






Mining Sector Strategy

2024-2028

European Bank
for Reconstruction and Development

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President's Recommendation

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This recommendation and the attached report on the EBRD Mining Sector Strategy ("Mining Strategy") are submitted for consideration by the Board of Directors.

The Mining Strategy clarifies the rationale for the Bank's continued involvement in the sector and reaffirms the importance of mining in fostering transition. As such, the key strategic priorities of the Mining Strategy are to: (i) Selectively support the exploration and production (primary and secondary) of metals and minerals relevant to the green energy transition, digital economy and wider economic development; (ii) Support the decarbonisation of mining activities through promotion of cleaner energy sources, innovation, digitalisation, skills development and resource efficiency; (iii) Support mining companies improve their environmental, social, inclusion and governance practices; (iv) Assist governments in improving regulation and the business environment to facilitate the implementation of best practices in the sector.

I recommend that the Board of Directors approve this Mining Sector Strategy, substantially on the terms of the attached report.

Odile Renaud-Basso

Overview

- Mining is essential for our daily lives; it is the first step of the value chain of most of the products we use or consume daily.
- Energy transition and decarbonisation commitments are generating an **unprecedented demand for minerals and metals.** This has created a **substantial gap between the supply and demand** of the critical materials needed for the green economy and new technologies.
- The production of many of these critical minerals is concentrated in a few countries, exposing many economies (including EBRD COOs) to **supply risks** and **threatening their path towards decarbonisation**. Covid-19, geopolitical conflicts , increasing natural disasters and resource nationalism have resulted in severe disruptions in the supply chains and the weakening of governments and mineral buyers to strategize how to ensure security of an uninterruptable metals supply.

- While the role of minerals in the transition to low carbon economies is crucial, mining companies themselves are also under **pressure to reduce their carbon footprint** and **bolster up their ESG practices including the protection of natural ecosystems and respect of human rights.**
- The role of **innovation** in the decarbonisation and competitiveness of the sector has become of a paramount importance, and the challenges automation and digitalisation present (e.g. skill set gaps and cybersecurity threats) are topics that deserve careful consideration.

Scope of the mining sector strategy

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What activities are covered by the mining strategy?

1. Metals and minerals extraction, refinement and distribution.

2. Mining waste recovery and recycling.

3. Support activities and service industry related to metals and minerals extraction.

What is not covered?

1. The extraction of hydrocarbons, such as oil and gas, which are covered in the Bank's Energy Strategy.

2. Extraction/production of thermal coal.*

3. Extraction/production of uranium**

The Mining Strategy interfaces with other EBRD strategies, approaches and policies

The Mining Strategy

Thematic strategies, approaches, and frameworks, such as the Green Economy Transition Approach, Paris Agreement Alignment Approach the Strategy for the Promotion of Gender Equality, the Equality of Opportunity Strategy, the EBRD's Digital Approach and EBRD Green Cities as well as **Policies**, including the EBRD's Environmental and Social Policy and Access to Information Policy.

The EBRD's commitment to align all of its activities, including financing of mining projects, with the Paris Agreement from 2023. The EBRD's Strategic and Capital Framework, with three cross-cutting strategic themes: transition to a green, low-carbon economy; promoting equality of opportunity; and accelerating the digital transition.

The Bank's other current and future relevant **sector strategies** such as the energy strategy and transport sector strategy as well as **country strategies,** by outlining the ways in which the Bank will achieve transition impact, reflecting sectoral developments and transition challenges across the economies in which the Bank operates.

*Please refer to Bank exclusions under Paris Agreement alignment, Energy Strategy and the ESP
**The Bank's approach to uranium may be considered further during the strategy period

Section 2

Sector Context and Transition Challenges

2.1 Minerals and metals are critical for the transition to green and digital economies (i)

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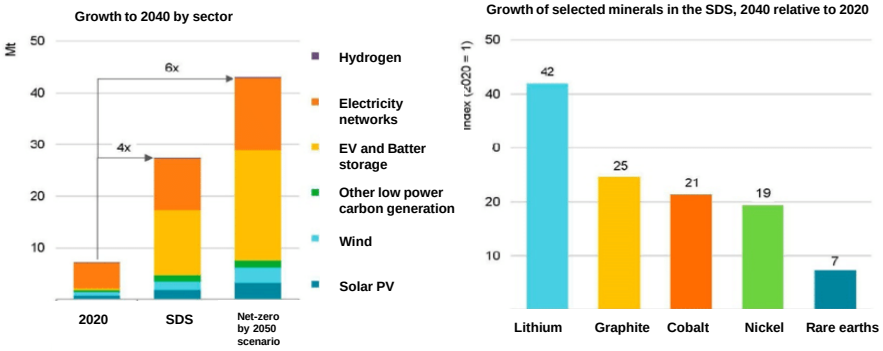
As the world transitions to a low carbon and digital economy, the mining sector is entering an era of significant opportunities and complex challenges. EBRD COOs have the potential to benefit from this new context.

DEMAND FOR MINERALS IS ACCELERATING

Decarbonisation, consumption, underinvestment, geopolitics, and sustainability are driving this demand increase.

Mineral demand for clean energy technologies by scenario



Steel and aluminium not included. Source: IEA (2021a). The Role of Critical Minerals in the Energy Transition.

2.1 Minerals and metals are critical for the transition to green and digital economies (ii)

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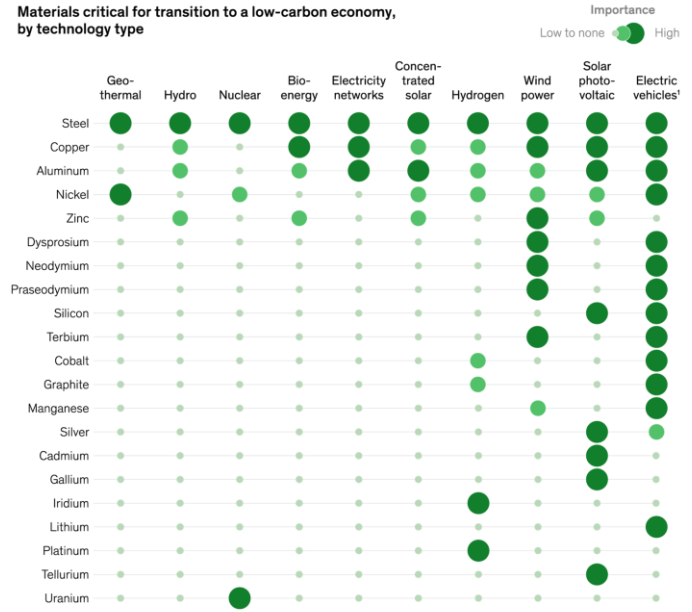
ENERGY TRANSITION, DECARBONISATION, GREEN AND NEW TECHNOLOGIES ARE MINERAL INTENSIVE

- The mining industry is being called upon to significantly increase production of metals and minerals that are essential for advancing low carbon and digital economies.
- Some of these minerals are considered critical because of a) the economic importance associated with the products that are manufactured with their inputs, b) the risk associated with the supply of those materials stemming from high concentration of production and processing in a small number of countries and c) having unique properties that limit availability of viable substitutes.
- These critical minerals are required among others, for renewable, hydrogen, digital and green technologies (e.g. wind turbines, solar panels, stationary storage, electric car batteries, fuel cells, electronics, 5G) and include copper, lithium, cobalt, nickel, rare earth metals, among many others.
- The amount of minerals required for green and digital economies is much greater than in fossil-fuel dependent economies.
- Historic dependency on fossil fuels may shift towards dependency on minerals (e.g. an onshore wind farm requires nine times more mineral resources than a gas-fired power plant, and an electric car uses six times more material input than a conventional car).

While steel will be crucial as an infrastructure enabler for all technological transition, specific elements will play an important role in each technology.



Source: "The raw-materials challenge: How the metals and mining sector will be at the core of enabling the energy transition", McKinsey & Company.

2.1 Minerals and metals are critical for the transition to green and digital economies (iv)

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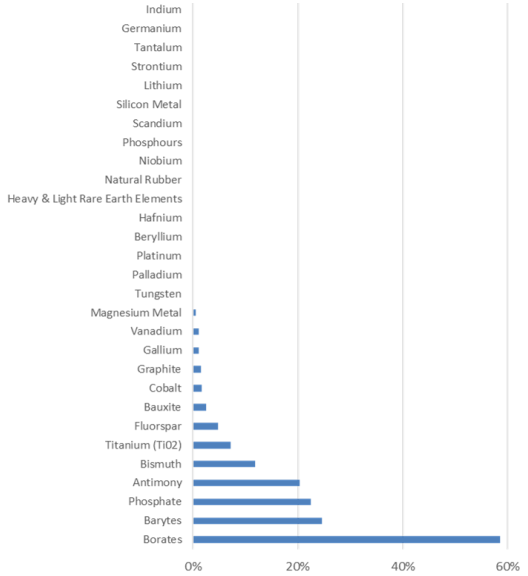
Increasing resource nationalism and potential super cycle

- Supplies of these minerals worldwide are tightening.
- Competition for these resources is becoming more intense.
- Increased risk of resource nationalisation, while at the same time the supply constraints are setting the stage for, potentially, a new super cycle, with historically above-average prices through to 2025 and beyond.

Limited production of critical raw materials in EBRD COOs

- Based on EU's list of critical raw materials (2020), EBRD's COOs produce very limited amounts of these minerals (except for borates – Türkiye; phosphates – Morocco; and antimony - Tajikistan).
- EBRD COOs are likely to be exposed to future supply chain disruptions of the minerals essential for the green and digital transition.
- Historic low levels of exploration in some of EBRD's COOs despite large potential.

COOs share of global output of CRM (EU definition)



British Geological Survey, 2022. World Mineral Production 2016 – 2020. (https://www2.bgs.ac.uk/mineralsuk/download/world_statistics/2010s/WMP_2016_2020.pdf). Note: data excludes production of (1) gemstones, precious and semi-precious stones; (2) thermal and metallurgical coal; (3) dimension stone (marble, travertine, alabaster, dolomite, etc.); (4) construction materials (sand and gravel, crushed stone, etc.); & (5) mineral sands.

2.1 Minerals and metals are critical for the transition to green and digital economies (iii)

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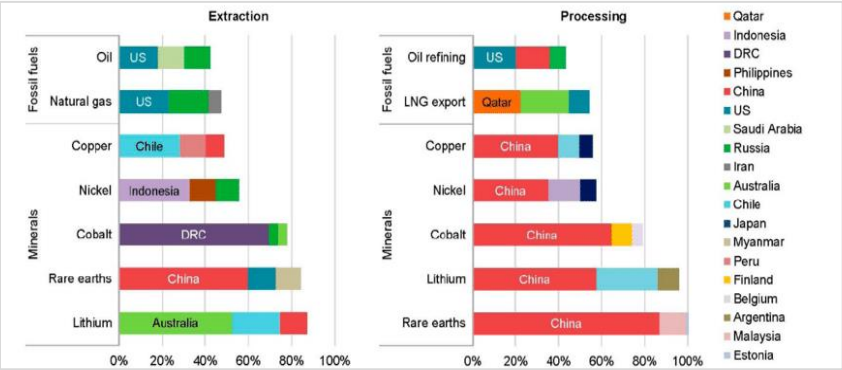
THE EXTRACTION AND PRODUCTION OF CRITICAL MINERALS IS CONCENTRATED IN A SMALL NUMBER OF PRODUCING COUNTRIES

- Non producing countries are exposed to supply risks.
- Limited production of critical raw materials by EBRD COOs.
- Initiatives introduced to limit vulnerability to supply chain risks (e.g. the Raw Materials Act (EU), the Inflation Reduction Act (US)).



Share of top three producing countries in production of selected minerals and fossil fuels (2019). Source: IEA (2021a). The Role of Critical Minerals in the Energy Transition.

"Production of many energy transition minerals is more concentrated than that of oil or natural gas. For lithium, cobalt and rare earth elements, the world's top three producing nations control well over three quarters of global output. In some cases, a single country is responsible for around half of worldwide production.

The Democratic Republic of the Congo (DRC) and People's Republic of China (China) were responsible for some 70% and 60% of global production of cobalt and rare earth elements respectively in 2019. The level of concentration is even higher for processing operations, where China has a strong presence across the board. China's share of refining is around 35% for nickel, 50-70% for lithium and cobalt, and nearly 90% for rare earth elements. Chinese companies have also made substantial investment in overseas assets in Australia, Chile, the DRC and Indonesia.

High levels of concentration, compounded by complex supply chains, increase the risks that could arise from physical disruption, trade restrictions or other developments in major producing countries" (IEA, "The role of critical minerals in energy transitions").

2.1 Minerals and metals are critical for the transition to green and digital economies (v)

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ESG standards

- While the COOs need secure and sustainable long-term supplies, these minerals must be produced in an environmentally-sound, sustainable, resilient, Paris Agreement aligned and circular manner, respectful of human rights, including labour rights. The accelerated demand for these minerals may put pressure on miners and regulators to pay less attention to ESG practices.

