

# GOVERNMENT OF BRAZIL MINING SECTOR TECHNICAL SUPPORT AND COOPERATION

## Appendix 2: Leading Practice Critical Mineral Policy Initiatives

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## Acronyms

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ANM	National Mining Agency
CEE	Canadian Exploration Expense
CFEM	Financial Compensation for Mineral Resource Exploitation
CPRM	Geological Survey of Brazil
CTAPME	Committee for the Analysis of Strategic Mineral Projects
DMIRS	Department of Mines, Industry Regulation, and Safety
DOS	Department of State
EIS	Exploration Incentive Scheme
EMGP	Energy and Mineral Governance Program
ENR	Bureau of Energy Resources
ERGI	Energy Resource and Governance Initiative
ESG	Environment, Social, and Governance
EV	Electric Vehicles
IAA	Impact Assessment Act
IBRAM	Brazilian Mining Association
ICA	Investment Canada Act
IEA	International Energy Agency
IGF	Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development
ILO 169	169 Indigenous and Tribal Peoples Convention 169
IRENA	International Renewable Energy Agency
IRPJ	Corporate Income Tax
LNG	Liquefied Natural Gas
METC	Mineral Exploration Tax Credit
MME	Ministry of Mines and Energy
OEM	Original Equipment manufacturer
PNM	National Mining Plan
PPI	Investment Partnerships Program
REE	Rare Earth Elements
SIF	Strategic Innovation Fund
SOE	State Owned Enterprises
TAH	Annual Tax per hectare
TFRM	Control, monitoring, and supervision of research activities, mining, exploration and exploitation of mineral resources fee
TSM	Towards Sustainable Mining

## EXECUTIVE SUMMARY

Deloitte is implementing the Government of Brazil Mining Sector Technical Support and Cooperation Task Order (the Project) under Deloitte's Blanket Purchase Agreement (BPA) with the U.S. Department of State (DOS) in support of the Bureau of Energy Resources' (ENR), Energy and Minerals Governance Program (EMGP). The Deloitte team is providing technical assistance to support the Government of Brazil's Ministry of Mines and Energy (MME) and the Geological Survey of Brazil (CPRM) as they seek to improve their ability to:

- Develop safe, sustainable, and effective mine closure procedures and use of tailings, including methods of tailings sampling and characterization, based on international leading practices, to protect and improve the legacy of ongoing and future projects, thereby realizing sustainable benefits from the extractives industry;
- Manage a growing mineral sector and compete effectively in the global market, given a growing market and accelerated demand for critical minerals that are essential to the development of innovative technologies to advance the global clean energy transition (electric vehicles, batteries, and battery storage systems, etc.); and
- Streamline the structure of Brazil's nickel-cobalt data inventory, so Brazil can improve its understanding and increase development of critical minerals.

Under *Task 2A: Economic Viability and Global Market Competitiveness of Specific Minerals*, the Deloitte team developed a series of reports focused on nine minerals including, graphite, lithium, nickel, cobalt, rare earth elements (REEs), titanium, vanadium, tantalum, and copper. The purpose of these reports was to provide recommendations to the Government of Brazil on where and how Brazil could compete most effectively and inform their long-term strategic planning for commercialization of minerals based on global market trends and challenges to mineral resource development that may inhibit Brazil's overall market competitiveness. The Deloitte team's recommendations will also inform the National Plan for the Brazilian Mineral Sector 2050 and future policy actions for the Government of Brazil.

In addition to the market and competitiveness analysis for the nine critical minerals noted above, the Deloitte team is also preparing two appendices to support Task 2A. *Appendix 1: Renewable Energy and the Use of Critical Minerals* discussed the growing impact of climate change on the commodity markets (including the market for the critical minerals noted above), as countries around the world (including Brazil), implement plans to accelerate their clean energy transition. *Appendix 2: Leading Practice Critical Mineral Policy Initiatives* (this Report) will focus on specific measures Western Australia and Canada have implemented to effectively compete in the market. These leading practices provide lessons learned for MME, CPRM, and other government entities in Brazil involved in the mining sector.

