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Mineral resource governance in the 21st Century

Gearing extractive industries towards sustainable development
Summary for policymakers and business leaders

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MINERAL RESOURCE GOVERNANCE IN THE 21ST CENTURY

Gearing extractive industries towards sustainable development

The IRP Report on Mineral Resource Governance in the 21st Century was requested by the IRP Steering Committee at its 18th Meeting (Cape Town, 6–9 June 2016). The Report also responds to a Recommendation adopted at the 21st Meeting of the Convention on Biological Diversity Subsidiary Body on Scientific, Technical and Technological Advice (Montreal, 11–14 December 2017).¹

The structure and content of the Report was informed by a series of expert workshops convened in Davos (15–16 October 2015), Accra (26–27 September 2016), Helsinki (9–10 June 2017), and Lima (22–24 November 2017). It was also informed by a global stakeholder consultation process, including discussions at the 2015 World Resources Forum, 2017 Annual General Meeting of the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development; 2018 Meeting of the Sustainable Development Solutions Network Leadership Council; and 2018 International Mining and Resources Conference.

This Summary for policymakers and business leaders presents key findings of the Report. Detailed evidence and analysis relevant to each key finding is indicated by cross-references [in bracketed text] to specific Chapters of the Report.

Produced by the International Resource Panel.

This document highlights key findings from the report, and should be read in conjunction with the full report. References to research and reviews on which this report is based are listed in the full report.

The full report can be downloaded at <http://www.resourcepanel.org/reports>.

Additional copies can be ordered via email: resourcepanel@unep.org

¹Convention on Biological Diversity, Recommendation SBSTTA-XXI/4, Mainstreaming of biodiversity in the sectors of energy and mining, infrastructure, manufacturing and processing, and health, <https://www.cbd.int/recommendations/>

Preface

Extraction of mineral resources has risen markedly in recent decades and will continue to grow unabatedly to serve the needs of a growing, more affluent and increasingly urban population. 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 the need to move 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 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 on Sustainable 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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Quarry view of mine, Brazil, Venezuela. Photo: Udo Matiello © Getty images

Introduction

The extractive sector, if carefully managed, presents enormous opportunities for advancing sustainable development, particularly in low-income countries. The sector can significantly contribute to the achievement of all 17 Sustainable Development Goals, and particularly 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.

Notwithstanding, resource-rich nations are confronted with serious challenges such as macroeconomic instability, risk of corruption and environmental destruction in attempting to transform their natural resource endowments into enhanced economic growth and human well-being.

Appropriate governance is critical for mitigating the adverse impacts of resource extraction and for enhancing its positive economic, social and environmental outcomes. While a plethora of extractive resource governance instruments policies and initiatives have emerged, these often have a narrow sectorial focus and fail to be implemented at the national level.

In response to the new imperatives set by the 2030 Agenda for Sustainable Development and the inadequacies of the current paradigm, the report calls for a new global governance architecture. This is needed to address not only an agenda for resource security and efficiency that is of particular importance to developed nations, but also the need for continuous structural transformation, economic development and diversification in resource exporting developing countries. The report refers to this new multi-level, holistic, integrated and multi-stakeholder governance framework as the 'Sustainable Development License to Operate'. It sets out internally consistent principles and policy options for enhancing the extractive sector's contribution to meeting the Sustainable Development Goals.

Mining Today

2

Mining in the global economy

2.1. A critical and globalized sector

Minerals and metals underpin national economies, provide crucial raw materials for industrial activities, and are inputs to almost every sector of the global economy. The extraction of minerals and metals encompasses a very diverse and globally widespread range of activities—including small informal or illegal artisanal mines producing small quantities of mostly low-volume and high-value minerals (e.g. gold, precious and semi-precious minerals, or columbo-tantalite) and very large, highly mechanized industrial mining operations. The extractive sector is characterized by complex transnational value chains, comprising varied combinations of mining, processing, refining and purification, manufacturing and recycling activities. *[Chapter 2.0–2.8, Figure 2.1, Figure 2.3]*

2.2. Concerns of supply security

Extractive resources are going to continue playing a central role in driving the global economy despite moves to decouple economies from resource use

and towards greater recycling. Demand is largely going to be driven by emerging economies with expanding populations, global middle class growth and rising urbanisation. These trends are the key drivers of demand for minerals and metals. Demand for minerals remains solid and indeed securing supply is a major concern going forward. *[Chapter 2.0, 4.1]*

2.3. New supply challenges

The global transition towards carbon-clean energy production technologies and the transition towards the use of electric vehicles will also be important drivers of the demand for minerals and metals. Energy production from renewable energy sources requires much greater amounts of metals, both of the common and rare types, than energy production from fossil fuels. As the 4th industrial revolution unfolds underpinned by information and communication technologies demand for new materials is rising, creating new security of supply challenges. *[Chapter 2.0, 4.2]*

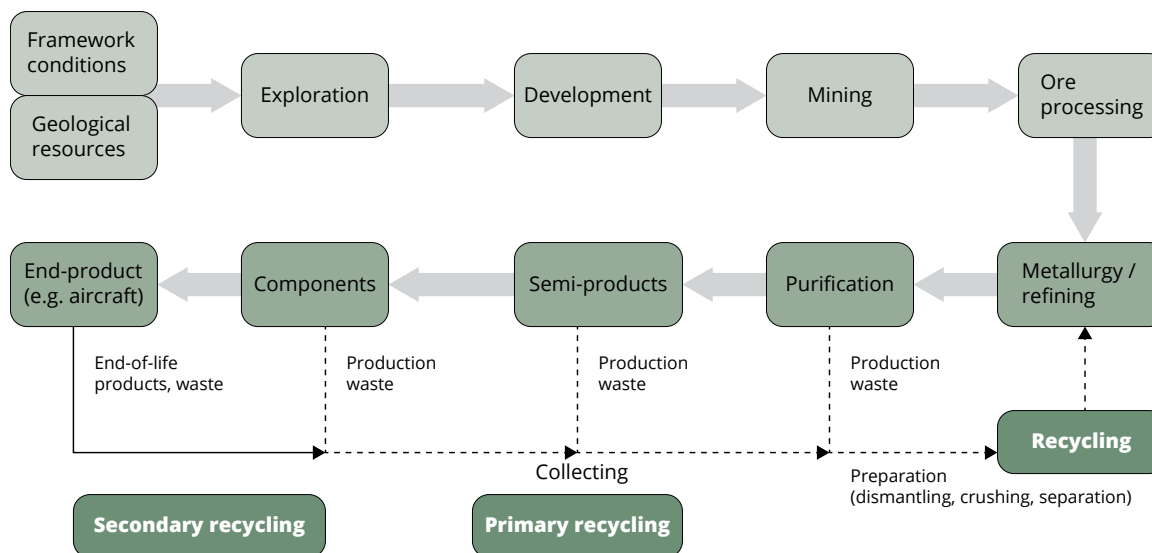


Figure 2.1: (above) Schematic representation of a minerals or metals-dependent value chain

2.4. Development minerals

These are mined, processed, manufactured and used domestically in industries such as construction, manufacturing and agriculture. Development minerals are generally low-value compared to export minerals yet are crucial for domestic economies, employing many people and especially women. Since they are largely produced by small and medium-sized enterprises, including informal enterprises, and consumed locally (where they are produced), they are frequently not treated as a core

focus of mining policy and governance. This lack of attention has contributed to unsustainable mining practices—for example, uncontrolled extraction of sand has severe environmental and economic consequences. [Chapter 2.9].

3

Artisanal and small-scale mining

3.1. Importance of the ASM sector

Export minerals and large-scale mining are given greater attention due to their importance to the global economy, the direct macroeconomic benefits they bring and the concerns related to security of supply. However, other extractive activities especially the artisanal and small-scale mining (ASM) and development minerals sectors are an important source of livelihoods for many marginalized poor people. ASM has increasingly become a source of livelihood for many poor households. More so in recent years which has 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 100-150 million and growing. [Chapter 3.0–3.4, Figure 3.1]

3.2. Recognition and legitimacy of the ASM sector

The equating of the expansion of large-scale mining with ‘development’ by policy-makers has established

an extractive model that favors large industrial operators over the ASM sector. Indeed, many 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, for example through the widespread use of mercury for gold recovery. ASM needs to be recognized as a distinct sector that requires a totally different approach from a policy and governance perspective. Many of the approaches used with ASM in the past treated it as a subset of large-scale formal mining and did not consider its very specific problems. [Chapter 3.4–3.6]

3.3. Context specific governance needs

Context-specific legal and policy frameworks for ASM are required and the importance of the sector must be reflected in international, regional, national and local agendas, policies and plans. The private sector and other stakeholders are urged to enact transparent practices across the supply chains and

