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INTERNATIONAL CONFERENCE ON THE GREAT LAKES REGION
CONFÉRENCE INTERNATIONALE SUR LA RÉGION DES GRANDS LACS

REGIONAL GUIDELINES ON MINERAL BENEFICIATION, VALUE ADDITION AND CROSS-BORDER TRADE IN THE GREAT LAKES REGION

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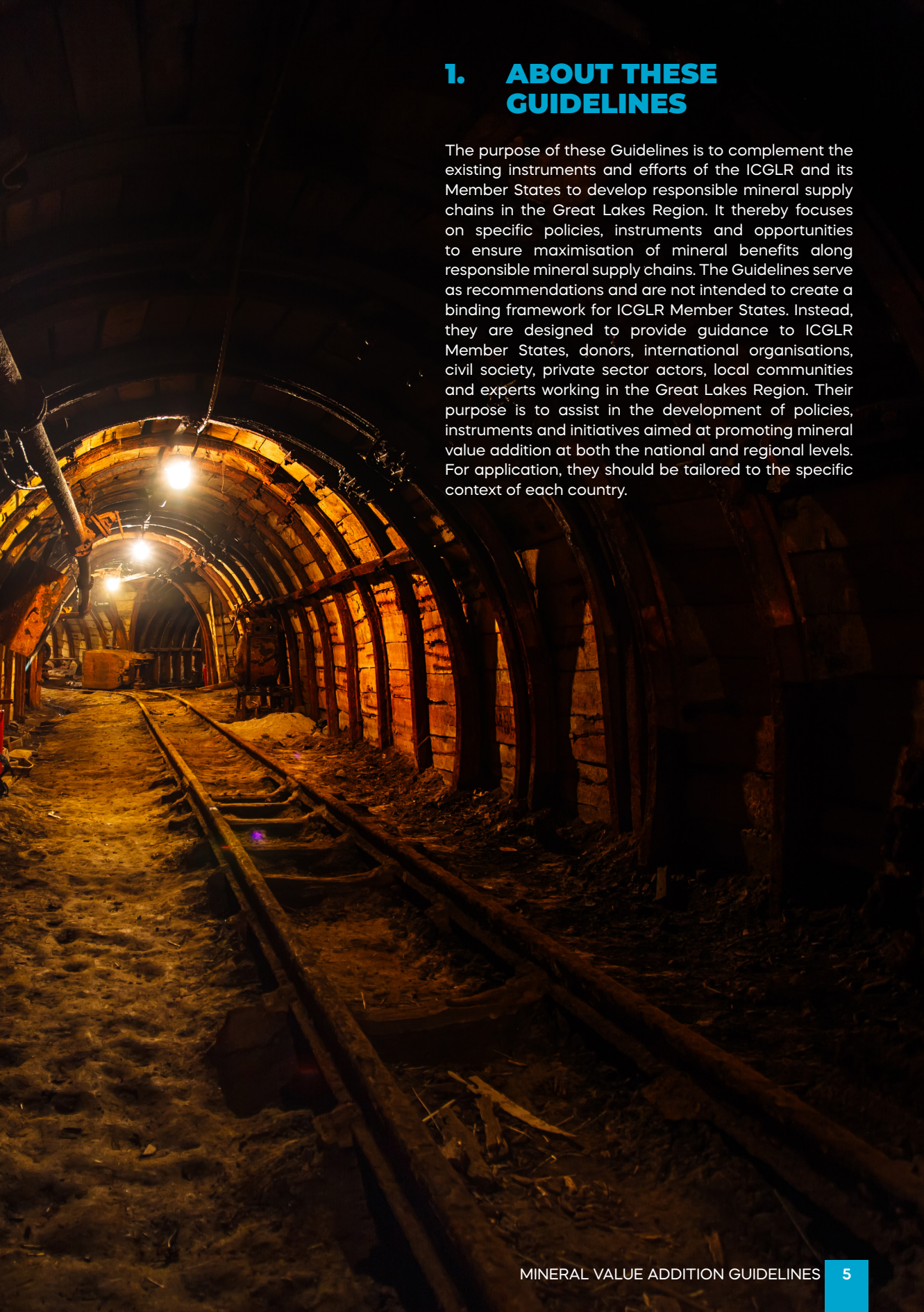
Abbreviations

AfCFTA	African Continental Free Trade Area
AfDB	African Development Bank
AMDC	African Minerals Development Centre
AMV	Africa Mining Vision
ASM	Artisanal and Small-Scale Mining
AU	African Union
BMZ	German Federal Ministry for Economic Cooperation and Development
CDA	Community development agreement
DFI	Development Finance Institution
DGIS	Ministry of Foreign Affairs of the Netherlands
DRC	Democratic Republic of the Congo
DTC	Diamond Trading Company
EITI	Extractive Industries Transparency Initiative
ENAMI	Chilean Mining Corporation
ESG	Environmental, social, and governance
EU	European Union
EV	Electric vehicle
GLR	Great Lakes Region
ICGLR	International Conference on the Great Lakes Region
IGF	Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development
LSM	Large-Scale Mining
MoU	Memorandum of understanding
MSP	Minerals Security Partnership
NEEC	National Economic Empowerment Council
OECD	Organization for Economic Cooperation and Development
PPP	Public-Private Partnership
RCM	Regional Certification Mechanism
REE	Rare Earth Element
R&D	Research and Development
RINR	Regional Initiative Against the Illegal Exploitation of Natural Resources
RMB	Rwanda Mines, Petroleum and Gas Board
SADC	Southern African Development Community
WTO	World Trade Organization
3TG	Tin, Tantalum, Tungsten and Gold



1. ABOUT THESE GUIDELINES

The purpose of these Guidelines is to complement the existing instruments and efforts of the ICGLR and its Member States to develop responsible mineral supply chains in the Great Lakes Region. It thereby focuses on specific policies, instruments and opportunities to ensure maximisation of mineral benefits along responsible mineral supply chains. The Guidelines serve as recommendations and are not intended to create a binding framework for ICGLR Member States. Instead, they are designed to provide guidance to ICGLR Member States, donors, international organisations, civil society, private sector actors, local communities and experts working in the Great Lakes Region. Their purpose is to assist in the development of policies, instruments and initiatives aimed at promoting mineral value addition at both the national and regional levels. For application, they should be tailored to the specific context of each country.

2. EXECUTIVE SUMMARY

Value addition in mining implies enhancing the value of raw minerals as they progress through the supply chain from extraction to final product manufacturing. This process boosts economic diversification and resilience. Mining-related value addition primarily refers to moving downstream in the production chain, such as smelting and/or refining raw minerals in-country to increase their economic value. For example, Botswana's diamond industry succeeded in developing gem cutting and polishing industries, enhancing the country's economic benefit.

The stages in the mineral value chain include extraction, processing, beneficiation, manufacturing, and sales. Countries that refine minerals like copper, cobalt, and tin add substantial value by moving beyond merely exporting raw materials. Metallurgy plays a key role in value addition, transforming raw ores into refined metals and intermediate materials for manufacturing. For example, in the Great Lakes Region, the beneficiation of copper could significantly increase local economic gains by producing high-quality refined copper that could be used in industries such as electronics and construction. This process would not only increase export revenues but also reduce dependency on importing finished products, fostering industrial growth, employment and development within the region. A similar example can be seen with chromium: ore is first smelted to ferrochromium; ferrochromium is then melted with iron and with other alloying elements to produce a fabrication alloy in the form of stainless-steel billets; these are then rolled to produce semi-manufactured articles in the form of flat stainless-steel products; and, finally, a great variety of fabricated articles, ranging from tea-spoons to pressure vessels, are produced from the rolled flat products.

From the analysis conducted, the following regional guidelines have been derived on how to ensure maximization of mineral benefits along responsible mineral supply chains:

A. Developing a country-specific policy approach:

Policies aim to foster better regulation, transparency, balanced growth, and sustainable practices. A successful mineral value addition policy requires a realistic, fact-based approach, tailored to a country's unique mineral resource endowment as well as its development goals to inform adequate policy approaches.

To achieve this, an initial step is conducting in-depth market and value chain analyses to understand a country's potential for mineral value addition. This includes identifying competitive advantages in relation to, for example, a country's mineral endowment, infrastructure and availability of energy and skilled labour. The goal is then to focus on specific commodities with high potential for leveraging specific advantages in driving mineral beneficiation efforts. Thus, identifying "champions" for mineral value addition is critical. These champions could be specific minerals or industries where a country has a strong position or potential to dominate globally, allowing governments to concentrate resources and efforts effectively.

Value chain analyses for resource-led development in Zambia focussing on copper and cobalt as well as for the DRC in relation to the country's positioning in the global cobalt supply chain highlight how strategic identification of mineral value champions can drive policies and attract investments.

B. Promoting value addition through legal and regulatory frameworks:

Clear, stable and comprehensive legal and regulatory frameworks are essential for attracting large-scale investments in mining and value addition, because they are mostly driven by private investments. Investors, in turn, seek certainty in a country's fiscal regime, its overall legal and regulatory requirements for doing business, and its compliance standards, fearing abrupt changes that increase business risks. For this reason, countries must develop comprehensive legal and regulatory frameworks that include mining laws, statutes, and regulations covering mining activities from exploration to post-mining operations.

Countries such as Tanzania and Uganda have started defining legal requirements for smelting, refining, and processing minerals. Tanzania, for instance, introduced laws mandating domestic beneficiation of minerals, while Uganda's Mining and Minerals Act of 2022 outlines the conditions for mineral processing,

smelting and refining licenses. Despite these developments, the absence of specific regulations on value addition still creates uncertainty for investors, highlighting the need for continuous improvement in mining governance.

However, adherence to Environmental, Social, and Governance (ESG) standards is becoming increasingly important. Mining companies are expected to meet stringent environmental and social regulations, including mitigating the environmental impacts of mining and processing activities, reducing the use of hazardous substances, and ensuring fair labour practices. For instance, the African Green Minerals Strategy emphasizes the need for mineral-producing countries to adopt ESG standards to attract global buyers and avoid market access issues, also, for instance, with regard to conflict free supply chains. In the Great Lakes Region, the ICGLR's Regional Initiative against the illegal exploitation of Natural Resources (RINR) plays a major role in addressing challenges associated with natural resource management and illegal exploitation.

C. Enforcing value addition through export restrictions on raw materials:

Export restrictions on raw mineral ores have become a common policy tool to encourage domestic processing and value addition. By limiting or banning the export of specific unprocessed mineral ores, governments aim to stimulate investment in local smelting and refining facilities. However, such export restrictions have proved to be only effective if countries have the infrastructure, technical skills, and economic conditions to support these industries. Thus, they should be applied carefully.

Countries like Zimbabwe, Tanzania, Uganda and the DRC have implemented export restrictions to increase value addition. Zimbabwe's chrome export ban aimed to boost ferrochrome production, but initially has led to a decline in output due to limited smelting capacity. Similarly, Tanzania's ban on unprocessed gold and copper prompted the establishment of three precious metal refineries, though challenges persist due to reliance on artisanal small-scale mining (ASM) as a primary supply source. Indonesia's progressive nickel export ban offers another example. Coupled with fiscal incentives and investment in downstream industries, Indonesia managed to significantly increase domestic smelting and refining capacity, making it the world's largest producer of nickel.

Overall, export restrictions should be carefully considered within a broader policy framework. Implementing these measures without adequate raw materials, infrastructure and capacity can deter foreign investment, as seen in some African countries where export bans have failed to achieve their intended economic objectives.

D. Providing tax and non-tax incentives for mineral value addition:

Governments may use tax and non-tax incentives to attract investment in mineral processing and beneficiation, promoting local value addition rather than exporting raw materials. Tax incentives are fiscal terms designed to reduce the cost of investment by lowering an investor's tax liability. They are thus an investment promotion tool at the disposal of governments to direct specific investments.

Specifically, tax incentives can include reduced corporate tax rates, tax holidays, import duty exemptions, and streamlined administrative procedures. Non-tax incentives may involve infrastructure support, grants, subsidies, and training programmes. Tax and non-tax incentives are considered a "carrot-based" approach, offering benefits to companies willing to invest in downstream activities. This "carrot-based" approach has proven effective in countries like Rwanda, Botswana, and Indonesia, offering corporate tax concessions and tax-free periods to encourage investments. For instance, Rwanda's 2021 Investment Code provides such incentives, making it a regional hub for mineral processing, while Botswana and Indonesia have used tax breaks to boost their diamond and nickel industries, respectively. Generally, tax and non-tax incentives are effective tools for promoting mineral value addition, encouraging investment in local processing and refining.

E. Promoting mineral value addition through local content:

Local content policies aim to maximize domestic benefits from (foreign) investment by increasing local participation in mining operations. These policies focus on local employment, sourcing materials locally, and fostering local ownership in businesses considering that mining in most African countries largely relies on foreign capital and foreign skills. This means that much of the income generated will accrue to foreigners rather than to the country owning the natural resources. Under these circumstances, policy makers view local content policies as an important avenue for widening the distribution of benefits generated by the mining sector.

Local content policies can take various forms to enhance domestic benefits from foreign investments. One approach is through training requirements, where mining companies commit to training local workers to build their skills and increase employment opportunities. Another common form is the use of employment quotas or targets, which set specific goals for hiring locals, ensuring that a portion of the workforce is drawn from the domestic population. Local procurement preferences are also used widely, encouraging or requiring companies to prioritize local suppliers for goods and services, thus boosting local businesses. In addition, joint venture requirements mandate that foreign companies form partnerships with local firms, fostering knowledge transfer and promoting local ownership in key industries. Finally, community development agreements (CDAs) engage local communities directly, formalizing their involvement and ensuring that mining projects contribute to local development through mutually agreed terms and initiatives.

In Sub-Saharan Africa, 17 countries have enforced local content regulations to widen the distribution of benefits generated by the mining sector, often targeting the employment of locals and procurement from local firms. Countries like Zambia, Tanzania and Ghana have implemented local content strategies with varying results. For example, Tanzania's Mining Act of 2019 requires companies to prioritize Tanzanian suppliers. Ghana enforces strict monitoring through a Local Content Commission to ensure compliance with local content targets. The success of these policies depends on a strong business environment and infrastructure support. Overall, local content can significantly boost national economies by creating jobs and increasing local participation in the mining value chain. To advance them, countries are encouraged to set specific percentage targets for local procurement and expand policies to include regional content strategies.

F. Investing in human capital and research as base for mineral value addition:

Investing in human capital and research is crucial for advancing mineral value addition, especially in the Great Lakes Region where skilled labour shortages hinder the development of beneficiation processes for high-value products. Many of the ICGLR's Member States lack the workforce needed for modern, technology-driven industries, which requires significant investments in education and training. Limited skilling is a particular issue for both the ASM sector and large-scale mining sector (LSM). Besides, as technology rapidly evolves in the mining industries, local workers need to be equipped to handle new tools and systems, emphasizing the importance of skills transfer from international companies. Overall, developing a skilled workforce requires fostering technical, transversal, and industry-related skills, such as mining engineering and gem cutting, to support the entire value chain.

Botswana's collaboration between the private sector and government to build local capacity in the diamond industry is a successful example. Other countries, like Ghana and Tanzania, have established centres of excellence to develop specialized skills in processing and adding value to minerals. Additionally, a Centre of Excellence for Advanced Battery Research has been established recently at the University of Lubumbashi as part of the bilateral cooperation agreement between the DRC and Zambia to establish EV battery value chains.

Regional cooperation will be necessary to address skill gaps, with free movement of labour and mutual recognition of qualifications being key strategies. Funding for education and research can come from levies on mining companies, as seen in South Africa and Tanzania. In terms of supporting research and development (R&D), countries like Norway, Ghana, Sweden, and Finland have set up successful programs requiring companies to conduct R&D domestically, thereby contributing to local innovation and industry growth.

G. Supporting access to finance for mineral value addition:

In addition, supporting access to finance is essential for promoting mineral value addition, particularly in the context of enhancing local suppliers' and ASM businesses. Access to finance involves providing businesses with funding through loans, grants, subsidies, or special financial mechanisms like credit guarantees to overcome the financial barriers that often hinder investments in the capital-intensive mineral processing and refining. For local suppliers, access to finance is closely tied to local content policies, where training and mentoring programmes can help building business management skills. In some countries, like Tanzania, local content initiatives focus on supporting domestic suppliers by providing financial assistance and training. Governments can also support small and medium-sized enterprises (SMEs) by establishing specialized funds, grants, or loans for value addition activities.

ASM faces even greater challenges in accessing formal finance due to its informality and high-risk perception. Informal financing supports inefficient practices. For this reason, the transitioning to cleaner and more efficient technologies requires inclusive finance options such as microfinance, government-backed finance schemes, blended finance using guarantee schemes and business collaborations with large-scale mining companies. National development banks can also provide low-cost capital, but financial institutions need mining experts to better assess risks. Overall, ASM formalisation helps to provide legal recognition and stability, which boosts confidence among financiers, making it a key prerequisite for improving financial access of ASM producers.

H. Increasing mineral value addition through ASM formalisation:

ASM is a vital economic sector for many ICGLR Member States, providing livelihoods for millions of people and contributes to both local and national development. ASM is characterized by low technology, limited capital investment, and labour-intensive processes, ranging from informal operations to more formalised entities. Despite its importance, approximately 90 percent of the ASM sub-sector operates outside legal frameworks, leading to environmental degradation, conflicts, and issues like child labour. Formalising ASM is essential to integrating it into the formal economy, thereby improving access to finance, markets, and technical support while promoting sustainable mining practices.

ASM formalisation involves the following key dimensions: integrating informal ASM into the legal system, supporting ASM in accessing geological information and markets, and reducing its social and environmental impacts. This process not only enhances ASM's productivity and sustainability but also ensures compliance with laws and responsible practices. Governments, such as those in Tanzania and Chile, have shown success by implementing supportive legal frameworks, providing access to centralized processing facilities, and offering financial assistance. Tanzania's interventions include decentralized licensing processes, microfinancing for mechanisation, environmental compliance measures, and the establishment of buying centres (mineral markets) to prevent smuggling. Chile's National Mining Company (ENAMI), a state-owned entity, provides finance, technical support, and market access to ASM producers, helping to scale up their operations and integrate them into international markets.

I. Enhancing regional cooperation and cross-border trade for developing integrated mineral-based industries:

Regional cooperation and cross-border trade are essential for developing integrated mineral-based industries in sub-Saharan Africa. By harmonizing policies, infrastructure, and trade practices, ICGLR Member States can create efficient mineral supply chains, boost regional economic growth, and add value to their raw minerals. The African Continental Free Trade Area (AfCFTA) offers a major opportunity to unlock the continent's economic potential, fostering regional value chains and providing broader market access for mineral-based products. Bilateral initiatives, like the DRC and Zambia partnership on battery precursor production, showcase how countries can jointly leverage their mineral wealth. Similarly, the Lobito Corridor, connecting Angola, the DRC, and Zambia, aims to facilitate trade and investment in mining and agriculture, although it faces competition from China's established mineral supply chains.

To maximize the benefits of mineral value addition, countries should focus on regional integration, reducing trade barriers, and improving infrastructure. Aligning policies, regulations, and taxation across borders can create a more attractive investment environment. Strengthening frameworks like the African Mining Vision (AMV) and developing a regional mining vision will help pool resources, improve regional

research capacity, and promote sustainability.

J. Conducting dialogue to build trust between governments and private sector:

Building trust and fostering dialogue between governments and the private sector is crucial for developing mineral value chains. Effective communication bridges knowledge gaps, aligns government goals with market realities, and ensures sustainable, inclusive growth. Regular consultation helps to avoid surprises in legislation and fosters cooperation.

Botswana's partnership with De Beers is an example of successful government-private sector collaboration. The government worked with De Beers to move sorting, sales, and polishing operations to Botswana, boosting local beneficiation. By 2023, the diamond industry contributed 30 percent of Botswana's revenue and 70 percent of its foreign exchange, while creating thousands of jobs. Key factors in this success included the government's strong bargaining power, a clear vision for local value addition, and supportive infrastructure. This collaboration benefited both Botswana and De Beers, enhancing investment and reputational gains.

K. Enhancing availability of geological information, infrastructure and power supply for mineral value addition:

Access to geological information, efficient logistics, and reliable power supply are crucial factors in developing mineral value addition industries. Comprehensive geological data is essential for identifying viable mineral deposits and reducing risks for investors. Thus, countries that invest in geological research and provide detailed resource information are better positioned to attract exploration and mining investment, supporting sustainable development in the extractive sector. For instance, Tanzania, Zambia and Uganda have taken recent initiatives for additional geological mapping.

Moreover, efficient logistics, including transportation, warehousing, and customs services, play a vital role in moving raw materials to beneficiation sites and integrating markets. Poor logistics raise costs and limit market potential, making countries less appealing for investment.

Finally, stable and reliable power supply is another critical factor, particularly for downstream beneficiation. However, in many African countries, power generation remains a significant challenge, posing a barrier to mineral value addition and being a key concern for foreign investors.

3. CONTEXT AND BACKGROUND

Africa's Great Lakes Region disposes of immense mineral wealth, harbouring a range of valuable resources such as tin, tungsten, gold and copper. The region is the source of half of the world's supply of tantalum, and the Democratic Republic of Congo (DRC) produces 70 percent of the world's cobalt.[1] Thus, the DRC is closely linked to the global electric vehicle (EV) battery supply chain.[2] Nevertheless, the region faces significant challenges in harnessing the full potential of its mineral resources for sustainable development and economic prosperity. Issues ranging from inadequate infrastructure to weak governance, as well as persistent conflict and instability, have impeded the effective utilization of mineral resources to uplift the lives of people.

Despite these challenges, governments of the Great Lakes Region are seeking to generate greater economic value from their mineral resources through the development of mineral value chains. By sticking to the lower value-added stages of extraction, countries lose out on the benefits from their mineral wealth. The development of local value addition industries could significantly raise profits, increase tax revenues and create higher-skilled jobs. Furthermore, the transition from exports of raw materials to producing refined minerals offers countries the opportunity to diversify their economies and reduce their exposure to the high price volatilities typically associated with raw commodity markets. By diversifying in this way, countries can better protect themselves against a range of economic challenges, including exchange rate volatility, pressures on foreign exchange reserves, and the financial instability stemming from dependence on raw commodity exports.

