Panel
<b>ISA</b>	International Seabed Authority
<b>ISDS</b>	Investor-State Dispute Settlement
<b>ISO</b>	International Standard Organisation
<b>ITSCI</b>	The International Tin Research Institute (ITRI) Tin Supply Chain Initiative
<b>IUCN</b>	International Union for Conservation of Nature
<b>IWM</b>	International Women in Mining
<b>JEMSE</b>	Jujuy Energía Minería Sociedad del Estado
<b>LBMA-RGG</b>	London Bullion Market Association - Responsible Gold Guidance
<b>LCA</b>	Life Cycle Assessment
<b>LCI</b>	Life-Cycle Inventory
<b>LCSA</b>	Life Cycle Sustainability Assessment
<b>LED</b>	Light Emitting Diode
<b>LIE</b>	Low-Income Economies
<b>LMIE</b>	Lower-Middle-Income Economies
<b>LREE</b>	Light Rare Earth Elements
<b>LPRM</b>	Local Procurement Reporting Mechanism
<b>LSM</b>	Large Scale Mining
<b>MCM</b>	Minamata Convention on Mercury
<b>MCP</b>	Mine Closure Plan
<b>MDAs</b>	Mineral Development Agreements
<b>MEAs</b>	Multilateral Environmental Agreements
<b>MIDAS</b>	Managing Impacts Of Deep Sea Resource Exploitation Project
<b>MInGov</b>	Mining Investment and Governance Review
<b>MMSD</b>	Mining, Minerals and Sustainable Development Project
<b>MNCs</b>	Multinational Corporations
<b>MoM</b>	Ministry of Mining
<b>MOOC</b>	Massive Open Online Courses
<b>MPEPAT</b>	Madrid Protocol on Environmental Protection to the Atlantic Treaty
<b>MPF</b>	Mining Policy Framework
<b>MVM</b>	Mineral Value Management
<b>NBSAPs</b>	National Biodiversity Strategies and Action Plans
<b>NEEI</b>	Non-Energy Extractive Industry
<b>NGO</b>	Non-Governmental Organisation
<b>NIMBY</b>	Not in My Backyard Movement
<b>NOAMI</b>	National Orphaned/Abandoned Mines Initiative
<b>NRC</b>	National Resource Charter

Acronym	Meaning
<b>NRG</b>	Natural Resource Governance
<b>NRGI</b>	Natural Resource Governance Institute
<b>NRRI</b>	Natural Resources Risk Index
<b>ODA</b>	Official Development Assistance
<b>OECD</b>	Organisation for economic Co-operation and Development
<b>OECD –DD</b>	OECD Due Diligence Guidance for Responsible Supply Chain Management of Minerals for Conflict Affected and High-Risk Areas
<b>OECD-Global Forum</b>	Global Forum on Transparency and Exchange of Information for Tax Purposes
<b>OEMs</b>	Original Equipment Manufacturers
<b>OfD</b>	Oil for Development
<b>OHS</b>	Occupational Health and Safety
<b>PACE</b>	Protected Areas and Critical Ecosystems
<b>PDAC e3Plus</b>	Prospectors And Developers Association of Canada
<b>PES</b>	Payment for Ecosystem Services
<b>PGM</b>	Platinum Group Metals
<b>PIDA</b>	Programme for Infrastructure Development in Africa
<b>PMP</b>	Post-Mining Plan
<b>PPA-RMT</b>	Public-Private Alliance for Responsible Minerals Trade
<b>PSILCA</b>	Product Social Impact Life Cycle Assessment
<b>PVC</b>	Policy Value Chain
<b>PWYP</b>	Publish What You Pay
<b>R&amp;D</b>	Research and Development
<b>RCI</b>	Responsible Cobalt Initiative
<b>RDMI</b>	Responsible Mineral Development Initiative
<b>REEs</b>	Rare Earth Elements
<b>RJC</b>	Responsible Jewellery Council
<b>RFID</b>	Radio frequency identification devices
<b>RMC</b>	Responsible Mining of Cobalt
<b>RMDI</b>	Responsible Mineral Development Initiative
<b>RMF-RMI</b>	Responsible Mining Foundation - Responsible Mining Index
<b>RMI</b>	EU Raw Materials Initiative
<b>RRMI</b>	Responsible Raw Materials Initiative
<b>RRT</b>	Resource Rent Tax
<b>RS</b>	Australian Steel Stewardship Forum/ Steel Stewardship Council Ltd
<b>SAM</b>	Sustainable Artisanal Mining Project
<b>SCS</b>	Sustainability Certification Schemes
<b>SDGs</b>	Sustainable Development Goals
<b>SDLO</b>	Sustainable Development Licence to Operate
<b>SEEA</b>	UN System of Environmental-Economic Accounting
<b>SETAC</b>	Society of Environmental Toxicology and Chemistry
<b>SfH</b>	Solutions for Hope initiative
<b>SIA</b>	Social Impact Assessment
<b>S-LCA</b>	Social - Life Cycle Assessment
<b>SLO</b>	Social Licence to Operate
<b>SMED</b>	Smart Mineral Enterprise Development
<b>SMEs</b>	Small and Medium Sized Enterprises
<b>SMMRP</b>	World Bank Sustainable Management of Mineral Resources Project

