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MINING

Fifth Edition

Contributing Editor
Ciaran Boyle

LEXOLOGY
Getting the Deal Through

MINING

Practice Guide

Fifth edition

Editor
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Publisher
Edward Costelloe
edward.costelloe@lbresearch.com

Subscriptions
Matthew Bridgewater
matthew.bridgewater@lbresearch.com

Senior business development managers
Adam Sargent
adam.sargent@gettingthedealthrough.com

Dan Brennan
dan.brennan@gettingthedealthrough.com

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About the editor

Ciaran Boyle
First Quantum Minerals Ltd

Ciaran Boyle is lead in-house counsel for First Quantum Minerals Ltd, a TSX-listed multi-billion dollar mining company with operations and assets across five continents that is one of the world's top 10 copper producers.

Since joining First Quantum in 2017, Ciaran has been responsible for leading in-house functions in M&A, corporate finance, project finance, and high-yield bonds, joint-venture arrangements, exploration activities and dispute management, as well as advising in relation to corporate governance, compliance strategy and securities/disclosure obligations.

Notable transactions at First Quantum have included the raising of over US$10 billion across various financing instruments, and the completion of two major M&A deals. On the back of these transactions and other achievements at First Quantum, Ciaran was listed in *The Lawyer Magazine*'s Hot 100 for 2020.

Contents

Introduction

Ciaran Boyle[1]

It is my pleasure to welcome you to the fifth edition of the *Practice Guide – Mining*, published by Lexology Getting the Deal Through, based in London, United Kingdom.

It is my privilege to continue to serve as the editor of this publication. I am grateful to all of our authors, those who have continued to contribute by updating chapters from previous editions, and to our first-time authors who have provided new chapters for this edition. The result is a broad and eclectic mix of topics from both thematic and jurisdictional perspectives, and a resource that is genuinely interesting, thought-provoking and of practical use to all involved in the mining industry. What follows is a summary of each of the chapters contained in this book.

1 Streaming Agreements

This chapter addresses the relevance that streaming agreements have gained as a financing alternative for mining projects, and discusses how these are structured, as well as the benefits and risks that may result for the streaming company or investor, and the mining company. The authors provide an overview and history of streaming arrangements, starting in 2004 when Wheaton River shareholders decided they were not getting value for the company's by-product silver production, and incorporated Silver Wheaton Corp to maximise revenues from this. Following a statement that there is no standard form to be used for each streaming transaction, the chapter then details how certain provisions are drafted and what distinguish them from other agreements (eg, royalties and offtakes). Provisions such as purchase price and deposit (paid in advance), streamed metal, representations and warranties, security packages (with emphasis on requirements in civil code countries), covenants, buy-back and other rights for the operator, dispute resolution (typically by arbitration), tax matters, and general matters such as confidentiality and change of control provisions, are described in detail.

1 Ciaran Boyle is lead in-house counsel for First Quantum Minerals Ltd.

2 Legacy Issues in M&A Transactions

This chapter has been updated for the fifth edition and has widened its scope to discuss joint venture arrangements in addition to mergers and acquisitions. Legacy liability (also known as successor liability) in M&A transactions differs greatly between civil law and common law countries. This chapter analyses issues from the civil law perspective, with a particular emphasis on the Mexican legal system.

The authors:

- provide an overview of the different structures (share or asset acquisition, merger or a combination) to carry out an M&A transaction and analyse the general implications of structures from a legacy liability standpoint;
- flag the areas that typically involve legacy liability issues in the mining sector (eg, environmental, real estate, labour and employment, social and community issues, taxes, and breaches of contractual obligations); and
- discuss some of the strategies and tools available to minimise legacy liability risks (eg, using a special purpose vehicle to purchase; the pre-acquisition due diligence review process; provisions of the purchase agreement; and insurance (which is not generally available in Mexico in relation to M&A liability)).

Although asset transactions provide less successor liability risk than share deals, it is noted that asset deals may be more difficult to achieve in Mexico because of transfer formalities applicable to certain assets, such as real estate and intellectual property. Share acquisitions are easier to achieve since the target company assets do not need to be listed and a detailed purchase price allocation of the acquired assets is not required.