The Great Lakes Region's ambitions to increase local value addition are supported by major strategic frameworks: The Africa Mining Vision (AMV) adopted by the African Union in 2009 provides a blueprint for mining development on the continent. It advocates for a holistic approach to achieve the "transparent, equitable and optimal exploitation of mineral resources to underpin broad-based sustainable growth and socio-economic development".[3] In line with the AMV's objectives, the African Green Minerals Strategy by the African Development Bank envisions to guide African countries in strategically harnessing the continent's mineral resources for industrialization and in creating an African presence in emerging green technologies. Therein, mineral value addition through building forward and backward linkages into manufacturing is elevated to a central objective.[4]

Against this background works the International Conference on the Great Lakes Region (ICGLR), an inter-governmental organization of twelve Member States. Its establishment was based on the recognition that political instability and conflicts in these countries have a considerable regional dimension and thus require a concerted effort in order to promote sustainable peace and development. The ICGLR Regional Initiative against the Illegal Exploitation of Natural Resources (RINR) promotes the mineral sector's role in the peaceful economic and social development within the region by establishing common minimum regional standards for transparency (both of mineral flows and of payments to government from the mineral industry), working conditions and community consultation. In addition, the RINR promotes dialogue with the ICGLR Member States on issues related to the illegal exploitation of natural resources and provides them with tools aimed at breaking the link between armed conflicts and revenues from natural resources. In its effort to curb the illegal exploitation and trade of designated minerals in the Great Lakes Region, the RINR operates six tools:

- Introduction of a Regional Certification Mechanism for Tin, Tantalum, Tungsten and Gold (3TG);
- Harmonization of national legislations and domestication of the Protocol on the Fight against the Illegal Exploitation of Natural Resources;
- Establishment and management of a regional database on mineral flows;
- Formalisation of the Artisanal and Small-Scale Mining (ASM) sector;
- Regional peer-learning in the framework of the Extractive Industries Transparency Initiative (EITI);
- Introduction of a whistle-blowing mechanism against illegal trade in minerals.

1 See: Cobalt Market Report 2023 - Cobalt Institute
2 Naveed, 2023
3 AU, 2009
4 AfDB, 2022a

3.1 Objectives of the Study

These Regional Guidelines on Mineral Beneficiation, Value Addition and Cross-Border Trade aim at providing guidance to the ICGLR Member States on specific policies, instruments and opportunities to ensure maximization of mineral benefits along responsible mineral supply chains. Specifically, they are intended to:

- Inform ICGLR Member States' national policies on cross-border trade, beneficiation, local content and value creation of natural resources within the region;
- Encourage regional action for beneficiation of natural resources in the region through strengthened linkages across economic sectors, notably through the use of infrastructure, sharing of competencies, such as technology, know-how, etc;
- Identify cross-border barriers inhibiting mineral trade, value addition and beneficiation in the Great Lakes Region, considering that regional action and integration is crucial for ensuring sustainable raw material supply;
- Build public awareness for the introduction of domestic policies and regional action on cross-border trade, beneficiation and value addition within the natural resources sector of the region; and
- Enhance political support for enactment of laws to provide for cross-border trade beneficiation and value addition in the natural resources sector.

In line with these objectives, the Regional Guidelines are aimed at advising ICGLR Member States in identifying, developing and adopting specific policies, applying adequate instruments and making use of given opportunities for promoting mineral value addition, be it domestically or at regional level. For those Member States that have not yet adopted any value addition approaches for their mining sector, the Guidelines can serve as a starting point for initiating respective policy initiatives - and for those already applying specific policies and instruments on mineral value addition, they may serve as a source for verification on how existing approaches can be extended, complemented or (if necessary) adjusted. Overall, the Guidelines are intended as a learning exercise and not as a comparative assessment of individual Member State's achievements.

3.2 Research and Analysis Framework

A key focus of the analysis is to identify regional and international best practices for mineral value addition. The analysis was based on extensive literature review and a number of interviews with key stakeholders from the ICGLR Member State governments, the private sector and civil society. These methods provided both data-driven insights and practical perspectives from experts involved in the mining sector.

Main research questions included:

- **Status Quo Analysis:** What specific approaches on adding value in the mining sector have individual ICGLR Member States adopted so far at policy as well as legal and regulatory levels (the result of this status quo analysis is presented in Annex B)? In what form and at what point is beneficiation likely to occur in the mineral supply chains?
- **Literature Review:** What are key policies, instruments and opportunities for enhancing mineral value addition as discussed in contemporary literature?
- **Identification of examples from the region:** What specific examples of adopting and applying value addition policies and instruments can be found among the ICGLR Member States and how successful have they been so far? What could be achieved through regional coordination?
- **Identification of examples from beyond the region:** What specific examples of adopting and applying mineral value addition policies and instruments can be found beyond the Great Lakes Region and how successful have they been so far?
- **Conclusion:** What conclusion can be derived from the examples analysed?
- **Policy Recommendations:** What specific guidance can be provided to ICGLR Member States in terms of promoting mineral value addition?

4. SPECIFIC POLICIES, INSTRUMENTS AND OPPORTUNITIES TO PROMOTE VALUE ADDITION IN THE MINING SECTOR

This chapter introduces and discusses specific **policies, instruments and opportunities** that have been identified as key drivers and/or are actually being applied for enhancing local mineral value addition. In the context of describing the respective policies, instruments and opportunities for enhancing mineral value addition, these Guidelines also analyse and present a number of specific examples from ICGLR's Member States, but also from beyond.

Generally, **value chains** involve activities focused on creating and delivering value with regard to produced goods. Value addition is critical in diversification and enhancing resilience. It involves enhancing the value of a product as it progresses along the supply chain from upstream to downstream activities. In mining, upstream (i.e. backward) activities occur where the sector's demand for capital goods, consumables and services drives development of locally sourced supply (for instance, food supply and catering services to mine operations, provision of local legal and accounting services, and certain construction activities may see increased demand linked to mining development). Downstream (i.e. forward) activities are created where mining investment spurs investment in subsequent stages of production (for example, Botswana's successful leveraging of its diamond resources to develop a gem cutting and polishing industry).

In the mining sector, **value addition** mainly refers to the process of moving downstream from current production. For example, this means that countries do not just export raw mineral ores, but instead also refine them in-country to a specific purity degree before being exported, for example the 3TGs. Overall, there are several stages in the value chain of raw materials, including processing, beneficiation, manufacturing, research and development, design and sales and marketing. These stages may vary across commodity groups, yet the primary objective of each is to transform raw commodities into products with greater economic value.

In the mining industry, metallurgy is a significant component of value addition in the processing of minerals. **Mineral beneficiation**, the initial step after mineral extraction, enhances the economic value of an ore or mineral through the elimination of impurities or the improvement of properties in preparation for further downstream processing. This is related to mineral processing, which involves comminution (reduction of solid material particle size by fracture through grinding, milling or similar processes) and separating concentrates from ore by eliminating gangue minerals (the commercially worthless material that surrounds the wanted mineral in an ore deposit) and impurities. For instance, bauxite beneficiation and processing result in the extraction of high-aluminium and low-aluminium minerals. Further processing and refining through smelting, melting and chemical reactions are required to transform the commodity into refined goods such as metals, alloys and intermediate materials for manufacturing.

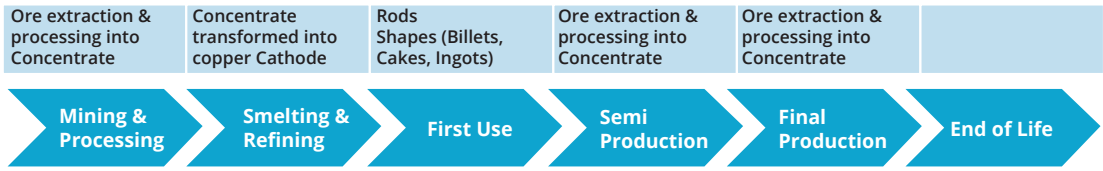


Figure 1: Copper Value Chain[5]

No classification system is precisely applicable to all commodities. The following examples illustrate the successive stages of beneficiation routes for chromium and gold. In the case of chromium, ore is first smelted to ferrochromium; ferrochromium is melted with iron and with other alloying elements to produce a fabrication alloy in the form of stainless-steel billets; these are then rolled to produce semi-manufactured articles in the form of flat stainless-steel products; and, finally, a great variety of fabricated articles, ranging from teaspoons to pressure vessels, are produced from the rolled flat products. In the case of gold, the metal is extracted from the ore, smelted, and refined; it is then alloyed with other metals, for example copper,

5 Naveed et al., 2023

to produce fabrication alloys suitable for jewellery manufacture; semi-manufactured articles may then be produced, e.g. in the form of granules of specified carat; and, finally, gold alloys are fabricated into gold jewellery. Whereas the first three stages constitute successive steps in extractive metallurgy and transform the chemical composition of the raw materials, the fourth stage lies in the realm of engineering, and involves changes of physical shape rather than of chemical composition. In contrast to the first three stages, which are capital-intensive, the final stage is labour-intensive since the diversity of product shapes and forms renders mass-production methods more difficult.[6]

Moreover, with market and technological advances, tailings can serve as an alternative to primary exploitation for adding value. Thus, in line with sustainable development objectives and other circular economy goals, it is crucial to investigate the reuse of mining tailing worldwide. This can be achieved through the application of innovative new technologies to extract value from low-grade "ores" or by repurposing tailings for various uses.[7]

Specifically, this analysis covers the following **policies, instruments, and opportunities** for mineral value addition:

Analysing and clarifying a country's specific mineral value addition potential is a common and essential first step in **developing an appropriate country-specific policy approach and identifying "champions"** for building up mineral value chains, especially in view of a country's specific comparative advantages, but also generally to base policy approaches on factual data and to align them with a country's specific mineral resource endowments and tailored to its long-term economic goals.

Considering that investors are more likely to commit capital when they have confidence in a country's legal and regulatory environment, adjusting and modernizing a country's **legal and regulatory framework** is a crucial step in attracting investments in mineral value addition. In this context, general requirements for a modern legal and regulatory framework exist so that it provides a roadmap, aligned with good international practice, for government and other stakeholders to minimize the negative impacts and optimize positive contributions of the mining sector. Some of the ICGLR's Member States have already addressed requirements for mineral processing, smelting and refining in their legal and regulatory frameworks.

For enforcing in-country mineral value addition, **restrictions on the export of mineral raw materials** are a potential legal instrument which is becoming more and more widespread. It will be analysed to what extent and under what specific conditions the application of this instrument has been successful.

In addition, **tax and non-tax incentives for mineral value addition** are being applied to enhance mineral value addition and attract both domestic and international investment. These incentives can encourage local processing, foster technological advancements, and generate broader economic benefits.

In the context of enhancing in-country value addition, **local content policies** have been introduced to enhance economic growth and job creation. Such policies can contribute to increasing the number of local staff employed by foreign mining companies and building up a local supplier industry for the mining sector.

To promote effective mineral value addition, **investment in human capital and research** is also crucial. In fact, this aspect is particularly relevant considering that many resource-rich countries face a shortage of skilled labour and have limited access to modern technologies which generally restricts the development of downstream beneficiation industries.

In addition, supporting **access to finance** is essential for promoting mineral value addition, particularly in the context of local suppliers and ASM. Access to finance involves providing businesses with funding through loans, grants, subsidies, or special financial mechanisms like credit guarantees to overcome the financial barriers that often hinder investments in the capital-intensive mineral processing and refining.

Formalisation of artisanal and small-scale mining (ASM) is considered an essential step for improving the sub-sector's integration into formal mineral value chains, also in view of its productivity and environmental sustainability. In addition, government-supported processing centres can be established to enable ASM operators to process minerals more efficiently.

6 Robinson et al., 1990
7 Lemos et al., 2023

To promote mineral value addition and develop integrated, sustainable mining industries, strengthening **cross-border trade and enhancing regional cooperation** is vital for leveraging additional opportunities. Among others, this can be achieved by strengthening regional collaboration, improving regional infrastructure, and aligning policies and laws.

Moreover, to foster mutual trust and improve collaboration between governments and the private sector in the mining industry and for building up mineral value addition industries, it is essential to establish ongoing, structured and transparent **dialogue among governments and the private sector**.

Finally, a solid understanding of a country's available mineral resources is fundamental to unlocking value addition in its mining sector. This might require additional **investment in geological research** for generating or improving geological information. In addition, availability of adequate logistics and energy supply constitutes a decisive factor in building mineral value addition industries.

The following chapters will delve into the details of the aforementioned specific policies, instruments and opportunities policies and opportunities.

4.1 Developing country-specific value addition policies and identifying "champions" for mineral value addition

The aim of a policy is to define a meaningful and implementable political approach that covers better regulation and enforcement, more transparency, balanced social and economic growth as well as sustainable practices. For a policy to be successful, it should also consider opportunities that already exist or realistically can be expected in future. Following this, the policy will then serve as the basis for applying specific instruments such as, for example, the drafting and/or modification of legislation and regulations or the launch of government programmes, for example to support specific stakeholder groups.

A country's mineral or mining policy describes the strategic direction it intends to take to develop its mineral resources and acts as the basis for the formulation of legislation. Defining goals on mineral value addition in a country's mineral or mining policy is thus a usual and commonly applied starting point for initiatives and steps in enhancing the added value of a country's mining sector. In fact, not all, but the majority of ICGLR countries have included mineral value addition approaches in their mining policies or currently work on this (see Annex B).

A **value chain analysis** evaluates the stages by which the full value of a product is managed and ultimately realized. When applied to the extractive industries, the analysis describes the steps from the extraction of natural resources to their processing and sale, all the way through to the ultimate use of the revenues. The example of a value chain for copper is provided in figure 1 above.

Overall, it is crucial that any mineral value addition policy approach needs to be fact-based, realistic and oriented towards a country's specific mineral resource endowment as well as its medium and long-term development aspirations. For these reasons, an important initial step in developing country-specific policy approaches on mineral value addition is to analyse and clarify a country's specific mineral value addition potential. For that purpose, it is recommended to conduct an in-depth and comprehensive market analysis on commodity-by-commodity basis to ascertain what is required to develop viable value addition approaches and what support would be needed to make them successful.

Besides, a mineral value chain analysis enhances a country's ability to successfully leverage its competitive advantage in relation to in-country value addition for specific minerals. Among others, such competitive advantages can include a country's mineral endowment, especially in relation to specific minerals facing high demand and in which a country has a dominant market position, costs and continuous availability of energy for processing and refining, availability of technology and research, skilled labour, availability of infrastructure for transport such as ports, roads and railways.[8] Mineral value chain analyses should also take into account relevant economies of scale considering that processing and refining require appropriate supplies to be economically viable. Finally, a mineral value chain analysis should result in identifying "champions" for mineral value additions allowing to focus a country's value chain approach as

8 Laisani et al, 2023

much as possible.

Generally, a value chain analysis has the objective to identify the opportunities and challenges of specific minerals in accelerating a country's socio-economic development. This can be demonstrated by a comprehensive value chain analysis for non-metallic minerals in Rwanda prepared by the African Development Bank (AfDB).[9] The specific objectives of the analysis have been:

- **Status quo analysis:** Assess the current status of specific mineral value chains including their geological endowment, economic and investment potential, production, consumption and trade, firms, suppliers, financiers, and required technologies;
- **Opportunities and challenges:** Identify economic and investment opportunities and challenges for extraction and value addition in relation to the minerals analysed;
- **Impact assessment:** Assess the opportunities' economic impact in the surrounding communities especially through local employment; and
- **Recommendations:** Make recommendations on policy and other incentives necessary to enhance the contribution of the mining sector and its value chains to economic development and advise on how this resource can best be managed.

A relevant example for a mineral value chain analysis is available for Zambia:[10] Considering the copper and cobalt demand forecast to be strong in future due to the global energy transition, the Study analyses how Zambia could link its mining sector to the ongoing transition and what potential it has to stimulate the country's economic growth with positive repercussions on its socio-economic development. Particularly, the analysis describes specific policies that may bring about these developments. Other examples of mineral value addition analyses are available for the DRC: A World Bank Case Study of 2023 focusses on EV battery value chains in DRC, in particular with respect to copper and cobalt.[11] In view of the global energy transition, the Study's aim is to support the DRC in seizing the opportunity to capitalize on its mineral wealth and lay the foundations for rapid, resilient and clean development of EV battery-related mining supply value chains. The Study relies on projections of global market trends indicating that the demand for EV battery minerals is expected to grow tenfold over the next decade and assumes that the DRC will be well positioned to supply a significant percentage of these minerals provided the right enabling conditions are met. Another Study explores potential pathways for value addition in DRC's cobalt, copper, lithium, tin, and zinc value chains and identifies specific opportunities such as increasing the DRC's capacity to refine minerals that are mined domestically, producing precursor material for lithium-ion batteries (i.e. intermediate inputs to a complete battery), and to scale the manufacturing of copper products.[12] Unfortunately, it is not possible to determine exactly if and how these studies have resulted in specific changes of the given policy environments in Zambia and DRC. However, as highlighted in chapter 5.10, the two countries are about to set up EV battery value chain approaches in the context of a bilateral cooperation project, thus indicating that they are in fact following recommendations from these Studies.

Apart from such country-specific mineral value chain analyses, there are overarching value chain studies available for specific minerals on a continental perspective: For instance, the AfDB conducted a Study assessing the opportunities and challenges of harnessing the Rare Earth Element (REE) value chain, especially for lithium and cobalt, to contribute to both the global transition to a low carbon future and increased socioeconomic development across African countries.[13] Among others, the Study's findings were that Africa, especially the Southern African Development Community (SADC) region, has significant lithium and cobalt resource and reserve potential from a regional geological perspective. Besides, due to their demand for energy generation in the low carbon future and use in high technologies, major consumers of lithium and cobalt outside China are keen to establish alternative supply chains beyond China's jurisdiction to ensure a reliable and consistent supply at predictable prices. As a step forward, the Study recommends building synergies with battery manufacturers for developing lithium and cobalt minerals value chains. Among others, the policy recommendations derived from the Study are:

- **Pre-feasibility studies for Africa's battery manufacturing value chain:** Conduct pre-feasibility studies on establishing Africa's battery manufacturing value chain based on country readiness and to assess the extent to which a country can benefit from the various segments of the value chain,

9 AfDB, 2022b
10 Werker, 2023
11 World Bank, 2023
12 Naveed, 2023
13 AfDB, 2021

- **Enhancing knowledge of Africa's lithium and cobalt resources:** Improve knowledge of lithium and cobalt resources in Africa, specifically by conducting national and regional geological mapping of all potential mineralisation to delineate potential quantities of critical mineral deposits for promoting lithium and cobalt development to potential investors,
- **Incentivizing integrated value chains for lithium and cobalt development:** Provide adequate incentives to existing lithium and cobalt companies to develop integrated value chains, for example by promoting the current industry players as forerunners of potential bigger investments (it is mentioned that a good example is emerging in Uganda where Ionic Rare Earths and other mining companies are developing REE resources in the Makuutu project for mining, processing, and the export of concentrates to foreign industries).

To conclude, mineral value addition policies should be fact-based, realistic and oriented towards a country's mineral resource endowment. In addition, a crucial element for any mineral value addition policy is an in-depth mineral value chain assessment and a comprehensive market analysis on commodity-by-commodity basis to ascertain what is required to develop viable value addition approaches and what support would be needed to make them successful. Thus, identifying "champions" for mineral value addition is critical. These champions could be specific minerals or industries where a country has a strong position or potential to dominate globally, allowing governments to concentrate resources and efforts effectively. Zambia's copper and cobalt value chain analysis, and the DRC's analysis on positioning in the global cobalt supply chain, highlight how strategic identification of mineral value champions can drive policies and attract investments.

4.2 Promoting value addition through legal and regulatory frameworks

For large-scale investments in mining and value addition activities, investors are seeking a clear and stable business environment, including stability of the tax regime. International companies considering investments normally have a wide range of countries in which they can choose to invest, and they will prioritise the development of individual assets within their portfolios based on expected project returns and risk assessments. In this context, companies look for host countries with a clear and comprehensive legal and regulatory framework, that is applied consistently and fairly, constant and effective monitoring, minimal bureaucracy, quick response time, adequate infrastructure and a competitive tax regime.

Whereas the legal framework for mining (and subsequent value addition activities) is normally defined by a country's mining law, the regulatory framework refers to a set of rules, practices, and processes for governing, supervising and monitoring operations in the mining sector. The regulatory framework thus provides a structure that outlines how companies, organizations, and individuals must comply with certain standards and guidelines set by the government or other regulatory bodies.

Overall, international mining companies are not overly concerned regarding "strong" regulations, provided they are clearly worded and consistently implemented. Uncertainty is the main threat to positive investment decisions as this can increase a company's non-compliance risk. For this reason, mining companies will look for assurance that the legal and regulatory framework will not change abruptly, for example in the event of a change in government or applied inconsistently across the sector. Similarly, legal and regulatory provisions should not be too general so as to allow excessive discretion to decision-makers and enforcement authorities in their application.

Rating investment attractiveness of mining destinations

The Fraser Institute's "Annual Survey of Mining Companies" rates investment attractiveness of mining regions and countries on a global scale. For this purpose, the Survey provides a "Policy Perception Index" of the jurisdictions it reviews. This Index indicates which legislative and regulatory areas are most important for increasing investment attractiveness. Among others, they include:

- Uncertainty concerning the administration, interpretation, or enforcement of existing regulations;
- Uncertainty concerning environmental regulations (stability of regulations, consistency and timeliness of regulatory process, regulations not based on science);
- Regulatory duplication and inconsistencies (including federal/provincial, federal/state, inter-departmental overlap, etc.);
- Legal system (legal processes that are fair, transparent, non-corrupt, timely, efficiently administered, etc.);
- Taxation regime (includes personal, corporate, payroll, capital, and other taxes, and complexity of tax compliance).

Thus, for enhancing mineral value addition, a country's legal and regulatory framework should meet these criteria: First, the framework in place should be aligned with current, up-to-date legal and regulatory requirements as well as industry standards ensuring investor friendliness in general. Second, the framework should explicitly define the legal and regulatory requirements for specific value addition activities such as processing, smelting and refining. Third, the framework should be comprehensive in such way that it also considers possible negative impacts of mineral value addition activities with respect to environmental, social and governance standards.