Recycling volumes will not be sufficient to supply the increasing demand of critical raw materials in the short term

- Recycling critical raw materials from scrapped equipment is **complex** due to the range of chemical compositions and degrees of dispersion in various products. Not all equipment is currently designed to be recycled; logistical challenges arise due to remote locations and size of components (especially turbine blades).
- **Technological challenges** in recycling REEs (currently ~1% recycling rate) as they are often mixed with other minerals and they require hazardous chemicals and heat for separation.
- **Most metals have the potential to be recycled** without affecting their characteristics, so once there is sufficient volume in the system and recycling facilities are in place, recycling will be a significant source of metals. Most of the principle materials in key RE technologies can be recycled: 95% in PV panels, 90% of wind energy generators and 100% of energy storage and mobility batteries (EEA).
- For **bulk metals,** recycling practices are well established, but this is not yet the case for many energy transition metals such as lithium and REEs. Emerging waste streams from clean energy technologies (e.g. batteries and wind turbines) can change this picture. The amount of spent EV batteries reaching the end of their first life is expected to surge after 2030, at a time when mineral demand is set to still be growing rapidly (IEA, 2022).
- It is estimated that by 2040, recycled quantities of **copper, lithium, nickel and cobalt** from spent batteries could reduce combined primary supply requirements for these minerals by around 10%. The benefits of recycling can be far greater for regions with wider deployment of clean energy technologies due to greater economies of scale (IEA, 2022).

2.2 Mining companies face pressure to decarbonise their operations (ii)

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Large capital investments are required for mines to fully decarbonize

- Shifting to renewable sources of electricity or other decarbonisation measures is increasingly feasible, even in off-grid environments, due to the reducing cost of renewable energy and storage technologies.
- Electrification or fuel switching of diesel or gas consuming equipment is also starting to become economically viable. In some cases, battery electric mining vehicles have a lower total cost of ownership versus internal combustion engine vehicles.
- Energy efficiency initiatives can also lead to significant emissions savings.

Value chain decarbonisation

- The immediate focus of most mining companies is on Scope 1 and Scope 2 emissions.
- However, there is an increased supply chain pressure from the manufacturers of end products, such as batteries, cars, phones, and packaging, for mining companies to provide verifiably carbon-neutral commodities.
- A proactive approach to lowering Scope 3 emissions should allow early movers to differentiate themselves and their products, capturing a greater share of the market.

2.2 Mining companies face pressure to decarbonise their operations (i)

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Under the 2015 Paris Agreement, 195 countries pledged to limit global warming to well below 2.0°C, and ideally not more than 1.5°C above pre industrial levels. Mining operations worldwide account for 4-7% of total GHG emissions globally*. The sector is facing pressure to decarbonise.

Pressure on companies to set a pathway to decarbonise and achieve Net Zero by 2050

The level of ambition and achievement to reduce GHG emissions from mining varies across EBRD COOs.

There is no single pathway to Net Zero emissions

Each of the decarbonisation measures depends on mine site, reflecting each location's unique mining, processing, transportation, infrastructure and environment. No one technology works equally well, at all mines, in all countries.

*Global Data: Total GHG Emissions of Major Metals and Mining Companies Worldwide by Revenue in 2021

2.3 The level of stakeholders' scrutiny on ESG matters is increasing (i)

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- The mining industry is familiar with environmental, social and governance (ESG) matters, evolving requirements and expectations and has long grappled with the sustainability agenda. In more recent times, the level of scrutiny on how ESG, and alignment with the Paris Agreement, is managed in the sector has, however, increased substantially. Various stakeholders from investors, workers and communities (including indigenous peoples) to governments, civil society and **end users are expecting high ESG standards and performance of companies and supply chains and are seeking increased access to information**. Investors are looking beyond financial statements and want to consider how companies are managing ESG risks and promoting benefits and how this forms part of company governance structures and policies.
- **Numerous ESG reporting standards, frameworks and certification schemes have and are being developed to guide the sector**, and others, and help provide assurance on company ESG practices while at the same time international and national ESG regulatory and reporting requirements are being strengthened and becoming mandatory (e.g. EU CSRD, TCFD, TNFD). ESG done right helps raise finance, enables projects to develop and operate in a responsible and sustainable manner and boosts investor confidence. Companies are rewarded with investment, strong brand equity, access to credit and debt markets, and sustainable, long-term growth.

- The mining industry is associated with various ESG impacts and risks. These range from impacts and risks to the environment (biodiversity, water, air) and society (access to land, possible impacts on indigenous peoples, livelihoods, nuisance, pollution, etc.) as well as governance issues (corporate governance, transparency, diversity, etc.). However, **the mining industry can also be associated with significant benefits** (employment, supply and value chains, taxes, investment, etc.). Stakeholders are expecting ESG impacts and risks to be appropriately managed in line with best practices, for ESG benefits to be maximised and for information to be reported.

- There are a number of key ESG trends and areas of interest from stakeholders at present including **social license to operate (including human rights), decarbonisation, physical climate risks, information disclosure, circular economy** and **nature,** including the protection and recovery of ecosystems.

EITI Extractive Industries Transparency Initiative
GlobalTailings Review.org
GRI
VOLUNTARY PRINCIPLES ON SECURITY & HUMAN RIGHTS
CSRD
THE COPPER MARK RESPONSIBLY PRODUCED COPPER
ICMM
IRMA Initiative for Responsible Mining Assurance
SUSTAINABLE DEVELOPMENT GOALS
WORLD GOLD COUNCIL
TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

2.3 The level of stakeholders' scrutiny on ESG matters is increasing (ii)

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The social contract of mining operators is being further redefined

- Social license to operate (the capacity of a mining operation to secure and maintain informal acceptance of its activities by local communities and wider society) has become an increasingly critical source of risk for mining companies.
- Shifting from a "do no harm" only approach (e.g. mitigating environmental and social impacts) towards also actively looking to create positive social impacts.
- Increasing expectations for the consideration and mitigation of human rights risks.
- Community engagement and impacts are increasingly a focus of investor scrutiny globally.
- Civil society and activist group advocacy is increasing.
- Government expectations are also evolving, moving away from raw resource nationalism focused on extracting payments, and towards more complex forms of benefit sharing and local value addition.
- Some traditional methods used by companies to manage social pressures have not fully delivered (e.g. community funds created with a small fraction of a company's turnover) and have often disappointed because of poor management or a lack of vision and insufficient community and stakeholder involvement. Further promoting social benefits is not a substitute for the need to address adverse environmental and social impacts and risks.

Decarbonisation delivery

- Multiple mining companies have disclosed their commitments on decarbonisation. There is now pressure to expand, refine and deliver on these and realise changes in mining project design and operations.

2.3 The level of stakeholders' scrutiny on ESG matters is increasing (iii)

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Climate change risks are increasing

- Climate change related hazards and risks are becoming more frequent and intense and present risks to mining operations (e.g, today 30 to 50 percent of production of copper, gold, iron ore, and zinc is concentrated in areas where water stress is already high).
- While many mining companies do consider climate risks and adapt their projects in response thereto, such practices and levels of analysis and adaption vary. In many of EBRD's COOs potential climate hazards are not considered or not considered adequately.

Increasing pressure to disclose information

- Various voluntary and compulsory ESG standards reporting frameworks exist and are being developed.
- The mining sector is under pressure to disclose to stakeholders more relevant information on its operations and approach to ESG matters, including climate and nature related risks. Many of these frameworks, include the concept of double materiality and mining companies are being expected to report on their impact to the environment and the impacts of the environment on their operations (a financial risk).
- Frameworks include TCFD, TNFD, GRI, SASB, ISSB and CSRD. ESG standards relevant to mining and including disclosure requirements include RGMPs, IRMA, Cyanide Code, PRI, MAC's TSM, GISTM, etc. In EBRD's COO reporting varies but is expected to increase.

Pressure to adopt a conscious approach to circular economy

- In general, the mining and metals industry is well progressed in unconscious circularity; the sector has a strong history of waste recycling and water reuse and recycling, including the creation of products from tailings.
- However, these initiatives are mainly driven by liability, regulation and resource scarcity, rather than by value creation. More work needs to be done to shift towards a more actively-sought circularity.
- In EBRD's COOs, circular economy activities are increasing with greater emphasis on water recovery and re-use, energy efficiency and improved approach to mining waste management.

2.3 The level of stakeholders' scrutiny on ESG matters is increasing (iv)

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Nature

- Mining and metals operations are a long-term investment that rely upon and impact heavily nature and natural capital (i.e., water resources, land, etc.). To ensure sustainable and adaptable growth companies need to take a holistic approach and consider how to improve the way they interact with nature.
- A market-led initiative—the Taskforce on Nature-related Financial Disclosures (TNFD)—was established in 2021 in response to the growing need to factor nature into financial and business decisions. The TNFD's overarching goal is to support "a shift in global financial flows away from nature-negative outcomes and toward nature-positive outcomes."
- In advance of the TNFD framework release in late 2023, mining and metals companies are beginning to analyse their impacts and interactions with nature across their operations and that of their value chains. The aim is, in addition to the impacts, to highlight the dependencies, risks and opportunities associated with nature and, ultimately, to help enable the accurate valuation of natural capital in financial disclosures.
- The recent (December 2022) UN biodiversity conference in Montreal has further emphasised the need to halt and reverse nature loss and resulted in the landmark Kunming-Montreal Global Biodiversity Framework being agreed by the parties. The vision of the Kunming-Montreal Global Biodiversity Framework is a world of living in harmony with nature where "by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people." It includes ~~a~~ four long-term goals for 2050 related to the 2050 Vision for biodiversity and 23 action-oriented global targets for urgent action over the decade to 2030.
- Mining and metals companies are considering, and will be required to consider, actions that use nature to help address operations risks and actions to respond to societal challenges and expectations on nature through the conservation and protection, sustainable management and~~/or~~ restoration/recovery of ecosystems.

2.4 Innovation and digitalisation are key to competitiveness (i)

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Digital innovation is transforming the mining industry by introducing new technologies that can enhance efficiency, reduce environmental impact, and improve overall sustainability.

Digital transformation of the mining value chain.

Exploration	• Improve ore characterization through digitized ore bodies. • AI combined with geo-mapping software to identify previous unknown ore bodies.	3 5
Mining Operation	• Enables ultra-deep and remote mines with integration of autonomous vehicles and automated technologies. • Improve decision-making and safety by collecting critical information including equipment status, and air quality in real-time.	1 2 3
Processing	• Enhance ore sorting to reduce crush and ground process to unlock minerals and metals.	3
Maintenance	• Predictive analysis to extend maintenance windows. • Automated scheduling and on-demand parts and components to reduce downtime.	2 3 4
Trading	• Improve transparency and traceability in mining supply chain management. • Predictive trend modeling to anticipate buyer behavior.	3 6

List of some of the Digital Technologies applied in Mining Industry

1. Automation and Robotics
2. Internet of Things (IoT)
3. AI and Big Data Analytics
4. 3D Printing
5. Advanced Geological Imaging
6. Blockchain Technology

2.4 Innovation and digitalisation are key to competitiveness (ii)

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List of some of the Digital Technologies applied in Mining Industry

1. Automation and Robotics

Autonomous equipment, such as self-driving trucks, drilling rigs, and loaders, can increase productivity and safety by reducing human error and the need for manual labour in hazardous environments.

2. Internet of Things (IoT)

IoT devices and sensors can collect and transmit data on equipment performance, environmental conditions, and worker safety in real-time, enabling operators to make informed decisions and reduce downtime.

3. AI and Big Data Analytics

Mining companies can use data analytics tools to analyse large amounts of data collected from IoT devices and other sources, identifying patterns and trends to improve operational efficiency, predict equipment failures, and optimize resource allocation.

4. 3D Printing

The integration of 3D printing in mining operation could increase efficiency and flexibility of operations. Produce spare parts and custom-built components could reduce the cost of storage, production, and delivery times.

5. Advanced Geological Imaging

Digital tools allow for the creation of 3D geological models and simulations, enabling a better understanding of ore bodies, more accurate resource estimation, and optimized mine planning. This reduces the risk and cost associated with exploration and development.

6. Blockchain Technology

Blockchain can be used to track and verify the origin and movement of minerals, ensuring transparency and reducing the risk of fraud. Smart contracts can automate transactions and agreements, streamlining processes and reducing administrative costs.

The EBRD Digital Approach

- The EBRD's digital approach focuses on **three intervention areas:**
  1) building a digital economy foundation
  2) encouraging digital adaptation among organizations
  3) nurturing innovation among digital-first entities
- Integrating digital considerations into mining projects is a core priority.

Cybersecurity in the Mining Sector

As mining industry is increasingly digitalized, ensuring cyber security across the entire value chain is crucial for its resilience.

2.5 The mining industry is facing a talent shortage and needs more equality, inclusion and diversity in the workforce

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Mining can be a large contributor to job creation. This is particularly relevant in some of the most active mining EBRD COOs, such as Kazakhstan or Mongolia. However, like many other global industries, the mining industry continues to see unprecedented changes that are impacting its workforce and ways of working. These are:

Talent shortage and risk of critical knowledge and skills being lost	• **There is an increasing talent squeeze**; particularly in specialized fields such as mine planning, process engineering, digital (data science and automation), green technologies, and circular economy. • Job vacancies are exacerbated by (i) a worldwide rush for minerals as countries work to pivot away from fossil fuels and toward decarbonisation, (ii) increasing aging of mining workforce, (iii) low recruitment numbers from younger generations due to reduced sector attractiveness.
The nature of mining jobs is evolving	• More automation and digital-focused activities require new skills. • There is increasing competition between industries to attract digital-skilled workforce. Mining is not currently a sector preferred by younger generations. • **Technological advances are changing ways of working**, with many roles shifting remotely from the mines to operations hubs in town. • The impact on host communities, which often experience poverty, have lower levels of formal training, and are highly reliant on the mining sector will need to be supported to navigate this “mining transition.”
Increasing awareness for greater diversity, equity and inclusion (DEI)	• Many companies have set ambitious targets to diversify their workforces. • The wider community has welcomed these goals. • However, **progress toward them has been slow thus far.**

2.6 The mining sector's economic context through the six transition qualities (i)

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Green

Challenges: mining is an energy intensive industry with high environmental risks.