3 Covid-19, Inflation and Mine Valuations

This chapter has been substantially updated for the fifth edition. In this chapter, the authors discuss common mine valuation concepts and how inflation impacts mine valuations generally, then apply those concepts to the specific issue of valuations of copper and gold projects with reference to case studies for both. In their review of both markets, the authors identify indications that the upcycle trends in the mining sector have likely increased the valuation of individual projects in the short term owing to increases in commodity prices that reflect spot demand. However, increased commodity prices have been matched by increased inflation, demand destruction, and the onset of a market down cycle. The chapter contains detailed analysis of mine valuation, commodity cycles and inflation and their inter-relationship. This is a must read for those with an involvement or interest in the copper and gold markets.

4 Tax Stability in the Mining Industry

This chapter analyses tax stability in Argentina and other jurisdictions in the region. Since the enactment of Mining Investments Law No. 24,196, in 2017, mining activity in Argentina has become one of the major industries in the export sector, attracting important investment and infrastructure projects to the country. The authors discuss some of the benefits of the Mining Investments Law, such as stability of the total tax burden for 30 years after the filing of a feasibility study, and special income tax deductions for amounts invested in prospecting, exploration, and other work intended to determine the technical and economic feasibility of mining projects. The authors provide an excellent summary of a court challenge by mining company Cerro

Vanguardia regarding an equalisation tax imposed in addition to corporate tax. The Supreme Court concluded that the application of the equalisation tax increased the total tax burden of the company and was therefore contrary to the stabilisation regime obtained by the taxpayer.

Finally, the chapter provides a comparison with the laws in Chile and Peru and concludes that the guarantee of tax stability is an essential tool to protect mining investments from regulatory changes that could occur during the life of a mining project. In Argentina, the tax stability guarantee is stipulated by law, whereas in Chile and Peru the investor must enter into an agreement with the state to benefit from it.

5 Challenges Faced by the Critical Mineral Industry in the Era of Energy Transition

This chapter is new to the fifth edition. The global energy transition will require significant change to the world's energy infrastructure, while at the same time transforming the economy and global supply chains. Energy transition technologies such as electric vehicle and renewable energy generation require significant quantities of critical minerals, therefore, the mining industry will have a vital role to play as demand for these minerals increases. This in turn could lead to an imbalance of supply and demand for critical minerals, creating the conditions for a growth in resource nationalism. This, combined with insufficient capital expenditure, will bring challenges regarding how to achieve the necessary production without compromising the sustainable goals of the energy transition. The authors discuss how higher demand for critical minerals increases the potential for resource nationalism, and provide a country by country review of key geographies. It is clear that the required investment to meet demand quickly and sustainably will only be made through a collaboration between governments and producers/investors.

6 Global Mining Resource Disclosure

This chapter provides an excellent overview of mineral resource and reserve disclosure standards, starting with the Poseidon scandal in Australia and the establishment of the Joint Ore Reserve Committee (JORC) in 1971. The JORC Code played an important part in the development of standard definitions for codes and guidelines, including the concept of the 'competent person'. Developments in Australia were followed by the Bre-X fiasco in Canada and the establishment of National Instrument 43 101 in 2000 (and the similar concept of the 'qualified person').

Current disclosure rules began to see some uniformity following the establishment in 1994 of the Committee for Mineral Reserves International Reporting Standards (CRIRSCO). It comprises organisations from around the world, with mining as its focus. Much of the current disclosure in the industry is presently derived from CRIRSCO standard definitions and has been adopted in Australasia, Brazil, Canada, Chile, Colombia, Europe, Indonesia, Kazakhstan, Mongolia, Russia, South Africa, Turkey and the United States.

The author concludes by stating that the world of mining disclosure is gradually converging because of the efforts of CRIRSCO and the national mining associations, and the application of regulators and stock exchanges throughout the world of similar disclosure standards. The chapter includes a summary of the provisions of Regulation S-K (subpart 1300) of the US Securities and Exchange Commission, which will use CRIRSCO-based disclosure standards and eventually replace the antiquated Industry Guide 7.

7 Management of Group-wide Environmental, Social and Governance Risk in a Mining Context

This is a new chapter for the fifth edition. The mining industry sits in a somewhat paradoxical position with respect to the transition to net zero. Like other extractive industries, it must address those elements of its practices that can inhibit the transition. However, in respect of 'green metals' such as copper, cobalt, lithium and nickel, the industry will play a critical role in the world's advancement to net zero and beyond. The authors discuss the increasing regulatory and stakeholder scrutiny and expectations in this area, particularly focusing on ESG litigation and parent company liability for ESG harms. There then comes a look at the development of the regulatory landscape and its future prospects and the likely impact of reporting regimes. Finally, and perhaps of most benefit to the reader, there is an analysis of practical tips for companies to consider as they look to manage their activity and risk in this area.