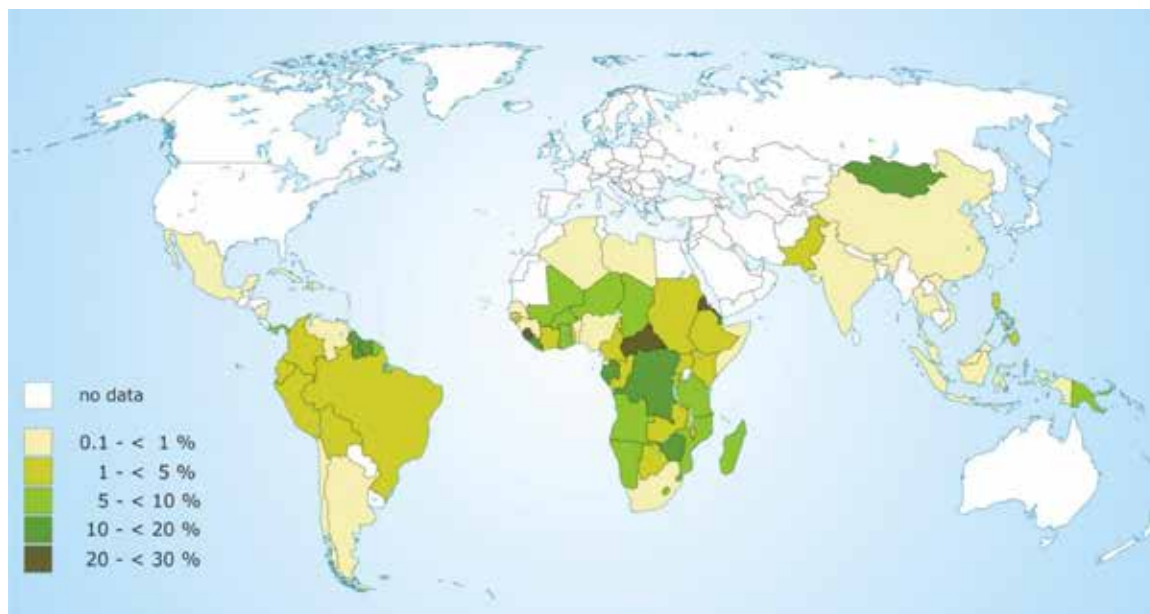


Figure 3.1: (above) Distribution of ASM activities by percentage of population involved. Source: Dorner, U., Franken, G., Liedtke, M. & Sievers, H. (2012). Artisanal and small-scale mining (ASM) (Polinares Working Paper 19). Retrieved from <http://pratclif.com/2015/minesresources/polinares/chapter7.pdf>; IGF (2017). Global Trends in Artisanal and Small-Scale Mining (ASM): A review of key numbers and issues. Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF Winnipeg: IISD).

support ASM integration into local, national, regional and international supply chains. Governments are called 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 is considered important elements of better ASM. [Chapter 3.6–3.8]

Artisanal mining in a small-scale gold mine in Camarines Norte, Philippines. © ILO / Minette Rimando



4

Sector trends towards 2050

4.1. Meeting future demand

Extraction of mineral resources has increased markedly in recent decades, and over the last decade at a faster rate than economic growth. There is currently an oversupply of some mineral resources in world markets, but the supply/demand balance varies greatly over time and between different minerals and metals. In addition, there is a significant long-term challenge—of how to meet the mineral resource needs of a growing global population that is expected to reach 8.5 billion by 2030, 9.8 billion by 2050 and 11.2 billion by the end of the century. Though their demand will track economic cycles, the overall demand trajectory for minerals remains upward as economies grow, technological innovation continues, and resource intensity deepens as developing countries catch up. In recent years, existing mining companies and investors have reduced exploration budgets in response to a cycle of declining commodity prices, which will delay responses to future increases in

demand. Although the budget decline stopped in 2017, its level remains well below the 2012 exploration budget, showing growing aversion to risk by investors. These trends do not bode well for future supplies of minerals and metals to the world economy. This makes it likely that, over the coming two to three decades when availability of metals for recycling is expected to remain low, the mining sector will struggle to meet demand for several minerals (such as copper) for which substitutes are not readily available. Environmental constraints (including energy and water price/scarcity, issues related to mining waste) and declining social acceptance of large-scale open-pit mining may constrain future supplies to the world economy. *[Chapter 4.0, Figure 4.1, Figure 4.2]*

4.2. Price volatility

In this context, there is a significant risk of price volatility, which could hamper the efforts of mineral-rich countries to manage their endowments in a

manner that delivers enduring benefits for societies, economies, and governance. [Chapter 4.0]

4.3. Technology change

Technological advances in the extractive sector are likely to transform production and consumption dynamics with profound global implications, with possible negative impacts on job creation and local procurement of goods and services. These challenges are compounded by the uneven geological distribution of mineral deposits, which give the future of the extractive sector an inevitable geopolitical dimension. [Chapter 4.2.7]

4.4. Progress and potential of the circular economy

Current evidence suggests that primary extraction (i.e. from mines) of minerals and metals will not disappear. Pressure to realize scale effects and cost efficiency in the extractive sector will remain for the foreseeable future, alongside societal demands for greater environmental and social responsibility, and associated opportunities for innovative partnerships, technologies and business models. Demand for primary minerals and metals could be significantly reduced by a range of ‘circular economy’ approaches, including: eco-design; recycling, refurbishment and re-use; and development of secondary sources of minerals and metals resources (e.g. tailings, industrial waste). [Chapter 4.2.8, Figure 4.6]



Figure 4.1: (above) Production of selected common minerals and metals (1926–2013). Source: Data from US Geological Survey, Historical Global Statistics for Mineral and Material Commodities: <https://minerals.usgs.gov/minerals/pubs/historical-statistics/global/index.html>.

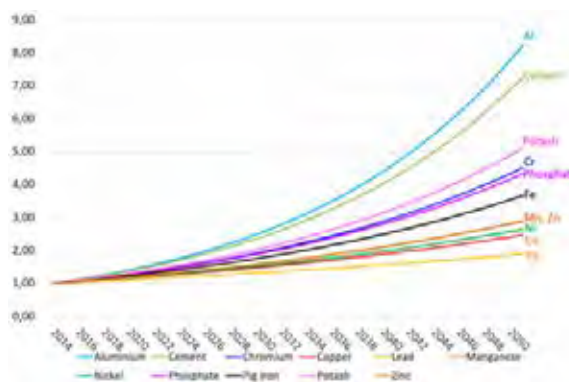


Figure 4.2: (above) Growth scenario for the most widely used minerals and metals. Source: Christmann (2017) based on data from Kelly & Matos, 2016.

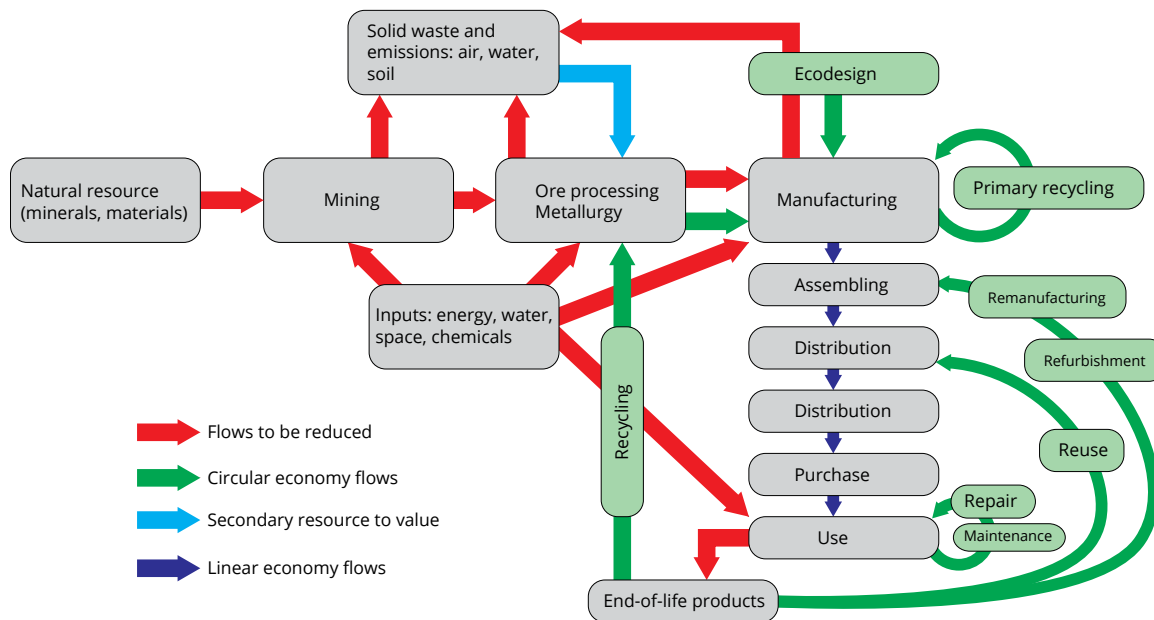


Figure 4.6: (above) Schematic transition towards a circular economy for minerals and metals. Source: Christmann and Piantone, unpublished work of BRGM, the French Geological Survey.



illegal gold mine on the river Amazon, Peru. Photo: © Dave Miller

5

Environmental and social impacts of mining

5.1. Current impacts of mining

Minerals extraction involves disturbing the environment which can lead to disruptions of important biodiversity services and livelihoods [Figure 5.3]. The often severe and enduring impacts on the natural environment from mining activities are 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 of a number of species. This can lead to alterations in the structure and function of ecosystems affecting the provision of a range of ecosystem services for people (especially, 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 and ore-processing waste that can be toxic in nature, posing a significant risk through failures of

storage facilities to contain the waste, or to leaching of contained residual metals through acid mine drainage and other factors. Major disasters such as the Benito Rodrigues tailings dam collapse in Brazil also highlight the need to carefully balance mining with stewardship of other valuable natural resources and the rights of local people and communities. *[Chapter 5.0]*