For benchmarking and guiding host countries of mining investments on criteria to ensure that mining activities within their jurisdictions adhere to good international practice with respect to environmental, social, and economic governance, and promote the generation and equitable sharing of benefits in a manner that will contribute to sustainable development, the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF) has developed a Mining Policy Framework.[14] The Framework outlines key areas for change and describes specific steps for achieving the defined objectives. With respect to legal and regulatory approaches for mining, the Mining Policy Framework recommends, among other, to:[15]

- **Revise and update legal and regulatory framework:** Regularly revise and update mining law, statutes, regulations, policies, and standards to reflect changing knowledge and good international practice and ensure that domestic law is consistent with international law, commitments, and norms.
- **Ensure comprehensiveness**: Ensure mining laws, agreements, and standards address mining activities of all sizes, minerals, and metals from prospection through to closure and the post-mining transition.
- **Align with and enforce international standards**: Respect the spirit and intent of current and evolving international agreements and normative language on human rights, gender equality, cultural heritage, and on indigenous peoples where applicable, and require mining entities to act in accordance with national and international laws and to implement responsible business-conduct standards.

In line with the IGF's Mining Policy Framework, the World Bank regularly uses a Mining Sector Diagnostic as a tool to comprehensively assess a country's mining sector. The tool analyses primary data (the country's documented laws, rules and regulations) and interview data (from in-country interviews with stakeholders from government, industry, and civil society) to clearly identify the relative strengths and weaknesses regarding the mining sector of specific countries. The results can be used by governments and development partners as a basis for policy dialogue and to identify areas of targeted support and assistance.[16] Just recently, a Mining Sector Diagnostic has been conducted for Burundi.

14 IGF, 2023a
15 IGF, 2023b
16 See: Mining Sector Diagnostic (MSD) (worldbank.org)

In the ICGLR region, some countries have introduced a more specific legal and regulatory framework for mineral value addition. However, apart from restricting the export of raw mineral ores for legally enforcing in-country mineral value addition (see chapter 5.3) and implementing local content requirements (see chapter 5.5) the approaches applied so far have been mostly limited to defining the requirements for processing, smelting and refining. The countries described below have succeeded in attracting mineral smelters and refineries with this approach. However, countries may not always succeed with this approach because of varying factors as exemplified by the following cases as well as those in presented in chapters 5.3 and 5.5:

In Tanzania, the 2017 Permanent Sovereignty Act requires that any natural resource agreement shall ensure that no raw minerals will be exported for beneficiation outside of the country and must include a "commitment to establish beneficiation facilities" in Tanzania (section 9),[17] see chapter 5.3. In addition, Tanzania's 2019 Mining Act requires mineral rights holders to set aside a certain amount of minerals for local processing (section 59). Apart from that the Mining Act also foresees granting of a license for smelting and refining (section 61).[18] The 2018 Mining (Mineral Beneficiation) Regulations[19] and the 2020 Mining (Value Addition) Regulations[20] provide for further procedures regulating beneficiation of mined minerals. With this legal and regulatory framework in place, Tanzania has taken a comprehensive legal and regulatory approach on mineral value addition.

Uganda's 2022 Mining and Minerals Act mentions as one of its purposes "to promote value addition and beneficiation of minerals" (section 3 (i)). Further on, it defines the requirements for a beneficiation license ("for integrated projects to process, smelt, refine, cut, blast, polish and trade minerals or a licence for a combination of two or more of these projects") in section 121, a mineral processing license in section 123, a mineral smelting license in section 124, and a mineral refining license in section 127.[21] However, although the Mining and Minerals Act explains that applications for these licences shall be made in a manner prescribed by regulations, a regulation on mineral value addition has not been put in place yet, but is planned for the future.

When it comes to developing a comprehensive legal and regulatory framework for mineral value addition, the African Mining Legislation Atlas is highly instructive. It is a platform that aims to promote transparency, accessibility, and comparison of Africa's mining laws; facilitate the preparation, revision, and implementation of mining laws; provide a living database that will catalyse research and policy debates on legal and regulatory issues; and promote the development of local legal expertise and mining laws. It can also help to assess policies relating to (a) employment and training and (b) procurement of local goods and services.[22]

The examples from Uganda and Rwanda show that there might be gaps in the legal and regulatory framework on mineral processing and beneficiation that need to be filled. In fact, apart from Tanzania none of the ICGLR Member States seems to have any such regulation in place yet although countries like Uganda and Rwanda have respective plans to complete their respective regulatory framework (see Annex B). Overall, this seems important considering that the underlying ambiguity is not attractive for investors, as it was clearly stated by private sector representatives interviewed for these Guidelines, because they do not know what regulatory requirements might come up in future potentially limiting their ongoing or planned business operations and/or decreasing their business profitability.

For building up mineral value addition industry, also environmental, social, and governance (ESG) requirements have gained importance. This is because these requirements become increasingly significant due to regulatory demands, financing standards, societal expectations, and legal challenges faced by the mining industry. A 2024 survey ranked ESG as the top business risk in the mining and metals industry.[23] For the ICGLR Member States, this means that up-to-date and effective legal and regulatory standards and mechanisms meeting current ESG requirements, for example to avoid and mitigate human rights risks and negative environmental impacts, are becoming an even more decisive factor for mineral producing countries to participate in the global value chain. In particular, the following issues are covered by the ESG agenda for the mining industry:

17 **See text of the Act here: Natural-Wealth-and-Resources-Permanent-Sovereignty-Act-2017.pdf (madini.go.tz)**
18 **See text of the Act here Microsoft Word - CHAPTER 123 - THE MINING ACT CHAPA FINAL (madini.go.tz)**
19 **See text of the Regulation here: 2165 (a-mla.org)**
20 **See text of the Regulation here 2048 (a-mla.org)**
21 **See AFRICAN MINING LEGISLATION ATLAS (a-mla.org)**
22 **See AFRICAN MINING LEGISLATION ATLAS (a-mla.org)**
23 **Kraft et al., 2024**

- **Environment:** biodiversity, ecosystem services, water management, mine waste / tailings, air, noise, energy, climate change (carbon footprint, greenhouse gas), hazardous substances, mine closure.
- **Social:** human rights, land use, resettlement, vulnerable people, gender, labour practices, worker/community health & safety, security, artisanal miners, mine closure / after use.
- **Governance:** legal compliance, ethics, anti-bribery and corruption, transparency.

The EU Corporate Sustainability Due Diligence Directive as an example of ESG standards

The EU Directive 2024/1760 on Corporate Sustainability Due Diligence entered into force on in July 2024. It aims at fostering sustainable and responsible corporate behaviour in companies' operations and across their global value chains. The new rules, applicable also for non-EU companies active in the EU, will ensure that companies in scope identify and address adverse human rights and environmental impacts of their actions inside and outside Europe. For this purpose, the Directive establishes a corporate due diligence duty. The core elements of this duty are identifying and addressing potential and actual adverse human rights and environmental impacts in the company's own operations, their subsidiaries and, where related to their value chain(s), those of their business partners. According to the European Commission's explanation to the Directive, the concept of "chain of activities" also covers activities of upstream business partners related to the production of goods, including the extraction, sourcing, and supply of raw materials, products or parts of products. The European Commission expects the Directive to bring multiple benefits for developing countries in which entities that are part of the chains of activities of companies in scope operate, such as better protection of human rights and the environment and increased take-up of international standards. In addition, the Commission underlines that these benefits can substantially be amplified through mutually reinforcing initiatives, including strengthening the rules and enforcement framework regarding human rights and environmental protection in third countries, and the development of sustainability standards. With respect to mineral supply chains, the Directive requires refiners and importers of minerals doing business in the EU to map their supply chains up to the production sites, and to identify and assess environmental, social, and governance (ESG) risks throughout the upstream supply chain, and implement monitoring, assurance, and reporting mechanisms.

In fact, the topics covered by the ESG agenda are of particular importance for countries aiming to extend in-country mineral value addition as, for instance, underlined in the African Green Minerals Strategy. One reason is that mineral processing and refinement can have significant negative environmental (and resulting from these also social) impacts. For instance, lithium processing techniques have significant water requirements that create or exacerbate water stress and pose contamination risks. Processing rare earth metals can generate radioactive waste, processing copper ores can create severe illnesses in surrounding communities, and nickel processing can contribute to deforestation.[24] Another reason is that mineral production in Africa largely relies on ASM often coined by human rights abuses, poor application of health and safety standards and environmental degradation. Considering that especially informal ASM tends to not adhere to human rights and environmental standards, thus for example polluting the environment heavily by using mercury for gold extraction, ASM involvement in mineral value chains is a major risk factor for meeting ESG requirements. Therefore, ASM formalisation is an important contribution to paving the way for increased mineral value addition (see chapter 5.8).

To underline the increasing importance of the ESG criteria, for instance, a recent report funded by the EU has assessed mining regimes in Africa with respect to the criteria.[25] This was done by analysing the country's mineral and mining policies and legal and regulatory framework. Among others, environmental criteria considered included how the countries analysed safeguard their environment, including their policies addressing pollution, water resources, mine closure and its cultural heritage. Social criteria examined how the country manage their land and mineral rights, ASM, labour, societal and community aspects and occupational health and safety in mining. Countries like South Africa have already incorporated ESG frameworks into their mining policies, increasing access to responsible international markets and attracting sustainable investment.[26]

24 IRENA, 2023
25 Awases et al., 2023
26 Gupta, 2024

In conjunction with meeting ESG demands, the ICGLR Member States should strengthen their compliance with regional and international due diligence regimes related to conflict and human rights such as the EU Conflict Minerals Regulation 2017/82,[27] and the OECD Due Diligence Guidance for Responsible Supply Chains from Conflict-Affected and High-Risk Areas.[28] Additionally, the Extractive Industries Transparency Initiative (EITI) fosters transparency and accountability in the mining sector, aligning with the broader goals of responsible mining practices. Failing to do so could jeopardize market access of their mining sector. This requires the strengthening of oversight capacities, as well as the development and implementation of transparent chain-of-custody systems on designated minerals. In this context, implementation of the ICGLR's Regional Certification Mechanism (RCM) as a system to certify and track 3TG minerals is important. Indeed, the effective implementation of responsible sourcing standards such as the RCM is crucial for improving the Great Lakes Region's reputation among global consumers of its minerals. Overall, the ICGLR's RINR covers key aspects relevant for implementing ESG standards in the Great Lakes Region.

In summary, developing an attractive legal and regulatory framework for mineral value addition activities is not accomplished by just defining legal requirements for processing, smelting and refining, but also requires enhancing a country's mining governance at more general level. Strengthening a country's capability to meet current ESG requirements through improved environmental, social and governance standards is equally important, also for preserving access to relevant markets.

4.3 Enforcing value addition through export restrictions on mineral raw materials

Although limitations including bans on the export of mineral raw materials are also part of the regulatory framework on mineral value addition, they are addressed separately here. Export restrictions are defined as measures to restrain export activity. They take many forms and can be aimed at achieving diverse policy objectives. In the context of increasing domestic value addition, export restrictions on raw materials aim to promote domestic processing and attract foreign investment in processing facilities.[29] Though export restrictions are well-intended, experience continentally and globally suggests that they have often failed to deliver on their goals. Additionally, they can undermine the development of competitive regional value chain.[30]

Since 2009, a number of African countries have restricted the export of mineral raw materials with the aim of moving up the processing value chain. According to the World Bank, the number of countries with export restrictions on raw minerals and metals in Sub-Saharan Africa varied between 17 and 19 since 2009, but there was also a deepening in the severity of the restrictions. In 2009, 26.3 percent of countries used export bans compared with 42.1 percent in 2020.[31] However, as it will be demonstrated by the following examples, the results of export restrictions on mineral raw materials have been mixed:

Zimbabwe, boasting the world's second-largest chrome reserves, banned chromium ore and concentrates exports in 2011 to push domestic chromium ore producers to develop downstream production capacity for ferrochromium. The government gave producers eighteen months to establish smelting capabilities. The ban, however, did not successfully spur downstream development: From 2011 to 2015, Zimbabwe's chromium ore output decreased by 64.8 percent, and two major producers - Zim Alloys and Zimasco - shut down. In 2015, the government lifted the ban after no notable increase in smelted chrome production. In 2016, the export value of chromium ore from Zimbabwe rebounded and continued to increase for several years, peaking as the third largest global exporter at USD 94.1 million (3.5 percent of global export value) in 2018.[32] Despite these developments, Zimbabwe reintroduced the ban in 2021. The government stated that the ban on raw chrome ore exports would promote the domestic value chain. The ban was envisioned to capacitate current smelters and maximize domestic value added from the country's abundant resources, as highlighted in the country's National Development Strategy.[33] However, the 2021 ban came in a completely different situation compared to the one of 2011. Developments in Zimbabwe's chrome

27 EU, 2021
28 OECD, 2016
29 OECD, 2024
30 World Bank, 2023
31 Ibid
32 Perry et al, 2024
33 Chrome ore export ban excites Zimbabwe's local players | African Mining Market

industry since the 2011 ban suggest that the most recent export ban may attract more foreign investment. Since the removal of the first ban in 2015, Zimbabwe has received substantial foreign investment from China in its mining industry, leading to increased downstream processing capacity (i.e., building of facilities and processing equipment) for chromium ore. This suggests that ferrochromium production capacity in Zimbabwe may continue to expand with the 2021 ban in place, achieving the objective first set out by the country's 2011 ban on chromium ores.[34] In December 2022, Zimbabwe also banned exports of unprocessed lithium ore to encourage Chinese firms to build factories locally instead of exporting lithium to China for processing.[35]

In 2013, the DRC, being the world's biggest cobalt producer and Africa's largest copper producer, banned the exports of copper and cobalt concentrates to encourage mining companies to process and refine the ore domestically with a moratorium until the end of 2014. However, despite of the ban, smelting capacity remained limited because of infrastructure shortages. Rather than eliminating the ban, the DRC government repeatedly issued waivers. Finally, in 2020, the DRC indefinitely waived the export ban on cobalt hydroxides and carbonates, and concentrates of tin, tungsten, and tantalum.[36]

In 2015, Uganda banned the export of unprocessed iron ore and other minerals to promote the growth of local industries and, in turn, create employment for Uganda's population. The ban still stands.[37] In fact, it has significantly transformed Uganda's mining sector. According to statistics of the Ugandan Ministry of Energy and Mineral Development, the ban on export of raw minerals has led to a drastic reduction in the mineral production and value of mineral exports since some mines are not operating.[38] Mining companies have expressed concerns about revenue loss and challenges of establishing processing facilities. In fact, Uganda's ban on the export of unprocessed minerals has resulted in diminished investment, tax revenues and international trade. In response, the government promised to review the ban, clarify on purity requirements, and introduce exceptions, acknowledging that several minerals cannot be easily processed beyond a certain purity level in Uganda. In December 2023, a new statutory instrument was issued, providing clarity on purity levels for tin exports and raising the standard from the previous level of between 67-70 percent to 99.85 percent.[39] This measure was intended to compel companies involved in tin exploitation to refine the mineral in Uganda.[40] Indeed, Uganda's example shows that export restrictions need clearly defined targets to reduce uncertainty. Moreover, although the ban initially had negative effects, it has brought about some mineral value addition success in the meantime: In April 2024, Uganda has succeeded in establishing tin refining facility at Mbarara, operated by Woodcross Resources.[41] Apart from that, six gold refineries were operating in Uganda by 2021.[42]

In March 2017, Tanzania announced an immediate ban on exports of unprocessed gold, silver, copper, and nickel concentrates and ores. The ban was intended to ensure that "value addition activities", such as smelting and refining, is undertaken within the country, with the stated objectives of increasing revenue generation, employment creation and technology transfer.[43] In response to the ban, Acacia Mining, Tanzania's largest gold producer, reduced operational activity at its Bulyanhulu Gold Mine.[44] Nevertheless, following the export ban, three precious metals refineries have been established in Tanzania, namely the Geita Gold Refinery, the Mwanza Precious Metals Refinery, and the Eyes of Africa Refinery. Thus, the ban has in fact stimulated stakeholders to invest in mineral value-addition activities. However, it needs to be noted that, despite the requirement and establishment of these refineries in Tanzania, there is still no supply of the raw minerals for refinery from large-scale mining as the supply is mainly sourced from ASM.[45] In line with this, Tanzania's gold exports increased in the following years. For example, in the year to August 2023 Tanzania's gold exports totalled USD 2.95 billion (up from USD 2.75 billion in the year to August 2022), representing about 39 percent of the value of goods exported, and primarily generated by large scale mines.[46]

34 Perry et al, 2024
35 African Raw Material Export Bans: Protectionism or Self-Determination? | Global Policy Watch; Export ban means Chinese firms will have to build plants in Zimbabwe to process lithium | South China Morning Post (scmp.com)
36 Africa's Resource Future (worldbank.org)
37 Africa's Resource Future (worldbank.org)
38 Ministry of Energy and Mineral Development.pdf (finance.go.ug)
39 Uganda clarifies minimum tin export grade - International Tin Association
40 Uganda raises purity standards for tin exports - 256 Business News256 Business News
41 Our Operations - Woodcross Resources
42 Uganda has six gold refineries - Minister Nankabirwa - New Vision Official
43 Tanzania Gold Production, 1990 – 2024 | CEIC Data
44 Acacia pulls back from major gold mine in Tanzania - MINING.COM
45 Local Content in Tanzania. Is It Well Managed and Delivering.pdf (policyforum-tz.org)
46 Mining: Let's unlock the sector's full potential! | Press release (pwc.co.tz)

Asia has another instructive example of a progressively implemented ban on the export of raw materials to offer: Indonesia's mining policy, particularly for nickel ore, has been aiming to increase downstream manufacturing and domestic value addition since introducing the Mining Law of 2009. In 2014, as part of implementation of its 2009 Mining Law, Indonesia prohibited the export of unprocessed nickel ore with the aim of forcing the mining industry to refine minerals in country. From 2014 to 2017, companies were only able to export nickel concentrates if they paid an export tax and met other requirements, such as building smelters in Indonesia. However, Indonesia temporarily relaxed the nickel export ban in 2017, but in January 2020, Indonesia reinstated an export ban on unprocessed nickel ore and required foreign buyers to invest in domestic smelters and local processing.[47] Since then, Indonesia has tried to transform itself from an exporter of nickel into a key player in the global nickel value chain by banning exports of the raw materials in an effort to incentivise nickel customers to invest in downstream Indonesian industries such as refining and battery manufacturing.

It needs to be noted, however, that Indonesia's trade measures on unprocessed nickel have been just one element of a broader set of policies for supporting value addition, including fiscal incentives, investment promotion measures and the streamlining of administrative procedures. Since reinstating its export ban on unprocessed nickel ore in 2020, foreign direct investment in mining and quarrying in Indonesia has significantly increased, amounting to USD 5.15 billion by 2022 (compared to USD 2 billion in 2020).[48] These investments have resulted in installing five new smelters and a significant increase in processed nickel exports.[49] Moreover, the investments facilitated the transfer of technologies necessary to leverage low-grade nickel from limonite and higher-grade saprolite ore, making nickel from Indonesia highly competitive.[50] Following the introduction of the export ban and other value addition supporting measures, prompting on-site processing and smelting, value addition in the minerals sector increased from USD 1.1 billion to USD 20.8 billion from 2020 to 2021 alone.[51] These measures contributed to greater tax revenue from nickel downstream activity, increasing from USD 266 million in 2019 to USD 1.3 billion in 2022.[52] In 2023, Indonesia was the world's largest producer of nickel accounting for nearly half of the global nickel production.

Lessons learned from Indonesia's experience with export restrictions

First, investment promotion measures and policy coherence are important. In Indonesia, a comprehensive national plan was central to attracting foreign direct investment, which involved identifying major players, investors and innovators in the mining sector. This targeted approach contributed to technological transfers that enhanced the competitiveness of nickel ore from Indonesia by enabling the extraction of both low-grade and high-grade ore. Thus, understanding the potential of a country comparative advantages along a value chain is important for assessing the feasibility and profitability of value-added initiatives as underlined in chapter 5.1. The introduction of the ban on nickel exports in Indonesia incentivized investments for those companies seeking to maintain access to the raw mineral in Indonesia. Second, the ban was not an isolated measure, but part of a broader policy package implemented to foster a conducive investment environment and develop the necessary physical and human capital. Skill development initiatives to support downstream industries were important to enable the domestic workforce to capitalize on foreign investment opportunities. Finally, the Indonesian success in promoting value addition was also attributed to the non-substitutability of Indonesian laterite nickel ore in the nickel pig iron process. In contrast, a parallel ban on bauxite ore exports was less successful due to readily available substitutes in the market - aluminium refiners shifted to sourcing bauxite from neighbouring countries, thus emerging as the net beneficiaries of the export ban.

Overall, however, scientific analyses of export restrictions on mineral raw materials show that in a lot of cases the respective country's mineral processing and beneficiation capacities remained limited, mainly because of insufficient infrastructure, a skills shortage, and a lack of adequate financial, technical, and human capital.[53] Some of the examples analysed even show that export bans can have an opposite effect: They can be a deterrent to investment, and hard-earned wins can be lost. Notably, previous export bans on minerals have paradoxically led to decreased local production of processed and raw mineral ores. An

47 Setiani et al, 2024; Guberman et al, 2024
48 Indonesia: foreign direct investment in mining and quarrying 2023 | Statista
49 Ibid
50 Indonesia's nickel processing boom raises questions over tailings disposal | S&P Global Market Intelligence (spglobal.com)
51 Indonesia's mineral export bans face hot global fire - Asia Times
52 Critical Minerals Value Added Policies: Indonesia's Story (unctad.org)
53 Ibid

OECD study on export control measures for manganese in Gabon, lead in South Africa, copper in Zambia, and chromite in Zimbabwe found that such measures, despite their intent to boost local processing, frequently fall short and may even negatively affect the industry by diminishing mineral exports. Thus, export bans often tend to be unsuccessful in meeting their economic objectives.[54]

In summary, it can be concluded that export restrictions on mineral raw materials, sometimes characterized as a "stick"-based approach, should be applied carefully. The main reason is that implementing them prior to having adequately developed downstream beneficiation capabilities, export restrictions may be counterproductive such that foreign capital investment is withdrawn, trade partners and investors are lost as well as sanctions and embargos imposed.[55] Above all, the case studies presented above indicate that building mineral value chains is a highly context-specific issue, and its success depends on a plethora of inter-related factors. A major success factor seems to be relative market dominance with respect to a given commodity. However, it might be still too early to pronounce on success or failure of export restrictions as a means for enhancing mineral value addition in general. For countries considering applying such "stick" method it might be useful to carefully define beneficiation targets for specific minerals in view of what degree of beneficiation is in fact feasible in a given country in terms of available technology, infrastructure, and economies of scale – because economic profitability largely depends on the quantity of available respective minerals for beneficiation.

