

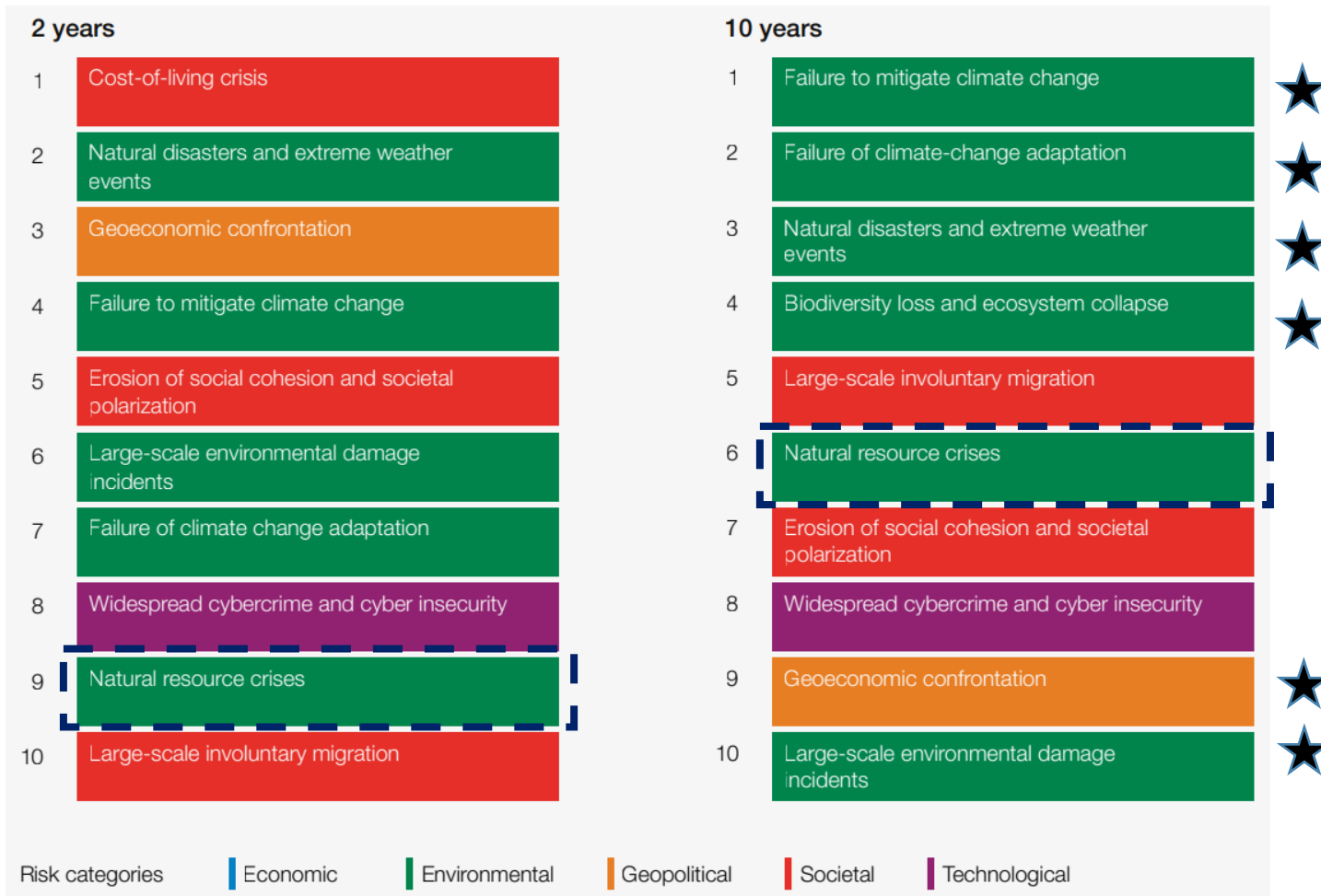
Securing access to critical raw materials in the United Nations Economic Commission for Europe region: challenges and opportunities

Resilient and Sustainable Critical Raw Materials Value Chain

Tatiana Aguilar, Mining and Metals Industry Manager

UNECE Sustainable energy Week - Building Resilient Energy Systems
Geneva, 13 September 2023

Natural resources crises is a top-rated risk in the next 2-10 years



Mining and Metals industries have strong influence in many of the identified top risks