8 Community Engagement and Indigenous Peoples

This chapter has been updated for the fifth edition and provides a discussion of ISO 26000 – the international standard developed to help organisations effectively assess and address those social responsibilities that are relevant and significant to their mission and vision, operations and processes, customers, employees, communities and other stakeholders, and environmental impact. Community engagement is a particular type of dialogue that falls within the social responsibility of an organisation, and the authors discuss the particular requirements of ISO 26000 in this regard.

Reference is made to the fact that in some countries that are signatories of ILO 169 there have also been discussions as to whether the granting of mining licences should be subject to prior consultation. The key issue here is whether the granting of a mining licence is per se an administrative measure that may affect indigenous peoples directly, in contrast with environmental licences that authorise concrete exploration and exploitation projects.

The principles of social responsibility with respect to community engagement to be followed by an organisation include accountability, transparency, ethical behaviour, respect for stakeholder interests, respect for the rule of law, respect for international norms of behaviour and respect for human rights. Commercial mining ventures face an increasingly complex and challenging framework of international regulations that touch upon different aspects of their activities. This year's chapter also addresses the increasing prominence of consultation. The authors also focus on international instruments that 'provide general norms and principles of behaviour that are not specific to the mining sector but fundamental to comprehend the responsibility of an organisation in the context of community engagement, and regulate general or specific aspects of community engagement, whether they are specific to the mining sector or generic to all commercial ventures' (such as the United Nations' principles and others).

9 Political Instability in Africa: a Complex Challenge for the Mining Industry

This chapter is new to the fifth edition. Unfortunately, political instability in Africa continues to be a major factor for the mining industry on the continent. For existing operators, it remains a key risk that requires significant attention and for potential entrants to the market, a key consideration. Geopolitics are ranked second (up four ranks) in EY's Top 10 risks and opportunities for mining and metals in 2023, and according to the British Broadcasting Corporation's calculations, coups have been occurring at an average rate of two per year on the continent between 2000 and

2019. With multiple elections to come in the next few years the continuation of this instability would have ramifications well beyond Africa. This chapter discusses the varying circumstances across the continent in excellent detail, and goes on to explore how companies can protect their operations and mining investments as well maintain investor confidence.

10 Controversial International Mining Arbitrations and the Impact of 'Social Licence'

This chapter is new for the fifth edition, and focuses on the analysis of international mining arbitration in the context of the energy transition. The authors begin by pointing out that international energy analysts agree that the transition from traditional energy sources (eg, oil and gas, coal) to renewable energy sources will cause an explosion of demand for certain key mineral inputs. With this dramatic expected increase in mining for key mineral resources, industry experts also expect an increase in international mining disputes. Further, the necessity for mining investors to liaise with local government and communities makes the concept of a 'social licence to operate' – that is, the process in which a mining investor gains approval from the local community where the mining project will occur – a key issue raised in international mining arbitrations. The authors go on to consider the concept of a social licence to operate in some detail, and also consider the sources of the legal obligation to consult and engage with local populations. Finally, the authors offer practical assistance by identifying key lessons learned and trends observed in recent international arbitration concerning the issue of a social licence to operate.

11 Restrictions on Cross-border Transactions in Angola

In May 2020, the National Bank of Angola (BNA) approved a new foreign exchange regime applicable to the mining sector, which led to the repeal of Notice 2/2003. The new foreign exchange regime falls under the powers of the BNA, responsible for macro- and micro-financial regulation, and brings more clarity to cross-border transactions and the remittance of funds that have an impact on the decisions of foreign investors considering investing in Angola and the mining sector.

This chapter analyses the new regulation and its impact on cross-border transactions and the remittance of funds or dividends. The general exchange regime is briefly discussed, followed by an analysis of the specific regime applicable to mining.