The Deloitte team reviewed the policy initiatives for both Canada and Western Australia impacting the following key areas: (i) historical production and development of critical minerals; (ii) investment opportunities and incentives; (iii) policy, legal, regulatory, and governance framework development; (iv) fiscal regime incentives; and (v) Environment, Social, and Governance (ESG) requirements. Table 1 below provides a high-level analysis of specific policy initiatives from Western Australia and Canada, and summarizes lessons learned from these countries that Brazil should consider implementing into their overall framework for regulating, developing, and managing their critical minerals.

Table 1: Comparative Case Studies

Country	Leading Practice Analysis and Lessons Learned
Western Australia	<p><b>1. Historical Production and Development of Critical Minerals<sup>1</sup></b></p> <ul style="list-style-type: none"> <li>• <b>Summary:</b> Western Australia is a major supplier of critical minerals. It accounts for around 50 percent of global lithium production and is a major exporter of nickel, cobalt, manganese and REEs. Western Australia has 127 high-value mining projects, with hundreds of smaller projects totaling to almost 1,000 operational mine sites. These projects combined produce over 50 commodities, including iron ore, gold, nickel, lithium, and base metals.<sup>2</sup> Western Australia's lithium producers are some of the lowest cost producers in the world. Western Australia produces lithium at less than half the cost of Chile, the world's second largest producer, and at around a quarter of the cost of US production.</li> <li>• <b>Key Developments Impacting Production and Development of Critical Minerals in Western Australia include:</b> <ul style="list-style-type: none"> <li>○ Three of the <b>world's largest lithium producers</b>—Tianqi Lithium (China), Albemarle (United States) and SQM (Chile) have partnered with Australian companies like IGO<sup>3</sup>, Mineral Resources, and Wesfarmers to build and operate battery-grade lithium hydroxide facilities in Western Australia. Tianqi Lithium has achieved commercial production of the Kwinana lithium hydroxide refinery located in Western Australia.<sup>4</sup></li> <li>○ BHP Nickel West commenced operations at its battery grade nickel sulphate plant in Kwinana, Western Australia, in 2021.<sup>5</sup></li> <li>○ The Lynas Mt Weld mine in Western Australia is one of the world's premier rare earths deposits. It is established as an <b>ethical and environmentally responsible producer of rare earth materials</b>. It is the world's only <b>significant producer</b> of separated rare earth materials <b>outside of China</b>.<sup>6</sup></li> <li>○ Iluka is building Australia's first fully integrated REE refinery, which will have the capability to produce both light and heavy rare earth oxides. This provides customers with a <b>new source of REE products</b> sourced directly from one producer, <b>operating as an independent market participant</b>.<sup>7</sup></li> </ul> </li> </ul>

<sup>1</sup> [https://www.wa.gov.au/system/files/2022-07/220630\\_Battery%20and%20Critical%20Minerals\\_Prospectus-Web.pdf](https://www.wa.gov.au/system/files/2022-07/220630_Battery%20and%20Critical%20Minerals_Prospectus-Web.pdf)

<sup>2</sup> [Microsoft Word - 000718.Elliott.SAMSON \(dmp.wa.gov.au\)](https://www.wa.gov.au/system/files/2022-07/220630_Battery%20and%20Critical%20Minerals_Prospectus-Web.pdf)

<sup>3</sup> IGO is a leading ASX-listed exploration and mining company focused on discovering, developing and operating high quality assets focused on metals critical to enabling clean energy.

<sup>4</sup> <https://www.nsenenergybusiness.com/news/kwinana-lithium-hydroxide-refinery-commercial-production/>

<sup>5</sup> [https://www.wa.gov.au/system/files/2022-07/220630\\_Battery%20and%20Critical%20Minerals\\_Prospectus-Web.pdf](https://www.wa.gov.au/system/files/2022-07/220630_Battery%20and%20Critical%20Minerals_Prospectus-Web.pdf)

<sup>6</sup> <https://lynasrareearths.com/>

<sup>7</sup> <https://iluka.com/operations-resource-development/operations/western-australia#:~:text=Iluka%20is%20building%20Australia's%20first,range%20of%20third%20party%20suppliers.>