Minimising mining climate and environmental footprint through the application of best-in-class technologies and policy activities such as those related to water efficiency; electrification via renewable sources; energy efficiency solutions; rehabilitation and remediation of mined land for alternative uses, such as sustainable forestry; carbon capture, utilization and storage; waste minimisation and circular economy projects.

On the policy front, support to net zero and decarbonisation strategies, renewable energy procurement policies, climate corporate governance plans and applying best international ESG practices are key areas for engagement.

Providing minerals critical for the green and digital economy transition: base metals and critical raw materials that support the green economy as well as emerging technologies.

Inclusive

Challenges: difficulty attracting talent; need for more diversified workforce (age, gender, skills) and equality practices; gap in digital and green skills; uneven social benefits; risk of stranded skills (coal mine closures, automation).

Broadening access to market-relevant skills and training: developing accredited training and work-based learning opportunities in partnership with local education institutions on topics like circular economy, digital skills, and green skills. This can also support the re-skilling and re-deployment of workers with stranded skills (i.e., implementing a Just Transition).

Sharing Benefits: Through improvement of targeted CSR policies and practices towards the more equitable distribution of mining revenues generated at national and local levels, mining can bring sustainable benefits to local populations (including indigenous peoples) in the most-impacted and least-developed regions.

Introducing more open, equal and diverse HR policies, with a particular focus on female workers: Setting a target for female participation in training programmes, improving clients' HR policies and standards, and organizing outreach activities to promote women's role in the sector will be key to build a more diversified pipeline of future talent.

2.6 The mining sector's economic context through the six transition qualities (ii)

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Well Governed

Challenges: The regulatory framework, permitting process, transparency, governance and institutional capacity of the mining bodies in many of EBRD's COOs is not conducive to attract major inflows of investment.

Standards: By adopting EITI standards on contracts, revenues and beneficial ownership, transparency and practices can improve, thus helping attract private investment to the sector and enhance development outcomes. Helping mining companies adopt a more transparent supply chain is another priority area, together with good governance structures, including diverse and efficient Supervisory and Management Boards.

Enabling greater clarity and certainty of rights and obligations, fair and competitive licensing, fiscal and permitting regimes, and transparent and open access to sector data (e.g. digitalisation of data), as well as following well-established and known resource reporting standards, has the potential to encourage more and better investments in the sector.

Competitive

Challenges: Increasing operating costs; underinvestment in exploration of new resources, as well as in mineral mapping; and slow adoption of digital technologies.

Reducing costs, obtaining new information on COOs' critical raw materials and supporting riskier activities such as early exploration: Ensuring efficient project management and cost controls is essential to the competitiveness of the Bank's clients. The sector can also be helped to be more competitive by investing in exploration of new resources, improved extraction techniques and innovative new technologies. Innovative financial incentives and equity participations can encourage exploration in higher-risk, under-explored areas. Mineral mapping is key to acquire new information on COOs' reserves, especially since knowledge of the geologic endowments of many COOs was formed when the importance of raw materials was not as widespread.

Promoting innovation and digital transformations across the mine life (from exploration, development, production and closure) to enhance productivity, the safety of operations, more efficient use of resources, and less environmentally impactful operations.

Expand support to mining service companies and equipment suppliers, which can bring savings and innovation to the main mining operations.

2.6 The mining sector's economic context through the six transition qualities (iii)

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Resilient

Challenges: Minerals critical for the green economy and emerging technologies concentrated in a few jurisdictions; supply chain risks and resource nationalism caused by geopolitical events; historic underinvestment in exploration for new resources, as well as in the refining and processing of minerals.

Promoting more diversified access to critical raw materials and base metals, for the green energy transition and beyond. Increasing the extraction in COOs of minerals that are categorised as being scarce will support EBRD's COOs economies and the broader international community, increasing the diversification of imports and decreasing the likelihood of supply chain shocks.

Supporting financial resilience: Many of EBRD COOs have less developed capital markets and financial mechanisms, and this has a negative effect across the economies, including mining companies, which have limited options to finance their capital-intensive operations. Innovative financial instruments such as green bonds, sustainability linked bonds, futures contracts and off-take agreements can help improve the resilience of EBRD's clients.

Integrated

Challenges: Uneven distribution of mineral resources among COOs and limited partnerships and investments across the value chain.

Promoting international trade: mining activities, and more in general raw materials reserves, are often concentrated in a small number of countries. New infrastructure and products, as well as innovative agreements, that facilitate exports to resource scarce countries can enhance the global and regional integration of EBRD COOs.

Integrated operations and partnerships: COOs can better integrate their mining activities by facilitating the smelting, processing and refining of raw materials to be included in the overall mine plan. Building specific partnerships between mining companies and downstream manufacturers can also unlock the potential benefits that arise from enhanced integration.

Integrated procedures: National and local authorities should seek to minimise the administrative burden and integrate procedures to the extent possible.

Section 3

Proposed Strategic Direction and Focus Areas

3.1 Evolution of the mining strategy

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The updated mining strategy, while preserving the key underlying considerations of the previous strategy (in particular, its emphasis on sustainability and ESG standards), places additional focus on the need to support development of a wider diversified range of minerals, in particular at earlier stages of exploration; further promote the decarbonisation and digitalisation of the sector, as well as creating more resilient supply chains, diversified and skilled work force.

Strategic challenges from the past 5 years

- Price and cost pressures
- Exploration shortfall
- Climate change
- Increasing scarcity of resources
- Communities' expectations
- Workforce dynamics
- Increasingly politicised sector and risk of fiscal nationalisation
- Increased focus on critical raw materials

Need to revise and reflect

- Unprecedented demand for minerals to support the green energy transition and digitalisation of the mining sector
- Transitioning from a fossil fuels based economy towards a mineral-based one
- Concentration of production of critical minerals in a few countries
- Supply chain disruptions caused by COVID-19, Russia/Ukraine war, and increasing resource nationalism
- Paris Agreement, Net Zero ambitions and pressure to decarbonise operations
- Sustainability, nature and social licence to operate
- Need for innovation and digitalisation
- Large gap in green and digital skills
- Difficulty attracting talent
- Underinvestment in exploration
- Evolving international best practices and standards

Priorities for the 2024-2028 Strategy

- Selectively support the **exploration and production (primary and secondary)** of metals and minerals relevant to the green energy transition and digital economy
- Support the **decarbonisation** of mining activities through promotion of **cleaner energy sources, innovation, digitalisation, skills development and resource efficiency.**
- Support mining companies improve their **environmental, social, inclusion and governance practices .**
- Assist governments in **improving regulation and the business environment** to facilitate the implementation of best practices in the sector.

3.2 Strategic Alignment with key Focus Areas

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The updated Mining Sector Strategy will continue to asses projects on a case-by-case basis and will therefore only proceed with projects which comply with requirements of the following key policy and strategic approaches:

Environmental and Social Policy and EBRD Performance Requirements	EBRD's Environmental and Social Policy (ESP) and Performance Requirements (PRs) are applicable to all mining projects, whether debt financing or equity investment. A key requirement of the ESP is the application of the mitigation hierarchy which seeks to avoid and reduce impacts and where this is not possible compensate or offset these impacts (some impacts cannot be offset - certain areas may be no-go areas as alignment with PR6 on biodiversity may not be possible). The ESP further requires the application of EU substantive environmental standards and good international practice (GIP). The Bank applies EU directives (eg EU Habitats Directive) and GIP such as the Global Industry Standard on Tailings Management, which seeks to implement high standards and safe tailings disposal solutions, such as dry stack tailings facilities, as well as options to reduce tailings, including disposal underground and reuse. EBRD conducts appropriate E&S due diligence on all mining projects against the requirements of the ESP and PRs. This is complemented with appropriate integrity (Governance) due diligence in respect of clients and their activities.
Paris Agreement Alignment	EBRD has a Paris Agreement alignment assessment methodology that is undertaken for every project both on mitigation and adaptation levels and also evaluates projects carbon transition to ensure a reliable and orderly transition to net-zero . EBRD is committed to transparency and public disclosure, including making the Paris Agreement alignment procedure a public document open for feedback. We require companies to disclose environmental and social performance and use public disclosure methods, like periodic monitoring reports, to ensure compliance.
Green Energy Transition Strategy: Circular Economy Assessment	The EBRD will continue to support circular economy with investment and/or advisory work (especially for those minerals with low recycling rates), including remediation and recycling projects with a view to increase the secondary production of minerals and extending final products' lifetimes. Circular Economy is embedded in the Bank's GET2.1 strategic document in which, Circular Economy is referred as a critical component for delivering environmental & decarbonization and impact in line with the EU Circular Economy classification. Every project is assessed against the circular economy opportunities and corresponding measures are implemented.

3.3 Selectively support the exploration and production (primary and secondary) of metals and minerals relevant to the green energy transition and digital economy

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Goals	Actions
• **Selectively support on a case-by-case basis the production of all metals and minerals (except uranium and thermal coal) in EBRD COOs in all stages of the mine's life cycle, from exploration to development, production, processing and rehabilitation.** • **Support circularity in EBRD COOs, thereby increasing secondary supply of minerals** • **Promote further the exploration and production of minerals required for the green and digital transition and new technologies.** • **Increase the portfolio of investments into critical raw materials.** 	• Increase share of investments* in the **exploration phase** of materials critical to the green and digital transition. To this end (i) develop financial products that allow the Bank to de-risk exploration projects, such as financial guarantees, risk-sharing products and others, with the support from other interested partners (e.g. European Commission); and (ii) leverage the Bank's expertise in mine financing to mobilise non-traditional sources of mine funding (either through co-investment or co-lending) to manufacturers / end-users of minerals (e.g. EV battery producers / car companies / utilities). • Selectively support mining projects for metals and minerals done in a sustainable and responsible manner, meeting high ESG standards, aligned with the Paris Agreement and selected on merits of additionallity and impact to the local and wider economic development. • Support circular economy with investment and/or advisory work (especially for those minerals with low recycling rates), including **remediation and recycling** projects, with a view to increase the secondary production of minerals and extending final products' lifetimes.** • Support the **re-shoring** and diversification of mineral supply chains as well as the **stockpiling** of critical raw materials to make EBRD COOs more resilient to supply shocks. • Support the corporatisation, transformation and **privatisation** of state-owned mining companies. • Actively seek co-financing opportunities with a broad range of public and private financial organisations.

* from the base line of EUR 24 million.

**The Bank is engaged with various international partnerships to promote Circular Economy such as the MDB working group on Circular Economy, the IEA Working Group of Critical Minerals, the European Battery Alliance.

3.4 Support the decarbonisation of mining activities through promotion of cleaner energy, innovation, digitalisation, skills development and resource efficiency

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Goals	Actions
• **Reduce GHG emissions from new and existing mining activities in EBRD COOs** • **Make mining activities in EBRD COOs more innovative and digital, with a view to improve resource efficiency, create safer operational environments and become more competitive.** • **Help mitigate the risks associated with greater digitalisation of operations, such as cyber threats and skill gaps.** • **Develop digital and green skills and closing the gender skills divide in the EBRD COOs mining sector.** • **Support a circular approach to mining activities.** 	• Provide financing (including through green and sustainability-linked financial products) to mining companies engaged in the use of technologies (including digital), equipment, products and services that contribute to the **decarbonisation of mining operations and more efficient use of resources** (e.g. renewable energy, electrification of vehicles and equipment, automation). • Provide financing to **mining equipment providers and mining service companies**, in particular those with ambitious GHG reduction targets, as they are very often major contributors to innovation, digitalisation, and transfer of skills and technology in the sector. • Support the **remediation of mining sites** and environmental liabilities created by mining operations, which can be a source of substantial fugitive emissions. • Promote the **partnership of mining companies with universities and mining industry trade groups** to develop programs to up-skill workers in key digital areas and ensure that new graduates have the proper digital skills to support the mining sector's digital transformation. • Conduct policy and advisory services with governments on **circular economy policy development** for the mining sector (such as the use of mine waste and secondary materials sourcing) as well as advisory work to adopt **low carbon pathways** to decarbonise the mining sector. Equally, support mining companies to develop low carbon pathways that lead to GHG emissions reduction.