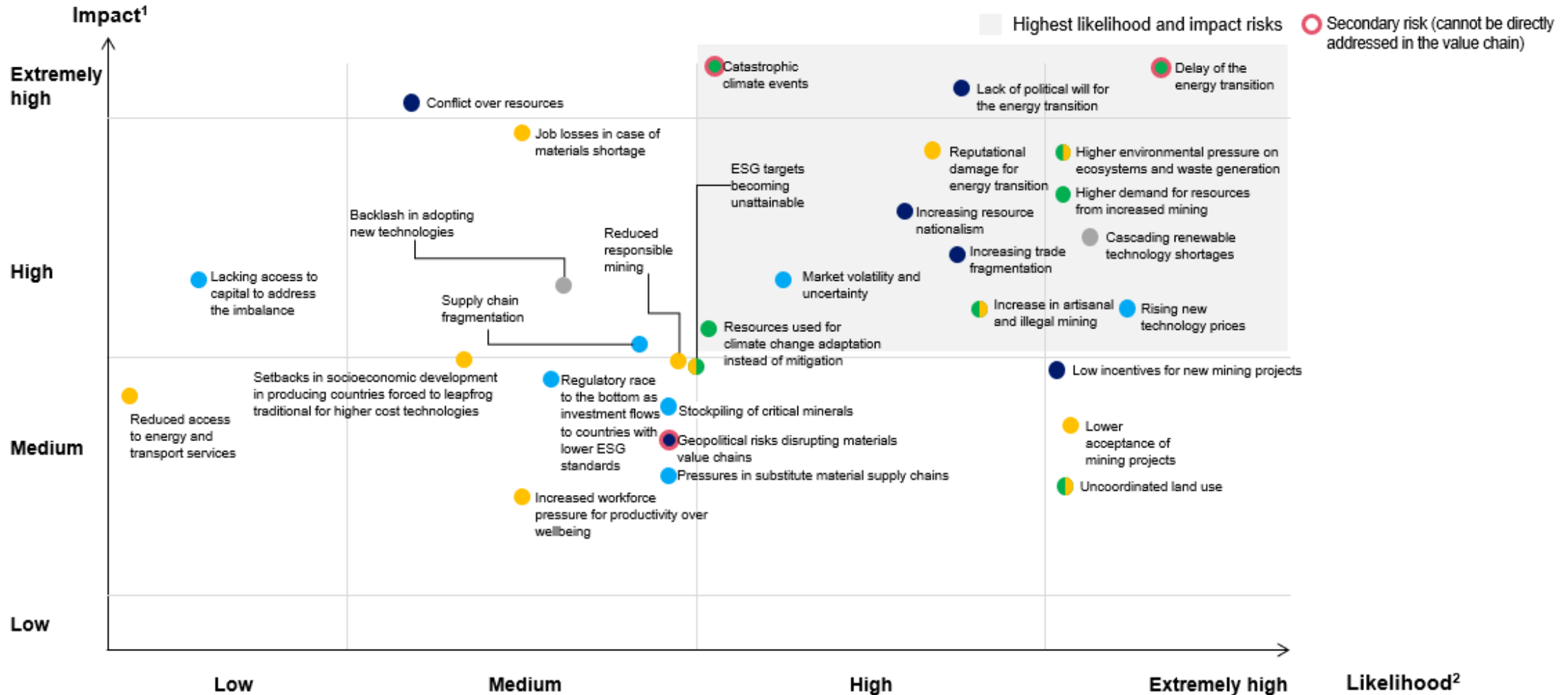


*What are the risks emerging
from the potential supply-
demand gap of critical
minerals?*

Supply-demand imbalance risk matrix

Ecosystem risk assessment

- Political
- Economic
- Social
- Technological
- Environmental



1: Impact on the ecosystem: 'Low' represents minor impact and 'Extremely high' represents catastrophic impact on human lives, societies, and the planet

2: Likelihood to happen: 'Low' represents a risk that is not likely to happen' and 'Extremely high' a risk that is very likely to occur

Source: Risk identification based on insights from Risk characterization workshop 'Securing Minerals for the Energy Transition' and McKinsey analysis; Assessment structure from WEF Global Risks Report 2017. The risks identified in the workshop are renamed and placed in the matrix based on the assessment.