12 A South African Perspective on Water Rights

This chapter has been updated for the fifth edition. Among the many critical factors that must be considered from an ESG perspective in mining, there are perhaps none more pre-eminent than water. This chapter provides a general insight in the concept of water rights and their regulation. The author conducts a deep dive into existing and prospective regulatory frameworks and organisations, and towards the end of the chapter provides some interesting and helpful insights into how these matters have played out in court. While the chapter is predominantly written from a South African perspective, it also references on recent global developments in jurisdictions such as Canada, Bolivia and New Zealand.

13 Argentina, Mining and Glacier Protection

This chapter provides a thorough analysis of the National Glacial Law approved by the Argentine National Congress in October 2010, which specifically regulates the minimum environmental

protection standards for the preservation of glacial and periglacial zones. This law is not without controversy and continues to be subject to interpretation and disputes between mining companies and environmentalists.

The law created an inventory of glaciers, which provides for information necessary for their protection, control and monitoring, and sets out types of activities that are prohibited in a glacial environment, including 'mining and hydrocarbon exploration and exploitation'. All activities that are not prohibited are subject to an environmental impact assessment process. Some actions have been taken by environmentalists and anti-mining non-government organisations in an attempt to suspend mining operations, which are awaiting decisions by the National Supreme Court, and several mining companies have challenged the constitutionality of the law. Charges have even been brought against certain former government officials for failing to properly create the glacier inventory. The discussion on the law continues to be influenced by political interests, resulting in persons being unjustifiably indicted and legal uncertainty being maintained. The criminal cases continue and hearings remain pending, subject to their viability in the context of the covid-19 pandemic.

5

Challenges Faced by the Critical Mineral Industry in the Era of Energy Transition

Juliette Fortin and John Darlison[1]

Introduction

The global energy transition will require significant change to the world's energy infrastructure, while at the same time transforming the economy and global supply chains. Energy transition technologies such as electric vehicles and renewable energy generation require significant quantities of critical minerals; therefore, the mining industry will have a vital role to play as demand for these minerals increases. This in turn will lead to an imbalance of supply and demand for critical minerals, creating the conditions for a growth in resource nationalism. This, combined with insufficient capital expenditure, will bring challenges regarding how to achieve the necessary production without compromising the sustainable goals of the energy transition.

The energy transition is creating an increasing demand for critical minerals

The term 'energy transition' refers to the ongoing transformation of the global energy sector from reliance on fossil fuels towards low-carbon sources and the development of energy storage technologies. The objective of the energy transition is to meet global aims, principally articulated in the Paris Agreement, to limit global greenhouse gas emissions and to mitigate climate change. Achieving these goals will require significant and ongoing private and public investments, leveraging technological innovations, combined with farsighted fiscal and regulatory interventions.

The energy transition is creating growing reliance on critical minerals. Technologies such as renewable production, electricity transmission and distribution, and electric vehicles and battery storage are all considerably more mineral-intensive than the fossil-fuel based infrastructure

1 Juliette Fortin is a senior managing director and John Darlison is a consultant at FTI Consulting.

they are replacing.[2] For example, according to the International Energy Agency (IEA), a typical electric car requires six times the critical minerals than the conventional car it is designed to replace, and wind energy requires five times the critical minerals per megawatt of installed capacity compared with coal, and 11 times compared with natural gas.[3]

The forecast demand for critical minerals from the low-carbon energy sector will grow multiple times by 2040 compared with 2020 according to the IEA's central scenarios (Sustainable Development Scenario (SDS) and Stated Policies Scenario (STEPS)).

The SDS is a scenario indicating what would be required in a trajectory consistent with meeting the Paris Agreement goals. For example, in this scenario, the IEA expects that demand for lithium and cobalt from energy transition technologies will be respectively 42 and 21 times higher than 2020 levels.

The STEPS is an indication of where the energy system is heading based on a sector-by-sector analysis of today's policies and policy announcements. In this scenario, demand for critical minerals is expected to grow by significant multiples by 2040 compared with 2020, although somewhat more modestly than under the SDS. For example, the IEA expects demand for lithium and cobalt from energy transition technologies will be respectively 13 and six times higher than 2020 levels.[4]

Higher demand for critical minerals increases the potential for resource nationalism

Despite the extensive literature on the nationalisation and expropriation of extractive industries, there is no clear agreed upon definition of 'resource nationalism'. However, a reliable and concise definition for the purpose of this chapter is the 'tendency for governments to assert control over natural resource assets'.