5.2. Emergent frontiers and challenges

The trend towards mining lower grade ores raises the potential for impacts of extractive activities. Mining lower grade ore will lead to larger amounts of waste, and higher demand for energy and water. The demand for these increases 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. *[Chapter 5.0]*

Areas of biodiversity importance containing mines

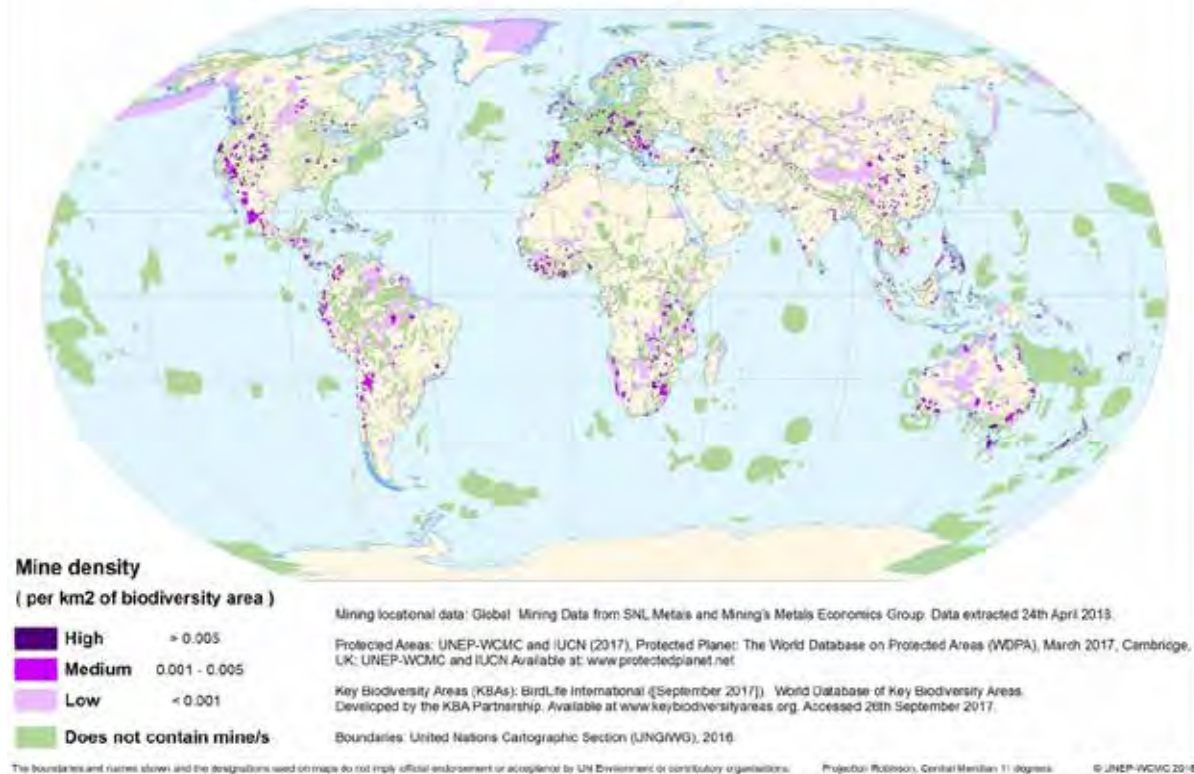


Figure 5.3: (above) Areas of biodiversity importance containing mines. Source: UNEP-WCMC & IUCN (2017).

Mineral Resources Governance Today

6

Challenges of mineral resources governance

6.1. Complex of governance challenges

Despite the extractive sector's potential to act as a catalyst for development in mineral-rich countries, many challenges prevent this potential from being fully realized. These include: the volatility of commodity prices which have exposed especially resource-exporting developing countries to external shocks triggering macro-economic instability; illicit financial flows and other difficulties of managing large and volatile inflows of foreign capital; lack of transparency and accountability and the associated risk of corruption; political instability; technical complexities of large-scale projects which exacerbate the management problems of the sector in jurisdictions with limited national capacities; enclave nature of mining with weak linkages to other economic sectors; lasting environmental damage of some mining projects; global asymmetries of power and conflicting stakeholder interests leading to social conflict; the urgent cross-sectoral imperatives of mitigating and adapting to climate change; conflict

between formal and informal mining activities; lack of recognition of gender dimensions of mining; and redefinitions of resource nationalism, in the absence of consensus on what would constitute shared value from mining. [*Chapters 6.1.1–6.1.14*]

6.2. Necessity of action by all stakeholders

Extractive industries need to continue serving humanity's development as they have done for millennia, but they now need to fully integrate the unprecedented challenges and constraints humanity is confronted with, making the decoupling of economic growth from its negative impacts on the global and local ecosystems on which human well-being depends, an absolute necessity. All stakeholders—including host country governments, home country governments, the international community, mining companies and civil society organizations—have a role to play in this transition. [*Chapter 6.2*].



Conveyor belts at an open-pit copper mine in Zambia, Africa. Photo: Mabus13 © Getty images

Current governance architecture

7.1. The current governance complex of mining

Decision-making in the extractive sector is shaped by, and embedded within, a complex global web of relationships between individuals and institutions. The term governance refers to the many ways that individuals and institutions, public and private, manage their common affairs in this context. Governance of the extractive sector is a process characterized by a wide variety of stakeholders (e.g. governments, businesses, civil society), normative frameworks (e.g. laws, policies, agreements), hierarchical relationships, and associated spatial scales (e.g. global, national, local). [Chapter 7.1]

7.2. Three value chain perspectives

Specific components and challenges associated with mining governance can be distinguished from one another in terms of three value chains that characterize the extractive sector, namely the: [Chapter 7.2]

- **Extractive (upstream) value chain:** focusing

primarily on governance frameworks relevant to the extraction of minerals and metals and associated trade of extracted resources in markets. [Figure 2.1, Figure 7.1, Figure 9.1]

- **Downstream value chain:** focusing on governance frameworks relevant to the products generated from minerals and metals, including full considerations of a material life-cycle and end users of products. Increasing demand by consumers for sustainable products is an increasingly important feature of downstream extractive sector governance. [Figure 2.1, Figure 7.1, Figure 9.1]

- **Policy value chain:** focusing on governance frameworks that affect how different stakeholders (in particular host countries) benefit from mining activities, including those relating to the various operational, regulatory, fiscal, and wider development implications of mining activities. [Figure 7.3]

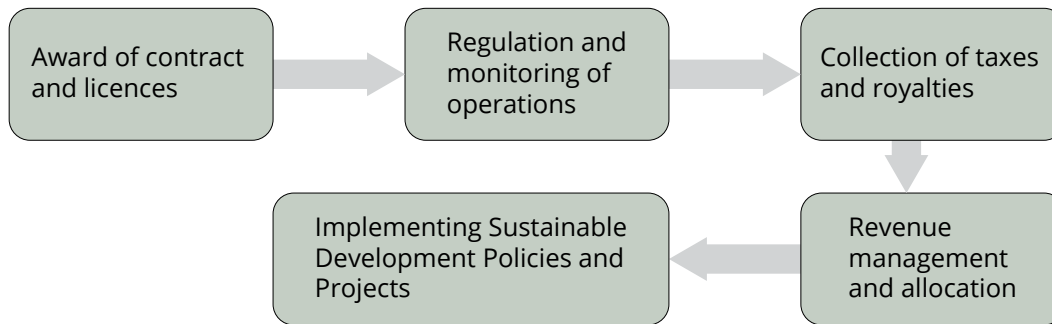


Figure 7.3: (above) Illustrative policy value chain of extractive sector governance.

Source: Adapted from World Bank, Extractive Industries Value Chain: A Comprehensive Integrated Approach to Developing Extractive Industries, March 2009: http://siteresources.worldbank.org/INTOGMC/Resources/ei_for_development_3.pdf.