Country	Leading Practice Analysis and Lessons Learned
Western Australia	<p><b>2. Investment Opportunities and Incentives</b></p> <ul style="list-style-type: none"> <li>• <b>Summary:</b> Since the mid-2010s, Western Australia has attracted more than \$9 billion of investment for a range of battery and critical mineral projects, including the establishment of globally significant mineral processing facilities.<sup>8</sup> An increase of government support of mining exploration has stimulated investment in Western Australia, leading to new mineral and energy discoveries.</li> <li>• <b>Key Developments Impacting Investment in Critical Minerals in Western Australia include:</b> <ul style="list-style-type: none"> <li>○ <b>The <i>Exploration Incentive Scheme (EIS)</i> is a government initiative that aims to encourage exploration in Western Australia for the long-term sustainability of Western Australia's resources sector.</b> This initiative was funded in July 2019, giving \$10 million per year for exploration activities using funds collected through Mining Tenement Rents.<sup>9</sup> This was increased to \$12.5 million per year since then. The increased knowledge of the State's geology and resources will support further investment, increasing employment opportunities and state revenue. A recent independent economic impact assessment found that <b>every \$1 million invested in the EIS generates \$31 million in benefits to the State.</b> EIS covers five areas: exploration drilling, geophysical surveys, encouraging exploration through cover, 3D prospectivity mapping, and promoting strategic research with industry. There are numerous programs under EIS to refund a portion of exploration costs and a Junior Minerals Exploration Initiative that allows smaller companies to convert their tax losses into a tax credit that can be used to attract new investors, encouraging new greenfield exploration. The EIS <b>offers up to a 50 per cent refund for innovative exploration drilling projects.</b> Funding support is available through the Co-funded Exploration Drilling Program and the Co-funded Energy Analysis Program.</li> <li>○ <b>Western Australia launched the <i>Future Battery and Critical Minerals Industries Strategy</i> in 2019.</b> This strategy outlines the government's vision to <b>grow Western Australia's participation in global battery and critical mineral supply chains</b>, with the primary goal of increasing domestic value-add manufacturing.<sup>10</sup> The initiative aims to match the strong mineral reserves, specifically in metals required for batteries, such as lithium, nickel, cobalt, manganese, and alumina, while growing Western Australia's battery industry into a prominent sector, source of new jobs, economic development, and diversification. The 2020-2022 revision of the strategy<sup>11</sup> included five elements, including: 1) Growing participation in global supply chains for both minerals and battery technology; 2) Highlighting investment opportunities in Western Australia across the value chain, including in mining, processing, and advanced manufacturing to promote value-add products; 3) Developing a certification scheme for their critical minerals to increase transparency of the ESG standards across the supply chain; 4) Promoting the use of energy storage and battery project development across rural communities and different industries; 5) Strengthening the local workforce capability to be prepared for job requirements for value-add opportunities in the battery and critical mineral sectors and identify skill gaps and training plans.</li> </ul> </li> </ul>

<sup>8</sup> [Charging up investment in WA's battery and critical minerals industries \(www.wa.gov.au\)](http://www.wa.gov.au)

<sup>9</sup> [Exploration Incentive Scheme \(EIS\) \(dmp.wa.gov.au\)](http://dmp.wa.gov.au)

<sup>10</sup> [https://www.wa.gov.au/system/files/2021-01/Future%20Battery%20and%20Critical%20Minerals%20Industries%20Strategy%20Update%202020\\_1\\_0.pdf](https://www.wa.gov.au/system/files/2021-01/Future%20Battery%20and%20Critical%20Minerals%20Industries%20Strategy%20Update%202020_1_0.pdf)

<sup>11</sup> [Western Australia's Future Battery and Critical Minerals Industries \(www.wa.gov.au\)](http://www.wa.gov.au)