The tendency for resource nationalism increases when government bargaining power is higher, which typically occurs at time of increased prices, especially if this coincides with an investor being in a position where they have made sunk investments. Other market dynamics also affect bargaining power, for example if one country has a dominant position in global production.

There is some debate as to whether the recent increases in mineral prices are the beginning of a new super cycle. However, given the long lead times in mining projects, the rise in demand for critical minerals created by the energy transition will almost certainly lead to an imbalance in supply and demand, which has already precipitated a rise in resource nationalism.

This has already begun to be observed. In their 2021 Political Risk Outlook, global risk and strategic consulting firm Maplecroft identified an increasing risk of resource nationalism in

2 A helpful definition of critical minerals is provided by the UK's Critical Minerals Association: 'metals and non-metals that are considered vital for the economic well-being of the world's major and emerging economies, yet whose supply may be at risk due to geological scarcity, geopolitical issues, trade policy or other factors.' See www.criticalmineral.org/esgpaper.

3 www.iea.org/data-and-statistics/charts/minerals-used-in-electric-cars-compared-to-conventional-cars and www.iea.org/data-and-statistics/charts/minerals-used-in-clean-energy-technologies-compared-to-other-power-generation-sources (simple average of offshore and onshore wind).

4 Growth in demand for selected minerals in the SDS and STEPS, 2040 relative to 2020. www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions.

34 countries. They attribute this in part to the economic effects of covid, although price cycles undoubtedly play a significant role.

Resource nationalism can manifest itself in a number of different actions taken by governments, in order of increasing severity:

- observing existing contracts but not renewing contracts that have expired;
- indirect expropriation, where an investor retains legal title to their property but is deprived of its economic use (eg, ex post amendment of agreed fiscal terms (tax and royalty rates) to increased governmental share of revenues);
- lawful nationalisation, normally undertaken for public purpose and on a non-discriminatory basis, with due process and fair compensation; and
- unlawful expropriation of foreign-owned assets without fair compensation.

Actions of alleged indirect expropriation or unlawful nationalisation frequently result in international arbitration claims brought by investors against national governments.

In their 2021 Political Risk Outlook, Maplecroft observed an increasing willingness of governments in countries with a high risk of resource nationalism to intervene in the economy through more subtle means, such as indirect expropriation, or demand increases in local content requirements.[5] For example, in Africa, Mozambique, Zambia and Ghana have all enacted mining laws in the past few years amending their fiscal legislation.[6]

Among these actions, the fiscal pressure exerted by governments can generate damages throughout the lifetime of the project. While the states generally offer fiscal incentives at the inception of mining projects to attract foreign investment, they will also seek to recoup an increasing share of the extractive rent. The means for the states to do so are plural: applying yearly accounting and tax adjustments, developing new taxes and reassessing royalties.

This can be seen in a number of pending ICSID claims, such as claims relating to retroactive royalty demands recently brought against Colombia and Peru. Colombia is currently facing an ICSID claim over attempts by the state's authorities to retroactively claim more than US$180 million in royalties, which are allegedly owed by the local subsidiary of an Australian mining company for a ferro-nickel project.[7] Peru is facing a pair of claims at ICSID from investors in the Carro Verde copper, molybdenum and silver mining project, which relate to a demand for US$316 million in royalties.[8]

An increase in resource nationalism will create a conflict between the interest of states to maximise the value of their natural resources and the interests of producers to maximise production in response to the demand created by the energy transition.

In their 2021 Political Risk Outlook, Maplecroft published a Resource Nationalism Index, which measures the risk of expropriation, the risk of imposition of more stringent fiscal

5 ibid.

6 https://globalarbitrationreview.com/review/the-middle-eastern-and-african-arbitration-review/2022/article/mining-arbitrations-in-africa.

7 https://globalarbitrationreview.com/article/royalties-row-leads-claim-against-colombia.

8 https://globalarbitrationreview.com/article/us-miner-brings-treaty-claim-against-peru and https://globalarbitrationreview.com/article/peru-hit-second-claim-over-mining-project.

regimes, and the pressure for companies to source goods and services from local providers.[9] By cross-referencing the top 10 countries in Maplecroft's Resource Nationalism Index, classified as 'extreme risk', with the countries with the greatest reserves of critical minerals, we can see reserves are often found in countries with a high potential for resource nationalism.