7.3. Existing international governance instruments for mining

At least 80 such instruments are currently active, including: comprehensive policy frameworks; platforms for dialogue; legally binding instruments supported by UN agencies; national laws with international implications; and voluntary instruments. This range includes instruments led by single stakeholders, and multi-stakeholder platforms. Current instruments also span across geographical locations, from specific sites to global initiatives. *[Chapter 7.2]*

7.4. Subject matter emphasis

61% of the instruments examined in the Report cover sustainable development issues related to responsible business practice. Most of the

instruments cover the issues of sustainable sourcing, spanning many different aspects of supply chains and diverse topics such as human rights, environmental concerns, mining practices etc. Other instruments tend to focus on a single issue. The issue that most single-issue instruments tend to focus on is the environment. Though security of supply is a key motivation for instruments, and a few instruments are exclusively focused on this, security of supply concerns tend to be treated as part of the responsible business practices. Concern for welfare in relation to ASM is also becoming an important concern, with about 10% of responsible business practices instruments focusing on this subject. *[Chapter 7.3.2.1]*

7.5. Lead stakeholder

Many instruments are driven by the Government or public sector, in particular the international bodies like the UN and regional bodies like the OECD [Figure 7.5 and Table 7.4]. Although about one-third of the instruments are multi-stakeholder-driven, only about 40% of the multi-stakeholder instruments are formal public-private partnerships indicating that 60% cannot be fully described as multi-stakeholder as they are led by industry (32%) or civil society (29%). [Chapter 7.3.2.2]

7.6. Resource focus

About a quarter of the initiatives/instruments address metals and minerals specifically, while another 18% address the extractive sector in general (including oil and gas). Only two instruments address oil and gas exclusively. [Figure 7.6 and Table 7.5] An estimated 18% are focused on a single mineral resource, with gold being the mineral targeted by most instruments. About 11% relate to a group of minerals and these are mainly instruments focusing on tungsten, tin and tantalite (3Ts) and gold, which are minerals linked to conflicts in the Great Lakes region of Africa. It is useful to observe that a quarter of the instruments are not specific to extractive resources but apply to a broad range of sectors. These are instruments that address the general challenges of sustainable development. However, they single out extractives as a high priority and some have specific sections for the sector. For example, the Global Reporting Initiative has a special supplement on extractives and the International Financial Reporting Standards Foundation is developing a reporting standard

focused on extractives. [Chapter 7.3.2.3]

7.7. Geographical focus

Most instruments reviewed in the Report—which largely exclude the plethora of national-level instruments—have a global coverage, reflecting the multinational scale of much of the formal extractive industry. Only eight (13%) of the instruments have a regional focus and these are mainly instruments targeting conflict minerals in the Great Lakes region. [Chapter 7.3.2.4]

7.8. Sub-sector focus

Most instruments focus on the formal or large-scale mining. The challenges of the informal sector are very different and require different approaches. Fourteen (23%) of the instruments have a focus on ASM sector (See Table 7.6). Half of these focuses on developing conflict-free supply chains as the industry has sought to comply with regulations or manage its public image. Seven of the instruments have improvement of the ASM sector as part of their objectives. [Chapter 7.3.2.5]

7.9. Type of instrument

Forty five percent of the instruments are platforms for standard setting or assessment/indexes or guidance i.e. benchmarking tools. This is followed by 16% of instruments that are platforms for capacity building (including networking, knowledge sharing). Thirteen (15%) are platforms for advocacy (including dialogue and coordinating activities). Eight (9%) of the instruments are policy frameworks and 13 (15%)

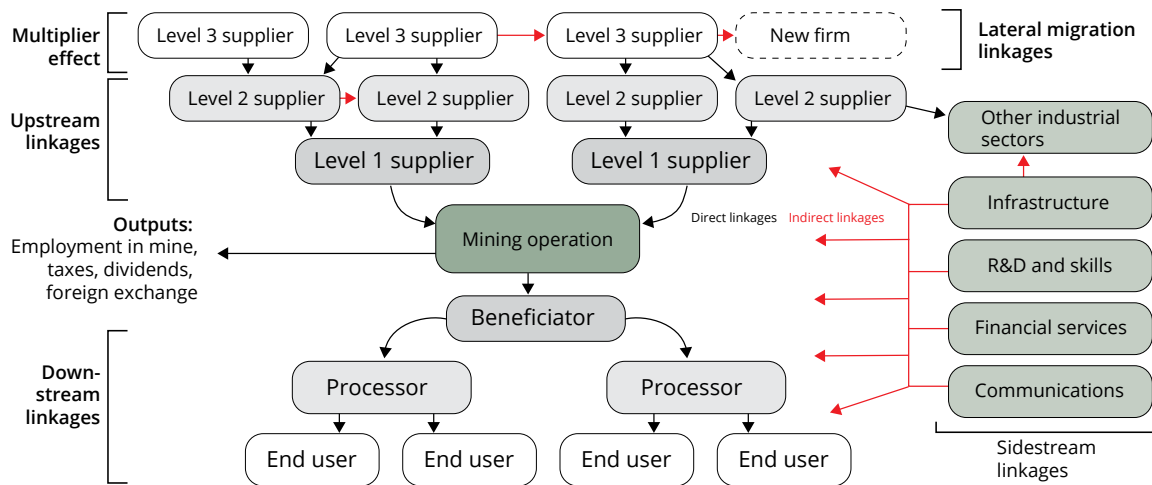


Figure 9.1: (above) Institutional linkages in the minerals resources sector.

Source: World Bank, Extractive Industries Value Chain: A Comprehensive Integrated Approach to Developing Extractive Industries, March 2009: http://siteresources.worldbank.org/INTOGMC/Resources/ei_for_development_3.pdf.

are legal frameworks. From the perspective of participation, 42 (48%) of the instruments are purely voluntary. Fifteen (15%) are voluntary but contingent on being a member of the organization proposing them. For instance, all members of the International Council for Mining and Metals (ICMM) must sign to commit to the ICMM principles. For 17 (20%) of the instruments, formal certification or audit by a third party is required to demonstrate compliance, while 13 (15%) instruments (are backed by force of law or by an international convention/agreement/treaty meaning they are mandatory. [Chapter 7.3.2.7].



Construction workers inspecting site using digital tablet.
Photo: Seventy Four © Getty images

8

Effectiveness of governance instruments

8.1. Collective governance gaps

Notwithstanding the fact that each of the initiatives discussed in Chapter 7 make important contributions to mining governance in their defined domains, a range of key governance gaps are apparent when they are assessed collectively, including: unintended consequences of governance instruments that undermine the sustainability of mining; lack of buy-in to existing instruments; lack of compliance with existing instruments; uneven focus of current instruments relative to the broad range of issues confronting the extractive sector as a whole; proliferation of standards concerning different aspects of mining sustainability; and the lack of a coherent and collective theory of change. *[Chapters 8.1.1–8.1.6]*

8.2. Stakeholder engagement

Effective engagement of stakeholders is central to successful stewardship of mineral resources. Their crucial role emerges from the fact that: (1) actions

of stakeholders (particularly governments and mining companies) are the sources of governance problems; (2) these stakeholders tend to advocate for a particular solution; (3) they are the objects of governance instruments; and (4) they are joint co-producers of governance. Stakeholder engagement in the extractive sector is undermined by a range of factors including: unwillingness of governments to accept scrutiny; duplication and mixed priorities of international development partners and civil society organizations; selective engagement by businesses; and differing conceptions of the extractive sector. *[Chapter 8.2]*



Aerial image of coal ash disposal into landfills, South Africa. Photo: Jassen Todorov. © Getty images

9

Pre-requisites of effective governance

9.1. A holistic approach

At the most basic level, a mineral resource governance framework should seek to increase transparency; build capacity to reduce the power asymmetry between governments, industry and other stakeholders; establish institutions that will enable trust to grow between competing interests and align understanding about what constitutes shared value; and protect all parties from the corrosive effects of corruption. Translating mineral wealth into lasting economic gains will further require a broad span of policies that convert extraction from an enclave industry and link it to the broader economy through local content and value addition. Mineral resource revenues should be leveraged to implement sustainable development projects – through stimulating economic diversification and careful investment in physical and social infrastructure and provision of public goods, while at the same time addressing the externalities (social, environmental, and economic) that mineral resource extraction engenders. *[Chapter 9.1]*

9.2. Decoupling of mining from environmental and social impacts

Mining by its very nature disturbs natural environments and poses many threats to human wellbeing. The crucial balance—to ensure that mining delivers economic and social benefits while not causing irreparable damage to the environment—is hard to achieve and economic benefits tend to trump environmental concerns. *[Chapter 9.2]*

9.3. Protection of human rights

Extractive resources can engender conflicts that lead to human rights violations, with indigenous people being particularly impacted. In this context there is a need for a governance framework that prioritizes human rights. **[Chapter 9.3]**

9.4. Greater engagement of home countries

Most of the environmental and social impacts of minerals extraction, and associated governance

responses, occur in the upstream end of the mining value chain. The complexity of today's globalized value chains in commodity extraction and trading imply responsibilities for not only the host state and the multinational enterprise (directly or indirectly) involved in the mining, but also the investor's home state and international governance. All of these actors share the responsibilities to avoid and compensate for the social and environmental impacts of mining and the other challenges associated with extractive activities. [Chapter 9.4]

9.5. Responsible business practices

At the local level, extractive activities are expected to provide jobs and local development, while at the national level there are expectations that revenues (taxes and royalties) will fund development projects. However, this is not usually the case. The highly capital-intensive nature of the industry means that few jobs are created. Similarly, the enclave nature of the sector means that there are few linkages to the local economy. At the national level, as discussed in Chapter 6, there are significant revenue leakages through accounting practices of mining companies and other forms of illicit financial flows. This means that development objectives are not fully realized. Mining companies have tried to mitigate these through corporate social responsibility (CSR) activities and greater transparency through joining platforms like the Extractive Industries Transparency Initiative (EITI). These efforts, however, have not been adequate, which has led to calls for greater



Child labour in small-scale gold mine in Camarines Norte, Philippines. © Minette Rimando / ILO

local content and local participation in extractive value chains through legal mandates. While this is leading to more responsible business practices, there is a need for greater integration of these practices in companies' strategies, building on the work of the International Council for Mining and Metals (ICMM), Global Reporting Initiative (GRI), and others. [Chapter 9.5]