4.4 Providing tax and non-tax incentives for mineral value addition

This topic refers to the strategies used by governments to encourage companies to invest in the processing, smelting and refining of raw minerals within a country. Tax incentives can include reduced corporate tax rates, tax holidays, or exemptions on import duties for equipment used in mineral processing. Non-tax incentives might involve offering access to infrastructure, simplifying administrative procedures, providing training programmes, or offering grants and subsidies to support technology transfer and innovation in the mineral value chain.

As opposed to export restrictions as a "stick"-based approach, providing tax and non-tax incentives can be described as a "carrot"-based approach for enhancing mineral value addition. In fact, many resource-rich developing countries use tax incentives in the hope of attracting mining investment. Research conducted by the IGF in 2018 found out that roughly two thirds of the countries surveyed give corporate income tax concessions to mining investors either in the law or in mining contracts, or, in many cases, in both. Slightly less than half grant a complete tax-free period ("tax holiday"), wiping out the entire tax base for between three and twelve years.[56]

A prominent example of using tax and non-tax incentives for enhancing mineral value addition is Rwanda. The country endeavours to become a regional mineral beneficiation hub and has increasingly positioned itself as an important part of regional value creation. In addition to enhancing due diligence in responsible sourcing, Rwanda also seeks to achieve a high degree of compliance with standards on occupational health and safety, as well as social and environmental protection. These factors are crucial for a functioning and well-governed mining sector. Specifically, the Rwandan government is keen to formalise its mining sector, attract international mining investors, and increase downstream processing and beneficiation of minerals. Rwanda's vision is to be a mineral value-addition hub in the region.[57] In fact, Rwanda is on a good path to make its vision a reality: In 2022, Rwanda was a top exporter of tungsten with 31 percent of the total global supply. The same year, Rwanda had 14 percent of total tin exports to the world. In addition, Rwanda is also a significant exporter of niobium, tantalum, and vanadium with five percent shares in 2022. Rwandan exports of gold amounted to USD 555.7 million the same year.[58] Today, Rwanda's mining sector is the country's largest export revenue earner, before tourism. Mineral export revenues increased from USD 71 million in 2010 to USD 772 million in 2022.[59]

Beyond that, Rwanda has already succeeded in attracting investment in three smelters of gold, tin and tantalum, (the Gasabo Gold Refinery, the LuNa Smelter refining tin, and PowerX, a tantalum refinery) which have the capacity to process large amounts of minerals from within the country and the region.

54 Perry et al, 2024
55 Harrisberg, 2023
56 IGF, 2019
57 Mining Investment Opportunities (rmb.gov.rw)
58 Rwanda - Mining and Minerals (trade.gov)
59 Chambers and Partners, 2024

Opportunities to establish additional processing plants such as for tungsten, lithium and gemstones cutting and polishing have been opened up to private investors.[60]

In 2021, Rwanda's "Investment Code" entered into force, marking a significant milestone in the country's efforts to boost foreign direct investment and promote economic growth. The new Code was specifically designed to provide targeted incentives for sectors such as mining, with the aim of positioning Rwanda as a regional hub for mineral processing and value addition. It introduced both fiscal and non-fiscal incentives to attract international investors, simplify administrative procedures, and enhance the competitiveness of Rwanda's mining industry. This aligns with Rwanda's broader National Strategy for Transformation 2017-2024, which seeks to modernize the economy and create sustainable development opportunities. Among others, the Strategy makes value addition and processing of mining products a key strategic intervention.[61]

In February 2021, Rwanda's new Investment Code entered into force. The Code has been tailored to provide mining incentives and serve towards Rwanda's ambitions of becoming regional mineral hub in line with the country's National Transformation Strategy. The new Code features a number of mining and mineral value addition incentives both fiscal and non-fiscal incentives. For example, according to the Code, any registered investor holding an exploration license is entitled to carry forward losses for a period of ten years from the first year of making the loss, by deducting losses in the order in which they incurred (previously, companies in exploration activities were given only five years of loss carry over). Additional tax incentives provided by Rwanda to enhance in-country mineral value addition are these:[62]

Tax incentives in Rwanda for in-country value addition

- 15 percent preferential corporate income tax for projects exporting processed minerals up to 50 percent of turnover of minerals produced in Rwanda
- Accelerated depreciation of assets at 50 percent
- Import free on heavy machinery used in mining
- VAT exemption on mining equipment
- Value added tax refund
- Capital gains tax exemption and 0 percent corporate income tax for companies planning to relocate headquarters to Rwanda

Additionally, Rwanda has put in place a number of non-tax incentives to attract investments in mining, processing and beneficiation providing also a One Stop Centre for investors at the Rwanda Development Board (RDB): [63]

Non-tax incentives in Rwanda for in-country value addition

- A registered investor who invests USD 250,000 may recruit three foreign employees without necessarily demonstrating that their skills are lacking or insufficient on the labour market in Rwanda
- Quick facilitation of investment registration
- Facilitation with respect to tax related services and exemptions
- Provision of environmental impact assessment certificates
- Facilitation with obtaining visas and work permits
- Notary services provided by a One Stop Centre of the Rwanda Development Board,
- Assigning a key account manager to projects registered within the One Stop Centre

60 Mining Investment Opportunities (rmb.gov.rw)
61 See the Strategy here: rwa206814.pdf (fao.org)
62 Snapshot: Mining Incentives in the new investment code (rmb.gov.rw); for further details see: Rwanda Standard Incentives for Investors (eac.int)
63 One stop centre - Official Rwanda Development Board (RDB) Website

It is difficult to assess the extent to which these incentives have played a role with respect to investment decisions made on setting up value addition activities of foreign investors in Rwanda in each individual case. However, private sector investors representing the above-mentioned refineries in Rwanda noted that the incentives indeed have been influential.

Botswana and Indonesia are two countries which have successfully developed mineral value addition chains, and have also used tax incentives to attract mineral value addition. In Botswana, diamond cutting and polishing companies are exempt from paying taxes on polished diamonds exports and only have to pay taxes if they export rough diamonds (unprocessed) or partly polished diamonds, providing an incentive for companies to process diamonds in-country. Besides, companies do not have to pay import duties on their technology imports.[64] For developing its downstream nickel industry, Indonesia is also applying a range of tax incentives such as up to 100 percent tax holiday up to 20 years on corporate tax, VAT exemption for imported capital goods, and import duty exemption for capital goods or materials. Non-tax incentives include, among others, the easing of permits application and a special regulation for employment.[65] Generally, fiscal incentives have also been applied to promote greater utilisation of local workers and suppliers (see chapter 5.5).

Another example of tax incentives provided for the processing and refining of critical raw materials comes from Australia – a country with a long tradition in providing tax incentives for mining. Australia's "Critical Minerals Production Tax Incentive", just recently announced in June 2024, proposes to provide eligible entities with a 10 percent refundable tax offset for eligible expenditure, incurred for the processing and refining of specific critical minerals (31 different minerals in total). Eligible expenditure will exclude the costs of the raw materials, depreciation costs and financing costs. The "Critical Minerals Production Tax Incentive" is part of the Australian Government's "Future made in Australia" agenda to address some of the major structural and strategic challenges that the Australian economy currently faces. These challenges include attracting and enabling investment in value adding priority industries.[66]

In conclusion, providing tax and non-tax incentives for mineral value addition serves as an essential "carrot-based" approach for governments to encourage investment in local mineral processing and beneficiation. Countries like Rwanda, Botswana, and Indonesia have successfully employed such incentives, ranging from preferential corporate tax rates, tax holidays, and VAT exemptions to infrastructure support, streamlined administrative processes, and easier access to skilled labour. These strategies aim to foster a more competitive and sustainable mining sector, boost local economies, and attract foreign investors. Rwanda, in particular, has demonstrated progress in becoming a regional hub for mineral value addition, supported by its Investment Code and a range of targeted incentives. However, while these incentives have been influential in shaping investment decisions, it remains challenging to precisely measure their direct impact in every case. Nevertheless, the use of such incentives has become a common tool in promoting mineral value chains in resource-rich countries.

4.5 Promoting mineral value addition through local content

Local content policies are designed to enable countries to maximize domestic benefits from foreign direct investment by expanding local participation. Their promotion has become a critical component of successful strategies to leverage mining investment for broader economic activity. However, given the constraints many Sub-Saharan African countries face, mining largely relies on foreign capital and foreign skills, which means that much of the income generated will accrue to foreigners rather than to the country owning the natural resources. Under these circumstances, policy makers view local content policies as an important avenue for widening the distribution of benefits generated by the mining sector. Currently, 17 countries in the Sub-Saharan Africa region enforce local content regulations in mining and related activities, encompassing domestic ownership, local employment quotas, and procurement guidelines for foreign investors. [67]

64 ZEPARU, 2017
65 UNCTAD, 2024
66 Australian Government, 2024
67 World Bank, 2023b

Generally, there are four components of local content policies:[68]

- **Participation** by nationals in employment and management (localization);
- **Local sourcing** of raw materials or value-added components, often referred to as local procurement;
- Geographic definition of a "local" firm (local, regional, or national); and
- Distinction in size of enterprise (micro, small, medium, or large enterprises).

Due to different objectives of local content policies, the place and history of the mining sector, and the overall level of development, there is a wide range of approaches in the various countries having introduced local content requirements. Examples of strategies to enhance local content provisions are these:[69]

- **Training requirements:** Obligations on mining companies to commit resources toward training locals and to meet training targets. Finland, for example, has prioritised capacity development, encouraging foreign experts to work alongside Finnish engineers and focusing on overseas training. South Africa mandates specified levels of training expenditure by mining firms.
- **Cluster strategies:** Many countries have used cluster strategies to facilitate competition and growth in the mining sector and supporting businesses. Clusters are, essentially "organised business collaborations" that are often supported by state efforts and with contributions from academia and other actors that facilitate knowledge transfer between firms. This, in turn, can create efficiencies through the pooling of resources, and may enable smaller local firms to develop faster than they otherwise would.
- **Employment quotas/targets:** Specific targets for employment of locals, often specified by level of seniority and increasing over time. For example, South Africa has detailed employment equity requirements targeting disadvantaged groups. Peru requires that no more than 20 percent of total jobs and 30 percent of total payroll be attributable to non-Peruvians. Brazil imposes similar requirements in certain cases.
- **Local procurement preferences:** Some countries require mining companies to give preference to local companies in procurement. One challenge with such rules is that local companies may lack the capacity to compete on level terms with international bidders, making such preference provisions ineffective. Some countries have thus utilised joint venture requirements (see below) and/or provided a specified pricing margin for local companies (e.g., Ghana requires local companies that meet the technical criteria to be selected in a tender if their price is within 2 percent of the best foreign bid).
- **Import duties:** Import duties have been used in some countries to protect local industry and provide them with cost advantages, particularly where they may not yet be able to compete on equal footing. South Africa, for instance, utilized tariffs in early years of its mineral sector development process to protect local industry. South Africa is now a major supplier in the mining industry globally.
- **Incentives:** There are a number of incentives that promote greater utilisation of local workers and suppliers. Australia, for instance, previously allowed some duty-free imports for companies that developed and implemented local content plans, though these incentives have been phased out. Canada offers fiscal incentives for companies to establish or relocate research and development activities to better capture spillovers from such activity.
- **Joint venture requirements:** One means of fostering knowledge transfer and increasing local participation in cases where local firms are not yet able to compete on their own is to require partnerships between foreign and local enterprises. For example, Brazil requires license holders to partner with local firms in certain "border zones" and indigenous protection areas, requiring at least 51 percent local participation.
- **Procurement processes:** Policies supporting local suppliers' ability to compete effectively for procurement contracts. Strategies range from requirements that large contracts be "unbundled" to allow smaller local companies to compete, to direct support to local businesses in the tendering process (Australia). In Chile, a Goods and Services Supplier Company Classification System is used to maintain up-to-date databases of suppliers and contractors to facilitate local procurement and ensure that local companies have knowledge of and access to opportunities. Kazakhstan uses a similar Contract Agency Register, and Senegal and Côte d'Ivoire utilise subcontractor databases developed in partnership with UNIDO.
- **Community development agreements (CDAs):** Agreements with local communities that may be entered voluntarily or in accordance with legal requirements. Kenya, for example, has issued regulations

68 Ibid.
69 OECD, 2017

requiring CDAs and stipulating the consultation process and certain terms that must be addressed in CDAs.

Among the various local content policies applied, local employment and local procurement requirements are most widespread:

Basically, local employment requirements might be categorized in "stick" and "carrot"-based approaches: Regulatory approaches typically result in prescriptive ("stick"-based policies) that are generally mandatory and rely on strong compliance mechanisms. These include, for example, mandated local employment percentages, often different for different types of jobs, requirements to conduct training of locals or support training facilities, or mandated employment of indigenous people, women, youth or disadvantaged groups in affected communities. In contrast to this, facilitative approaches typically result in incentive-based ("carrot"-based policies), offering support and incentives for the development and employment of local workers. Among others, these include nonbinding requirements to hire locals (for example, "to the extent possible"), and fiscal incentives for local hiring.

Local procurement requirements, in turn, aim to increase the participation of domestic firms in the mining supply chain. One of the reasons behind this is that mining in and of itself is not a labour-intensive sector. Thus, governments often use local procurement to stimulate the development of labour-intensive linkage sectors, such as manufacturing, services, logistics, and construction. When it comes to local procurement requirements, the vast majority of African countries have rather facilitative approaches, generally suggesting that local goods and services should be procured if available.[70] However, some countries have adopted a mandatory approach such as Tanzania (see below).

While the various approaches described above can help to promote economic spillovers and local content growth, it is also important to note that their success hinges on the presence of important cross-cutting measures. Ultimately, efforts to promote local content development - particularly efforts based on quotas and other strict requirements - will fail if the enabling environment is poor. An enabling general business environment, as well as the provision of sufficient infrastructure and public goods, is critical.

It is important to note that indeed many mining companies have invested huge sums of money to develop local labour forces and suppliers. The advantages to mining companies of having a talented local labour force and competitive local suppliers can be tremendous, in terms of the "social license to operate", more robust and nimble supply chains, and pure cost savings. Countries such as Botswana that have worked closely with foreign mining companies - through coordinated "cluster" strategies or other public-private partnerships (PPPs) - have seen substantial success in this area (see chapter 5.10). For these reasons, countries applying local content policies should be careful in viewing them as an imposition on mining companies.

In the Great Lakes Region, some countries have implemented local content strategies. Zambia, for example put in place a National Local Content Strategy 2018-2022 to directly or indirectly promote local content requirements.[71] Zambia's Strategy was aimed at increasing the use of locally sourced goods and services and fostering business linkages in specific growth sectors. It was followed by the enactment of the country's Local Content Act. However, according to latest research, the effective implementation of Zambia's National Local Content Strategy has been slow, particularly in the mining sector, resulting in less than the required 15 percent in the utilisation of local resources and minimal compliance with procurement requirements. This has resulted in limited job creation and opportunities.[72] Factors that have been attributed to the failure of Zambia's approach include limited capacities, lack of guiding implementation matrices and non-existence of sector specific policies to support them.[73]

Tanzania has also adopted a mandatory approach on local content requirements: The country's 2019 Mining Act, for example, requires mining companies to give preference to Tanzanian suppliers when procuring goods and services. Any goods or services not available in Tanzania must be procured from a joint venture in which a Tanzanian company has at least a twenty-five per cent stake (section 102).[74] Tanzania's Mining Regulations on Local Content of 2018 specifying the country's local content requirements require, among

70 World Bank, 2023b
71 See: National-Local-Content-Strategy.pdf (zda.org.zm)
72 Bowa et al., 2023
73 Kabeta, 2020
74 Microsoft Word - CHAPTER 123 - THE MINING ACT CHAPA FINAL (madini.go.tz)

others, that a non-local ("indigenous") company to provide goods or services to a contractor or licensee in Tanzania will be required to form a joint venture company with an "indigenous" Tanzanian company after affording such company an equity participation of at least 20 percent. In essence, the Regulation completely forbids provision of any type of services by an international service provider to mining setups in Tanzania if the same does not feature at least a 20 percent equity stake owned by Tanzanians. The Regulation does not limit applicability to certain types of services; and essentially, it applies to all types and sizes of services across the industry. Apart from that, a Local Content Committee was established following the Regulation, responsible for overseeing its implementation and ensuring measurable and continuous growth in local content in all mining activities.[75] However, similar as for Zambia's local content approach, recent research indicates that the Tanzanian government has been ineffective in terms of managing and delivering local content so far. According to a Study published in December 2022, most interviewed community members, suppliers, extractive companies' respondents and even government officials admitted that management and delivery could be handled better.[76]

Another example worth having a closer look at is the local content approach that Ghana has taken, because it is considered to be mostly effective.[77] Ghana's local content approach aims to promote job creation through the employment of Ghanaians and use of local goods and services, and to develop the capacity and enhance the international competitiveness of domestic businesses in the mining sector. Ultimately, the goal is to achieve full localisation, thereby, eliminating reliance on expatriates and foreign service providers for the requisite expertise in the mining sector.

Ghana's local content requirements

Local hiring requirements coupled with training requirements: All unskilled and clerical positions must be filled by Ghanaians, and no more than 10 percent of senior staff may be foreign in the first three years, and no more than 6 percent after three years.

Procurement of goods and services produced locally: Preference must be given to materials and products produced in Ghana, service agencies sited in Ghana and owned by nationals (regardless of capital ownership and local equity by Ghanaians), or firms registered in Ghana. During the assessment of procurement bids for products or services, those that contain the highest level of Ghanaian content for jobs (including management) and ownership must be chosen as long as they are no more than 2 percent higher in price than the lowest tender. Ghana's local content legislation also lists the types of goods that mining companies will be expected to source locally.

It needs to be noted that monitoring and enforcement of local content policies is critical to their success. For example, Ghana has established a Local Content Commission specifically to monitor local content requirements which is considered to be a major success factor in the country's local content approach: Companies are required to submit a five-year plan detailing how local goods will be used. The plan is to be revised annually, and companies must report compliance levels yearly. The Local Content Commission may levy fines for non-performance such as monetary penalties as high as USD 10,000 per day as well as the full payment of import duties.[78]

To conclude, local content can be a significant source of income to the national economy - potentially eclipsing the sums paid by mining companies through the fiscal regime. This is particularly the case in the early stages of a mine lifecycle, before production and profits taxes are paid and during the capital and labour intensive mine development process. Recent efforts by African states to list the items that mining companies are expected to domestically under local content legislation and regulations represent a good start in strengthening backward linkages with the mining sector. However, governments are encouraged to move beyond a list of items to encompass percentage targets for local purchases. Additionally, goods and services need to be separated, as percentages for the local acquisition of services, such as catering and security, could be set much higher than the percentage targets for various goods which are more difficult

75 MINING LAW UPDATE: UNPACKING THE MINING (LOCAL CONTENT) REGULATIONS, 2018 AND THE MINING (LOCAL CONTENT) (AMENDMENTS) REGULATIONS, 2019. - Breakthrough Attorneys; See also Tanzania's National Multi Sector Local Content Guidelines: Microsoft Word - local content guidelines new March.doc (uwezeshaji.go.tz)

76 Kinyondo, 2022

77 Uongozi Institute, 2017

78 Ibid

to source locally, such as explosives or heavy machinery.[79] To advance local content policy approaches, it was also suggested that the concept of local content could be expanded to embrace "regional" local content. Under these circumstances, the percentage targets for local content could be set much higher.[80]

4.6 Investing in human capital and research as base for mineral value addition

Generally, increasing the value that the mining sector creates for the economy demands developing different kinds of skills:[81]

- **Technical skills** unique to mining and mining beneficiation, such as mining engineering or the operation of mining and smelting equipment.
- **Transversal skills** that are relevant in mining and beyond. Many people within the mining workforce, especially informal workers in artisanal and smallscale mining, are vulnerable to economic precarity or poverty. They can benefit from obtaining some nonminingrelated skills that would improve their resilience, such as soft, entrepreneurial and managerial skills.
- **Skills for miningrelated manufacturing and other industries**, such as steel production from iron ore and coal, or jewellery production from precious metals and gemstones. These industries can use locally produced mining outputs for value addition if skill supply is available, for instance, workers trained in gem cutting or artisans and technicians in the metal manufacturing sector

Downstream beneficiation will undoubtedly create jobs through increased labour requirements. However, beneficiation of high value-add products from unprocessed materials requires skilled labour, of which most African countries have a shortage. Furthermore, as the world transitions toward automated processes, machinery and production, there will be a decrease in the need for manual labour. However, the potential impacts of technological advancements also hold opportunities to promote gender equality by supporting women employed in mining and women living in mining communities to have access to better job opportunities in the mining sector and in supply chains as highlighted by a recent IGF report.[82]

Thus, a major impediment for mineral value addition is a scarcity of local skilled labour, necessitating substantial investment in education and training. This holds true for the ASM sub-sector, dominating the mining sector in many Sub-Saharan African countries: Limited mining and processing skills, coupled with poor access to modern technology, are major issues affecting the sub-sector's potential for development (see chapter 5.8). However, the same deficits apply in relation to medium and large-scale mining operations and, of course, any subsequent value addition activities. Even in South Africa, shortages of workers with the necessary skills represent a key obstacle to the development of beneficiation and downstream industries.[83] These demand highly skilled and market-oriented workforce mostly not available in many African countries. Besides, technology within extractive industries is changing rapidly, which demands workers who have the capability to handle and adapt to new technologies. In fact, knowledge linkages are a prerequisite for developing both backward and forward linkages. Therefore, it is also critical that African countries tap into opportunities to transfer skills, knowledge, and technology from international companies to local companies any apply effective local content policies (see chapter 5.5).