The table below shows the top 10 countries for reserves of copper, cobalt, nickel, lithium, zinc, and platinum group metals, in descending order, with countries in the top 10 of Maplecroft's Resource Nationalism Index denoted with an asterisk.[10]

Figure 1-2: World reserves of critical minerals in descending order, top 10 countries

	Copper	Cobalt	Nickel	Lithium	Zinc	Platinum group metals
1	Chile	DRC*	Australia	Chile	Australia	South Africa
2	Australia	Australia	Indonesia	Australia	China	Russia*
3	Peru	Indonesia	Brazil	Argentina	Russia*	Zimbabwe*
4	Russia*	Cuba	Russia*	China	Peru	United States
5	Mexico	Philippines	Philippines	United States	Mexico	Canada
6	United States	Russia*	China	Zimbabwe*	Kazakhstan*	
7	DRC	Canada	Canada	Brazil	India	
8	Poland	Madagascar	United States	Portugal	United States	
9	China	China			Canada	
10	Indonesia	United States			Bolivia*	

Source: US Geological Survey – Mineral Commodity Summaries 2022.[11]

According to the US Geological Survey, 46 per cent of the world's cobalt reserves are located in the Democratic Republic of the Congo (DRC). The DRC also accounted for 71 per cent of global production in 2021, dwarfing the second largest producer, Russia, with 3 per cent.[12] This dominant position in the market gives the DRC a strong bargaining position, which may partially explain its tendency towards resource nationalism.

This is illustrated by the potential ICC claim brought by a Chinese-owned mining company against DRC in relation to a copper mining project.[13] The company alleges that the sites of two of their leases have been occupied by members of the armed forces after the state mining company signed an agreement for the area with third parties.[14]

9 www.maplecroft.com/insights/analysis/resource-nationalism-surges-in-2020-covid-19-worsens-outlook/.

10 Countries in the top 10 of Maplecroft's Resource Nationalism Index: Venezuela, Democratic Republic of the Congo, Russia, Kazakhstan, North Korea, Bolivia, Zambia, Zimbabwe, Tanzania, Papua New Guinea.

11 Available at https://pubs.er.usgs.gov/publication/mcs2022.

12 ibid, page 53.

13 https://globalarbitrationreview.com/article/chinese-owned-miner-warns-of-icc-claim-over-congo-project.

14 ibid.

Zimbabwe has significant reserves of lithium and platinum group metals. It has been respondent in a number of ICC and ICSID claims, including one ICC claim relating to nickel and platinum mining projects.[15]

While Kazakhstan only features once in the table for zinc, it also possesses the world's largest chromium reserves, another important energy transition mineral. Kazakhstan has been identified as respondent in six ICSID cases involving the exploitation of natural resource assets, one of which relates to mining.

Russia has substantial reserves of several critical minerals, including copper, cobalt, nickel, zinc and platinum group metals.

Bolivia only features once in the table, and has faced an ICSID claim related to a mining concession. However, it has the world's largest lithium resources, accounting for over 25 per cent of global resources, so it may become a country of interest if it seeks to leverage these resources in future.

There are other countries that do not feature in the top of Maplecroft's index which do however have a track record of claims brought by investors in arbitration procedures. For example, Indonesia, which is in the top three reserves for cobalt and nickel and the top 10 for copper, is identified as respondent in four ICSID cases related to mining concessions.

Tanzania is another of the top 10 countries in Maplecroft's Resource Nationalism Index. It does not feature in the top 10 for global reserves for any of the minerals analysed here, but it does have a significant mining industry, with stones and metals making up 38.5 per cent of its exports in 2020.[16] On 10 January 2018, Tanzania published the Mining (Mineral Rights) Regulations, 2018, which cancelled all previously issued retention licences and transferred the rights of the holders to the government.[17] This has led to a string of treaty claims brought by foreign investors. The first of these claims relates to a nickel project and was brought by an Australian miner.[18] Another of the arbitrations was brought by a Canadian miner and concerns their interest in a rare earth element project.[19]

Chile is a country that has an important role to play in the energy transition since, in addition to being the world's largest producer of copper, it also possesses the world's largest lithium reserves. Chile does not have a history of resource nationalism. However, Chile is currently in the process of considering legislation to reform its royalty regime, a process that is creating tension with investors.[20]

Given the prevalence of critical minerals in countries with a track record of resource nationalism it can be expected that dispute activity will increase in the future in this industry. A rise in disputes will reduce incentives for investors to invest, which will put future pressure on already strained supply.