9.6. Balance between security of supply concerns versus sustainable development aspirations

Though much of the extractive industry is located in OECD countries and emerging economies, extractive industries are important to the economies of many developing countries. However, output from developing countries is largely used in the more developed countries as inputs to many key industries and thus these imports are also crucial to the economies of importing countries. This means that for developed countries security of supply is of utmost importance, while for most resource-rich countries development is the main concern. While both objectives can be achieved simultaneously this can be a challenge. Security of supply may override concerns for good governance and in many cases minerals become the key enabler of poor governance. Calls for quick development may also bring about resource nationalism that can dampen investment and deny people the much-needed development. [Chapter 9.6]

9.7. Access to data, information and knowledge

Information is crucial to making good decisions. However, the diversity of actors in the extractive value chain means the various actors rely on different types of information. Due to significant variations in capacities of the actors, there are huge differences in information available. This information asymmetry means that some actors can capture disproportionate shares of the value of extracted resources, creating the basis for the contestation that is a feature of the extractive value chain. Even when information asymmetry is not exploited to the benefit of the informed, it still creates mistrust that can lead to misunderstandings and even conflict. Accurate information requires that data be available and accessible to users. However, data collection can be a challenge due to the lack of transparency prevalent in the sector. Transparency alone is not enough as actors can be overwhelmed by information overload. This underscores the need for capacity to process the data and make it relevant to various stakeholders. [Chapter 9.7]



Aluminium gets recycled by hand in Ambatolampy, Madagascar. Photo: Dennisvdw © Getty images

Mineral resources
governance for sustainable
development

10

Towards a Sustainable Development Licence to Operate

10.1. Responding to the post-2015 development agenda

The need to better coordinate and reform mining governance is given impetus by the adoption in 2015 of the 2030 Agenda for Sustainable Development, including the 17 Sustainable Development Goals and 169 associated Targets. Recent analyses highlight how a well-managed extractive sector can promote delivery of the SDGs and Targets, both in relevant countries and globally. The notion of sustainable development—integrating the pillars of people, planet, prosperity, peace and partnership—has become the organizing framework for global development cooperation and is key to framing discussions about the extractive sector's future. As all countries strive to achieve sustainable development, there is a need for a framework that enables, at each level of globalized value chains, all actors to assess the compatibility of their decision-making with the SDGs and Targets, including efforts to address the above-mentioned challenges. *[Chapter 10]*



Scrap aluminum dust and metal trash at recycling plant.
© Hunur / Getty images

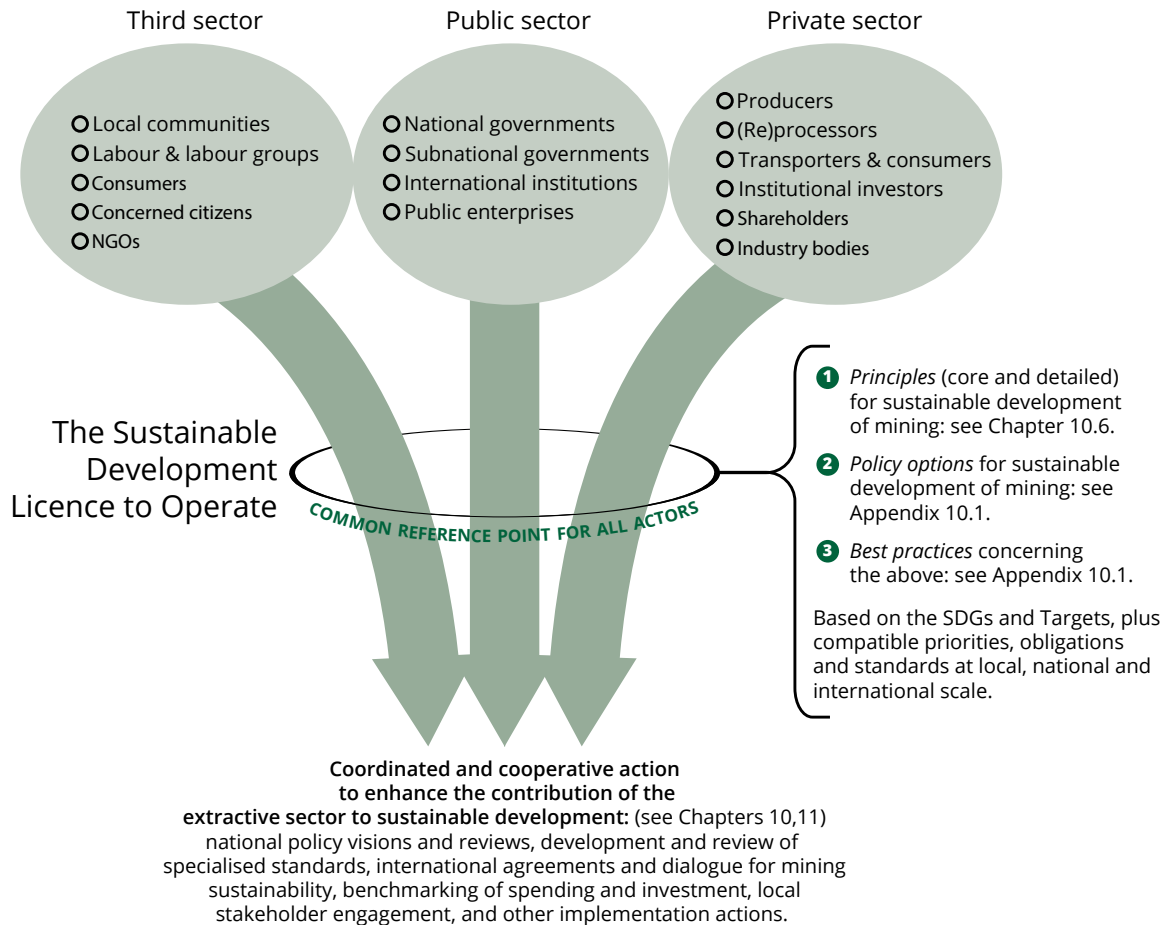


Figure 10.1: (above) The Sustainable Development Licence to Operate Framework.



A wide view of an open-pit copper mine in Zambia. © Mabus13 / Getty images

10.2. The Sustainable Development Licence to Operate

Since the late 1990s, mining companies have increasingly sought to secure the acceptance of mining activities by local communities and stakeholders, in order to build public trust in their activities and prevent social conflict. Such attempts to earn a Social Licence to Operate (SLO) are premised on engagement between mining companies, governments and civil society to ensure that mineral resource extraction contributes to national and local development, and that damaging impacts on host communities and the environment are mitigated or otherwise managed. The SDLO is similar to the SLO in that it is designed to improve the societal net benefits of mining, and is not designed to function as a licence in the compulsory or regulatory sense. However the SDLO extends the SLO concept in several important ways, so that it can function as a normative reference point oriented towards the achievement of sustainable development:

- First, the SDLO addresses broader subject matter, covering all environmental, social and economic concerns that fall within the ambit of the SDGs and Targets.
- Second, the SDLO is designed to be relevant to all actors in the extractive sector across the public, private and third sectors—articulating a set of internally consistent principles and policy options that are compatible with the SDGs and Targets, plus other priorities, obligations and standards compatible with the 2030 Agenda.
- Finally, the SDLO is designed to set out not only minimum standards of behaviour, but also evidence-based best practice and opportunities for enhancing the extractive sector's contribution to sustainable development. *[Chapter 10.2–10.3]*



Aerial view of a bauxite mine exploitation and aluminum production in Ciudad Guayana, Venezuela.
Photo: Apomares © Getty images

Implications and implementation of the SDLO

11.1. Principles for sustainable development of mining

As a first step towards identifying globally relevant principles for sustainable development in the extractive sector, all 17 SDGs and 169 Targets were analyzed to identify Targets (across all SDGs) that call for changes in extractive sector governance. The official text of these was iteratively summarized until a reduced set of normative statements emerged, resulting in a provisional set of eight ‘detailed’ principles for sustainable development of mining, underpinned by three ‘core’ principles [see Figure 10.2]. These are consistent with the SDGs, and can therefore operate as a universal reference point for decision-makers, enabling alignment of their decision-making with the international consensus embodied in the 2030 Agenda for Sustainable Development. [Chapter 10.6–11.7, Figure 11.4]

11.2. Policy options and gaps for mining for sustainable development

To be effective, the SDLO Principles would need to

be operationalized in a wide range of policy domains, by different actors from the public, private and third sector. Their use would also need to extend across the entirety of mineral value chains—including 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. Existing literature was reviewed as a first step towards identifying a comprehensive set of policy options for sustainable development of the extractive sector. Identified policy options were organized into a framework built around the ‘detailed’ SDLO Principles [see Figure A10.1]. The resulting SDLO Policy Options incorporate, acknowledge and connect influential policy assessment initiatives, standards and visions (e.g. the African Mining Vision and Natural Resources Charter) that focus on specific subsets of the very broad range of issues that are relevant to implementing the 17 SDGs and 169 Targets. Despite the wide variety of policy options available to support transitions to mining for sustainable development, several key gaps (and opportunities) are revealed when existing policy