A useful approach to encourage technology transfer and research is to promote PPPs by partnering with international companies or institutions to facilitate knowledge exchanges and enhance local capabilities in processing and invest in research and development to improve extraction techniques, metal refining processes, and product development for higher value-added applications.[84] In fact, not many African countries have taken steps to or set up institutions for research and development (R&D) to feed value-adding processes within their industries and make business models more agile in adapting to market shifts. At present, no Sub-Saharan country invests more than 0.8 percent of its GDP in R&D.[85] Overall, there

79 Ibid

80 Under the concept of regional local content, a particular item (such as, for example, a USD 10 million piece of equipment) that is purchased in Ghana could count in full (i.e., 100 percent) towards the company's targets for local content, but if it was purchased from neighbouring Côte d'Ivoire then it could count as 70 percent (i.e., USD 7 million). In this way, mining companies will still have strong incentive to facilitate the linkage in Ghana but if that is not feasible the company will be encouraged to source regionally.

81 AU/OECD, 2024

82 IGF, 2023c

83 AU/OECD, 2024

84 Woldu, 2023

85 Ibid

is still significant potential of fostering human capital and a skilled workforce capable of participating in higher value-added processes, for instance through curriculum updates, partnerships with universities and industries, vocational training, certifications and upskilling for existing workers in related sectors.

When it comes to identifying specific approaches on developing human capital and research for mineral value addition, Botswana's downstream policy for its diamond beneficiation industry presents a highly successful example, mostly due to the close collaboration between the private sector and the government on capacity building for local labour force, but also establishing technology and research clusters in-country making use of PPPs (see chapter 5.10).[86] Some countries have also set up so-called centres of excellence such as the Tarkwa University of Mines and Technology in Ghana and the Tanzania Gemmological Centre in Arusha, to build technological expertise and innovation and reap the full benefits from the minerals sector. For example, the Tanzania Gemmological Centre is being funded to add value to precious and semiprecious stones that can be sold regionally and internationally, with the vision that it will become a centre for excellence for gemstones in East Africa. Specialized machinery and foreign trainers have been brought in to build the capacity of Tanzanians in cutting and polishing stones. As part of the bilateral cooperation agreement between the DRC and Zambia to establish EV battery value chains (see chapter 5.10), a Centre of Excellence for Advanced Battery Research has been established at the University of Lubumbashi recently.[87]

Realistically, however, not every country will have the ability to supply the full range of skills required for their industries. Therefore, regional solutions will be needed to reduce skills gaps. For this reason, mechanisms to facilitate the free movement of labour and skills between African states should be put in place, including the provision of work and residence permits and mutual recognition of qualifications and skills (see chapter 5.9).

For enhancing skills development with respect to mineral value addition, it is important to identify specific labour needs within priority sectors and to invest in needs-oriented education and skilling. It should be noted that any approach should be gender-sensitive considering the specific needs of women and vulnerable persons, including the disabled, elderly and youth or disadvantaged groups. However, often government budgets do not allow for any such investments. A potential instrument to raise funds for education, training and research is to impose a levy on mining companies or to require them to conduct trainings (see chapter 5.5): For example, in South Africa a 1 percent skills levy must be spent by companies on in-country human resource development. The Tanzanian government requires mining companies to pay a 5 percent skills development levy.[88]

With respect to supporting in-country R&D, there are also some best practice examples available: In Norway's petroleum sector, foreign operators have an obligation to enter into R&D agreements with government, with at least 50 per cent of R&D activities to be conducted in-country. Similarly, in Ghana, petroleum companies must submit a plan of R&D initiatives to be undertaken in-country. The Swedish government provides significant financial support to its world-class research institutions specializing in mining-related activities and who have developed strong partnerships to connect businesses with R&D. Similarly, Finland provides loans and grants to its public institutions to support domestic companies in becoming global leaders in specific sections of the mineral value chain.[89]

In sum, skilling people for mineral value addition is highly important considering that even countries with highly developed extractive industries like South Africa face a shortage of skilled labour. For overcoming budget constraints for skilling people, regional cooperation for skills development might be enhanced, and a skills development levy might be imposed on mining companies.

86 Korinek, 2014
87 See: Centre of Excellence for Advanced Battery Research in DRC Officially launched | United Nations Economic Commission for Africa (uneca.org)
88 ILO, 2020
89 IGF, 2018a

4.7 Supporting access to finance for mineral value addition

Access to finance is the ability of individuals or enterprises to obtain financial services, including credit, deposit, payment, insurance, and other risk management services.[90]

Especially for local entities, access to financing remains a significant obstacle for mineral value addition. Supporting access to finance for mineral value addition refers to the efforts made by governments, financial institutions, and other stakeholders to provide funding opportunities for businesses engaged in the processing and refining of minerals. This support can include offering loans, grants, and subsidies, or creating special financial mechanisms like credit guarantees, to lower the financial barriers for companies investing in downstream activities. Access to finance is crucial for fostering local mineral processing, which requires significant capital for equipment, technology, and operational costs.

First, the issue of accessing finance is crucial for local suppliers of mining companies and thus closely linked to local content: Measures and programmes to help develop the capacity of local suppliers in the context of local content policies should therefore also focus on access to finance for capital and investments. Key elements are also mentoring and training programmes to help local suppliers develop business management skills. Besides, governments can facilitate access to financing for small and medium-sized enterprises (SME) involved in value addition activities by establishing specialized funds, grants, or loan programmes to support entrepreneurs and businesses interested in establishing value addition business activities. For example, Tanzania has adopted a local content development approach for local suppliers. Under this model, assistance is provided to train, equip and finance domestic suppliers of the oil and gas and mining sectors.[91] In this context, the country's Vocational Education and Training Authority (VETA) is involved in training and skills development for the extractive industries. In addition, the country's National Economic Empowerment Council (NEEC) has a mandate to coordinate the government's local content policy. The NEEC has several programmes related to SME development.[92] A specific example of the NEEC's capacity building activities is a partnership with the company Geita Gold Mining Limited aiming to impart relevant knowledge and skills to local suppliers in the Geita region targeting a total of 320 entrepreneurs with existing businesses.[93]

Second, access to formal finance is an even bigger challenge for the ASM sub-sector due to its widespread informality and its perception as a high-risk sector. Instead, the ASM sub-sector has traditionally been financed by informal lenders like traders who offer finance in return for access to future production. Such informal financing typically supports ASM technologies and practices that are less costly in the short term, but generally also less efficient with greater environmental and health impacts. Women and youth engaged in ASM face even more economic and financial challenges due to their lack of access to land, licences and geological data resulting from traditional cultural norms. However, for a responsible ASM sub-sector to serve as an economic catalyst in the respective rural communities while avoiding negative impacts, the sub-sector requires access to inclusive finance that will allow the deployment of cleaner and more efficient technology and sound environmental management practices.[94] Considering these circumstances, a range of financial interventions has been applied for giving ASM producers access to finance. Among others, these are:[95]

- **Microfinance:** Microfinance has been employed in several countries to support a range of needs for ASM producers, including gold miners. One successful microfinance strategy employed in ASM is to share risk across the lending group, a useful feature given the high-risk perception banks, donors, and lenders have of ASM operators. For example, microfinance, based on "group sharing" principles, was used successfully in communities of Ghana. Self-selected groups of between five and 10 people were assembled, and participants within the group were ranked according to financial strength. The ranking was used to determine the order in which members received loans.
- **Government-backed finance schemes:** To address the need for more accessible commercial finance, some governments have directly offered or backed various types of finance schemes including equipment sharing/leasing programmes. However, these approaches have shown mixed results. Some of these schemes have failed because miners struggle to repay loans, while others with very stringent

90 World Bank, 2008
91 Uongozi Institute, 2017
92 See: Local Content in Tanzania's Gas and Minerals Sectors: Who regulates?
93 See: ggml-the-national-economic-empowerment-council-capacitate-local-businesses.pdf
94 planetGOLD, 2024
95 Ibid.

lending criteria (with high collateral requirements) have failed to attract miners in the first place. The only notable successful state-led initiative is the National Mining Company of Chile (ENAMI), a state-owned enterprise that provides small- and medium-scale miners with a range of services, including finance, technical assistance, commercialization and training in business practices (see chapter 5.8).

- **Blended finance using guarantee schemes:** This approach involves the use of public or philanthropic money in conjunction with private and commercial finance products. Such interventions facilitate financing by sharing the risk of loss, which enables the financial entity to achieve acceptable returns. For example, the government might provide guarantees to a commercial bank for loans to ASM businesses (allowing, for instance, to apply interest rates below market conditions), or a philanthropic donor may provide a grant to build ASM management capacity, which improves their ability to attract commercial finance. For instance, the Bank of Tanzania in 2019 pledged to provide a loan guarantee of up to 500 million shillings (approximately USD 200,000) through registered commercial banks in the country, catalysed by the World Bank's Small and Medium Enterprises Credit Guarantee Scheme and providing a 50 percent guarantee for up to five-year loans to small-scale miners. Moreover, in 2017, the African Guarantee Fund agreed to work with the ACP-EU Development Minerals Programme to make available USD 12 million in credit guarantees to financial institutions in Cameroon, Guinea (Conakry), Uganda, Nigeria and Zambia, for loans provided to SMEs in the development minerals sector. This facility could leverage up to USD 24 million, since the guarantees would support about 50-70 percent of the loan amounts.
- **Business arrangements within the mining sector:** Relationships between ASM businesses and other mature actors in the mining industry, such as medium- and large-scale mining companies, may be suitable sources of financial assistance to small-scale miners, especially those working in the same region. In Ghana and Tanzania, advanced medium-scale miners already assist artisanal operators, including providing training on environmental matters, providing purchasing services for gold onsite, allowing the artisans to use machinery and processing facilities, and leasing sections of concessions to them. Finally, processing centres can also serve as a vehicle through which small-scale miners can access services. Some processing centres have been designed to allow miners to initially process ore using mercury to extract a portion of the gold immediately, leaving behind tailings, which still contain significant amounts of gold. The gold-rich tailings are then further processed by the centres owners to earn profits.
- **National development banks:** These banks might also play a role in providing access to finance for the ASM sub-sector. Generally, their development mandate enables them to focus on types of investments that contribute more broadly to long-term, dynamic growth, such as sustainability and support for innovative and small business. National development banks can therefore play an important role in the growth of the ASM sub-sector, for example, by providing low-cost capital to incentivize commercial banks to lend to the ASM producers. Financing could be accompanied by technical assistance, where needed.

In terms of government-backed financing schemes for the ASM sub-sector, Zambia has implemented a Mining Sector Diversification Programme that included elements offering small-scale mining entrepreneurs a combination of credit financing, training and capacity building and the provision of technical expertise.[96] However, the Programme did not have much impact due to, among others, lack of adequate geological information which makes external financing risky. However, in its 2020 Export Diversification Strategy for Gold and Gemstones, the Zambian Government has taken up the intention of facilitating access to affordable financing of ASM gold and gemstone producers which are organised into groups and cooperatives.[97]

Moreover, some commercial banks from the Great Lakes Region have started providing access to finance for the ASM sub-sector: For example, Trust Merchant Bank (TMB) in DRC has extended financial services to the sub-sector.[98] Furthermore, USAID and the Equity Bank in DRC has established a partnership to unlock USD 5 million in lending to artisanal and small-scale mining operators in eastern DRC. Through the partnership, it is intended that the Equity Bank will gain a better understanding of the actors, operations, local dynamics and commercial linkages from extraction to sale of artisanal gold.[99]

Overall, however, there is a need to develop minerals knowledge in financial institutions. This is because

96 Ibid

97 The Strategy can be found here: Zambia-Export-Diversification-Strategy-for-Gold-and-Gemstones.pdf (mcti.gov.zm)

98 See: TMB extends financial services to the ASM sector - EMEA Finance

99 See: USAID and Equity Bank partner to unlock $5M in lending to artisanal and small-scale mining operators in eastern DRC - Global Communities

not only most ASM producers lack the knowledge and skills to prepare financing proposals, but financial institutions also lack mining experts within their organizational structure and hence lack a good understanding of the potential of the mining sector, specifically small-scale operations. Their assessment of the risks associated with the sector is influenced by a limited understanding of the operations and results in a lack of financing products which could transform the operating conditions of the ASM sub-sector. Additionally, allowing access to finance for ASM producers requires specially tailored financing schemes that are designed to address the specific challenges of their operating environment. Such challenges include lack of resource information, poor mining skills, lack of knowledge to write financial proposals, poor record keeping, limited knowledge of the market, lack of collateral and other considerations often required by financial institutions.[100]

Beyond that an important prerequisite for improving the ASM sub-sector's access to finance is that governments actively engage in formalising ASM and continuously promote ways to improve the sub-sector's operations. Formalisation, including clear legal status, is foundational to catalyse the delivery of financial services to ASM producers. While formalisation on its own will not guarantee the elimination of all barriers to finance, it imparts legal recognition, stability, and organization that provides for a structure with increased probability for business success. Formal status thus helps to instil confidence in a potential financer. For these reasons, access to finance is closely linked to ASM formalisation.

4.8 Increasing mineral value addition through ASM formalisation

ASM plays a crucial role in the economies of many ICGLR Member States, supporting the livelihoods of millions and contributing to local and national development. ASM operations are generally defined by their limited use of machinery and technology, low levels of capital investment, and reliance on labour-intensive processes.[101] It ranges from informal individual miners earning a subsistence livelihood to more formal and regulated small-scale entities producing minerals commercially.[102] ASM sometimes occurs in areas close to or on LSM concessions. While ASM often operates on a smaller production scale, it can exist alongside LSM activities, sometimes leading to conflicts, but it can also function independently from industrial mining operations. ASM has experienced explosive growth in recent years due to the rising value of mineral prices and the increasing difficulty of earning a living from agriculture and other rural activities. Overall, ASM is playing a growing role in many national economies and holds the potential to provide decent livelihoods if conducted in an organized and responsible manner and afforded more secure access to capital and markets. LSM operating in the same regions as ASM, or that purchase minerals produced by ASM, have the opportunity to contribute to positive transformations in the ASM sector.[103]

However, it is estimated that at least 90 percent of ASM is informal, with entities operating in contradiction to laws or in the absence of an appropriate legal framework.[104] Generally, it is also acknowledged that non-formalised ASM activities are often associated with poor safety, health and environmental practices, conflict and civil strife, and sometimes also linked to socially unacceptable practices such as child labour.[105] Many of these problems can be attributed to the fact that the ASM sub-sector is often unregulated and operates outside the legal sphere. Therefore, legalisation refers specifically to granting legal recognition to ASM operations, ensuring they comply with national laws.[106] However, this is just one part of the broader formalisation process, which involves incorporating ASM into the formal economy. Formalisation takes a more holistic approach, including not only legal compliance but also improving access to markets, financial services, and support systems, ultimately aiming to enhance the sector's sustainability and legitimacy. In fact, ASM formalisation does not only contribute to increased state revenue from the sub-sector and facilitate its regulatory supervision, but also enhances responsible mining practices.

To ensure that the ASM sub-sector contributes to a country's sustainable development, the IGF's Mining Policy Framework has identified three key dimensions of ASM formalisation to be addressed by governments:[107]

100 AfDB, 2022
101 See: IRMA Standard June 2018 (responsiblemining.net)
102 IGF, 2017a
103 USAID, 2016
104 Way, 2024
105 AMDC
106 The terms "legalization" and "formalisation" are often used interchangeably, though they have distinct meanings.
107 IGF, 2017a; IGF, 2023

- **Integrate informal ASM activities into the legal system**, among others by creating clear legal frameworks and regulatory mechanisms to facilitate the organization of ASM, access to property rights and ensuing obligations for ASM; supporting ASM operators to meet regulatory requirements; and establish robust mechanisms for monitoring ASM sites and for enforcement with appropriate sanctions when practices are unacceptable, to ensure compliance with laws and regulations.
- **Integrate informal ASM activities into the formal economic system**, for example by generating and providing access to geological information and identify areas with potential for ASM operations; providing technical training to ASM producers to improve productivity through efficient processes that protect the environment and the health, climate resilience, and safety of ASM workers; encouraging and facilitating the creation of ASM associations; and encouraging, when applicable, responsible supply-chain initiatives to promote sustainable ASM.
- **Reduce the social and environmental impacts of ASM**, among others by developing, disseminating, and enforcing regulations to safeguard water sources, minimize habitat loss, manage tailings, and rehabilitate sites associated with ASM; taking steps to reduce and, where possible, eliminate, the use of mercury, and other toxic substances from ASM processes; developing programmes to improve health and safety standards and provide access to quality education to ASM workers and their families; strengthening, monitoring, and enforcing labour laws and laws that prohibit forced and child labour in ASM.

For contributing to ASM formalisation in the Great Lakes Region, the ICGLR has developed a Regional Guide on ASM Formalisation in the Great Lakes Region. In addition, the ICGLR developed a "Strategy for the Artisanal and Small-Scale Gold" outlining key intervention areas and activities to be pursued by the ICGLR and Member States in order to contribute to an improved ASM gold sector.[108]

In the DRC, for example, efforts to boost mineral value addition through ASM formalisation focus on registering and regulating ASM operations, improving access to markets, finance, and technical training. By upgrading equipment and promoting responsible mining practices, the DRC aims to increase productivity, enhance sustainability, and integrate ASM into the formal economy, contributing more to local and national value chains. However, the country continues to face many challenges in its ASM sub-sector, including informality, conflicts, environmental concerns, child labour, and corruption.

For these reasons, the perceived risks linked to the problems of the ASM sub-sector are already forcing downstream companies to reconsider their raw material sourcing strategy, for instance in relation to buying cobalt from DRC. In fact, there is increasing pressure on LSM companies, traders and processors, for example in the DRC, to provide "ASM-free" cobalt-material not mined by ASM producers to avoid the risk of child labour being involved in their supply chains. This phenomenon has put pressure on LSM companies to disengage from ASM products entirely, instead of meaningfully engaging with ASM communities to make their working conditions safer and environmentally more responsible. However, as most ASM producers rely on cobalt extraction for their livelihoods, complete disengagement from ASM is likely to be counterproductive towards the respective country's development objectives and could lead to more poverty, conflict and instability.[109] Overall, the risks associated with ESG impacts of mining projects receive increasing attention, mainly because these types of impacts can erode public support for mining projects, and will face increasing scrutiny from downstream industries, investors and civil society, potentially leading to short-term production disruptions and stark local and international resistance to mining investments (see chapter 5.2). Additionally, as described in chapter 5.2, there are increasing legal requirements on responsible sourcing, for example on behalf of the EU. Historically, awareness of adverse impacts linked to the ASM sub-sector has been focused on specific geographies and minerals, namely the 3TGs, but conflicts and areas of high risk are ever changing. Even if a particular geographic area does not carry a high risk today, it might do so tomorrow. These issues could lead to supply challenges down the road, even for supply chains that currently appear to be insulated.[110]

Another important aspect is that enhancing ASM formalisation contributes to enhancing mineral value addition within the ASM sub-sector. Limited mining and processing skills together with low usage of modern technology are the major issues affecting the potential growth of the ASM sub-sector. The dominant use of simple tools leads to low productivity and weak processing of extracted materials, leaving a big percentage of minerals unrecovered in tailings consequently. As opposed to non-formalised mining, formalised ASM can facilitate access to private financing for miners to upgrade their equipment or to hire

108 ICGLR, 2022
109 World Bank, 2021
110 Michaels et al., 2022

workers (see chapter 5.7). Besides, formalisation might be combined with technical and public financial support to meet the licensing requirements and - once licensed - to continue to improve performance. However, formalisation needs to be based on legal frameworks removing barriers to formalisation and that are supportive and accessible rather than punitive. In addition, it requires streamlined and accessible licensing processes that make it easy, cost-effective and rewarding to obtain a licence.[111]

To enable alternative access to equipment and technology and promote ASM in line with current environmental, health and safety standards, some countries like for example Tanzania and Uganda have come up with establishing centralised ore-processing centres. The underlying idea is that miners do not have to invest in expensive processing equipment, rather, the ore is taken to a specialised facility where qualified operators extract the gold for a fee. The approach also considers that manual techniques of rock extraction, coupled with a lack of technology, as well as opaque transactions of middlemen and brokers, have worsened the living conditions of artisanal miners financially and socially. The first ore-processing centres were established in Ghana, Venezuela and Zimbabwe by governments and other project donors. As well as providing processing facilities, the centres have served a role in providing information about environmental management. Unfortunately, they have faced a number of issues, based in large part on a lack of prior research on their target beneficiaries. A centralized processing centre in Bolgatanga, Ghana, for example, was underutilized because it was too far away from the mining area and the equipment was not tailored to local geological conditions. Research showed that centralized processing centres are most effective in countries with localized gold deposits but not as effective where gold is widely dispersed and miners have to transport ore far beyond the mine, as this raises transport costs and presents security issues.[112] In fact, the selection of sites for centralised ore processing centres for ASM is a complex and multifaceted process requiring the involvement of various stakeholders and the careful consideration of exclusionary, technical and community-specific factors. Recent research has demonstrated how stakeholder consultation is effective in identifying relevant factors for selecting a suitable site for a processing centre.[113]

In the Great Lakes Region, Tanzania underscores the potential benefits of a well-regulated ASM sub-sector. The country's ASM formalisation approach is determined to maximize the socio-economic potential of ASM, thus marked by clear assistance and support for the sub-sector. ASM formalisation began with the adoption of legal and institutional measures aiming at increasing both the productivity and regulation of the mining sector. In 2010, Tanzania's Mining Act initiated a decentralization of the issuance process allowing applications at the mining-zone level. A web-based application portal was launched in 2015.[114] Tanzania's legal changes were accompanied by a number of practical interventions to support, professionalise and formalise ASM. First, in 2014, the mandate of Tanzania's State Mining Corporation (STAMICO) was extended beyond overseeing government interests and investments in mining, to include coordinating the transformation of ASM into a well-organized, mechanised, productive and environmentally responsive sub-sector. Under the supervision of STAMICO, the government established a small-scale mining facility to microfinance the mechanisation of ASM operations.[115] The Tanzanian government also engaged in ASM capacity building through training coupled with support activities adding value to the minerals before export. Demonstration centres were set up to promote sustainable mining practices and "Centres of Excellence" were established to develop national processing capacities. Further, the government has introduced an environmental protection plan designed for ASM, simplifying environmental compliance compared to the more "onerous" environmental impact assessments required for larger operations. In addition, the establishment of government buying platforms has curbed gold smuggling by providing a secure and direct avenue for miners to sell their products, thus ensuring they participate in the formal economy.[116] Tanzania has also established a multi-stakeholder partnership that includes large-scale miners to support ASM.[117] Overall, the Tanzanian ASM formalisation framework tends to consider the ASM sub-sector through an "entrepreneurial" lens, setting aside the "poverty driven" entry factor in the sub-sector.[118] Today, Tanzania's ASM sub-sector is growing significantly because of job creation and poverty reduction.