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15 https://globalarbitrationreview.com/article/south-african-mining-group-pursues-zimbabwe-in-dc.

16 www.maplecroft.com/insights/analysis/resource-nationalism-surges-in-2020-covid-19-worsens-outlook/.

17 See section 21, full legislation available at www.resourcedata.org/dataset/rgi21-mining-mineral-rights-regulations-2018.

18 https://globalarbitrationreview.com/article/australian-miner-launches-claim-against-tanzania.

19 https://globalarbitrationreview.com/article/tanzania-faces-latest-claim-over-mining-reforms.

20 www.mining.com/web/chiles-mining-industry-dissatisfied-with-mining-royalty-adjustments/.

Shortfalls in capital expenditure also pose a serious risk to providing the necessary supply to meet increasing demand

The record cash flows generated by mining companies over the past two years due to high mineral prices have been directed to shareholders rather than to investments in exploration and development pipelines.[21] Aggregate nonferrous exploration budgets in the global mining industry in 2021 were forecast at US$11.2 billion, 45 per cent below their peak of US$20.5 billion in 2012.[22]

The lack of investment since the peak in 2012 is already starting to have a knock-on effect, with panel members at a discussion at the recent Financial Times Mining Summit commenting that past lack of investment in exploration is leading to a lack of shovel ready projects to invest in today.[23]

In addition to self-imposed capital discipline, mining companies' investment pipelines face significant headwinds from higher energy prices, increasing infrastructure costs, wage inflation, and disrupted supply chains. As a result, according to analysis performed by Wood Mackenzie, the forward trajectory for capital expenditure (capex) in the mining industry is not encouraging. They forecast that total capex is set to fall by over 70 per cent to 2026, or over 80 per cent when lithium is excluded.[24] In the latter case this would leave total capex at a mere 6 per cent of the peak reached in 2012.[25]

If we take the example of lithium, which has plentiful reserves, there is capital available, but there are other challenges in building up production capacity quickly, which requires skilled labour, equipment and subcontractors.[26] There are also regulatory processes that need to be followed.

If this trend is not reversed it is likely that in the medium term the industry will face a significant supply/demand imbalance, which will be a key factor in determining the prices of critical minerals. There is a risk that this constraint will be a limiting factor in meeting the goals of the energy transition.

Required investment to meet demand quickly and sustainably will only be made through collaboration between governments and producers/investors

In order for the mining industry to be able to meet the future demand for critical minerals, collaboration between governments and producers is essential. Governments interact with producers through fiscal requirements and permitting and environmental regulation, all of which will be relevant areas of cooperation.

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21 www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/growing-mining-industry-dividends-buybacks-going-too-far-70752182 and www.mckinsey.com/industries/metals-and-mining/our-insights/how-to-navigate-minings-cash-flow-conundrum.

22 S&P Global Market Intelligence. Available at www.spglobal.com/marketintelligence/en/news-insights/blog/2021-world-exploration-trends-infographic.

23 Financial Times Mining Summit, 'FT Debate: Can supply keep up with demand?', 20 October 2022.

24 www.woodmac.com/news/opinion/have-miners-missed-the-boat-to-invest-and-get-ahead-of-the-energy-transition/.

25 ibid.

26 Financial Times Mining Summit, 'Deep Dive – Lithium', 20 October 2022.

It is important that the miners and governments collaborate to create fiscal terms that both create a fair distribution of the economic benefits of resources, while allowing a high enough rate of return to encourage investment.

According to the IEA, the average lead time for mining projects coming online is 16.5 years.[27] In order to successfully address the supply/demand imbalance, both producers and governments have a key role in reducing lead times. While governments are often seen as responsible for long permitting processes, speaking at the recent Financial Times Mining Summit, Ms María Fernanda Ávila, Secretary of Mining for Argentina commented that in Argentina there were cases where the producers were causing bottlenecks to the frustration of the government.[28]

Environmental regulations are also becoming increasingly important for the development of critical minerals. While critical minerals have a crucial role to play in meeting the needs of the energy transition, the mineral extraction and processing is a power intensive process and can be a large source of greenhouse gas emissions.[29] Governments and producers must work together to ensure that environmental regulations achieve the necessary environmental goals without placing an undue burden on miners that discourages investment.