3.5 Support mining companies improve their environmental, social, inclusion and governance practices

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Goals	Actions
• **Increase the adoption of best environmental, social, inclusion and governance practices and standards in the mining sector** • **Reduce and/or remediate the environmental impact created by historical mining activities in EBRD COOs.** • **Increase ESG information disclosure and reporting practices.** • **Increase the use of nature-based solutions and investments in nature.** • **Supporting social licence to operate, stakeholder engagement and benefit sharing** • **Limit the impact of climate change risks on EBRD's mining projects.** • **Attract talent with the skills standards and competences required to support the green and digital economy transition.** • **Upskill and diversify existing mining workforce.** • **Close the gaps between women and men's overall labour force participation as well as in top managerial roles.**	• Promote and implement international **best environmental, social (including ensuring the respect of human rights and labour rights), inclusion and governance practices, standards and capacity** at project and corporate levels. • Finance **mine site remediation, recovery and re-use** including supporting alternative post-mining land uses (e.g. renewable or forestry on previously degraded land areas, reprocessing of tailings, as well as the remediation of environmental pollution and legacy impacts). • Promote **increased disclosure of ESG information and reporting** in line with existing and future frameworks and standards (e.g. Climate Corporate Governance as well as TCFD and TNFD reporting standards). • Encourage the use of **nature-based solutions** to manage mine related impacts and support nature related investments, including recovery of degraded ecosystem and enhancing biodiversity. • Assist clients in identifying and adapting to **climate change related risks**. • Ensure clients apply best **stakeholder engagement practices,** obtain **social licence to operate** and are supported with the design of **social benefit sharing initiatives, including, importantly, at the local level.** • Support the development of **accredited training and work-based learning opportunities** in partnership with local education institutions, as well as the introduction of **comparable skills standards** within the national skills policy frameworks. Special emphasis on the **development of new skills** driving the transformation and attractiveness of the sector (e.g. renewable energy, hydrogen, circular economy, waste management, remediation) • Support companies' efforts to **promote women's role in the sector** (e.g. improve the client's Human Resources (HR) policies and standards through the development and implementation of an Equal Opportunity Action Plan (EOAP)). • Support Decarbonisation and Just Transition (JT) - to reskill and upskill workers with stranded skills (along with remediation).

3.6 Assist governments in improving the regulation and business environment to facilitate the implementation of best practices in the sector

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Goals	Objectives
• **Establish or strengthen policy development, implementation, compliance and monitoring capacity and mechanisms.** • **Strengthening the knowledge and technical capacity of mining bodies in EBRD COOs.** • **Improve the governance, legal and regulatory framework for mining operations, in particular permitting and environmental and social regulations and compliance.** • **Enable, improve or broaden availability and access to, and transparency of, sector data (geodata, licensing data, ownership data, revenue flows).** • **Support the development of the sector, in particular in those COOs with high endowment but limited mining activity.** • **Attract foreign direct investment.**	Provide advice and advisory work to national governments, regulatory and related authorities in the areas of: • Upskilling and **capacity building** of workforce in mining bodies. • **Legal framework**, including licensing and permitting regimes to create environment attractive for investments particularly by the private companies into the sector. • **Digitalisation** of mining geological data. • Adoption of **internationally recognised standards** for the classification of mineral resources. • Governance, transparency, anti-corruption, including **investor protection and the Extractive Industries Transparency Initiative (EITI)** • **Developing best environmental, social and inclusion practices and standards and the implementation, compliance and monitoring thereof.** • Explore with **other MDBs and international players** areas of co-operation on policy-based initiatives for countries where mining activity is significant and where **broader risks are high.** • Value chain development

Section 4

Measuring Results

4.1 Theory of Change

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Input	Activities	Outputs	Outcomes	Impact
Bank funding (for on-lending or capital support)	Investments	New/improved environmental, social, corporate and regulatory standards introduced and adhered to	Management of natural capital improved Sustainable extraction of metals and minerals	**A de-carbonised, competitive and innovative mining sector that can promote a resilient, green and inclusive economic development.**
Banks resources (staff)	Technical Assistance	Training programmes to up-skill and re-skill workforce offered	Financial and operational performance of clients improved	
Donor Funds	Donor Funds	New green products introduced to the market	Role of Junior Mining Companies strengthened and competitive access to markets expanded	
Strategic Partnerships including EIT, EITI, ICMM, other IFIs, ECAs and donors	Policy engagement and knowledge sharing/networking	Procurement/supply chain system improvements adopted and implemented	Value chains and linkages enhanced across sectors/markets	
		Institutional reforms to promote transparency and competitiveness adopted and implemented	Private sector ownership or participation increased	
			Environmental footprint of mining companies reduced	
EBRD Inputs	**EBRD Activities**	**Client Level**	**Client & Market Level**	**Sector & Economy Level**

4.2 Performance Monitoring Framework

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	Tracking indicators		
	Outputs	**Outcome**	**Impact**
1. Selectively support the exploration and production (primary and secondary) of metals and minerals relevant to the green energy transition and digital economy	• Number of investments in minerals/metals exploration and development. • Number of investments in minerals/metals critical for the green energy transition. • Number of clients adopting an action plan for strengthening value chains. • Number of operations supporting privatisation and private-sector-led mining of minerals/metals	• Volume of minerals/metals sourced from local/regional supplier(s). • Number of clients with improved operational performance.	• **Fostering private sector participation** (Source: EBRD assessment; ATQ score)
2. Support the decarbonisation of mining activities through promotion of cleaner energy sources, innovation, digitalisation, skills development and resource efficiency.	• Number of clients introducing new/updated digital and/or GET technologies or products. • Number of individuals enhancing their skills as a result of training (green/digital skills).	• CO2e emissions reduced (tonnes/year) • Total energy saved (GJ/y). • Materials reduced/recycled (tonnes/year). • Waste recovered, recycled or re-used (tonnes/year). • Water saved (m3/year). • Number of clients with improved climate business practices (i.e., governance and accountability).	• **Industry value added per tonne CO2 emitted** (Source: IEA)

Note: (i) The Performance Monitoring Framework has been designed to align with the Bank's approach to results measurement. Outcomes tracked across all activity types and aggregated at country level where relevant, based on a Country Strategy Results Framework under a relevant transition quality. (ii) Outcome - for relevant countries tracked in Country Strategies

4.2 Performance Monitoring Framework (ii)

European Bank for Reconstruction and Development

	Tracking indicators		
	Outputs	**Outcome**	**Impact**
3. Support mining companies improve their environmental, social, inclusion and governance practices.	· Number of clients with improved practices and standards (equal opportunity policies and practices, skills development, enhanced ESG reporting, adoption of ESG standards). · Number of clients implementing a performance action plan or similar (e.g. Gender Action Plan).	· Number of clients with improved corporate governance. · Number of individuals receiving new employment opportunities. · Share of female employees in total number of employees.	• **Corporate-level governance** (Source: EBRD assessment and WEF Global Competitiveness Index). • **Women, business and the law composite score** (Source: World Bank, World Development Indicators).
4. Assist governments in improving regulation and the business environment to facilitate the implementation of best practices in the sector.	· Number of new and/or revised laws and/or regulatory instruments (e.g. policy based documents). · Number of clients engaging in policy dialogue to improve transparency in the mining sector (e.g. gender action plan).	· Number of governments with improved governance and transparency in the mining sector. · Number of legal, institutional or regulatory frameworks in target areas improved.	• **Regulatory quality** (Source: EBRD assessment; ATQ score). • **Government effectiveness** (Source: World Bank governance indicators)

Note: (i) The Performance Monitoring Framework has been designed to align with the Bank's approach to results measurement. Outcomes tracked across all activity types and aggregated at country level where relevant, based on a Country Strategy Results Framework under a relevant transition quality. (ii) Outcome - for relevant countries tracked in Country Strategies

Annexes

Annex 1: Abbreviations

European Bank
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ABI - Annual Business Investment
ADB - Asian Development Bank
AFDB - African Development Bank
AIIB - Asian Infrastructure Investment Bank
BAM - Carbon Border Adjustment Mechanisms
BAT - Best Available Technology
BGR - Bureau of Governmental Research
BGS - British Geology Survey
BRICS - Brazil, Russia, India, China and South Africa
CEE - Central and Eastern Europe
CIS - Commonwealth of Independent States
CO2 - Carbon Dioxide
COOs - Countries of Operations
CRIRSCO - Committee for Mineral Reserves International Reporting Standards
CSD - Cutter Suction Dredgers
CSR - Corporate Social Responsibility
CSRD - Corporate Sustainability Reporting Directive
DEI - Diversity, Equity & Inclusion
DFID - Department for International Development
DREA - Defence Research Establishment Atlantic
EBRD - European Bank for Reconstruction and Development
EC - European Commission
EHS&S - Environment, Health, Safety and Security
EIB - European Investment Bank
EITI - Extractive Industries Transparency Initiative
ESAP - Environmental and Social Assessment Procedures

ESAP - Environmental and Social Assessment Procedures
ESD - Environmental and Social Development
ESG - Environmental, Social and Governance
ESP - Environmental and Social Policy
ETS - Emissions Trading System
EU - European Union
EV's - Electric Vehicles
EVD - Evaluation Department
FDI - Foreign Direct Investment
GET - Green Economy Transition
GIZ - Deutsche Gesellschaft für Internationale Zusammenarbeit
GRI - Global Reporting Initiative
HS&E - Health, Safety & Environment
IBRD - International Bank for Reconstruction and Development
ICE - International Centre for Exhibition
ICMI - International Conference on Machine Intelligence
ICMM - International Council on Mining and Metals
ISSB - International Sustainability Standards Board
IEA - International Energy Agency
IFC - International Finance Corporation
FI - International Financial institution
IRMA - The Initiative for Responsible Mining Assurance
ORC - Operator in Responsible Charge
JT - Just Transition
KfW - Kreditanstalt für Wiederaufbau (German dev. Bank)
KIGAM - Korea Institute of Geoscience and Mineral

MIGA - Multilateral Investment Guarantee Agency
Minerals – raw materials; includes minerals and metals.
O&M - Operations and Management
OECD - Organisation for Economic Co-operation and Development
OEM - Original Equipment Manufacturer/Manufacturing
PRI - UN Principles for Responsible Investment
PR – Performance Requirements
R&D - Research and Development
RE - Renewable Energy
REE - Rare Earth Elements
REIA - The Rare Earth Industry Association
RGMPs - Responsible Gold Mining Principles
RMI - Raw Materials Initiative
SASB - The Sustainability Accounting Standards Board
SDG - Strategic Discussion Group
SDS - Sustainable Development Scenario
SEMED - Southern and Eastern Mediterranean
SME - Small to Medium Enterprise
SOE - State Owned Enterprises
TA - Technology Assessment
CFD - Computational Fluid Dynamics
TCFD - Task Force on Climate-related Financial Disclosures
TNFD - Taskforce on Nature-related Financial Disclosures
TIMS - Transition Impact Monitoring System
USAID - United States Agency for International Development
WC - Working Capital

General messages from Public Consultations

European Bank
for Reconstruction and Development

Full report detailing all comments on the Draft Mining Sector Strategy 2024-2028 is published together with the mining strategy on the EBRD website. Feedback from discussions with civil society groups, industry bodies, mining companies and general public can be summarised as follows:

Climate and circular economy

- The urgency to address climate change (mitigation and adaptation) was emphasised, especially in regions with severe environmental degradation and at risk from climate change.
- Recognise the importance of metals and minerals in a green economy.
- The Bank should support a circular economy not just within mining but with within downstream sectors to reduce demand for raw materials.

Environmental and social

- There is a high level of public demand for genuine environmental and social sustainability, maintenance of high standards during implementation, improved remediation and fair benefit distribution.
- EBRD should ensure delivery of environmental and social commitments in mitigating, remediating and monitoring environmental and social risks and impacts, engaging with stakeholders and ensuring a social licence to operate. Civil society should be engaged.
- Impacts and risks from mining were raised including human rights, biodiversity loss, impacts to water and contextual risks.
- EBRD should not invest in mining projects in countries that show systematic failure to implement Indigenous Peoples' rights, particularly the right to Free, Prior and Informed Consent (FPIC).

Inclusion

- Miners should work together with governments to advance reforms on labour rights, in alignment with international standards and conventions as well as improve work conditions to attract and retain a diverse workforce, including women and youth.

Governance, Regulatory and Geopolitical Framework

- There is a need for continued promotion of transparency, more innovative financial solutions, and better alignment with on-the-ground realities.
- The mining industry should continue to evolve its approaches to corruption, regulatory effectiveness, and community impact.
- Ensure there is sufficient capacity for governments to implement high environmental and social standards.