111 IGF, 2017b
112 Ibid.
113 Amoah et al., 2018
114 Gerig et al.
115 Merket, 2019
116 Ramdass, 2024
117 See: Tanzania | ASM (uneca.org)
118 Kinyondo et al., 2019

Kenya has also undertaken steps in formalising its ASM sub-sector: The Kenyan Mining and Minerals Policy and the Mining Act of 2016 outlined ambitious reforms for the minerals sector, including significant changes to the definition, legal status and governance of the country's ASM sub-sector. It recognised ASM activity for the first time, providing a basis for the government to legalise and formalise the sector.[119] In 2021, Kenya has approved a comprehensive strategy for the artisanal and small-scale mining sector for 2021-2025.[120] Among others, the Strategy prioritizes training support, value addition and marketing support, and access to finance for the ASM sub-sector.

In Chile, the government has also adopted a highly successful strategy of value addition to transform its ASM sub-sector sector into a profitable and competitive producer. In 1960, the government established ENAMI with the mission to help Chilean nationals to integrate into the mining sector and develop a viable ASM sub-sector. For this purpose, ENAMI has been assigned multiple roles as a buyer, producer, and trader of minerals: ENAMI purchases, ores and concentrates from ASM producers, processes and smelts them, and then exports the output (largely cathodes and refined copper) to international markets. ENAMI's assets include one smelter, five processing plants, purchasing agencies, and a network of technical support and technology transference facilities, all focused on providing services to around 2,000 ASM producers of copper and precious metals. Through ENAMI's incentives and services, small- and medium-sized mining firms are able to access international metal markets. ENAMI enables these producers to attain competitive "economies of scale" and "economies of scope". It also provides loans for mining development. However, ENAMI is not a burden on the government budget. Although it receives government funding for the promotion of ASM, it operates as a commercial entity. Overall, ENAMI is a very successful and profitable state-owned mining enterprise and shows remarkable achievements regarding the legalization of ASM and the improvement of the conditions under which small-scale mines operate.[121]

In conclusion, ASM plays a vital role in the economies of many ICGLR Member States, providing livelihoods for millions and contributing to national development. However, its informal nature, with an estimated 90 percent of those involved operating outside of legal frameworks, leads to significant challenges, including environmental degradation, conflicts, health risks, and links to child labour. Formalising ASM is essential for integrating the sub-sector into the formal economy, improving access to markets and financing, and promoting responsible and sustainable mining practices. Countries like Tanzania and Chile have shown how supportive legal frameworks, government interventions, and access to centralized processing facilities can enhance the productivity, safety, and environmental sustainability of ASM, turning it into a viable economic contributor. To maximize the potential of ASM, a balanced approach involving regulation, financial support, and capacity building is required, helping to secure its role in sustainable development.

4.9 Enhancing regional cooperation and cross-border trade for developing integrated mineral-based industries

This chapter refers to the collaborative efforts between countries to improve regional and bilateral cooperation and facilitate cross-border trade with the goal of developing integrated mineral-based industries. By aligning policies, infrastructure, and trade practices, ICGLR Member States can create more efficient mineral supply chains, foster regional economic growth, and boost value addition in the mining sector. Such cooperation enables countries to better utilize shared resources, access broader markets, and promote sustainable industrial development.

As demonstrated in the previous chapters, various sub-Saharan African countries have focused on implementing a range of predominantly inward-looking policies. Examples are restricting the export of raw materials, introducing local content requirements, as well as, to a limited extent, skills development and research for mineral value addition. However, the AMV, in particular the African Green Minerals Strategy underline the **importance of regional cooperation**, for instance by building key value chains to achieve resource-based industrialisation and access wider regional and continental markets, calling also for strategies of pooling resources or combining efforts at a regional level for greater impact.[122] In addition, also the ICGLR's Strategy for Artisanal and Small-Scale Gold strongly recommends enhancing regional

119 See: Development of a Kenyan Artisanal Mining Strategy - Levin Sources
120 See: https://repository.kippra.or.ke/bitstream/handle/123456789/3079/MINING%20STRATEGY.pdf?sequence=1&isAllowed=y
121 Atienza et al., 2023
122 AfDB, 2022

cooperation in form of multi-state infrastructure development projects, joint refining or smelting plants.[123] In this Strategy, there is a distinct emphasize on the significance of adding value to the mineral production through joint/regional infrastructure projects. Implementation of such projects could, for example, be for a group of Member States to design and implement a joint initiative/s for a regional gold smelting project building on the regional needs to develop such value addition facilities.

First and foremost, the **African Continental Free Trade Area** (AfCFTA) is a key opportunity for unlocking the mining value chain's economic potential from regional integration. If successfully implemented, the AfCFTA will enable countries to deepen their linkages to regional and global value chains. The AfCFTA established the world's largest free trade zone and has the potential to unlock an estimated USD 3.2 trillion in intra-Africa trade. Thus, it offers an unprecedented opportunity to develop the mine-to-market value chain within the continent. Although many countries have prioritized local mineral value addition, few have the capacity to wholly undertake it domestically. In addition, the AfCFTA would allow various countries to specialize in select stages of the value chain, and stages of the value chain could move between participating countries free of tariffs.[124]

In the context of trade facilitation, a recent Madini Consortium comparative analysis of the fiscal regimes and implications for mineral trade of ASM 3TGs in Rwanda, Uganda, Burundi and the DRC indicated that value addition in the region could be promoted by reducing barriers to legal re-exports of 3TGs, in particular gold.[125] These barriers look different in each country. In Rwanda, for example, VAT is payable on all imports, causing cashflow problems for importers. For this reason, a VAT exemption is recommended for mineral imports. Besides, the analysis advises the countries in the Great Lakes Region to assess the merit of fiscal incentives for the trade of unprocessed minerals within the region in order to facilitate value addition in-region. Promotion of cooperation between GLR member states in the form of bilateral trade, specifically agreements that aim to avoid the double-taxation of minerals that are traded within the region.[126]

Beyond regional cooperation, there are multiple opportunities for enhancing **bilateral cooperation**: One of these examples is a strategic partnership between the DRC and Zambia to produce nickel, manganese and cobalt battery precursors for EV to add more value to its minerals. Both countries are among the world's leading producers of certain critical minerals required for such battery precursors. The DRC produces close to 70 percent of the world's cobalt, which is essential for the production of EV batteries. Meanwhile, Zambia is Africa's second-largest producer of copper, which is used in electrical equipment such as wiring and motors.[127] To support the partnership, the United States signed a trilateral memorandum of understanding (MoU) with the DRC and Zambia to develop an integrated value chain for the production of EV batteries in December 2022. The MoU aims to develop a complete value chain around EV batteries in the DRC and Zambia - from the extraction of minerals to the assembly line.[128]

Overall, regional cooperation – be it within the ICGLR framework or other regional organizations - seems to hold largely untapped potential when it comes to mineral value addition. Apparently, a regional policy approach that leverages the diversity in minerals and pools resources can tackle existing challenges in building up mineral value chains more effectively than isolated efforts. At the country level, structural reforms can complement these regional efforts, nurturing domestic firms in both the processing sector and its supportive industries. This will amplify the collective benefits of the region's critical minerals. Particularly, countries can enhance regional integration and coordinate regulations on critical minerals to make the region more attractive to investors, also to overcome the constraints faced by individual countries. Beyond that, bolstering regional integration can forge a larger and more interconnected market, enhancing the region's investment appeal, allowing for economies of scale. Africa is uniquely poised to provide both a significant consumer base for processed minerals and a source of raw materials needed in production. Reducing trade barriers and improving connectivity through infrastructure development are crucial to build up mineral value chains.

As an initial step in enhancing regional cooperation among ICGLR Member States, it seems recommendable to collaborate on policies to create more favourable investment and business environments, prioritizing

123 ICGLR, 2022
124 Bloomberg, 2021
125 Lyster, 2021
126 See: AllAfrica 2021
127 Soulé, 2023
128 Ibid

openness over protectionism. Simplifying bureaucratic procedures and harmonizing mining regulations across borders would foster a stable, predictable investment environment. A regional approach to resource taxation alongside a well-crafted regional mining tax treaty, can decrease tax competition between countries and more effectively harness resource revenues.[129] Efforts to minimize the environmental impacts of mining, processing and refining will help unlock new funding and investment opportunities in the growing field of "green finance". Strengthening the AMV could serve as a key framework for these regional efforts. In fact, a first step for enhancing regional integration at policy level could be to elaborate a regional mining vision aligned to the AMV. Among others, the potential benefits of a regional vision would include those that are presented in the following text box:[130]

Potential benefits of a regional mining vision

- Widening and strengthening skilling and research capacity and capability,
- Improving regional geological knowledge through cross-border collaboration in geological research,
- Harmonizing and aligning mineral regimes including fiscal terms to create a uniform operating environment, which is supportive of linkages development, thereby avoiding "the race-to-the-bottom",
- Strengthening minerals sector oversight, auditing, revenue collection and deployment through collective self-reliance and regional best practice. For example, the establishment of regional mineral audit agencies that share data to prevent disreputable companies moving from one country to the next and ripping them off,
- Enhancing infrastructure capacity and efficacy through harmonization and alignment of transport, power and water systems and resource-based development corridors,
- Enhancing local economic and social impacts of mineral projects through harmonized corporate social responsibility and investment mechanisms,
- Improving worker health and safety through alignment of codes based on regional "best practice",
- Improving environmental sustainability through alignment of codes for Strategic Environmental Assessments (SEAs) and Environmental Impact Assessments (EIAs) that are based on regional "best practice".

To conclude, regional cooperation offers multiple opportunities for enhancing mineral value addition. Beyond that development of bilateral cooperation programmes with other countries and institutions within the ICGLR region holds the opportunity to use some of the services available within these countries and their institutions. Learning from their experience is an opportunity to fast-track the growth of a county's mining industry in general and value addition approaches in particular.

4.10 Conducting dialogue to build trust between governments and the private sector

A key element in building up mineral value chains is dialogue among governments and private sector stakeholders to bridge knowledge gaps and build mutual trust. As such, commitment and cooperation from both parties are essential for addressing the existing major challenges. Industry must share its knowledge of the given challenges in building value chains with governments, so that state aspirations can be reconciled with commercial imperatives as mineral value addition a business driven by prevailing market conditions. This requires governments and industry to move closer to one another in order better to understand the varying challenges and perspectives. Thus, there is a necessity of developing a productive relationship between government and investors in overcoming challenges as this will increase the likelihood of success.[131] Enacting new legislations or improving policies should not come as a surprise for the private sector. It is therefore recommended that governments establish stakeholder forums and provide platforms for dialogue and consultation on the various aspects associated with building up mineral value chains. Such stakeholder engagement will ensure that the development is inclusive, transparent, and sustainable.

129 Bourgain et al., 2020; Perry et al., 2022
130 Uongozi Institute, 2017
131 Chatham House, 2014; IGF, 2018b

A public-private dialogue (PPD) is a structured engagement mechanism that aims to bring together all relevant stakeholders, in a balanced and inclusive manner, to assess, prioritize, and achieve sustainable results. Sector-specific PPD, extractive industries in this case, can provide an integrated response to factors constraining sector growth and improve the pace of sector reform. It can be particularly helpful in improving competitiveness and provide a highly valued platform for collaboration along the supply chain and across governments, businesses, and communities. Sector-specific PPD can also be implemented at a subnational or regional level.[132] In the case of extractive industries, areas that could benefit from PPD interventions include among others:

- Boosting investors' protection and confidence,
- Establishing the relationship between large investors and local suppliers,
- Identifying local content and training needs,
- Improving communication between stakeholders.

PPD are of particular importance when it comes to identifying and leveraging supply chain linkages and spillovers: This is because mining investments do not take place in isolation and potential benefits to the local economy depend heavily on the supply chain links. Enhancing spillovers from investment in the extractives industries sector requires a multiplicity of instruments and approaches. It involves ensuring that the policy environment is neutral to regulatory or fiscal constraints, ensuring local content sourcing, identifying the relevant firms in the sector, and linking local supply with demand through PPD. Additionally, many host countries would prefer technology transfer and high value linkages, as opposed to demand for low-skilled services. However, local suppliers normally have limited production capacity, and their participation is generally limited to less specialized and critical services. In addition, there are complex procedures and costs for SMEs associated with procurement pre-qualification requirements in the extractive industries sector.[133]

For example, Zambia has established a Public Private Dialogue Forum launched in 2022. The Forum provides a structured, participatory and inclusive platform for public-private sector engagement on policy matters with a focus on leveraging partnerships and synergies to accelerate socio-economic development in Zambia. The Forum aims to harness trade and investment opportunities for our private sector on the local, regional, continental and international markets, while promoting value chains and value addition for various commodities and products to create jobs and wealth for Zambians.[134] In Uganda, the Uganda Chamber of Mines and Petroleum has been hosting Uganda's yearly Mineral Wealth Conferences bringing together industry leaders, policymakers, investors, and experts to discuss the latest developments, opportunities and challenges in Uganda's mineral resources sector for more than a decade. This event can also be considered a PPD.

Another example of highly successful dialogue between the government and the private sector on building up diamond production value chains can be found in Botswana.[135] As the world's largest diamond producer by value, Botswana is a truly exceptional case. Back in 2012, the country produced USD 4 billion worth of diamonds. Since the late 1960s, the government has forged a special relationship with diamond firm De Beers, in particular by progressively increasing its share in the joint venture Debswana. In the 1990s, the government started lobbying the country's diamond firms to move most of their sorting and rough sales operations to Botswana and to set aside a percentage of rough diamonds for local cutting and polishing. Initially, De Beers suggested that cutting and polishing activities were not economically viable in Botswana. However, seeking to renew their mining licence in 2005, De Beers was only granted the licence on the condition that they contribute to establishing a viable cutting and polishing industry. At first, minimalist operations were set up to simply comply with the letter of the law, upon which the government adopted more business-friendly regulations on employment, taxes and currency exchange.

Botswana's drive to create a local diamond manufacturing industry is widely considered a success. As of 2023, Botswana's diamond industry accounts for about 30 percent of the country's revenue and 70 percent of its foreign exchange earnings and the Debswana mining company employs about 6,300 persons, of which 93 percent are locals. In addition, Diamond Trading Company (DTC) Botswana, a joint venture partnership between the Botswana government and De Beers, employs approximately 500 skilled

132 See: World Bank Document; GIZ has published a handbook on conducting PPDs which is, however, not specific for the extractive industries, but might be applied here as well: giz2021-en-jordan-sector-ppd-handbook.pdf
133 Ibid
134 See: About PPDF | Public Private Dialogue Forum
135 Chatham House, 2014; IGF, 2018b

diamond sorters and salespeople, most of whom are also locals.[136] Back in 2006, fewer than 500 workers were employed in the company's polishing operations. De Beers completed the move of its international trading activity from London to Botswana in October 2013. The relocation led to the development of new hotels, catering services, and leisure and entertainment businesses, creating several thousand more jobs in ancillary businesses serving the diamond sector.[137]

A key success factor in Botswana was that the government had a very large bargaining power when allocating licences, given the government's large stake in Debswana and the profitability diamond companies had been able to achieve in Botswana. Another important success factor was that Botswana articulated a vision to move beyond diamond extraction and then crafted a strategy with clear objectives to implement this vision which was also monitored by both parties. At the core of this strategy, the government established dedicated institutions (the DTC Botswana and the Diamond Office), an industrial park (the Diamond Technology Park) to provide the necessary infrastructure for moving downstream and a specific commercial framework to make the polishing industry viable (access to guaranteed and cheap long-term rough supply). For De Beers/Debswana, the process of increasing local beneficiation in Botswana allowed the company to develop a new area of commercial advantage and improve its reputation for buyers, at the same time signalling that Botswana was a safe and welcoming place for foreign investment.

As indicated in the example from Botswana (setting up of the DTC as a joint venture partnership between the Botswana government and De Beers), PPPs can play a crucial role in enhancing mineral value addition, also to ensure that value is truly added.[138] In addition, it has also been recommended to build and expand refineries and smelting facilities via PPPs.[139] Moreover, PPPs between local African companies and the public sector on mineral value addition activities might be taken to a level allowing to access capital from local and regional Development Finance Institutions (DFIs).

To conclude, a PPD offers stakeholders the chance to identify problems and suggest solutions in a safe and structured environment. PPDs are a tool as well as a process to enhance transparency, accountability, and sustainability around reforms and other outcomes that will ultimately improve the investment climate, foster growth, and create jobs. For this reason, PPD interventions should be used as a key mechanism to identify, coordinate and enhance suitable mineral value addition approaches. Botswana's highly successful development of a diamond value addition industry underscores the potential positive effect of long-term constructive dialogue and trust-building between the government and the private sector. In addition, PPPs can play a crucial role in enhancing mineral value addition.

4.11 Enhancing availability of geological information, infrastructure and power supply for mineral value addition

Additionally, there are some more general factors influencing a country's capability to build up mineral value addition industries. These are related to the availability of geological information, logistics and power supply. Considering that these factors can only be changed in the long run, however, they are better characterized as constraints than opportunities.

First, **availability of sufficient and up-to-date geological information** is a key prerequisite for mineral value addition starting from the mineral value chain analysis to identifying commercially viable deposits for extraction, processing, beneficiation and potentially additional steps in value creation. A country can only sustainably develop its extractive sector, if sufficient information about its mineral resources is available. Mining authorities typically gather geological data, which is made available, for example, in mineral resource maps, mineral deposit inventories and guidelines for investors. By providing such information, countries can reduce the commercial risks for companies engaged in resources development and thus promote investment in exploration and extraction. The more comprehensive the information provided by the government, the easier it is for businesses to engage in the country's extractives sector – and the greater the likelihood of a deposit being discovered and developed into a mine. Long-term investment in geological research to obtain comprehensive knowledge of a country's mineral endowment is therefore an essential contribution to establishing mineral value chains.

136 DeMarco, 2023
137 Chatham House, 2014
138 Uongozi Institute, 2017
139 Woldu, 2023

In fact, the increasing global need for critical raw minerals has created a need for deeper geological research across the whole African continent, including in mature mining jurisdictions. For example, South Sudan is rich in minerals however, the country has focused more on its oil and gas production, which has led to less attention being given to the mining sector.[140] In Tanzania, 95 percent of the country has been surveyed, but only on a low-resolution scale. Historically, the focus has been on precious metals. However, the Tanzanian government has recognized the importance of critical minerals for the future and is now shifting its focus toward their exploration.[141] In the context of the country's Critical and Strategic Minerals Strategy that is currently under development, the government of Tanzania has prioritised a comprehensive geological mapping and resource assessment in areas rich in critical minerals. For this purpose, the Geological Survey of Tanzania plans to conduct a high-resolution airborne geological survey aiming to cover 50 percent of the country by 2030, up from the current 16 percent.[142] Similar to Tanzania, Zambia's Ministry of Mines and Minerals Development recently unveiled plans for an extensive geological mapping initiative across the country. According to the Ministry, the comprehensive mapping effort is considered as crucial to evaluate the mineral content in specific areas, ultimately attracting potential investors.[143] Finally, with more than 80 percent high-resolution airborne geological survey coverage, Uganda is actively conducting surveys to identify critical mineral deposits, which are vital for enhancing value addition industries in the region.[144] In this context, it needs to be underlined that it is essential to produce geologic maps and related publications in digital formats so that information can be readily available to any interested party.

An effective strategy to mobilize foreign resources for conducting essential geological research and surveys to enhance the understanding of available resources is to form partnerships with international organizations and donors. In this context, government-to-government partnerships on critical minerals are becoming an increasingly popular policy tool, helping establish frameworks of cooperation between producing and consuming countries.[145] For instance, the Minerals Security Partnership (MSP) is a collaboration of 14 countries and the EU to catalyse public and private investment in responsible critical minerals supply chains globally. It aims to accelerate the development of diverse and sustainable critical energy minerals supply chains through working with host governments and industry to facilitate targeted financial and diplomatic support for strategic projects along the value chain.[146] As announced at the 2024 Mining Indaba, a trilateral collaboration for mineral exploration, production and processing has been established between the MSP, the Congolese state mining company GECAMINES, and the Japanese state agency JOGMEC.[147]

Furthermore, the PPP model is a potential tool for enhancing partnership between governments and the private sector in the exploration of minerals as well as in other mining and value addition activities. For example, Zambia's National Mineral Resources Development Policy of 2022 relies on promoting PPP initiatives in geological mapping and mineral exploration.[148]

Second, **Good and easy-to-access data** is critical for enabling supply chain transparency, allowing for collaboration between actors on mineral flows. Information sharing should be improved both within and between GLR countries. The sharing of information on mineral trade, export and revenue collection between relevant agencies (geological survey, ministry of mines, revenue authorities, customs) in each country is essential for the obtaining of an accurate picture of (formal and informal) mineral production and trade in that jurisdiction. This understanding will in turn enable the facilitation of legal trade, including cross-border trade. The provision of accurate data on mineral production and trade internationally is also critical. One way of improving reporting may be through the regular sharing of disaggregated mineral export data with the United Nations Statistics Division for inclusion in the UN COMTRADE database.[149] Another may be through the effective implementation of the ICGLR's Mineral Tracking Database, which is not yet operational. Another may be greater efforts to include ASM data in EITI reporting.