Local residents can also use environmental concerns to lobby their governments against mining projects. For example, in the case of the Jadar lithium mine in Serbia, Rio Tinto alleged that its efforts to construct what would have been Europe's largest lithium mine have been thwarted by protests, in a dispute that could lead to international arbitration.[30]

An example of successful investor-state collaboration can be found in Canada, where the government of Canada made a C$100 million investment in a BHP potash mining project through its Strategic Innovation Fund.[31] While this is not a mineral that is essential for the energy transition, Canada is a country that does possess reserves of relevant critical minerals, such as cobalt, nickel and zinc, and this is a model that can be emulated for future projects.

In order to encourage investment, it is important to create a stable environment where investors perceive a low political risk.

Conclusion

The energy transition will create an increase in demand for associated critical minerals including copper, cobalt, nickel lithium, zinc and platinum group metals. Demand for critical minerals raises the prospect of increasing resource nationalism, which is historically true in countries with large critical mineral reserves and resources, such as the DRC, Kazakhstan, Bolivia and Zimbabwe.

The adverse impact of resource nationalism on the supply of critical minerals, combined with depressed investment in exploration in recent years (a problem that is compounded by the

27 www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions. Average calculated over the period between 2010 and 2019.

28 Financial Times Mining Summit, 'Deep Dive – Lithium', 20 October 2022.

29 www.mckinsey.com/capabilities/sustainability/our-insights/climate-risk-and-decarbonization-what-every-mining-ceo-needs-to-know.

30 https://globalarbitrationreview.com/article/serbia-braces-backlash-over-lithium-project.

31 www.bhp.com/news/articles/2022/06/government-of-canada-support-bhps-work-to-build-the-worlds-most-sustainable-potash-mine.

long lead times for mining projects), presents a serious risk that the mining industry will not be able to meet future demand.

Governments must collaborate with producers and investors to ensure that supply of critical minerals can meet future demand and avoid undermining the goals of the energy transition. This can be achieved through stable and encouraging policies that create incentives for investors to keep developing mines within a framework that ensures a fair distribution of the economic benefits of resources.

Appendix 1

About the Authors

Juliette Fortin
FTI Consulting

Juliette Fortin is a senior managing director and heads FTI Consulting's economic and financial consulting practice in Paris. Juliette provides her expertise in valuation issues such as the quantification of damages claims in complex domestic and international commercial and investment disputes, accounting issues and post-transaction disputes, as well as valuation in M&A contexts. She is qualified as a chartered accountant in France and in England and Wales.

She assists French and multinational companies, and leading law firms, in various countries around the world, particularly in Africa, the Middle East and Europe. Her experience covers many different industry sectors including mining, energy, distribution, services, hotel, construction and telecommunications.

In the context of international arbitration disputes, Juliette is regularly appointed as testifying expert and has given oral evidence over 20 times in disputes before the International Court of Arbitration of the International Chamber of Commerce, the International Centre for the Settlement of Investment Disputes, and in independent expert procedures. She testifies in English and in French and is soon to testify in Spanish.

In the context of national disputes, Juliette intervenes regularly as an expert in litigation before the French commercial courts, in the context of judicial appraisals or ad hoc expert appraisals.

Juliette has also conducted numerous post-acquisition litigation assignments, both in France and internationally.

She is a member of the executive board and treasurer of ArbitralWomen.

Juliette joined FTI Consulting in 2010, having started her career at PwC in London (in audit from 1996 to 1999) and Paris (in transaction services from 1999 to 2006, then in disputes from 2006 to 2010).

John Darlison
FTI Consulting

John Darlison is a consultant in FTI Consulting's economic and financial consulting practice in Paris. He is regularly involved in performing the underlying analysis in the valuation of damages and in the drafting of expert reports. John is a member of the Institute of Chartered Accountants in England and Wales.

He has supported multinational companies and top law firms in a number of commercial and investor-state arbitrations in various global locations, including in Europe, the Middle East and Africa. His work has covered a range of industries, including energy, construction, real estate, wealth management, gaming and advertising.

John joined FTI Consulting in January 2021, having previously worked for EY in the UK from 2017 to 2020.

FTI Consulting
86 Boulevard Haussmann
Paris 75008
France
Tel: +33 1 40 08 12 41
juliette.fortin@fticonsulting.com
john.darlison@fticonsulting.com
www.fticonsulting.com