Annex 3: Impact of Mining on the Sustainable Development Goals

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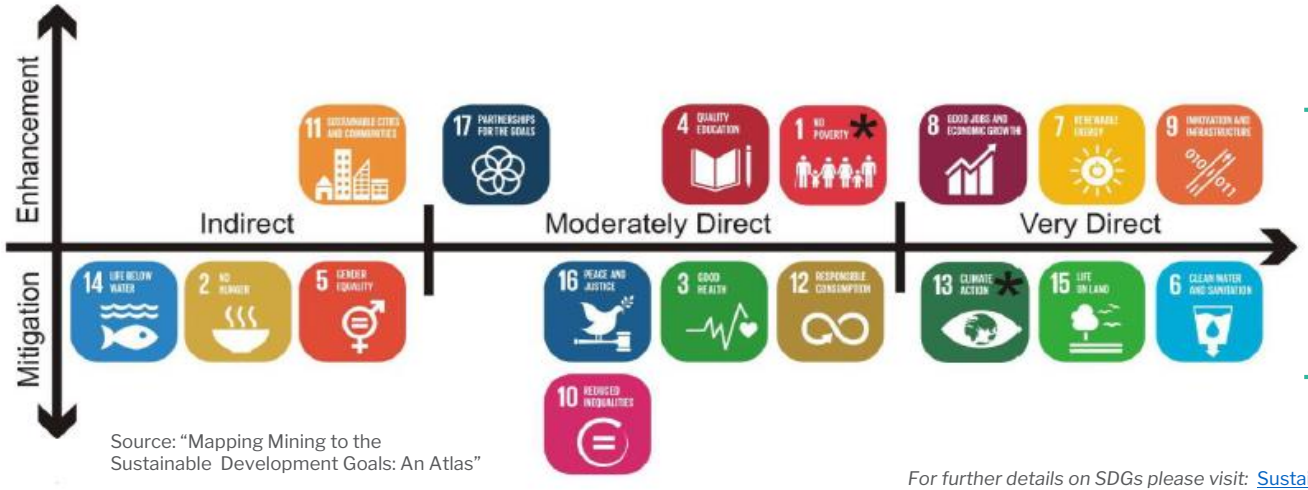
for Reconstruction and Development

The mining industry impacts all 17 of the Sustainable Development Goals to varying degrees through mining itself, social investments, taxes and investment of public revenues.



Source: "Mapping Mining to the Sustainable Development Goals: An Atlas"

Mining has the most Direct impact on six goals:

1. **SDG15 (Ecosystem and Biodiversity Protection)**
2. **SDG13 (Climate Action)**
3. **SDG9 (Infrastructure, Innovation, and Industrialization)**
4. **SDG8 (Employment and Economic Growth)**
5. **SDG7 (Energy Access and Sustainability)**
6. **SDG6 (Clean Water and Sanitation)**

For further details on SDGs please visit: Sustainable Development Goals | United Nations Development Programme (undp.org)

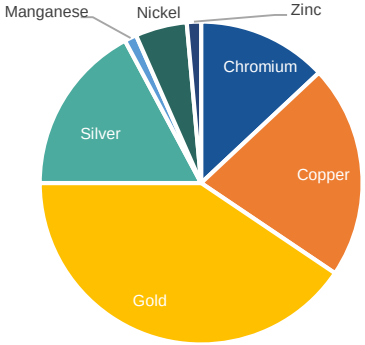
Annex 4: Implementation of the previous strategy (2018-2023) (i)

Investments 2018-2023

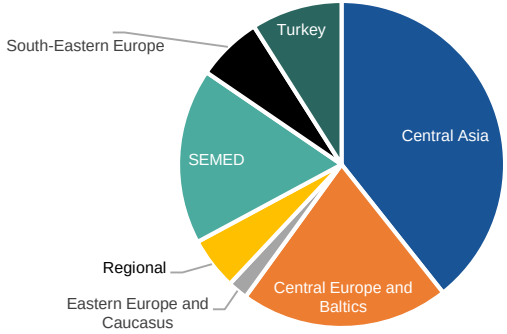
European Bank for Reconstruction and Development

The Bank has financed more than 70 mining projects over time. Most of these investments have been in the private sector and via debt instruments . In line with the mineral's endowment of EBRD COOs, most of the Bank's financings have been in gold and copper and concentrated in Central Asia, Central Europe and Baltics, and SEMED.

Investment Breakdown by metal/mineral over the period 2018-2023



Regionally invested business volume during 2018-2023 shows highest concertation in Central Asia, Central Europe-Baltics and SEMED



Overall since EBRD Inception	Investments During 2018 – 2023	Current portfolio
70 private projects	**16** private projects	**31** active mining operations
70% Invested in Gold/Silver/Copper	**75%** Invested in Gold/Silver/Copper	**€1,085 million** Portfolio
€2.8 billion invested	**€550** million invested	**€985 million** operating assets
75/25 debt/equity split by number of operations	**80/20** debt/equity split by number of operations	**86%** of exposure in private sector

GOLD
5 Projects
€244 million

NICKEL
1 Project
€25 million

CHROMIUM
3 Projects
€63 million

COPPER
2 Projects
€104 million

ZINC
1 Project
€7 million

MANGANESE
1 Project
€6 million

SILVER
1 Project
€88 million

SERVICES
1 Project
€8 million

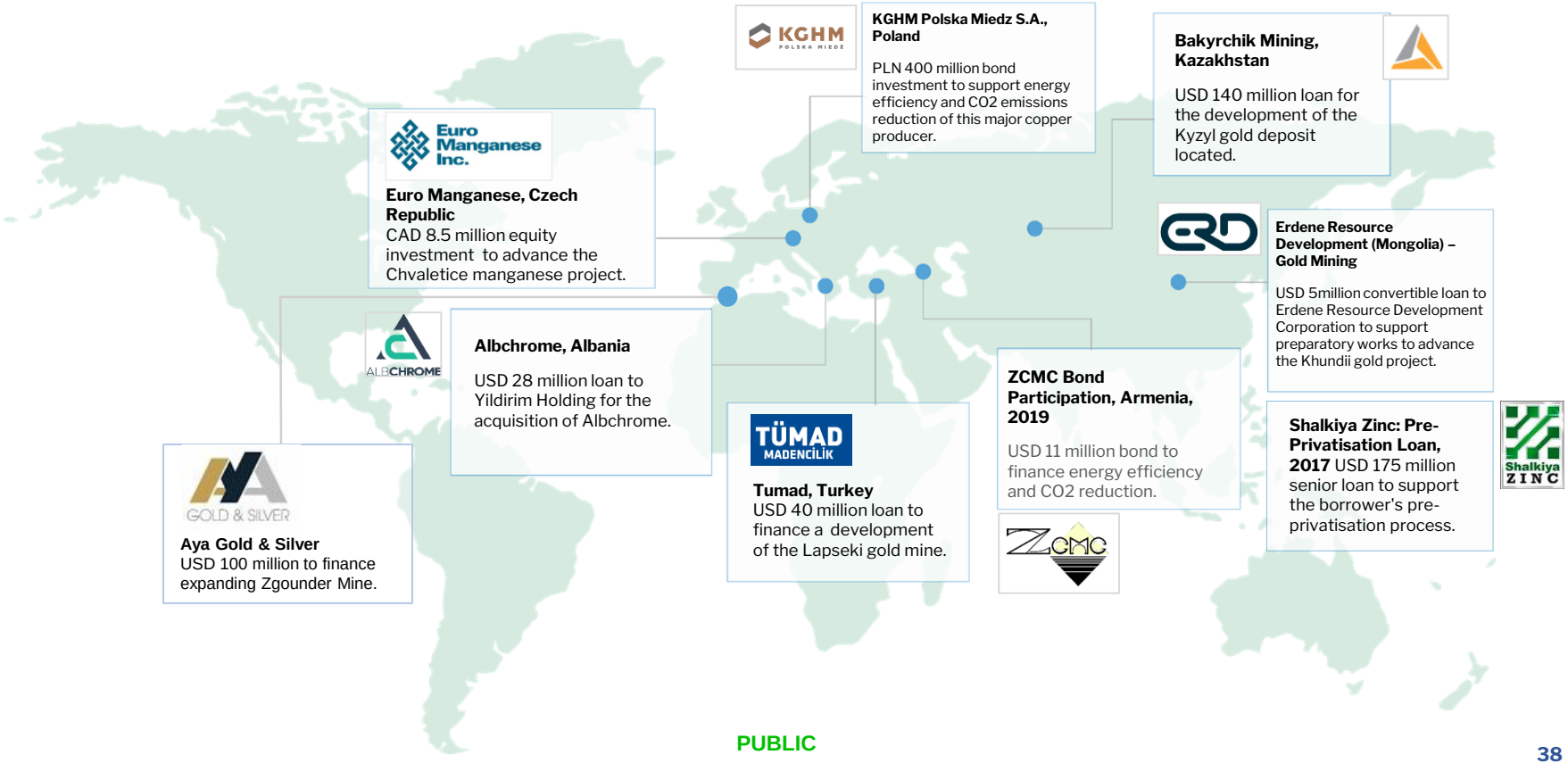
LITHIUM
1 Project
€6 million

Breakdown by metal/mineral showing 2018-2023 investment period with estimated breakdown for projects with more than one metal/mineral.

Annex 4: Implementation of the previous strategy (2018-2023) (iii)

Key transactions

European Bank for Reconstruction and Development



Annex 4: Implementation of the previous strategy (2018-2023) (ii)

Lessons learned during the previous strategic period

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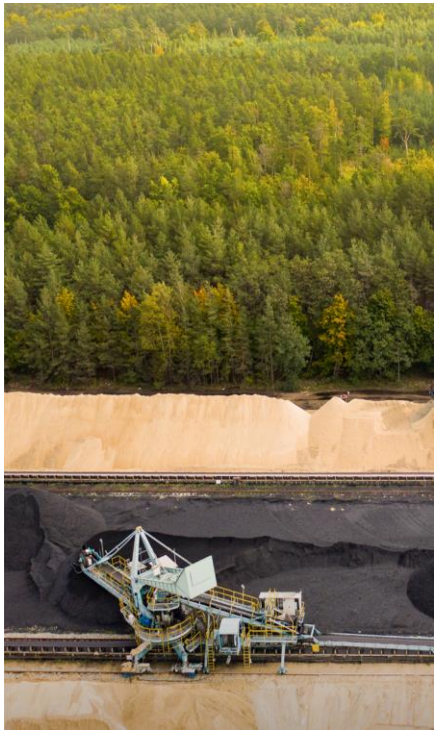
for Reconstruction and Development

Challenges to project implementation	Key lessons learned
• **Social license to operate**	• Thorough assessment of the company's approach to stakeholder engagement throughout all stages of project development and providing support and guidance when needed is of paramount importance to ensure that the mine obtains and maintains its social license to operate. • Delivery of environmental and social commitments in mitigating and remediating environmental and social risks and impacts as well as the delivery of meaningful project benefits is a key aspect of social license to operate.
• **Policy Dialogue**	• The importance of policy formulation capacity in government as a precursor to legal, regulatory and market reform. • The importance of capacity building, given the recognition that the exposure of many EBRD COOs regulatory officials to the intricacies and commercial realities of modern mining can be limited, with this lack of exposure restricting the ability of those officials to absorb and support the adoption of modern, market-based rules and practices.
• **Financing /Project delays** • **Impact at a larger scale**	• The projects involving large scale complex mining operations need to be tested with substantial delays and cost over-runs and have built-in measures in the agreements to accommodate for such (equity injection and other) situations.
• **Structuring transactions in turbulent macroeconomic circumstances**	• While structuring more complicated projects it is important to find a balance between the conservatively imposed covenants and the client's ongoing and expected operating performance.
• **Monitoring the use of proceeds on signed projects**	• Effective monitoring should not be restricted to desktop work and financial analysis but to regular site visits by specialised in-house or external engineers and E&S specialists. Monitoring would be more effective when done locally and not only from HQ.



Annex 4: Implementation of the previous strategy (2018-2023) (iv)

Key policy initiatives

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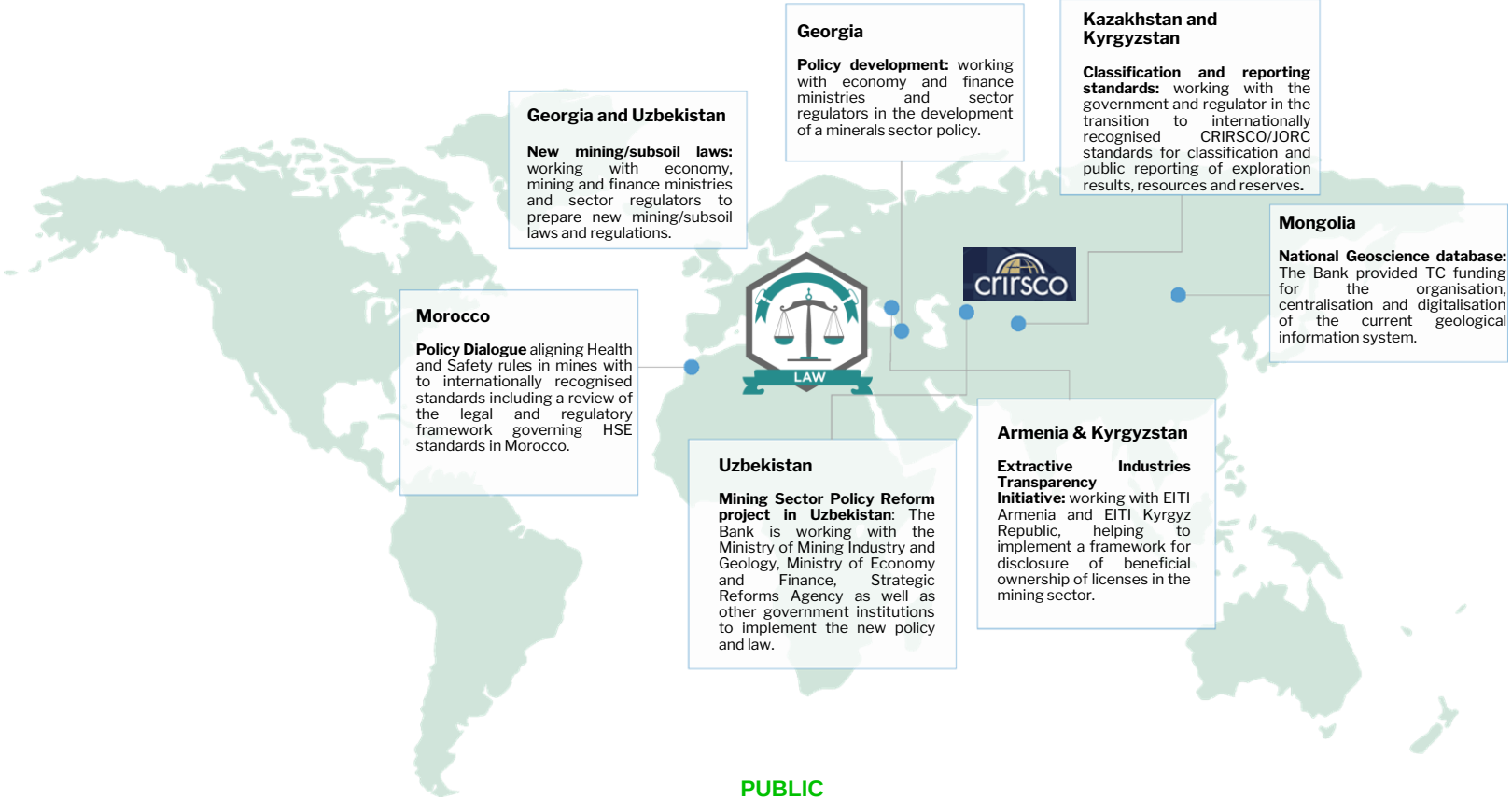
for Reconstruction and Development