The 5 categories of risks

○ Indirect risk (cannot be directly addressed in the value chain)



Political

- Conflict over resources
- Geopolitical risks disrupting materials value chains
- **Increasing resource nationalism**
- Increasing trade fragmentation
- Lack of political will for the energy transition
- Low incentives for new mining projects



Economic

- Market volatility and uncertainty
- Pressures in substitute material supply chains
- Regulatory race to the bottom as investment flows to countries with lower ESG standards
- Rising new technology prices
- Stockpiling of critical minerals
- Supply chain fragmentation
- Lacking access to capital to address the imbalance



Social

- ESG targets becoming unattainable
- Increased workforce pressure for productivity over wellbeing
- Job losses in case of materials shortage
- Lower acceptance of mining projects
- Reduced access to energy and transport services
- **Reduced responsible mining**
- Reputational damage for energy transition
- Setbacks in socioeconomic development in producing countries forced to leapfrog traditional for higher cost technologies



Technological

- Backlash in adopting new technologies
- Cascading renewable technology shortages



Environmental

- Catastrophic climate events
- Delay of the energy transition
- Higher demand for resources from increased mining
- **Higher environmental pressure on ecosystems and waste generation**
- Increase in artisanal and illegal mining
- Resources used for climate change adaptation instead of mitigation
- Uncoordinated land use

Are these risks materialized or are they being addressed?

Industrial policy is back, but Europe needs new thinking to secure minerals

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By Julia Poliscanova | Transport & Environment | 5:55

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The Inflation Reduction Act Is the Start of Reclaiming Critical Mineral Chains

Green technologies depend on the supply of a few key resources.

By **Morgan D. Bazilian**, the director of the Payne Institute and a professor of public policy at the Colorado School of Mines, and **Gregory Brew**, a postdoctoral fellow at the Jackson Institute for Global Affairs at Yale University.



An excavator transfers imported iron ore at a port in Rizhao, China, on May 15, 2019. STR/AFP VIA GETTY IMAGES

Features | January 19, 2023

Zimbabwe joins the wave of resource nationalism

Zimbabwe banned the exports of raw lithium ores in 2022, and then banned the exports of all raw mineral ores this year. Isabeau Van Halm explores the latest example of a wave of critical mineral resource nationalism.

Isabeau van Halm



Miners in Zimbabwe will see more of their produce processed in the country, but may not see the benefits of this wave of resource nationalism. Credit: Tafadzwa Ufumeli/Stringer/Getty Images

EU acts to secure access to critical raw materials

Mineral-rich countries want to form an OPEC for battery minerals

Indonesia is considering a cartel for nickel and cobalt, while Argentina, Bolivia, and Chile are in "advanced talks" about a "lithium OPEC"



Photo: Ivan Alvarado (Reuters)

Minerals and metals are embedded in the energy transition: what is needed for resilient and sustainable value chains?



Collaboration for:

- Increasing and channeling investments efficiently and responsibly
- Building capabilities
- Improving standards for production and processing
- Strengthening public-private policy dialogues
- Promoting and scaling up innovation



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The industry is driven by the energy transition

Green transition drives Mining and Metals industry transformation

Macrotrends driving business transformation, Mining and Metal Industry

Share of organizations surveyed that identified this trend as likely or highly likely in the next five years

Broader application of ESG standards



Investments to facilitate the green transition



Consumers become more vocal on environmental issues



Source: [the Future of Jobs Report 2023.](#)

“

Skill gaps in the labor market and inability to attract talents are the biggest transformation barriers for Mining and Metal companies

77%

77% of MM organizations surveyed identify skill gap as the top transformation barrier, compared with 60% globally.

56%

56% of MM organizations surveyed identify inability to attract talents as the top barrier, compared with 53% globally.

Other trends

- **Record deployment of clean energy technologies such as solar PV and batteries.** In 2022.
 - Electric car sales increased by 60%, exceeding 10 million units.
 - Capacity additions for energy storage systems doubled.
- **Investment in critical minerals increased by 30% in 2022**, following a 20% increase in 2021. Exploration spending also rose by 20% in 2022.
- In the past few years, **more than 100 policies and regulations** from 25 countries and regions worldwide to ensure adequate and sustainable mineral supplies to meet the needs of the energy transition.
- **Collaboration between automotive, battery and manufacture, and mining and metals industries is increasing**

Opportunities for sustainable and resilient CRM value chains

- General awareness of the need of minerals and metals (and not only for the energy transition)
- Governments, civil society and private sector are looking in the same direction: ESG, sustainability, decarbonization, biodiversity, energy transition?
- Technology and innovation is advancing fast and can support the industry transformation





Thank you

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