Acronym	Meaning
<b>SWFs</b>	Sovereign Wealth Funds
<b>SWIA</b>	Sector-Wide Impact Assessment
<b>TAI</b>	The Access Initiative
<b>Tg</b>	Teragram
<b>TMFs</b>	Tailings Management Facilities
<b>TNCs</b>	Trans-national Corporations
<b>TQEM</b>	Total Quality Environmental Management
<b>TQM</b>	Total Quality Management
<b>TSF</b>	Tailing Storage Facilities
<b>TSM</b>	Towards Sustainable Mining
<b>TSX</b>	Toronto Stock Exchange
<b>UMIE</b>	Upper-middle-income Economies
<b>UN</b>	United Nations
<b>UNCLOS</b>	United Nations Convention on the Law of the Sea
<b>UNCTAD</b>	United Nations Conference on Trade and Development
<b>UN-DESA</b>	United Nations Department of Economic and Social Affairs
<b>UNDP</b>	United Nations Development Programme
<b>UNDP-SEMESH</b>	Sustainable and Equitable Management of the Extractive Sector for Human Development
<b>UNECA</b>	United Nations Economic Commission for Africa
<b>UNECE</b>	United Nations Economic Commission for Europe
<b>UNEP</b>	United Nations Environment Programme
<b>UNEP-WCMC</b>	UNEP World Conservation Monitoring Centre
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organisation
<b>UNGIWG</b>	United Nations Geographic Information Working Group
<b>UNFC</b>	United Nations Framework Classification for Resources
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>UNGC</b>	United Nations Global Compact
<b>UNGP</b>	United Nations Guiding Principles on Business and Human Rights
<b>UNIDO</b>	United Nations Industrial Development Organization
<b>UNSDSN</b>	United Nations Sustainable Development Solutions Network
<b>UNU-WIDER</b>	United Nations University World Institute For Development Economics Research
<b>USAID</b>	United States Agency for International Development
<b>USGS</b>	National Minerals Information Center
<b>USGS</b>	United States Geological Survey
<b>VPs</b>	Voluntary Principles on Security and Human Rights Guidelines
<b>WEF</b>	World Economic Forum
<b>WLED</b>	White light emitting diodes
<b>WHO</b>	World Health Organization
<b>WSSD</b>	World Summit on Sustainable Development
<b>XTL</b>	Synthetic Liquid Fuels
<b>WTO</b>	World Trade Organization
<b>WWF</b>	World Wide Fund for Nature
<b>3TG</b>	Tin, Tantalum, Tungsten and Gold



*Large piles of processed manganese. Photo: Sunshine Seeds © Shutterstock*



Mine worker in sulfur mine. Photo: Carlos Amarillo © Shutterstock