140 See: Africa needs lots of geological research regarding critical clean energy mineral deposits (engineeringnews.co.za)
141 Ibid
142 See: Tanzania in a position to reap from critical minerals | African Mining Market
143 See: Zambia's Mines Ministry Embarks on Comprehensive Geological Mapping for Mineral Assessment – Efficacy News
144 See: Mineral Development Programme Semi-Annual Monitoring Report FY2022-23 (1).pdf (finance.go.ug)
145 See: Can government partnerships support responsible and reliable critical mineral supply chains? – Analysis - IEA
146 See: Minerals Security Partnership - United States Department of State
147 See: Deals Without Details: Exploring State-State Mining Partnerships and Their Implications | Natural Resource Governance Institute
148 See: National-Mineral-Resources-Development-Policy-2022.pdf
149 Lyster, 2021

Third, availability of relevant **logistics for mineral value addition** is a highly significant factor. Logistics is the network of services that support the physical movement of goods, trade across borders, and commerce within borders. It comprises an array of activities beyond transportation, including warehousing and storage, terminal operations (e.g. in ports and airports), express delivery, customs brokerage, as well as data and information management. Inefficient logistics raise the cost of doing business and reduce the potential for international and domestic market integration, especially for developing countries. A country's logistics performance is thus key to a country's productivity and its attractiveness to outside investment.[150] Availability of road, rail and port infrastructure strongly contributes to revenue generation in the mining sector and therefore poses a significant investor-related risk for mineral value addition. Beneficiation industries will be required to utilise the existing rail and road infrastructure to move material from the mining site to the beneficiation site. In cases where there is no existing infrastructure between the mine and beneficiation locations, capital investment would be required, or government-approved incentives would have to be implemented to aid beneficiating entities.[151]

A prominent example of an infrastructure investment project closely related to improving mineral supply and value addition chains is the **Lobito Corridor**. The Corridor is to connect the Southern regions of the DRC and north-western Zambia to regional and global trade markets via the port of Lobito in Angola. Constructing a 1,300 km railway line through the Corridor aims at unlocking the enormous potential of the region, enhancing export possibilities for Angola, the DRC and Zambia, and creating added value and jobs through investments. Specifically, the initiative seeks supporting greater participation of SMEs in business value chains, mainly in agriculture and mining, with the view of increasing trade and economic growth along the Lobito Corridor and across the SADC Region. The EU and the US are co-leading the support for the Corridor's development, including infrastructure investments, soft measures for trade and transit facilitation, investments in related sectors to foster sustainable and inclusive growth and capital investments. In October 2023, the EU and the US (together with Angola, DRC, Zambia, the AfDB and the Africa Finance Corporation) signed an MoU to define the roles and objectives for the Corridor's expansion.[152] However, there are factors and dynamics which indicate that the viability of the Corridor could be brought into question. One of them is that China is already far ahead in building supply chains for cobalt, lithium, and several other essential metals and minerals, also because China has already signed MoUs with most African countries a decade ago. In addition, China is moving to take over the running of the TAZARA railway line, which runs from central Zambia to the port of Dar es Salaam on the Indian Ocean, as a way of ensuring effective transportation of materials and minerals from the DRC and Zambia. Thus, the Lobito Corridor development may be coming too late.[153]

Finally, **power security** is a major aspect considered by foreign investors, because stable and consistent power generation and supply ideally precedes the development of downstream beneficiation. In most African countries, however, power generation remains one of the most prevalent issues. Therefore, sufficient and reliable access to power is also a key challenge for mineral beneficiation.

150 Wiederer, 2018
151 Richards et al., 2023
152 See: The Lobito Corridor: Connecting the Democratic Republic of the Congo and Zambia to global markets via Angola - European Commission (europa.eu)
153 Chabala, 2024

5. CONCLUSION

In conclusion, the guidelines on mineral beneficiation, value addition, and cross-border trade in the Great Lakes Region underscore the immense opportunities and intricate challenges the region faces in utilizing its vast mineral wealth to drive sustainable development. The region holds some of the world's most significant reserves of high-value minerals such as tantalum, tin, tungsten, copper, cobalt, and gold, which positions it as a pivotal actor in the global supply chains.

However, despite these resources, the region faces several structural constraints that limit the full realization of its mineral potential. Infrastructure, while being improved, still requires considerable enhancement to support the efficient extraction, processing, and transportation of minerals. Moreover, the regulatory and institutional frameworks need further alignment with international best practices to foster a more conducive environment for responsible and sustainable mining. Ongoing conflicts in certain regions continue to pose significant challenges, impacting investor confidence and delaying the development of major mining projects. Addressing these issues will demand sustained efforts, including strengthening regulatory capacity, increasing transparency, and furthering peacebuilding initiatives. Improving these framework conditions will not only boost investor confidence but also ensure that local communities benefit more inclusively from their mineral resources.

The guidelines emphasize the importance of moving beyond raw material extraction and investing in downstream industries that add value to minerals. Such a shift is poised to accelerate industrialization, create (high-quality) jobs, generate higher tax revenues, and stimulate technological advancement. Nevertheless, this transition comes with its own set of challenges. Governments are under pressure to deliver results within limited timeframes and face fiscal constraints, while building mineral value chains requires long-term investments, regional collaboration, and the development of broader markets to achieve economies of scale.

In light of these challenges, the guidelines offer several key recommendations. These include developing fact-based, country-specific policies aligned with each nation's unique mineral endowment, enhancing legal and regulatory frameworks to attract investment, and ensuring stability in mining policies to mitigate risks. The importance of adopting and adhering to strong ESG standards is also highlighted, especially as global demand increases for responsibly sourced minerals. Moreover, the guidelines recommend promoting local content through skills development, implementing tax and non-tax incentives, and improving access to finance, particularly for local businesses and artisanal miners. Regional cooperation is strongly encouraged as a means to overcome individual country limitations and to establish a more integrated, competitive market. Finally, the guidelines stress the need for continuous dialogue between governments and the private sector to build trust, align goals, and ensure that both parties are working toward shared economic outcomes.

6. REGIONAL GUIDELINES ON MINERAL BENEFICIATION, VALUE ADDITION AND CROSS-BORDER TRADE IN THE GREAT LAKES REGION

From the analysis conducted, the following recommendations have been derived:

A. Develop country-specific mineral value addition policies and identify "champions" for mineral value addition:

Countries should develop mineral value addition policies that are grounded in factual data, aligned with their specific mineral resource endowments, and tailored to their long-term economic goals. To effectively achieve this, governments need to take the following steps:

1. **Conduct a detailed mineral value chain assessment:** Each country must perform a thorough value chain analysis for its key mineral resources. This involves mapping out all stages of the value chain, from extraction to processing, smelting refining, and manufacturing, identifying where value addition can be maximized. The assessment should pinpoint gaps in local capacity, technology, and infrastructure, and highlight potential areas for development in downstream industries.

2. **Commodity-specific market analysis:** Governments should carry out a comprehensive market analysis for each key mineral to understand global demand trends, pricing, and competitive positioning. This analysis should focus on identifying strategic opportunities for local processing and beneficiation that align with market needs. It should also assess the economic viability of developing specific segments of the value chain, such as refining or producing intermediate goods.

3. **Leverage competitive advantages:** Use the results from the value chain and market analyses to identify competitive advantages, such as the presence of minerals in high demand globally. This can inform decisions on which parts of the value chain to prioritize for investment and development, ensuring policies are practical and achievable.

4. **Identify "champions" for mineral value addition:** These champions could be specific minerals or industries where a country has a strong position or potential to dominate globally, allowing governments to concentrate resources and efforts effectively.

Examples: Value chain analyses have been conducted for Zambia focusing on copper and cobalt as well as for the DRC in relation to the country's positioning in the global cobalt supply chain (see chapter 5.1). In addition, **Indonesia's** approach to nickel beneficiation is a notable example, where a strategic market analysis led to the prioritization of nickel refining (see chapter 5.3).

B. Promote mineral value addition through legal and regulatory frameworks:

Clear, transparent, and stable legal and regulatory frameworks are key to attracting investment in local mineral processing. Therefore, every ICGLR Member State should establish a comprehensive, coherent and predictable legal and regulatory regime to provide clear guidelines for mining, processing, beneficiation, environmental protection, and social responsibilities. Investors are more likely to commit capital when they have confidence that regulations will remain consistent over time and not be subject to abrupt changes due to shifts in government or political climate. The following measures are proposed:

1. **Ensure legal and regulatory frameworks align with international standards:** The Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF) has developed a Mining Policy Framework defining criteria to ensure that jurisdictions adhere to good international practice with respect to environmental, social, and economic governance, and promote the generation and equitable sharing of benefits in a manner that will contribute to sustainable development.

2. **Revise and update legal and regulatory frameworks to include specific requirements for value**

addition: Update legal and regulatory frameworks to include provisions and clear requirements for processing, smelting and refining of minerals.

3. **Include Environmental, Social, and Governance (ESG) requirements into legal and regulatory frameworks:** Ensure that legal and regulatory frameworks also include up-to-date ESG standards to attract responsible investors and meet international sourcing requirements, for example as required by the EU Regulation on Conflict Minerals. By embedding ESG principles into legal and regulatory frameworks, countries can not only strengthen their global competitiveness and reputation and attract responsible investors but also ensure that mining activities contribute to sustainable development goals. Such foresight helps creating a favourable investment climate while addressing the long-term impacts on communities and the environment.

Examples: Tanzania has developed a comprehensive legal and regulatory approach on mineral value addition, especially by defining requirements for mineral beneficiation (see chapter 5.2). Regarding ESG, **South Africa's** mining laws, for example, have integrated environmental and social protections to attract responsible investors and enhance access to international markets. (see chapter 5.2).

C. Develop adequate beneficiation capacities before applying export restrictions on mineral raw materials:

ICGLR Member States considering the introduction of export restrictions on raw mineral ores are encouraged to apply such measure with careful consideration. It is advisable that export restrictions are implemented only after ensuring the development of adequate downstream beneficiation capacity. To prevent potential challenges, such as reduced foreign investment or the risk of straining trade relationships, governments may wish to consider the following steps:

1. **Conduct a feasibility assessment for beneficiation**: Before implementing export restrictions on mineral raw materials, conduct a detailed assessment of the country's factual ability to process and refine minerals domestically. Among others, the assessment should consider the available mineral reserves, technology, energy, infrastructure, and workforce, as well as a supporting chemical industry and the scalability of beneficiation activities. Countries should evaluate whether there is sufficient capacity to add value to minerals in terms of processing, smelting, refining, or manufacturing.
2. **Conduct an in-depth analysis of countries that applied export restrictions on mineral raw materials:** The analysis should focus on the pros and cons, along with their potential consequences. In addition, it should explore potential benefits, such as promoting local value addition and industrial growth, as well as potential downsides, such as market distortions or reduced foreign investment, ensuring a balanced understanding of the long-term impacts on both the domestic economy and international trade relations.
3. **Define clear beneficiation targets**: Governments should set realistic, commodity-specific targets for beneficiation that align with the country's mineral reserves, market demand, industrial and technological capabilities. These targets should include specific milestones for domestic processing and value addition that are feasible based on the existing infrastructure and expertise.
4. **Engage with trade partners and investors**: Openly communicate with trade partners and investors about the rationale behind export restrictions and ensure they are part of a long-term strategy to enhance the local value chain. Maintain dialogue to address concerns and explore opportunities for collaboration in building domestic capacity.

Examples: Indonesia's success in nickel beneficiation was achieved after substantial investment in smelting facilities and infrastructure, which allowed the country to ban nickel ore exports and still meet global demand for processed nickel products (see chapter 5.3). After receiving substantial foreign investment from China leading to increased downstream processing capacity, **Zimbabwe** banned chromium ore and concentrates exports in 2021, which seems to have a successful move for increasing in-country value addition.

D. Provide tax and non-tax incentives for mineral value addition

To enhance mineral value addition and attract both domestic and international investment, countries should implement a strategic mix of tax and non-tax incentives. These incentives can encourage local processing, foster technological advancements and transfers, and generate broader economic benefits. In this context, among others, these measures can be considered:

1. **Introduce preferential tax rates:** Implement lower corporate income tax rates for companies involved in mineral value addition to encourage investment in local processing and refining industries. This can help attract both domestic and foreign companies to set up operations, which in turn can create jobs, stimulate local economies, and increase the overall value of mineral exports.

2. **Offer tax holidays:** Consider granting tax holidays (e.g., 5-10 years) for companies that invest in mineral beneficiation and processing infrastructure).

3. **Accelerated depreciation of assets:** Allow accelerated depreciation of capital equipment used in mining and processing. Rwanda offers 50 percent accelerated depreciation, which reduces taxable income and encourages companies to invest in modern machinery and infrastructure.

4. **Exempt import duties on machinery:** Provide exemptions on import duties for heavy machinery and technological equipment essential for mineral processing, as practiced in Rwanda and Botswana. This reduces the setup cost for local industries and encourages in-country value addition rather than exporting raw materials.

5. **Offer non-tax incentives:** Beyond tax incentives, streamline the licensing process, ensure easy access to land, and provide government support for infrastructure like energy and water supply to mineral processing facilities. These measures will create a supportive environment for value addition and encourage sustainable growth in the sector. Rwanda's One Stop Centre is an example, where investors benefit from simplified administrative procedures, quick visa issuance, and environmental assessment facilitation, which all aid in the efficient establishment of processing industries.

6. **Develop supporting policies and incentives:** Based on the analysis, countries should introduce tailored policy measures and incentives to encourage investment in targeted areas of the value chain. This could include tax breaks, investment in infrastructure, training programs to build local expertise, and facilitating access to finance for local businesses.

Examples: Botswana has successfully used preferential tax rates to develop its diamond polishing industry. **Rwanda's** Investment Code offering preferential tax rates for mineral processing projects is a good example of how tax-targeted incentives can support value addition. In addition, Rwanda offers a 15 percent tax rate for firms exporting processed minerals (see chapter 5.4) Finally, **Indonesia's** 20-year tax holiday for nickel processing is a successful example of how such incentives can spur significant investment (see chapter 5.4)

E. Strengthen local content policies to enhance economic growth and job creation:

ICGLR Member States should adopt comprehensive local content policies that go beyond mere lists of items to be sourced locally. These policies should focus on setting clear percentage targets for local hiring and purchases, particularly in areas where local capacity is strong, such as services (e.g., catering, security). For goods that are more difficult to source domestically, like heavy machinery or specialized equipment, targets should be set realistically, with a focus on gradually increasing local procurement as domestic capacity grows. To implement this recommendation effectively, Member State governments should consider these measures:

1. **Set clear local content targets**: Establish percentage-based targets for the use of local goods and services in the mining sector. Prioritize sectors where local businesses have the capacity to compete, such as services, while setting realistic and phased targets for goods procurement as

domestic industries develop.

2. **Develop incentives for local hiring and skills development:** Create tax incentives or subsidies for (local/national) companies that meet local employment and procurement targets. Additionally, support training programmes and vocational schools that build local expertise in mining and processing, ensuring a skilled workforce capable of engaging in higher value-added activities.

3. **Ensure transfer of technology and expertise:** Require foreign investors to transfer technology and expertise through partnerships with local businesses, universities, and training institutions. This will help to foster long-term growth and self-reliance in the local workforce and industrial base.

4. **Promote regional collaboration within the region:** Where domestic capacity may be limited, encourage regional cooperation to meet local content targets. Expanding the concept of "local content" to include regional sourcing can help increase the percentage of goods and services procured from neighbouring countries, fostering economic integration and broader regional development.

Examples: Ghana mandates specific local employment and procurement targets in the mining sector, with companies required to submit local content plans (see chapter 5.5). **Botswana** also excels in local value addition, particularly in its diamond industry, where local cutting and polishing operations have created jobs and kept more value within the country.

F. Invest in human capital and research to support mineral value addition:

To promote effective mineral value addition, significant investment in human capital and research is crucial. Many resource-rich countries face a shortage of skilled labour and limited access to modern technologies, which restricts the development of downstream beneficiation industries. By focusing on education, regional collaboration, and research-driven innovation, countries can create a highly skilled workforce capable of driving mineral value addition and positioning their industries competitively in global markets. These approaches may be adopted:

1. **Develop targeted education and capacity building programmes:** Establish vocational training centres and specialized curricula focused on mining, mineral processing and beneficiation skills. Tailor training programmes to the needs of high-value industries like gem cutting, jewellery manufacturing, and steel production to ensure workforce alignment with industry requirements.

2. **Enhance regional cooperation for skills development:** Promote regional initiatives that encourage skills transfer and capacity building across borders. Establish mechanisms to enable the free movement of skilled labour and mutual recognition of qualifications within the region.

3. **Introduce a skills development levy:** Implement a levy on mining companies to fund local workforce development. South Africa's 1 percent skills levy and Tanzania's 5 percent development levy are examples of how such mechanisms can generate resources for vocational training and upskilling programmes. The respective funds should be allocated to support educational initiatives that enhance the technical and managerial skills of local workers, particularly in sectors related to mineral processing and beneficiation.

4. **Promote Research & Development (R&D) initiatives:** Encourage companies to invest in R&D by offering tax incentives or grants for projects related to mineral value addition and technology upgrades. Norway's petroleum industry, which requires 50 percent of foreign operators' R&D to be conducted in-country, is a successful model for encouraging local innovation. Governments should also establish national research institutions dedicated to mining-related industries, similar to the R&D support systems seen in Sweden and Finland, which have led to breakthroughs in mining technology and processes. A useful tool to encourage R&D are PPPs.

5. **Integrate soft and entrepreneurial skills into curricula:** Beyond technical skills, it is essential to include entrepreneurial and managerial training to equip workers, especially in the ASM sub-sector, with the skills needed for business development and resilience. This approach can also help formalising ASM operations and improve business sustainability, thus contributing to local economic development.

Examples: Tanzania's Gemmological Centre has been instrumental in building local expertise for high-value sectors such as gem cutting and mineral processing. In addition, **Ghana's** Tarkwa University of Mines and Technology serves as an example of a regional centre of excellence that can help bridge skills gaps by training individuals from multiple countries. Recently, a Centre of Excellence for Advanced Battery Research has been established at the University of Lubumbashi as part of the bilateral partnership between **Zambia** and the **DRC** to set up value chains for EV battery production (see chapter 5.6).

G. Support access to finance for mineral value addition:

Supporting access to finance is essential for promoting mineral value addition, particularly in the context of enhancing local suppliers' and ASM businesses. Access to finance involves providing businesses with funding through loans, grants, subsidies, or special financial mechanisms like credit guarantees to overcome the financial barriers. For local suppliers, access to finance is closely tied to local content policies, where training and mentoring programmes can help building business management skills. ASM faces even greater challenges in accessing formal finance due to its informality and high-risk perception. Approaches improving access to finance for local suppliers and the ASM sub-sector include these:

1. **Support Microfinance:** Microfinance has been employed in several countries to support a range of needs for ASM producers. Microfinance also allows sharing risk across a lending group, a useful feature given the high-risk perception banks, donors, and lenders have of ASM operators.

2. **Set up government-backed finance schemes**: Such finance schemes may include equipment sharing/leasing programmes. However, these schemes have shown mixed results. The only notable successful state-led initiative is the National Mining Company of Chile (ENAMI).

3. **Apply blended finance using guarantee schemes**: Such interventions facilitate financing by sharing the risk of loss, which enables the financial entity to achieve acceptable returns. For example, the government might provide guarantees to a commercial bank for loans to ASM businesses (allowing, for instance, to apply interest rates below market conditions).

4. **Initiate business arrangements within the mining sector**: Relationships between ASM businesses and other mature actors in the mining industry, such as medium- and large-scale mining companies, may be suitable sources of financial assistance to small-scale miners, especially those working in the same region. In addition, processing centres can also serve as a vehicle through which small-scale miners can access services.

5. **Involve national development banks**: National development banks can also play an important role in the growth of the ASM sub-sector, for example, by providing low-cost capital to incentivize commercial banks to lend to the ASM producers. Financing could be accompanied by technical assistance, where needed.

H. Support ASM formalisation:

ASM formalisation is essential prerequisite for improving its productivity and environmental sustainability. Establishing a clear legal and regulatory framework for ASM (if not in place yet), simplifying licensing processes and offering technical and financial support to ASM operators will facilitate the sub-sector's integration into formal value chains. Centralized processing centres can be established to enable ASM operators to process minerals more efficiently. Key elements for formalising the ASM sub-sector could include the following:

1. **Secure land and mining rights:** Ensure miners have clear legal recognition of their rights to land and resources to encourage investment and long-term sustainability.

2. **Simplified licensing process:** Create a cost-effective and streamlined licensing system that reduces bureaucratic barriers, making it easier for miners to operate legally and reducing illicit mining.

3. **Market access:** Strengthen connections between ASM operators and legitimate buyers by establishing fair and accessible trading platforms locally and internationally, allowing miners to

enter the formal market more easily.

4. **Financial incentives:** Offer tax breaks, subsidies, or other financial benefits to incentivize sustainable practices, technological advancements, and regulatory compliance in ASM operations.

5. **Technical and financial support:** Provide ongoing training, technical advice, and financial assistance to improve extraction techniques, meet environmental and safety standards, and enhance efficiency.

6. **Organizational development:** Support the creation or strengthening of miners' associations or cooperatives to enhance collective bargaining, shared services, and influence in policy discussions.

7. **Local economic integration:** Encourage the development of supporting industries, such as equipment manufacturing, repair services, and local processing, to retain the economic benefits within communities and foster broader economic growth.

Examples: Tanzania's approach underscores the potential benefits of a well-regulated ASM sub-sector including also a number of practical interventions to support, professionalize and formalise ASM. In addition, both **Tanzania** and **Uganda** have established ore-processing centres dedicated to ASM operators (see chapter 5.8).

l. Strengthen cross-border trade and regional cooperation for integrated mineral-based industries:

To promote mineral value addition and develop integrated, sustainable mining industries, strengthening regional cooperation and cross-border trade is vital. Strengthening collaboration, improving infrastructure, and aligning policies will enable countries to develop robust regional value chains, ensuring that mineral resources contribute more significantly to economic growth and sustainable development. To achieve this, governments should prioritize the following steps:

1. **Develop a regional mining vision:** Align national policies with the Africa Mining Vision (AMV) by creating a shared regional vision or strategy for mineral development. This vision should prioritize regional integration in mining policies to improve efficiency and competitiveness.

2. **Expand skills and research capacity:** Establish regional partnerships to widen training programmes, boost research initiatives, and share technological advancements that support value addition across borders.

3. **Improve geological knowledge across the region:** Promote cross-border collaboration in geological research to improve the understanding of mineral resources across the region. This will aid in informed decision-making and planning for the mineral sector.

4. **Harmonize mineral regimes:** Create a uniform regulatory environment by aligning legal frameworks, mining codes, and taxation systems to support mineral value chain development and avoid harmful competition between countries.

5. **Enhance regional/continental trade:** Streamline tariff and non-tariff measures by leveraging existing regional and continental trade frameworks or through bilateral MoUs to facilitate the cross-border movement of mineral resources.

6. **Increased collaboration and transparent communication** between GLR states, including, increased sharing of data, collaboration between each country's authorities including customs, mining police, border control, for more transparency in mineral supply chains and better monitoring of regional mineral flows.

7. **Use joint mineral transformation plants:** Develop or make use of joint mineral transformation plants while taking into account comparative advantages between Member States.