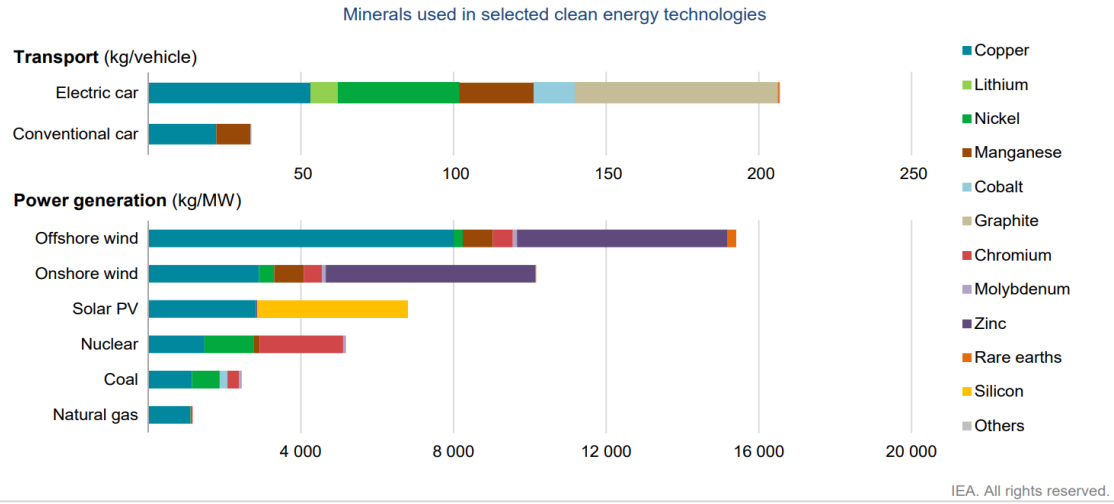
Annex 5: The Role of metals and minerals in the energy transition (i)

European Bank
for Reconstruction and Development

The energy transition is a materials transition.

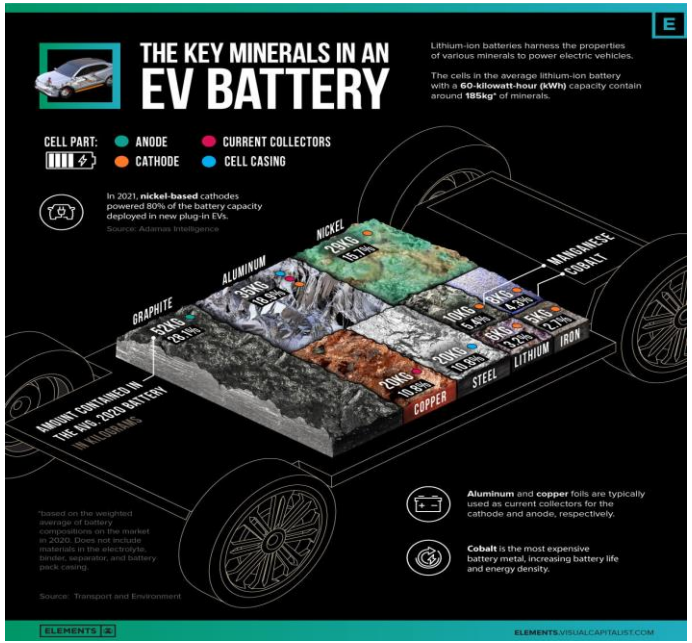
A **clean energy system** is much **more minerals and metals intensive** than a conventional fossil fuel energy system.

The rapid deployment of clean energy technologies as part of energy transitions implies a significant increase in demand for minerals

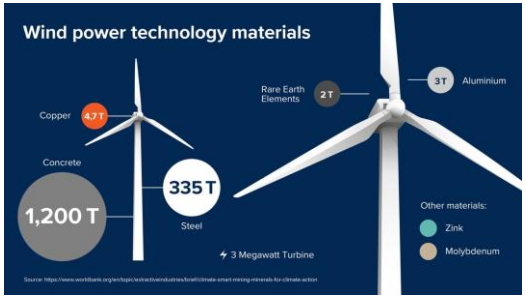


Source: IEA

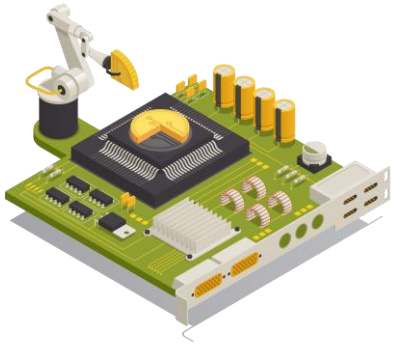
Annex 5: The Role of metals and minerals in the energy transition (ii)

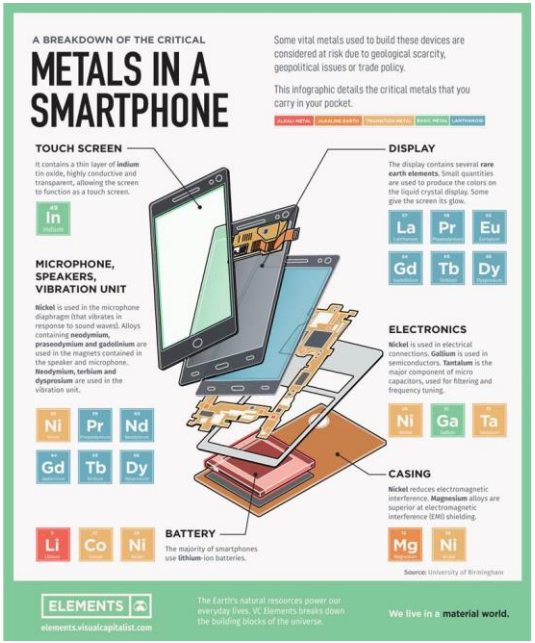


Source: visualcapitalist



Source: https://www.flsmidth.com/en-gb/discover/mining-2020/wind-will-power-clean-energy-and-the-demand-for-crucial-minerals





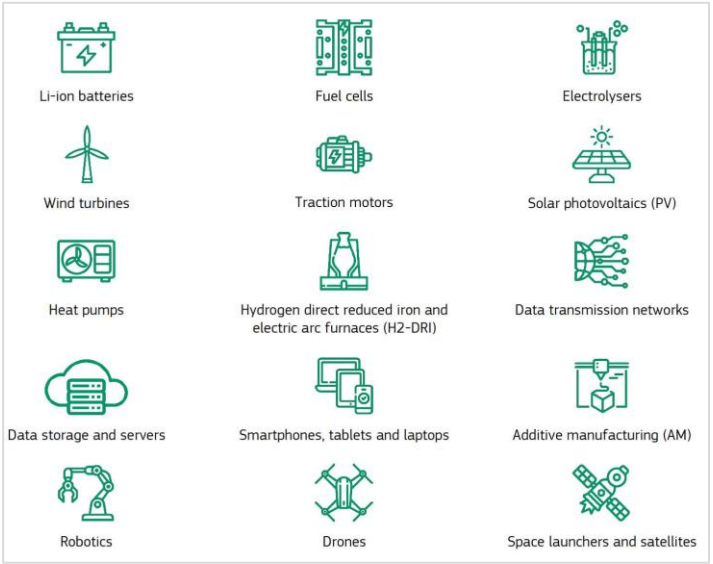
Source: visualcapitalist

Annex 5: The Role of metals and minerals in the energy transition (iii)

European Bank for Reconstruction and Development

In March 2023 the EC released a report (*) which identified key raw materials for 15 technologies in strategic sectors for the EU. One of the conclusions of this report is that the EU has critical vulnerabilities across the value chain in these 15 technologies, in particular in the early stages (i.e., raw materials production); the EU share in global production of these raw materials is never higher than 7%.

15 Critical Technologies



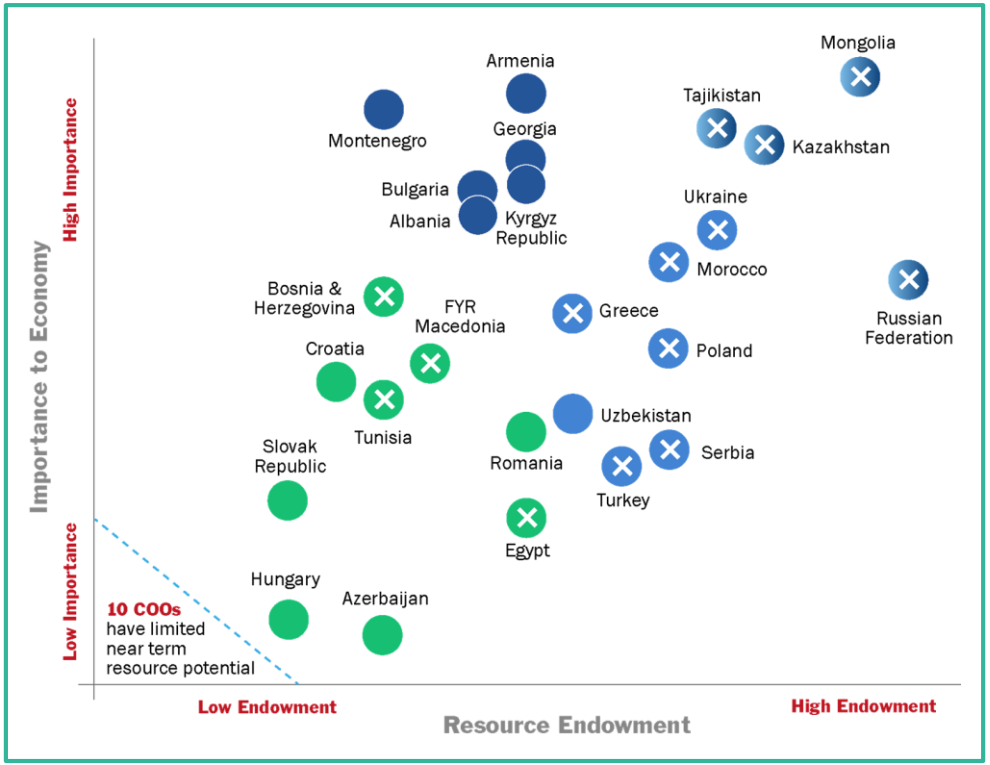
Supply Risk	Raw material
4.8	Gallium
4.1	Magnesium
4.0	REE (magnets)
3.8	Boron
2.7	PGM
1.9	Lithium
1.9	Bismuth
1.8	Germanium
1.8	Natural graphite
1.7	Cobalt
1.6	Titanium metal
1.4	Silicon metal
1.2	Tungsten
1.2	Manganese
0.5	Nickel
0.1	Copper
5.3	HREE (rest)
4.4	Niobium
3.5	LREE (rest)
3.3	Phosphorus
2.6	Strontium
2.4	Scandium
2.3	Vanadium
1.8	Antimony
1.8	Beryllium
1.6	Arsenic
1.5	Feldspar
1.5	Hafnium
1.3	Baryte
1.3	Tantalum
1.2	Aluminium
1.2	Helium
1.1	Fluorspar
1.0	Phosphate rock

PUBLIC

(*) JRC Publications Repository - Supply chain analysis and material demand forecast in strategic technologies and sectors in the EU – A foresight study (europa.eu))

Annex 6: Snapshot of mining activity across EBRD COOs (i)

Overview



- Countries with high risk reliance on mining
- Countries with long-term mining business potential
- Countries with low to medium mining business potential
- Countries with leading international mining companies

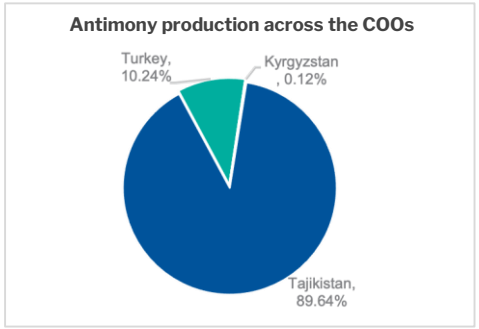
- **11 key mining countries:** Greece, Kazakhstan, Mongolia, Morocco, Russia, Poland, Serbia, Tajikistan, Turkey, Ukraine, Uzbekistan.
- **6 COOs** have high reliance on mining and medium endowment: Albania, Armenia, Bulgaria, Georgia, Kyrgyzstan and Montenegro.
- **9 COOs have limited mineral endowments**: Azerbaijan, Bosnia and Herzegovina, Egypt, Croatia, Hungary, FYR Macedonia, Romania, Slovak Republic, Tunisia.
- **10 COOs host little mining activity** due to insignificant endowment: Belarus, Cyprus, Estonia, Jordan, Kosovo, Latvia, Lithuania, Republic of Moldova, Slovenia, Turkmenistan.