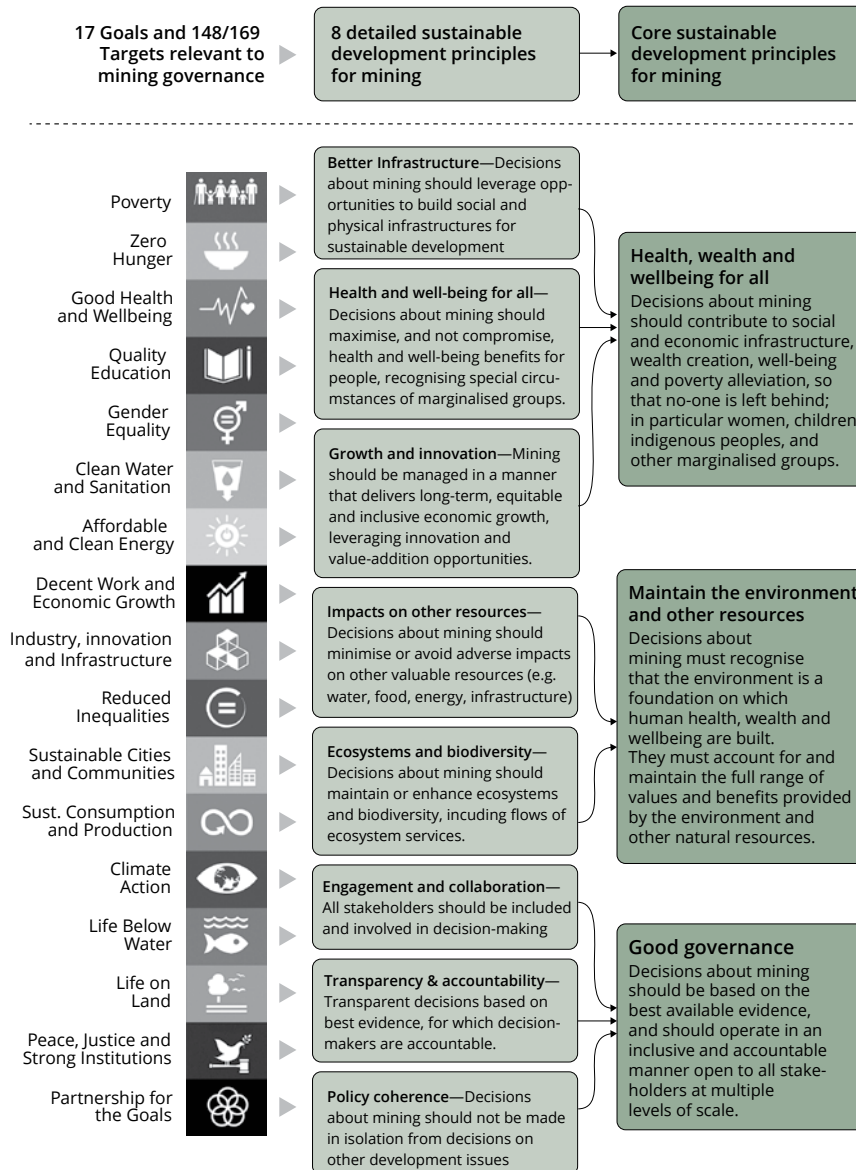
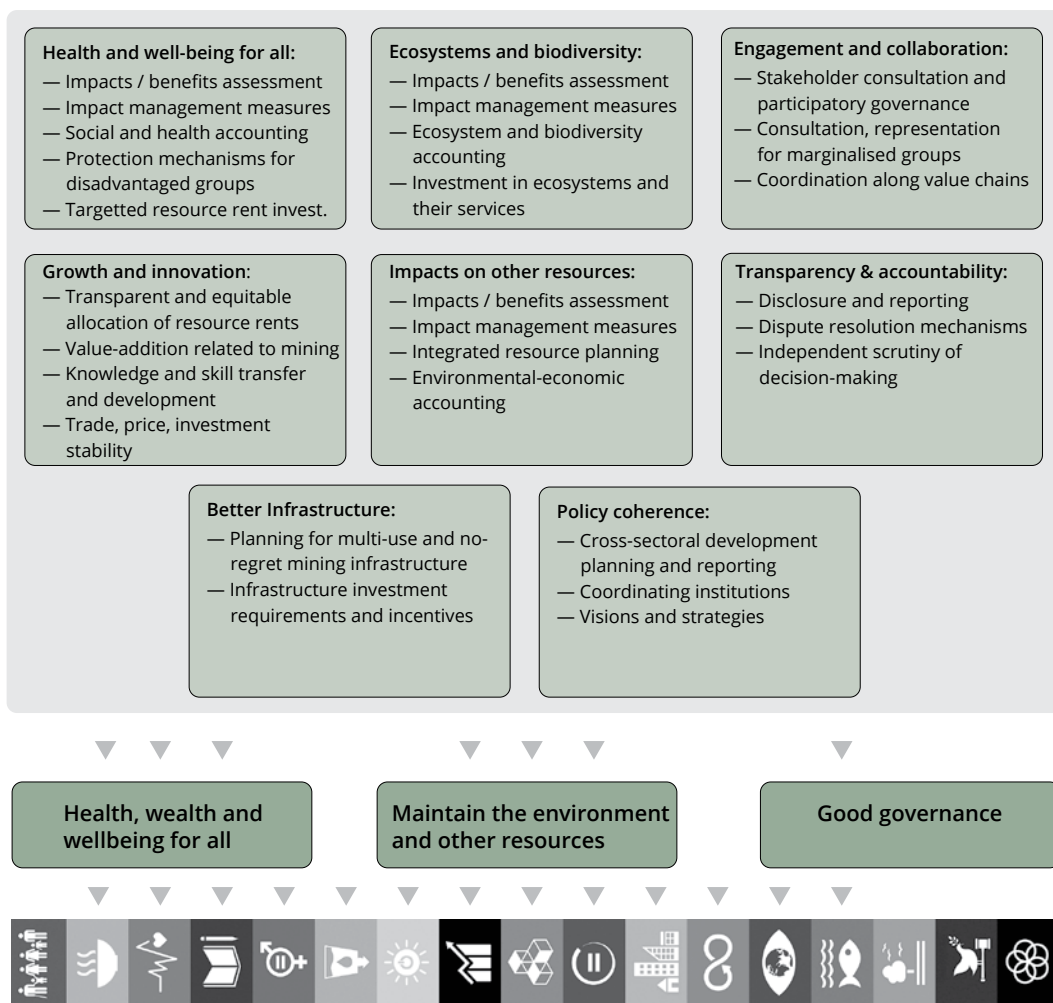


Figure 10.2: (above) Illustrative sustainable development principles for the extractive sector.



Sustainable Development Goals and associated Targets

Figure A10.1: (above) Illustrative sustainable development policy options for the extractive sector. For detailed examples concerning each policy option, refer to Chapters 10 and 11 of the Report.

responses are benchmarked against the SDGs and Targets. *[Chapter A10.1–10.8, 11.1–11.4]*

11.3. Coherent policy for development minerals

Further effort is needed to identify policy options for development minerals (e.g. sand, salt, potash, phosphate), which dominate global mineral production, representing ~84% of all mined commodities in terms of volume. Despite their importance for economic development, the legal and regulatory frameworks in many countries concerning development minerals is unclear—for example they are often excluded from the scope of mining legislation. Initiatives such as the ACP–EU Development Minerals Programme are producing valuable evidence and lessons learned that are of global relevance. *[Chapter A10.9, 11.2–11.4]*

11.4. Transparency and accountability

Supported by a wide range of transnational governance initiatives (for example the EITI), more information is being generated and published in the extractive sector than ever before. However transparency and accountability efforts in the mining sector have overwhelmingly focused on financial transparency, with relatively less attention devoted to increasing transparency concerning social and environmental impacts. Where social and environmental data is made available, it is often fragmented or published in forms that are difficult for stakeholders to engage with or understand. Promising innovations to address this policy gap include multi-stakeholder processes that focus on bottom-up knowledge creation to build trust among

stakeholders. For example, legislation in Peru now allows for participatory environmental monitoring of mining operations. Since 2008, more than 40 groups have registered with the Ministry of Energy and Mines to support environmental monitoring efforts. *[Chapter A10.9, 11.2–11.4]*

11.5. Integrated development planning for mining

Mineral resources governance around the world is characterized by the widespread absence of (spatial) planning of mining and associated infrastructure, where decisions are not underpinned by a ‘nexus’ approach that optimizes flows of benefits from both minerals and other stocks of natural capital (including ecosystems and biodiversity). There is a pressing need in many countries to establish and strengthen legal and policy frameworks, to enable integrated and holistic planning for natural resources development. There is also a pressing need to establish frameworks for natural resource accounting, monitoring and reporting, as inputs to these planning processes. Policy and practice innovation in this context can benefit from considerable technical progress over the last decade, including the statistical standards and approaches documented in the UN Framework for Development of Environmental Statistics, and UN System for Environmental-Economic Accounting (SEEA). *[Chapter A10.9, 11.2–11.4]*

11.6. Enhanced cooperation between exporting and importing countries

Policy opportunities also exist to support both long-term mineral supply stability and wider sustainability through international cooperation between resource exporting and importing countries. Current ‘stop-go’ investment cycles in international mining exploration and development, driven by volatile price cycles, have negative consequences for both long-term mineral supply security and a wide range of development outcomes in both exporting and importing countries. International agreements concerning the extractive sector could support sustainable development through a range of policy responses including: recognition of non-discriminatory standards for production, tariff and other trade incentives to support compliance with standards, and mechanisms to channel greater investment in sustainable mining and value addition activities. *[Chapter A10.9, 11.1–11.4]*