Examples: Joint efforts, such as the **DRC-Zambia** Battery Partnership for EV, demonstrate the potential of regional collaborations to build value chains in the mining industry. By leveraging trade agreements like the **African Continental Free Trade Area** (AfCFTA), countries can collectively enhance their global competitiveness. (see chapter 5.7).

J. Establish a structured dialogue to build trust between governments and the private sector:

To foster mutual trust and improve collaboration between governments and the private sector in the mining industry, it is essential to establish structured and transparent dialogue. The following steps are recommended:

1. **Create a permanent multi-stakeholder forum at country level:** Set up a formal, ongoing platform where government representatives, private mining companies, ASM associations, civil society organizations, and other relevant stakeholders can regularly meet to discuss sector challenges, policy developments, and opportunities for collaboration.

2. **Organize regular consultations on policy changes:** Prior to adopting new mining policies, laws or regulations, governments should hold consultations with private sector representatives and other relevant stakeholders to ensure that changes are aligned with market realities and industry needs. This can minimize surprises, reduce resistance, and ensure smoother implementation of policies.

3. **Implement joint problem-solving workshops:** Organize periodic workshops where government officials and industry leaders collaboratively address pressing issues such as regulatory hurdles, environmental concerns, and investment challenges. These workshops can foster a culture of partnership and shared responsibility.

4. **Ensure transparency in decision-making:** Publish meeting minutes, agreements, and action plans from government-private sector dialogues to ensure accountability and transparency. Clear communication of decisions will also enhance trust and confidence from both sides.

5. **Set up PPPs:** Consider the establishment of PPPs as they can play a crucial role in enhancing mineral value addition.

K. Enhance availability of geological information, infrastructure and power supply for mineral value addition:

General factors impacting a country's ability to build up mineral value addition industries are related to the availability of geological information, in-country and cross-border logistics based on transport infrastructure and power supply. Especially, the solid understanding of a country's mineral resources is fundamental to unlocking value in the mining sector. Therefore, investing in geological mapping and research is essential to maximize economic potential. The following steps can help governments to better use geological data in supporting mineral value addition:

1. **Invest in comprehensive geological mapping:** Allocate resources to conduct detailed and comprehensive geological surveys to assess existing mineral reserves. In particular, the geological research should be used to identify minerals with high potential for value addition through processing and manufacturing.

2. **Improve data availability and accessibility by digitalizing** and sharing information among relevant agencies to improve supply chain transparency, obtain accurate mineral production and trade data, facilitate legal trade, and ensure effective reporting through regional and international databases such the ICGLR's Mineral Tracking Database.

3. **Form partnerships for conducting geological research:** An effective strategy to mobilize foreign resources for geological research and surveys is to form partnerships with international organizations and donors. In this context, for instance, support might be accessible via the MSP. Geological mapping and mineral exploration might also be enhanced by promoting PPP initiatives.

4. **Leverage regional and international expertise:** Collaborate with foreign geological surveys and receive technical assistance on how to best utilize the country's resource base.

5. **Promote regional cooperation:** Engage in regional collaborations through initiatives like the African Minerals Development Centre (AMDC) under the Africa Mining Vision (AMV) to strengthen geological knowledge across borders and optimize mineral use for regional industrial growth.

6. **Enhance infrastructure and development corridors:** Coordinate infrastructure projects such as transportation, energy, chemical and water systems to support mining activities and improve access to regional and global markets. The Lobito Corridor is an example of how improving infrastructure can enhance market access and support local beneficiation efforts.

7. **Invest in energy infrastructure**: This is critical to downstream beneficiation depending on sufficient and stable power supply.

Examples: Tanzania, **Zambia** and **Uganda** are currently conducting additional geological mapping, especially in relation to critical raw materials. The Lobito Corridor, connecting the southern **DRC** and **Zambia** to **Angola's** Lobito port, highlights how infrastructure projects and regional integration can boost local mineral processing and refining (see chapter 5.11).

ANNEX A: DATA SOURCES

Interview partners:

Burundi:

Mr. Régis Niyongabo, Conseiller Attaché à la Direction générale, Office Burundais des Mines et Carrières

Central African Republic:

Mrs. Annick Makolet, Ingénieur des mines, Inspectrice Centrale en matière des Mines et Carrière

Republic of Congo:

Mr. Frydarius Kounkou, Directeur de la petite mine et de l'artisanat minier, Point focal formalisation

Rwanda:

Mrs. Alice Uwase, Head of Division - Exploration, Rwanda Mines, Petroleum and Gas Board

Mr. Narcisse Dushimimana, Head of Mining Regulation and Inspection Department, Rwanda Mines, Petroleum and Gas board

Mrs. Ariane Kanayanya, Director of Mineral Extraction and Processing Unit

Mrs. Alice Uwineza and Mr. Lambert Niyonizeye, Rwanda Mining Association

Mr. Trevor Faber, Luma Africa Ltd

Mr. Ray Power, Power Resources International Ltd

South Sudan:

Mrs. Agnes Sapana Kumyangi, Acting Director General for Geological Survey, Ministry of Mining

Mrs. Rebecca James, Ministry of Mining

Uganda:

Mrs. Grace Lubembe Nassuna, Assistant Commissioner Geoscience, Mines Department, Ministry of Energy and Mineral Development

Mr. Omid Ameri, Woodcross Resources

Mr. Patience Singo, Rwenzori Rare Metals

Mr. John Bosco Bukya, Uganda Association of Artisanal and Small-scale Miners

Mr. Humprehy Asiimwe and Mr. Kenneth Asiimwe Jeovanne, Uganda Chamber of Mines and Petroleum

Zambia:

Mr. Brighton Kateka, Chief Inspector of Machinery, Mines Safety Department, Ministry of Mines and Mineral Development

Mr. Adrian Chileshe Mumbi, Ministry of Mines and Mineral Development

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ANNEX B: STATUS OF INITIATIVES FOR MINERAL VALUE ADDITION AT POLICY AND LEGAL LEVEL IN ICGLR MEMBER STATES

B.1 Angola

Enhancement of local processing and beneficiation is one of the expressed medium-term goals of the Angolan government for developing the mining industry. Angola's Mining Code provides that the State has the right to purchase local mineral products at market prices to direct them to local industry. Whenever the relevant minerals have a strategic interest in national security, the state's right of requisition shall apply regardless of whether the production is used in the local mineral industry or not. Additionally, the government may introduce special tax and customs exemptions to Angolan companies exclusively engaged in the processing of minerals.[154] Angola has a local content framework in place. Based on Presidential Decree No. 271/20, its scope has been broadened beyond the oil and gas sector. The framework outlines the requirements for the utilization of local goods and services and the development of the Angolan workforce. Angola's local content policy has already yielded positive impacts in the country's mining sector. In February 2024, the diamond company De Beers signed an MoU with the Angolan state-owned entities ENDIAMA, the National Agency of Mineral Resources, the national diamond trading company Sodiam and the Geological Institute of Angola aimed at identifying opportunities to build local capacity and enhance sector benefits to the Angolan population.[155]

B.2 Burundi

In August 2023, Burundi enacted a new mining code replacing the one in force since 2013.[156] It also adopted a mining policy in 2022 with a subsequent action plan.[157] Mineral value addition is addressed in the mining code, especially in its articles 38, 65, 79, 106, 124, 159, 171, 209, 249, and 251. As an illustration, article 38 of the mining code specifies in particular "that the holder of a mining title may export or transform the extracted mineral substances on site in order to increase their value". Similar rights are granted to holders of a semi-mechanized mine operating permit as stipulated in Article 124. Article 160 on the rights of holders of a quarry permit who can transform the quarry operation on site in order to increase its value. The terms of creation and installation of a quarry product processing unit are specified by regulation. Finally, Article 172 prohibits the holder of an industrial operation permit from exporting quarry products before their processing. As for the terms of application of the mining code, several provisions detail the conditions under which holders of large mine, small mine, trading post and semi-mechanized operation permits can install processing units. This is the case for articles 25, 52, 60, 61, 72, 82, and 85.

Burundi's 2022 mining policy aims to develop the mining potential through the processing of minerals on site and the development of existing deposits as is apparent from its points 5.6, 5.7, 5.8. As a strategy envisaged, Burundi plans to encourage the establishment of processing units, the transfer of technologies, the promotion of local content and local subcontracting and finally, the strengthening of the capacities of national companies in offering services and goods for the mining sector.

B.3 Central African Republic

The Central African Republic's Mining Law of 2009 does not deal with mineral processing and value addition. In the Central African Republic, mining is dominated by ASM, targeting exclusively gold and not the other 3Ts targeted by the ICGLR. In the past, gold was exploited by artisanal means but since recently, the government requires gold to be processed by smelters before exporting it abroad. Stakeholders are mainly artisanal cooperatives. Moreover, there is a new mining code already adopted by the parliament,

154 Lexology, Overview and outlook: mining law in Angola. Available on: https://www.lexology.com/library/detail.aspx?g=589459c9-3d0c-4fb8-9a40-73dee3b78ed8

155 3 African Local Content Policies to Learn From (energycapitalpower.com)

156 https://presidence.gov.bi/2023/08/10/loi-no1-19-du-04-aout-2023-portant-modification-de-la-loi-no1-21-du-15-octobre-2013-portant-code-minier-du-burundi/

157 POLITIQUE-MINIERE-DU-BURUNDI.pdf (obm.bi)

awaiting its promulgation by the president. If promulgated as submitted by the parliament, the new code will include a number of provisions on local content to boost the development of communities around mining sites. In addition, there are plans to establish a gold refinery as a measure to locally process and refine minerals.

B.4 Republic of Congo

The Republic of Congo's Mining Code (Law NO 4-2005 of 11/04/2005 related to mining activities) constitutes the legal framework for state intervention in the mining sector.[158] It sets the conditions for granting a permit or authorization for exploration and exploitation of mines and describes the rights and obligations attached to the exercise of mining activities by the title holders and their relationship with the state. It provides for the conditions for State participation in mining activities. The Mining Code also sets the customs and tax framework for the exercise of mining activity in Congo. At institutional level, the Ministry of Mines and Geology is responsible for regulations in the mining sector, especially through its department General Directorate of Mines. To date, there is no public document available specifying any policies or strategies related to mineral value addition in the Republic of Congo's mining sector. However, the country's 2016 Hydrocarbons Law has specific provisions for local content development (articles 139-147). The articles provide detailed instructions for local content requirements on all activities along the hydrocarbons value chain regarding the utilization of local human and material resources, training and local capacity development, technology transfer, utilization of local goods and services, and the creation of additional and measurable value added to the local economy.[159]

B.5 Democratic Republic of Congo

In line with the Africa Mining Vision, the Democratic Republic of Congo's Mining Code of 2018 introduces new requirements with respect to domestic processing. According to the Code's Article 71 (h), the award of a mining licence is subject to the holder demonstrating the ability to process and beneficiate minerals within the DRC and to provide a written undertaking to do so. Holders of production rights are required to process minerals produced or to procure the processing by an approved entity within the DRC and to provide the Department of Mines with an industrialisation plan setting out a programme for the domestic processing of produced minerals (Article 108 (2)). An exceptional authorisation to process minerals outside of the country may be granted for a period of one year by way of an inter-ministerial order (*arrêté*), the details of which will be set out in subsequent regulations (Article 108 ter (1)). Such authorisation is subject to the applicant inter alia:

- Demonstrating that it would be impossible to process the minerals domestically in an economically viable fashion; and
- Agreeing to be subject to specific duties and taxes applicable to foreign processing of minerals (Article 108 (2))

Importantly, existing mining right holders are granted a three-year transition period to comply with the requirements of the Revised Code in relation to domestic processing and beneficiation (Article 342). In relation to these provisions, however, companies were given several rounds of moratoria in recognition of the fact that power shortages limited downstream processing of concentrates.

The 2018 Mining Code also increased royalties on cobalt, copper and gold to 3.5 percent of mining revenues and introduced a windfall profits tax. Moreover, the Code increased the government's free-carried share in mining projects from 5 to 10 percent while reducing the guaranteed period for contract renegotiation from10 to 5 years. It is also worth noting that in the context of a partnership between DRC and Zambia agreement was reached to set up a factory for battery precursor production based on the extraction of nickel, manganese and cobalt (see chapter 6.9).

158 AFRICAN MINING LEGISLATION ATLAS (a-mla.org)
159 Overview of Local Content Regulatory Frameworks in Selected ECCAS Countries (unctad.org)

B.6 Kenya

In April 2016, Kenya launched its Mining and Minerals Policy that sets out the framework for mining activity and underpins the new Mining Act of 2016.[160] The Policy takes a holistic approach to the sector, ensuring that key issues related to sustainable exploitation of natural resources such as beneficiation from mining is addressed. However, with respect to mineral processing and values addition, Kenya's Mining and Minerals Policy just mentions that "inadequate expertise, under development of the mineral processing industry, lack of appropriate technology and high energy costs contribute to the low level of value addition to Kenya's minerals." Thus, the Policy aims "to promote value addition and development of horizontal and vertical linkages to the local economy (horizontal linkages are linkages between companies on the same level of the value chain while vertical linkages are relationships between companies along the value chain)." For this purpose, the Policy mentions the Kenyan government's intention "to establish an institutional framework to facilitate marketing of investment opportunities in mining and minerals and promoting value addition of minerals through use of appropriate technology. Further, it will endeavour to explore markets for finished mineral products thus encouraging growth of the industry." However, Kenya's Mining Act of 2016 does not include detailed specifications when it comes to mineral processing and value addition.[161] In 2020, the Kenyan government published a comprehensive local content policy cutting across all the economic sectors of the country.[162]

B.7 Rwanda

Rwanda currently has three processing and value-addition facilities, namely the Gasabo Gold Refinery, the Power X Refinery (refining tantalum), and the LuNa smelter (smelting tin). The Rwanda Mines, Petroleum, and Gas Board (RMB) is actively seeking to attract investors wishing to establish other processing plants, especially for tungsten and lithium, as well as cutting and polishing facilities for gems. Rwanda's Law on Mining and Quarry Operations (Law No. 059/2024 of 20/06/2024) includes granting of a mineral processing license (Article 19).[163] According to the Law's Article 19 (2), regulations of the competent organ determine the content of a mineral processing licence and modalities for its granting. So far, however, Rwanda has no specific regulation in place governing mineral processing. The Rwandan government is also working on a new mineral policy that is planned to be finalized in September 2024 and supposed to cover mineral processing and value addition more in detail.

B.8 South Sudan

South Sudan's Mining Act of 2012 and the country's Mining Regulation of 2015 do not deal with mineral processing and value addition at all. However, the Mining Act has been reviewed and is currently in the Parliament for final approval. The revised Mining Act has sections on mineral processing and value addition. Besides, the Government of South Sudan is currently in the process of drafting a mining policy that might also deal with mineral processing and value addition.

B.9 Sudan

So far, Sudan does not seem to have developed any initiatives at policy and legislative level in terms of mineral value addition.

160 Kenya Mining Policy Popular Version-LowRes.pdf (idlo.int)
161 MiningAct_No12of2016.pdf (kenyalaw.org)
162 Kenya Final Local Content Policy 5 tracked- Revised 25 -09-2020 Final_0.pdf (industrialization.go.ke)
163 See text of the Law here: index.php (rmb.gov.rw)

B.10 Tanzania

Tanzania's Mining (Mineral Beneficiation) Regulations of 2018 outlines the restrictions on the export of minerals from Tanzania (see chapter 6.2). Under these regulations, mining companies are required to have their minerals processed or refined in Tanzania before exporting. They also require mining companies to apply for a special permit for the export of minerals that have not been processed or refined in Tanzania. All minerals are to be exported through authorised mineral dealers and quarterly reports on their mineral sales and exports must be submitted. Mining companies are required to submit beneficiation plans for approval by the Mining Commission. Mining companies in Tanzania are encouraged to add value to minerals mined within Tanzania to increase revenue and create jobs for Tanzanian citizens. Tanzania has also been promoting value addition of mineral products by reducing the tax. For instance, if a miner adds value to its products, the royalty is only 1 percent, otherwise it is 5 percent.[164] In addition, the government wants the mining industry to capture more value from critical minerals before exporting them through establishing mineral processing centres within the country. In 2023, the Tanzanian government announced it would ban the export of unrefined lithium from 31 May 2024. According to the ban, companies mining lithium are required to set up plants for refining in-country to increase the value of the minerals by at least 5 percent before export licences would be granted.[165] Finally, Tanzania has adopted a mandatory approach on local content requirements (see chapter 6.5).

B.11 Uganda

At policy level, Uganda has adopted a national development plan in the form of its Vision 2040.[166] The Vision is conceptualized around strengthening fundamentals of Uganda's economy "to harness the abundant opportunities around the country". Among others, these include oil and gas, minerals, labour force, geographical location and trade, and industrialisation. One of the country's goals under its Vision 2040 is to promote local beneficiation and to establish an industrial base for local production of consumer and industrial goods. In particular, the Vision declares the government's plan to establish processing industries for phosphates in Tororo, limestone in Karamoja and iron ore in Kabale. In line with the Vision, the country's "Third National Development Plan" (NDP III) 2020/21 – 2024/25 prioritises the oil, gas, and mining sectors as crucial pathways to elevate the country from a predominantly low-income to a competitive upper middle-income nation, emphasising the mining sector as a key driver of employment creation and GDP growth.[167] Among others, the NPD III prioritises mining and beneficiation, aims to develop national expertise on mining at vocational and tertiary institutions, to strengthen the sector's legal and regulatory framework as well as the human and institutional capacity, and to increase investment in mining and value addition.

At legislative level, Uganda's Mining Act of 2022 aims "to promote value addition and beneficiation of minerals" (Clause 3 (i)) and defines "mineral beneficiation" as including "processing, smelting, refining, cutting, blasting or polishing of minerals" (Clauses 2 and 8), whereas mineral processing is defined as "procedures, such as dry and wet crushing, leaching, grinding and separation of minerals or other products containing minerals, to raise the concentration of the substance mined and includes beneficiation" (Clause 8).[168] According to the Act's Clause 10 (1), it is prohibited to undertake processing, refining or other beneficiation operation under Uganda's jurisdiction without an authorisation, licence, lease, permit or approval in accordance with the Mining Act, the National Environment Act, or any other written law. According to Clause 121 of the Act, the "Minister may licence integrated projects to process, smelt, refine, cut, blast, polish and trade minerals or a licence for a combination of two or more of these projects. Notwithstanding this, the Minister may issue an independent licence for processing, smelting, refining, cutting, blasting, polishing of minerals or trade in minerals. The Minister may, by regulations, prescribe requirements for processing, gemstone cutting, polishing and blasting facilities and trade activities". Finally, according to Clause 122 of the Act, "a person who intends to smelt, refine, cut, blast, polish, trade or construct and operate a mineral processing facility shall apply to the Minister for a licence in a manner prescribed by regulations." However, a major problem of this piece of legislation is that the mentioned regulations on value addition are still not in place. For these reasons, Uganda's Mining Act is not yet

164 Tanzania | ASM (uneca.org)
165 bne IntelliNews - Tanzania's mining sector is about to take off despite government interference
166 UGANDA) Vision 2040.pdf (greenpolicyplatform.org)
167 npa.go.ug/wp-content/uploads/2023/03/NDPIII-Finale_Compressed.pdf
168 The Mining and Minerals Act, 2022 (Returned by H.E the President).pdf (parliament.ug)

effective when it comes to mineral beneficiation and value addition.

Uganda's 2015 export ban on unprocessed iron ore and other minerals was also intended as a vehicle for enhancing domestic mineral value addition (see chapter 6.3). Apart from that, the Ugandan government recently established two regional beneficiation centres for training on mining and value addition techniques aiming to enhance marketing, local processing and value addition. The centres are intended to provide infrastructure and expertise to increase the economic value of the minerals. However, they are not yet equipped and thus functional.

B.12 Zambia

Zambia's National Mineral Resources Development Policy of 2022 puts a focus on value addition to minerals. It states that "most of the mineral commodities produced in Zambia are exported in their raw form while a few receive minimal value addition. This can be attributed to among others, the absence or limited capacity to carry out value addition on mineral resources as well as the absence of a strict regulatory framework to ensure various mineral products undergo processing before being exported. However, these minerals still have a huge potential for further value addition which can stimulate further economic activities in the country. The prospects of processing minerals for value addition within the country comes with enormous benefits such as job creation as well as increased revenues to Government. The need to create an enabling environment to support processing of mineral resources cannot be overemphasized if the country's socioeconomic development has to be accelerated to support various development spheres such as skills development". The Policy also requires that Research and Development efforts should be needs driven and directed at developing solutions in, among others, processing, and beneficiation. However, when it comes to specific measure to enhance mineral processing and value addition, the Policy just aims at promoting the development and application of modern exploration, mining, and processing technologies.

At legislative level, Zambia's Mines and Minerals Development Act of 2015 requires a mineral processing licence for any person who seeks to undertake the processing of any minerals in Zambia. Additionally, persons may obtain mineral trading permits, mineral import, and export permits as well as gold panning certifications. Overall, Zambia lacks a robust regulatory framework to ensure that mineral products are thoroughly processed before the exportation thereof because most mineral products are exported in its raw form or with minimal processing. As a result, the Zambian government aims to develop frameworks for mineral beneficiation, facilitating access to modern beneficiation technologies, and providing opportunities for capacity development for local participation in the mineral beneficiation process through the country's Policy.

ANNEX C: PROFILES OF THE CONSULTING TEAM

Mr. **Torge Hamkens** was the team leader for this assignment. He has dedicated over 18 years of his career to international cooperation, research and policy advice. His experience includes ten years in project management with GIZ in Uzbekistan, Mongolia and Ukraine, and over five years as an independent consultant. His technical expertise lies in mineral resource governance including policy development, legal drafting and contract negotiations. Besides, Mr. Hamkens is a skilled evaluator of development cooperation projects in East Africa and the Great Lakes Region.

Mr. Eugene Ntaganda is an international lawyer with over 20 years of professional experience in the Great Lakes Region in research on various topics such as human rights, gender, peacebuilding, governance and justice. With his technical focus on trade, mineral resource governance, ASM and supply chains, he has provided technical assistance to governments, civil society organizations and regional organizations in reform initiatives, strategic planning, needs assessments and impact studies, training and capacity building. In addition, he served as a project manager on multiple donor funded projects. Mr. Ntaganda is fluent in French, English, Swahili, Kinyarwanda and Kirundi.

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