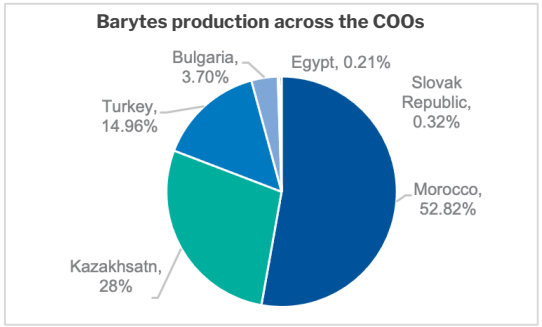
Annex 6: Snapshot of mining activity across EBRD COOs (ii)

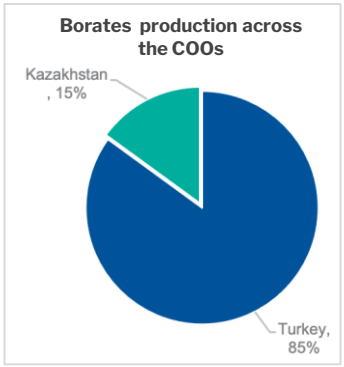
Production of critical raw materials (CRMs) in EBRD COOs

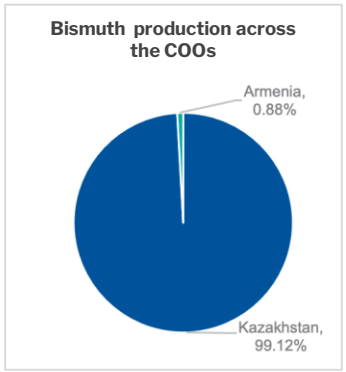
European Bank for Reconstruction and Development

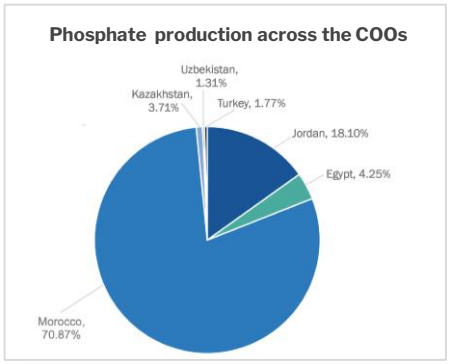
EBRD COOs only produce over 10% of current global output for five of the EU's definition of CRMs, and this production is concentrated in a few COOs.











British Geological Survey, 2022. World Mineral Production 2016 – 2020. (https://www2.bgs.ac.uk/mineralsuk/download/world_statistics/2010s/WMP_2016_2020.pdf).

Note: data excludes production of (1) gemstones, precious and semi-precious stones; (2) thermal and metallurgical coal; (3) dimension stone (marble, travertine, alabaster, dolomite, etc.); (4) construction materials (sand and gravel, crushed stone, etc.); and (5) mineral sands.

Annex 6: Snapshot of mining activity across EBRD COOs (iii)

Exploration

European Bank for Reconstruction and Development

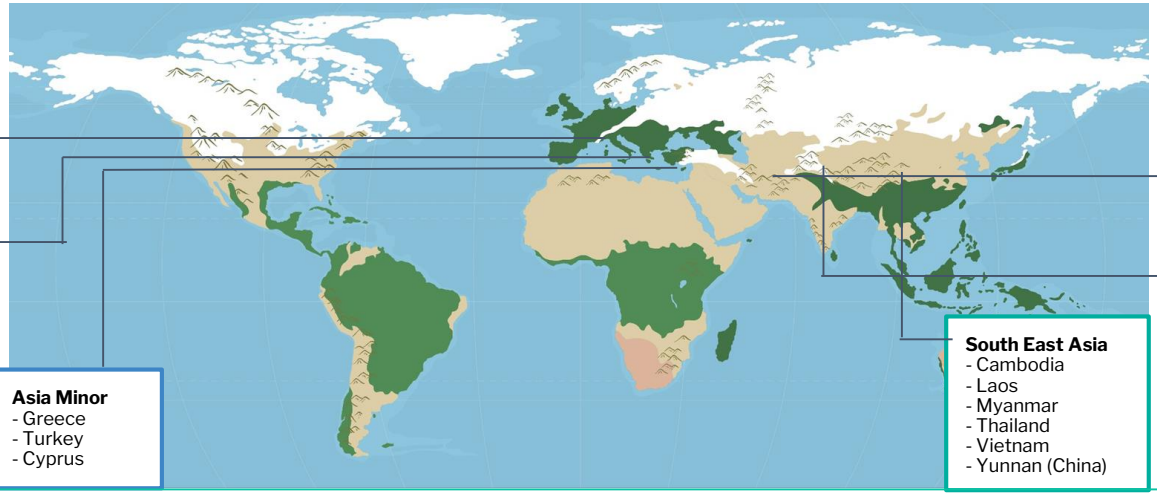
Mining exploration: The Western Tethyan belt is one of the world's major mineral belts, hosting significant precious and base metal deposits, particularly in Eastern Europe and Turkey. However, **much of the Western Tethyan Belt is under-explored**, with limited spending over the past decade (~ US$200 million, less than 2% of global spending), and budgets heavily towards gold (60%) and copper (20%). 20 of 22 significant mineral discoveries made in this region in the past decade were gold and copper.

Excluding the Jadar lithium project in Serbia, **exploration spending on all other metals and minerals averaged less than US$25 million per year**.

3 REGIONS MAKE UP THE 'WESTERN END' OF THE TETHYAN BELT

Western Europe
- Corsica (France)
- Italy
- Switzerland
- Austria

Eastern Europe
- Albania
- Bosnia & Herz
- Bulgaria
-Croatia
- Czech Rep
- Hungary
- Kosovo
- Macedonia
- Montenegro
- Romania
- Serbia
- Slovakia
- Slovenia



Asia Minor
- Greece
- Turkey
- Cyprus

South East Asia
- Cambodia
- Laos
- Myanmar
- Thailand
- Vietnam
- Yunnan (China)

Central Asia & Middle East
- Afghanistan
- Armenia
- Iran
- Muscat
- Oman
- Pakistan

Himalayas
-
Arunachai Pradesh (I ndia)
- Bhutan
- Himachal Pradesh (India)
- Jammu & Kashmir (India)
Sikkim (india)
- Uttarakhand (India)
- Tibet (China)

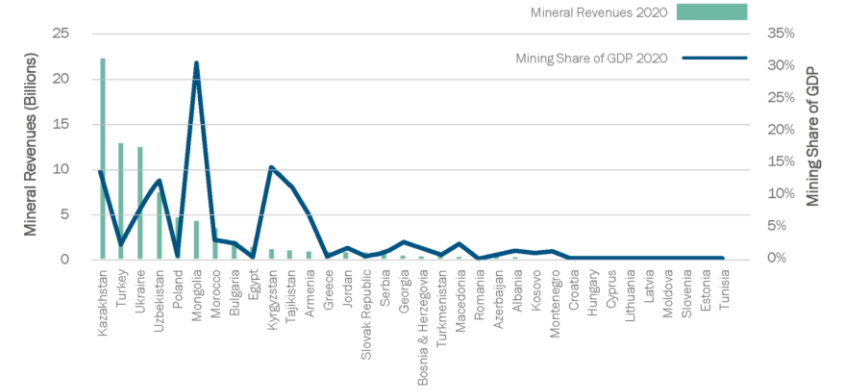
Schodde, Richard, 2021. "Industry Spotlight on the Western Tethyan". Zoom Webinar presentation at the Prospectors and Developers Association of Canada (PDAC) Conference, 5th Annual Tethyan Belt Session, Toronto, Ontario, Canada (https://minexconsulting.com/industry-spotlight-on-the-western-tethyan/).

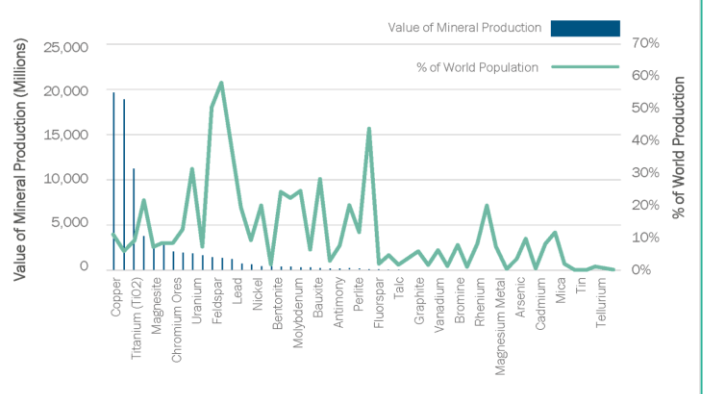
Annex 6: Snapshot of mining activity across EBRD COOs (iv)

Dual concentration – location and product

European Bank for Reconstruction and Development

In EBRD COOs there is a dual concentration – minerals are highly concentrated within a small number of COOs, and COOs mineral production is also concentrated in a small number of minerals (i.e. gold, iron ore, and copper).



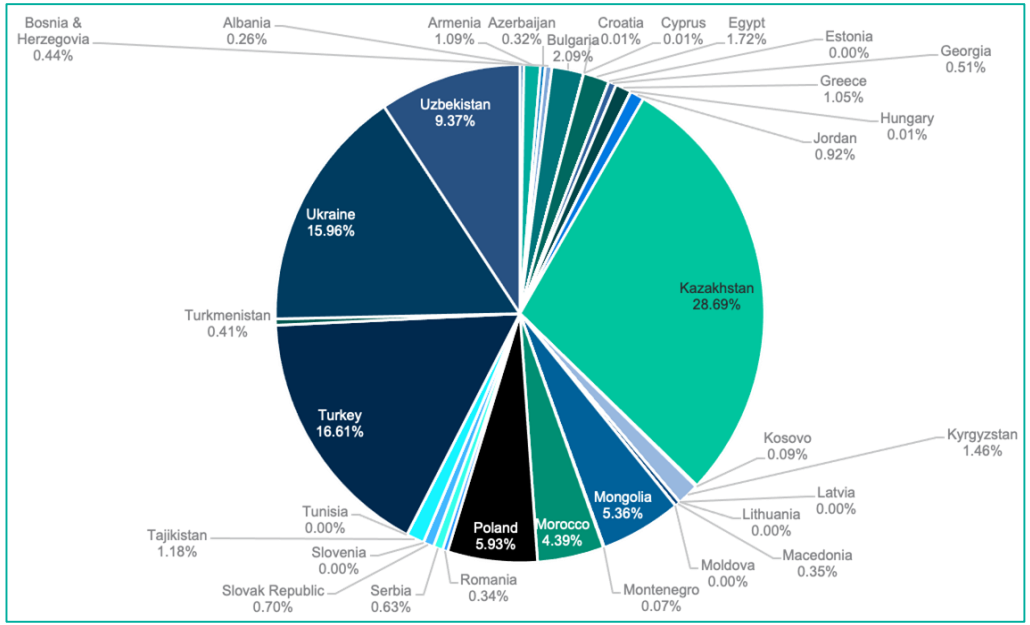


British Geological Survey, 2022. World Mineral Production 2016 – 2020. Keyworth, Nottingham, England, 98 pages (https://www2.bgs.ac.uk/mineralsuk/download/world_statistics/2010s/WMP_2016_2020.pdf). Note: data excludes production of (1) gemstones, precious and semi-precious stones; (2) thermal and metallurgical coal; (3) dimension stone (marble, travertine, alabaster, dolomite, etc.); (4) construction materials (sand and gravel, crushed stone, etc.); and (5) mineral sands. 2020 commodity prices compiled from online publications and databases provided by the International Monetary Fund (https://www.imf.org/en/Research/commodity-prices) and the U.S. Geological Survey's Mineral Commodity Summaries (https://pubs.usgs.gov/periodicals/mcs2021/mcs2021.pdf). 2020 GDP data (in current US$) for EBRD COOs provided by the World Bank (https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2020&start=2020)

- 3 countries (Kazakhstan - US$22.43 billion, Turkey - US$12.99 billion and Ukraine - US$12.45 billion) accounted for 62% of 2020 mining revenues in EBRD COOs. Including Uzbekistan and Poland, the top 5 countries accounted for 77% of 2020 revenues. The top 10 countries accounted for 90%.
- Overall, there is a clear geographic concentration of revenues: Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan plus Mongolia and Ukraine represent 63% of 2020 mining revenues in EBRD COOs.
- 7 COOs have a mining share of GDP above 5% - Mongolia (31%), Kyrgyzstan (15%), Kazakhstan (13%), Uzbekistan (12%), Tajikistan (11%), Ukraine (8%), Armenia (7%).
- In the remaining 27 countries, 18 have a mining share of GDP below 1%.
- 3 minerals account for 63% of the value of 2020 production in the COOs: **gold** (25%), **iron ore** (24%) and **copper** (14%).
- 5 minerals (including phosphate and titanium) account for 73%, and the top 10 minerals (including salt, magnesite, silver, chromite and zinc) account for 87% of the value of 2020 mine production in the COOs.