11.7. Making the SDLO operational

Operationalizing and mainstreaming the SDLO (and consequently the SDGs) throughout the complex and multilevel global governance architecture for mining will depend on sustained and long-term commitment from diverse actors, working amidst the many governance challenges surveyed in this Report. Key implementation pathways for the SDLO include:

- Private sector benchmarking and certification,

including use of the SDLO to strategically review and map existing initiatives against the SDGs and internalize them in business models and practice;

- Public sector benchmarking and associated capacity building, using the SDLO as a means to assess the compatibility of public policy, regulation and stakeholder engagement with the SDGs and update those instruments accordingly to deliver better development outcomes at national, sub-national and local levels; and
- International dialogue concerning options for new agreements to strengthen transnational governance of mining including mechanisms to address illicit financial flows, price volatility, and security of mineral supply, and generate shared value to host and home nations, in a manner compatible with sustainable development. *[Chapter 11.7, Figure 11.4]*

11.8. Business as usual is not an option

In an era characterized by unprecedented governance complexity and an urgent imperative for sustainable development, business-as-usual governance of the extractive sector is not fit for purpose. The SDLO provides an entry point and reference frame for navigating the complex nexus of issues and challenges associated with mining, in order to identify actions needed to realize the 2030 Agenda’s vision of a better future. *[Chapter 11.7, 12]*



Illegal mining in Ituri, Democratic Republic of the Congo. © Julien Harneis

Conclusions



Conclusions for policymakers

A1. Undertake gap analysis and governance reform

Effective governance of the extractive sector will require different mechanisms and initiatives at the local, national and international levels. At the national, sub-national and local levels, the SDLO can be used as an indicative framework to undertake a gap analysis with a view to formulating nationally determined SDLO pathways, including updating and adapting existing national visions, policies, strategies, laws, regulations and practices to the exigencies of the 2030 Agenda and to quadruple bottom line reporting principles. Of vital importance is the need to reduce the perception gaps on what constitutes benefit in the extractive sector among relevant stakeholders, and generate development outcomes based on the concept of shared value.

A2. Adopt a full life cycle perspective

Gap analysis of existing governance needs to consider all the main stages of the life cycle of minerals and metals and of the related materials

flows, including: mineral exploration and mine planning, mining, ore processing, metallurgy/refining, manufacturing, the use phase, and end of life, with a view to moving from a linear towards a more circular life-cycle. Mine closure and post-closure developments also need to be planned for from the beginning.

A3. Support transparency, accountability and reporting

Transparency and accountability principles should be enshrined in all the laws governing the mines and metals industries and made a precondition for obtaining exploration and mining permits, with companies committing to operate according to the Equator and the EITI principles. Eco-labelling of minerals and metals should be introduced, in line with the SDLO framework conditions.

A4. Maintain adequate institutional capacities

Governments need to ensure that core institutions relating to mining regulation are functional, with the

support of regional institutions as necessary, with proper experienced staff, budgetary and material resources as well as authority to promote and regulate the development of the mines and metals industries in line with SDLO Principles.

A5. Support skills development

Larger mining, processing, or refining projects and operations are technically and managerially complex, requiring a wide range of experienced professional skills in diverse fields. The local availability of such skills plays an important role in determining the returns of industrial activities related to mining and metals to the local economy, and the development of value-adding activities beyond the production of minerals and/or metals. Many developing countries will need investment in the development of training facilities, possibly at regional scale, in order to secure greater returns to national economies.

A6. Support research and innovation

Research and innovation is continuously needed in order to:

- Provide tools to explore more efficiently for mineral resources that will be more and more difficult to discover as high-grade outcropping deposits have mostly been discovered.
- Produce minerals and metals using less energy, water and other inputs while generating less emissions and waste.

- Develop substitutes for scarce and/or costly minerals and metals.
- Develop recycling of minerals and metals from end-of-life products.
- Develop innovative materials requiring less minerals and metals for a similar service or providing more sustainable performance during the use phase and/or being easier to recycle.
- In developing countries such research and innovation may need to be supported by minerals-importing nations.

A7. Invest in data and knowledge

Environmental, geological, market, life-cycle, material science and technological data and information, as well as the knowledge that can be derived therefrom, are of critical importance to policy making, and investment decisions, and to inform stakeholders on a reliable, factual, basis. Therefore public investment in data acquisition, conservation, management and modeling as a public good is also one of the framework conditions to be met to develop and inform mineral resources governance.

A8. Strengthen stakeholder engagement

Every effort should be undertaken, if a government decides to foster the development of national/ regional minerals and metals industries, to develop stakeholder understanding of the sustainability issues at stake and of the means to ensure that

their development will provide a sound, sustainable, development basis that will benefit the impacted populations and the country's development. Active stakeholder engagement from the onset of a potential mining project is a key factor towards its success, potentially saving much resources that otherwise could be expended grappling with costly protracted conflicts. Trust among stakeholders is very easy to destroy.

A9. Local governance reform

Extractive sector governance mechanisms will need to include empowerment and capacity building of local communities and community-level institutions to engage in dialogue with mining companies; internalization within mining companies of the SDLO responsibilities, including adequate capacity to plan, manage, proactively disclose issues relating to the mining project, and address local community issues in a credible and appropriate manner; and new relationships between the stakeholders based on co-responsibilities and transparent risk management and strengthened by robust dispute management and resolution mechanisms.

A10. National governance reform

The SDLO requires that national laws and regulations foster: a positive interplay between mineral development and sound environmental management; full development of geo-scientific databases to facilitate location and estimation of mineral resources; capacity development of sectoral institutions to adequately address not only the normal management tasks, but also to ensure

incorporation of sustainable development practices into business processes; and development of sectoral funding mechanisms for activities such as database creation and regulatory capacity enhancement.

A11. Strategic planning for minerals development

Such activities could best be facilitated through the adoption of a **Strategic Development Plan**, consisting of actions proposed within the sector, as well as a set of actions in other sectors impacted by or impacting on mining, along with the stakeholders, and mapped against the SDGs. The Strategic Development Plan should recognize the priority given to enabling minerals and metals industries based on the SDLO framework, to contribute to sustainable development. The importance of skill development and of research and innovation should be recognized as well as the establishment of a sovereign wealth fund that should manage most of the public revenue coming from the mines and minerals industries, with a long-term perspective. The Strategic Development Plan could also entail a Mining Law, to enshrine the principles of consultation, and transparency and reporting, and include explicit references to the SDGs, to the rights of local populations, and to International Agreements and Standards.

A12. Build core public institutions

The Strategic Plan should also facilitate the creation of the three core public institutions needed to promote and regulate the development of the

mines and metals industries: an **Environmental Directorate or Agency**, in charge, in close coordination with other ministerial departments, of developing environmental policies, laws and regulations; a **Mining Directorate** charged, in close coordination with other ministerial departments, with developing mines and metals-related policies, laws and regulations for consideration by the government; and a **Geological Survey**, tasked with the acquisition, conserving, management, modeling and dissemination of geological, geophysical, geochemical and other data.

A13. Conduct impact assessments and site planning

The Strategic Development Plan could also oversee the preparation of the various plans that are required for the effective governance of mining operations, including **Environmental Impact Assessments (EIAs)** describing how the proposed mine and related facilities/ infrastructure will impact on these initial conditions and how natural hazards may impact on the proposed project; a detailed **Environmental Management Plan (EMP)** describing over the lifetime of the planned operations how the identified or potential impacts will be mitigated, and how performance will be publicly reported with measurable/ verifiable indicators; a **Mine Closure Plan (MCP)** detailing how the mining and related operations will be terminated at the end of the mine life in a manner that provides an environmentally and socially sound opportunity for the later use of the land impacted by mining and related activities; and a **Post-Mining Plan (PMP)** detailing all the precautionary, mitigating monitoring and other

measures that will apply for a duration of a specified number of years after mine closure.

A14. Simple, stable and enforceable taxation

In order for countries with mining, especially developing countries, to benefit from a fair share of the mining revenues, their taxation regime should be based on **simple, stable and enforceable taxation rules**, which: excludes the use of transfer pricing, and the use of tax havens to avoid national taxes; prevents erosion of the tax base and profit shifting practices; entails mandatory disclosure of the payments received by all public authorities (national, regional or local levels) from the mines and metals industries; and is sufficiently flexible, so that taxes may be reduced in periods of low profitability, while they may be increased if the market price of the produced minerals/metals exceeds an agreed threshold.

A15. International governance reform

Internationally, the SDLO would work most effectively with an **international architecture that supports host countries in their journey towards sustainable development** by maintaining knowledge repositories, disseminating best practices, helping manage risks beyond the scope of the host country, making available tool kits for evaluation of various aspects of the mining sector, and compiling **Global “State of the Sector”** reports from time to time, incorporating country visions and Strategic Plans for moving towards more sustainable sectoral practices.

A16. A new international coordination mechanism

Effective governance of mineral resources fundamentally requires better signaling between demand for particular emerging technologies that require minerals and the extractive enterprises that will supply them, in place of the ad hoc arrangements and contracts between particular firms and suppliers, which are often economically and ecologically inefficient. An **international coordination mechanism** is needed, whereby data is shared on economic geology as well as mineral demand needs, alongside transparency on impacts and benefits. This could be facilitated through the formation of an **International Mineral Agency**, or an **international agreement** (either a separate treaty or a protocol that considers the mineral needs of complying with existing environmental agreements).

A17. Development of the SDLO framework and best practice.

Through these institutions or others, continuous coordinated international effort would be required to develop the SDLO framework conditions with a special focus on developing countries and on so far informal small-scale activities. Collecting evidence concerning current best practice and making it available via a single Internet portal would support capacity building. This web portal could also provide links to existing Massive Open Online Courses (MOOCs) related to minerals, metals, materials, resources governance, research and innovation. Informal artisanal mining would need to be turned into formal small-scale operations providing its

stakeholders with security of tenure and support to develop sustainable extraction practices.

A18. Provide skills, material and financial resources

Capacity building and training; institutional strengthening; data acquisition, conservation, management and modeling; research and innovation, the development of web-based multilingual access to data, information, and knowledge (including above mentioned best practice reference documents and MOOCs) all require human skills, material, and financial resources. Providing these resources at the international level should not be beyond an industry which in 2015 had an estimated total value of \$US3.6 trillion. A financial resource of a few billion from the industry to achieve the development of the framework conditions summarized here, would have an insignificant effect on minerals and metals prices.

A19. Short term opportunities and next steps

There are, in addition, several specific opportunities that could be used to take the first steps towards refinement, implementation and use of the SDLO through global governance of the extractive sector. For example:

- 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 on Sustainable Development, could serve as fora for **negotiation of an international consensus regarding both the normative content and structure of the SDLO**, and

specific policy options and programmes for its implementation.

- Ongoing **bilateral and plurilateral discussions between governments about security of supply of raw materials and resource-driven development** (for example discussions between Europe and Africa as well as Europe and Latin America, including under the auspices of the EU Raw Materials Initiative and Strategy) could utilize and refine the SDLO as a template for new international instruments to strengthen transnational governance of mining and associated trade flows.

- The 80+ existing standards and instruments relevant to specific aspects of mining sustainability could **use the SDLO as a basis for benchmarking or aligning their own activities, with wider political commitments on sustainable development**—for example by embedding or adapting the SDLO Principles within documentation and standards, or by using the SDLO to identify opportunities for inter-standard collaboration. Decision-makers from institutions and/or initiatives such as the EITI, ICMM, Equator Principles, Financial Institutions (EPFIs), GRI, Responsible Mining Index, and many others, should jointly explore the opportunities for upwards harmonization of global good practice standards, consolidation of existing initiatives and instruments for ease of application, improved efficiency, greater enforcement, and less duplication or redundancies.

- Relevant international communities of experts could consider options for forming a **'High-level Panel on Mining for Sustainable Development of Mining'**, whose activities would build on the analysis

presented in this Report and develop an authoritative and standardized set of SDLO Principles and Policy Options, including recommendations for the design of transnational instruments to strengthen mining governance. Illustrative examples of this model from other sectors include the Global Ocean Commission, whose recommendations were influential in the decision to launch a new global round of negotiations concerning ocean areas beyond national jurisdiction, and the recently established High-level Panel on Building a Sustainable Ocean Economy.

- More broadly, the **development of the conceptual framework presented in this report** could be taken forward by several existing international initiatives such as the World Resources Forum and the World Materials Forum. With the support of regional / international organisations such as the UN Regional Commissions, other UN bodies such as UN Environment and the UN Development Programme, the European Commission, the African Union Commission, the OECD, the World Bank, the G20, and progressive national governments, it is possible to imagine the development of the framework to the point where an **international agreement on mineral resources governance** could be obtained and effectively implemented.

12b

Conclusions for business leaders

B1. Account for and manage risks associated with the global transition to sustainable development

Accelerating global efforts to achieve sustainable development pose significant risks for extractive sector business models that are not aligned with a **quadruple bottom line approach**—where success is measured holistically on both the strength of economic outcomes, sound environmental and material stewardship, respect for social values and aspirations, and on observance of the highest governance and transparency standards. Current evidence indicates that mining activities have **potential trade-offs with all 17 Sustainable Development Goals and 50+ of the 169 associated Targets**. Strategic investment to account for and minimize these trade-offs will be crucial to the public acceptance, competitive advantage and sustainability of extractive sector business models over the long term.

B2. Pursue opportunities associated with the transition to sustainable development

The extractive sector is also a crucial contributor to sustainable development outcomes, with current evidence indicating **potential synergies between mining activities and 17 Sustainable Development Goals and 110+ Targets**. Opportunities exist for businesses who can deliver innovative practices that exploit these synergies and maximize the “development dividend” of mining.

B3. The imperative of corporate responsibility

Independently of commercial considerations and prevailing regulatory conditions in a specific countries or jurisdictions, the 2030 Agenda establishes a **clear global expectation of corporate responsibility concerning social, environmental and wider governance concerns**. This reinforces the importance of a quadruple bottom line approach to business decision-making throughout the extractive sector.

B4. Contribute to international governance reform to improve long-term stability and security

Business leaders are encouraged to contribute to ongoing inter-governmental discussions concerning new international coordination mechanisms for the extractive sector, as a means to address commodity price volatility, geo-political tensions, and other globalized factors that undermine the long-term stability and security of the sector's business environment.

B5. Relevance of the SDLO to business decision-making

The SDLO framework builds on the work of the ICMM, EITI, GRI and other sustainability initiatives, processes and standards. It is however broader in scope—intended as a shared reference point for public, private and third sector stakeholders, including small and medium-sized enterprises active in the extractive sector. The SDLO provides a strategic lens through which businesses can:

- **Combat 'initiative fatigue':** by mapping their engagement with, and participation in, external sustainability initiatives against the 2030 Agenda, in order to identify options, gaps and strategic opportunities—for example by identifying the most relevant indicators from the Global Reporting Initiative; Global Compact and the Voluntary Principles on Security and Human Rights; and many others.

- **Align internal business activities with the SDGs and Targets:** in order to mitigate social, economic and environmental risks, and capitalize on innovation opportunities associated with local, national, regional and global transitions to sustainable development.

Align business models with long-term development objectives: in particular with host countries' national development aspirations, coupled with improved stakeholder engagement designed to foster a shared understanding of what constitutes value.

- **Substitute for formal governance and clear policy priorities:** The SDLO is also intended to be relevant in contexts where formal governance of mining is either absent or minimally enforced, and/or where governance processes are characterized by informality, complexity and decentralization. In such contexts the SDLO could function either as a proxy for formal government regulation or as a basis for informal governance and self-assessment in light of the holistic global expectations concerning sustainable development.

Business leaders are encouraged to **support the ongoing development of the SDLO Principles and Policy Options, and adaptation of the SDLO framework into practical process guidance** that is broadly relevant across the extractive sector.

B6. Benchmarking across governance initiatives

Existing private sector standards and instruments relevant to specific aspects of mining sustainability

are encouraged to use the SDLO as a basis for benchmarking their own activities, or aligning their activities with wider political commitments on sustainable development—for example by embedding or adapting the SDLO Principles within documentation, or by using the SDLO as a means to identify opportunities for inter-initiative collaboration. Business leaders are encouraged to jointly explore opportunities for, and upwards harmonization of, global standards of good practice, and consolidation of existing initiatives and instruments for ease of application, improved efficiency, greater enforcement, and less duplication or redundancies.

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Mineral resource governance in the 21st Century

Minerals and metals underpin national economies, provide crucial raw materials for industrial activities, and are inputs to almost every sector of the global economy. Demand for extractive resources will continue to grow on the back of emerging economies with expanding and increasingly affluent and urban populations and a global transition towards low-carbon but metal-intensive energy production technologies. This is despite efforts to decouple economies from resource use and towards greater recycling.

The frequently severe and enduring environmental impacts of mining highlight the need to carefully balance such activities with stewardship of other valuable natural resources and the environment including ecosystems and biodiversity, and the rights of local people and communities.

Decision-making in the extractive sector is shaped by a complex array of governance frameworks and initiatives operating along highly globalised mineral value chains. There is an urgent need to coordinate and reform this governance landscape to address enduring challenges such as commodity price volatility, lack of linkages between mining and other economic sectors, inadequate management of environmental impact, and socio- and geo-political risks of mining.

The report maps over 80 existing international governance frameworks and initiatives which focus on delivering overlapping subsets of the 2030 Global Agenda for Sustainable Development, but do not currently operate in a sufficiently coordinated or integrated manner. In this context, the report calls for a new governance framework for the extractive sector referred to as the “Sustainable Development Licence to Operate” and including consensus-based principles, policy options and best practices that are compatible with the Sustainable Development Goals and other international policy commitments.

The report discusses practical actions to improve the international governance architecture for mining to enhance its contribution towards sustainable development. The proposals include reaching an international consensus regarding the normative content and structure of the Sustainable Development Licence to Operate informed by expert inputs from a “High-level Panel on Mining for Sustainable Development”. It further considers the creation of an International Mineral Agency to share relevant information and data. Governments could also reach bilateral and plurilateral agreements regarding security of supply of raw materials and resource-driven development. Periodical reporting of progress towards sustainable development could be enabled through a Global “State of the Extractive Sector” review or equivalent process.