Annex 6: Snapshot of mining activity across EBRD COOs (v)

Split of mining revenues across EBRD COOs



Revenue distribution is concentrated amongst a small number of COOs:

- Over 60% of mineral revenues are from just three COOs: Kazakhstan, Turkey and Ukraine.
- Over 70% are from four (if considering Uzbekistan).
- Over 85% if Poland, Morocco and Mongolia are included.

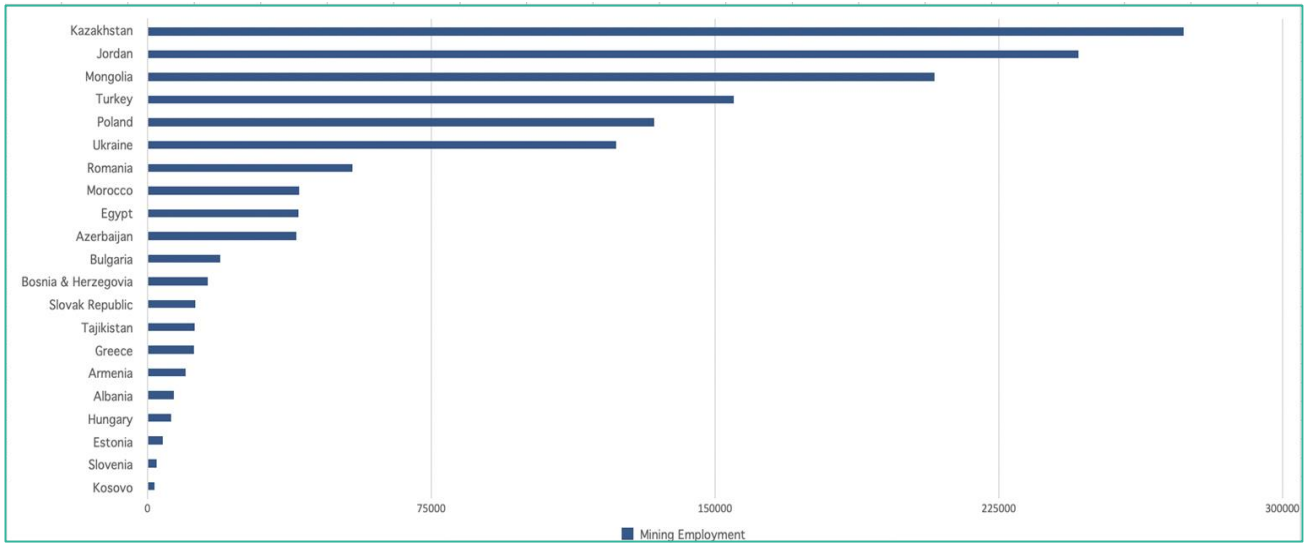
Mine production data compiled from and calculations based upon information in World Mineral Production 2016 - 2020, published by the British Geological Survey (https://www2.bgs.ac.uk/mineralsuk/download/world_statistics/2010s/WMP_2016_2020.pdf).
Note: data compilation and analysis excludes production of (1) gemstones, precious and semi-precious stones; (2) thermal and metallurgical coal; (3) dimension stone (marble, travertine, alabaster, dolomite, etc.); (4) construction materials (sand and gravel, crushed stone, etc.); and (5) mineral sands.
2020 commodity prices compiled from online publications and databases provided by the International Monetary Fund (https://www.imf.org/en/Research/commodity-prices) and the U.S. Geological Survey's Mineral Commodity Summaries (https://pubs.usgs.gov/periodicals/mcs2021/mcs2021.pdf).

Annex 6: Snapshot of mining activity across EBRD COOs (vi)

Employment

European Bank
for Reconstruction and Development

In some of EBRD COOs mining is a key source of employment.



References: https://www.miningsee.eu/albania-expected-growth-of-mining-sector-10/, https://armenpress.am/eng/news/755226.html, https://www.ceicdata.com/en/azerbaijan/employment-annual-statistical-classification-of-economic-activities-rev-2/employment-economic-activity-mining, https://www.ceicdata.com/en/bosnia-and-herzegovina/employment-by-industry-and-sex/employment-nace-2-mining--quarrying, https://www.ceicdata.com/en/bulgaria/enterprises-number-of-employed-persons-by-region-nace-2008/no-of-persons-employed-mining-and-quarrying, https://www.ceicdata.com/en/croatia/employment-national-classification-of-activities-2007/employment-nkd-2007-ct-mining-and-quarrying, https://www.ceicdata.com/en/bulgaria/enterprises-number-of-employed-persons-by-region-nace-2008/no-of-persons-employed-mining-and-quarrying https://www.ceicdata.com/en/croatia/employment-national-classification-of-activities-2007/employment-nkd-2007-ct-mining-and-quarrying

Annex 7: Environmental and Social Policy and the Mining Sector Strategy (i)

European Bank
for Reconstruction and Development

The Bank's Environmental and Social Policy (ESP) and associated Performance Requirements (PRs) establish the criteria for any EBRD financing and set the minimum Environmental and Social (E&S) requirements for financing. The ESP is undergoing review in 2023, with an new ESP to be approved in 2024. Key E&S risks and impacts associated with mining projects, and associated facilities, include:

- **Involuntary resettlement:** Land acquisition and impacts to land owners and users; site closure and reinstatement.
- **Biodiversity:** Land clearance and operations resulting in loss and disturbance of habitats and species.
- **Water:** Use and mine dewatering affecting water availability; mine discharges, acid rock drainage and leaching affecting water quality.
- **Air quality and climate:** Dust and emissions, GHG emissions; physical; climate risks.
- **Tailings and mine waste:** Tailings failure or facility health and safety and environmental risks.
- **Communities**: Social license to operate and stakeholder engagement; human rights; impacts to communities and their livelihoods; in-migration; noise, vibration and visual impact; community investment and benefit sharing; community support issues, impacts of closure.
- **Labour:** Working conditions risks and worker rights.
- **Health and safety:** Risks to communities (eg transport risks) and workers, process safety and gender based violence and harassment.
- **Ecosystem services:** Loss/impacts to services (forest products, water, etc.).
- **Cultural heritage:** Loss/impacts to cultural heritage.

These risks and impacts are assessed and mitigated in line with the Performance Requirements. Application of the mitigation hierarchy seeks to avoid E&S impacts from the outset , and where this is not possible, to implement additional measures that would minimise, mitigate, and as a last resort, offset and/or compensate any potential residual adverse impacts.

Annex 7: Environmental and Social Policy and the Mining Sector Strategy (ii)

European Bank
for Reconstruction and Development

The PRs are applied practically to all mining projects on a risk basis. The PRs, which also require application of EU substantive environmental standards like the Mine Waste Directive, set the minimum E&S requirements for financing but the Bank may seek performance that exceeds the Performance Requirements.

The Bank will also apply other good international practices together with PRs, where relevant, such as the Global Industry Standard on Tailings Management (GISTM), Cyanide Management Code, etc.

In developing this strategy, the Bank has taken into consideration lesson learnt from its portfolio of mining projects noting challenges related to social license to operate, stakeholder engagement and E&S impact and risk mitigation and performance, amongst others.

This has informed the key E&S focus areas, together with the Bank's Paris Agreement alignment and GET commitments, which include: stakeholder engagement, information disclosure and social license to operate; company practices, standards and capacities; benefit sharing; social impacts; biodiversity impacts and nature opportunities; mine site remediation and rehabilitation; resource and energy efficiency; water management; pollution control; climate risk; and value chains. The Bank will also support capacity building and policy dialogue in the sector, both companies and regulators, and promote E&S reporting practices.

Annex 8: Cross Sectoral / Strategic Linkages

European Bank
for Reconstruction and Development

For a coherent sector approach, the Mining Sector Strategy aims at utilising internal partnerships with other Bank's departments to address context and transition challenges while contributing to broader EBRD initiatives and strategic goals. The strategy aims at promoting synergies between sectoral and thematic strategies, advisory projects and portfolio monitoring to leverage skills and expertise across different teams.

EBRD Departments / Strategies	Potential areas of cooperation
Climate Strategy Delivery	Green economy transition; energy/resource efficiency; climate change mitigation and adaptation (Paris Agreement); impact investing; circular economy; waste management (in line with the EBRD Green Economy Transition approach)
Transport	Logistics; local roads; port/rail infrastructure
Municipal and Environmental Infrastructure	Water; irrigation; climate change impact; rural-urban linkages
Impact Team	Transition impact; policy dialogue on competition; knowledge economy; inclusion and gender (in line with the EBRD policies on inclusion and gender)
Financial Institutions	Value chain financing; risk-sharing credit lines; sector-specific lending facilities
Legal Transition Team	Legal reforms; new financing instruments; corporate governance
Environment and Sustainability Department	Implementation of the Bank's Environmental and Social Policy and Performance Requirements including E&S risks and impacts, assessment and mitigation, stakeholder engagement, human rights, etc., as well as lesson learnt from the Bank's mining portfolio.
Local Currency and Capital Markets	Local currency lending
Energy, Sustainable Infrastructure Group	Renewable energy, biofuels; adherence to the principles of decarbonisation when investing in the mining sector (in line with the EBRD Energy Strategy)

Annex 9: Context impact indicators (i)

European Bank
for Reconstruction and Development

Context impact indicator no.	1	2	3	4	5	6
	Fostering Private Sector Participation Source: EBRD assessment; ATQ score	**Industry value added per tonne CO2 emitted** Source: IEA	**Women, Business and the Law composite score** Source: World Bank, World Development Indicators	**Regulatory quality** Source: EBRD assessment; ATQ score	**Government effectiveness** Source: World Bank Governance Indicators	**Corporate-level governance** Source: EBRD assessment and WEF Global Competitiveness Index
Country of operation						
Albania	4.36	2.74	8.93	6.42	4.44	4.00
Armenia	7.72	5.22	8.47	6.45	4.48	6.00
Bosnia and Herzegovina	5.43	1.94	8.17	5.32	1.92	4.73
Bulgaria	7.72	2.58	8.86	7.07	4.63	6.35
Czech Republic*	10.0	4.64	9.24	8.75	7.72	8.23
Egypt	4.36	2.28	3.97	4.26	3.21	5.66
Georgia	5.43	1.99	8.55	8.44	7.21	4.92
Greece	7.72	4.15	10.00	7.14	6.18	7.73
Kazakhstan	5.43	1.94	6.26	6.19	5.32	5.14
Kyrgyz Republic	7.72	2.28	7.18	4.92	3.23	3.52

Note: The EBRD invests in economies across three continents. The term "countries of operation" is used as a reference to the economies EBRD invests. This does not imply any position on the legal status of any territory. Countries for which no data are available are marked accordingly with "n/a".
*From 2021 the EBRD is resuming investments in the Czech Republic in response to a request by its government for help with recovery from the pandemic. The Bank's re-engagement will be temporary, will not exceed a period of up to five years and will focus on the private sector

Annex 9: Context impact indicators (ii)

European Bank
for Reconstruction and Development

Context impact indicator no.	1	2	3	4	5	6
	Fostering Private Sector Participation Source: EBRD assessment; ATQ score	**Industry value added per tonne CO2 emitted** Source: IEA	**Women, Business and the Law composite score** Source: World Bank, World Development Indicators	**Regulatory quality** Source: EBRD assessment; ATQ score	**Government effectiveness** Source: World Bank Governance Indicators	**Corporate-level governance** Source: EBRD assessment and WEF Global Competitiveness Index
Country of operation						
North Macedonia	5.43	2.31	8.17	7.05	5.26	6.30
Mongolia	5.43	1.94	8.17	5.65	3.82	4.69
Montenegro	7.72	3.17	8.17	6.79	4.80	5.70
Morocco	5.43	3.0	7.03	5.59	4.76	5.37
Poland	7.72	3.80	9.24	7.93	5.98	9.47
Serbia	3.28	2.98	9.24	6.14	4.95	7.27
Tajikistan	2.14	1.48	7.41	3.50	2.72	2.28
Turkiye	7.72	2.47	7.86	5.84	4.72	8.01
Ukraine	5.43	1.24	8.17	5.18	3.78	3.76
Uzbekistan	4.36	1.52	6.42	3.67	3.33	3.10

Note: The EBRD invests in economies across three continents. The term “countries of operation” is used as a reference to the economies EBRD invests. This does not imply any position on the legal status of any territory. Countries for which no data are available are marked accordingly with “n/a”.