Country	Leading Practice Analysis and Lessons Learned
Western Australia	<p><b>3. Policy, Legal, Regulatory, and Governance Regime</b></p> <ul style="list-style-type: none"> <li> <b>Summary:</b> The legal and regulatory frameworks for mineral development in Western Australia include the following key legislation, amongst others: Mining Act 1978, Mining Regulations 1981, and Offshore Minerals Act 2003. Mining Act 1978<sup>12</sup> outlines the law relating to mining and covering the land area of Western Australia and the first three nautical miles of the territorial sea. Mining Regulations 1981 outlines the standards, processes, and procedures for obtaining licenses and conducting mining operations. The Offshore Minerals Act 2003 formalizes the Offshore Constitutional Settlement, which outlined an Australia-wide common minerals legislative framework applicable to all of the territorial sea. Mining tenements and applications that touch this area are under the jurisdiction of the Offshore Minerals Act and not the Mining Act.<sup>13</sup> Investors can rely on <b>stability and predictability of the legal and regulatory regime</b>. The government's focus on <b>streamlining business, policy, and investment processes combined with their record of environmental, social, and legal stability</b> allows for mutually exclusive and successful foreign investment. </li> <li> <b>Key Developments Impacting Policy, Legal, Regulatory, and Governance Regime for Critical Minerals in Western Australia include:</b> <ul style="list-style-type: none"> <li> <b>New National Critical Minerals Strategy 2022:</b> The updated strategy was published in March 2022<sup>14</sup> to focus on <b>developing the Western Australian critical minerals sector, expand downstream processing, and help meet future mineral demand globally</b>. The strategy was <b>developed in consultation with industry and community stakeholders</b>, including traditional owners. </li> <li> <b>Fast Tracking Mining Approvals Strategy:</b> The focus of this strategy is to <b>streamline regulatory approvals for mining to fast-track mining projects to production</b>. These changes will not affect environmental, safety or heritage standards, and construction of the projects cannot occur until the <b>mining proposal is assessed and is environmentally acceptable</b>.<sup>15</sup> </li> <li> <b>The Foreign Investment Review Board:</b> The board <b>reviews proposals individually</b>, so that they can verify that they align with national interest. Because of a clear, well-established framework, investors can meet expectations for an acceptable proposal. As a result, most proposals can be considered in 30 days, with only three (3) resource-related proposals rejected since 2001. </li> <li> <b>The Geoscience Data Transformation Strategy:</b> The \$10.6 million strategy will transform the State's billions of dollars' of geoscience information into intelligent data suitable for machine learning and artificial intelligence. It will <b>stimulate mining exploration and unlock billions of future wealth initiatives</b>.<sup>16</sup> </li> </ul> </li> </ul>

<sup>12</sup> [Mining Act legislation \(dmp.wa.gov.au\)](https://www.dmp.wa.gov.au/)

<sup>13</sup> [Mining Act legislation \(dmp.wa.gov.au\)](https://www.dmp.wa.gov.au/)

<sup>14</sup> [Critical Minerals Strategy 2022 | Department of Industry, Science and Resources](https://www.dmp.wa.gov.au/sites/default/files/atoms/files/227494_about_dmirs_2022_web_0.pdf)

<sup>15</sup> [https://www.dmp.wa.gov.au/sites/default/files/atoms/files/227494\\_about\\_dmirs\\_2022\\_web\\_0.pdf](https://www.dmp.wa.gov.au/sites/default/files/atoms/files/227494_about_dmirs_2022_web_0.pdf)

<sup>16</sup> [https://www.dmp.wa.gov.au/sites/default/files/atoms/files/227494\\_about\\_dmirs\\_2022\\_web\\_0.pdf](https://www.dmp.wa.gov.au/sites/default/files/atoms/files/227494_about_dmirs_2022_web_0.pdf)

Country	Leading Practice Analysis and Lessons Learned
	<ul style="list-style-type: none"> <li>○ <b>The Greenhouse Gas Storage and Transport Draft Bill:</b> This bill provides Western's Australia's mining, LNG, and natural gas industries with access to opportunities to decarbonize, such as mineral carbonation and carbon capture, utilization and storage.<sup>17</sup></li> </ul>
Western Australia	<p><b>4. Fiscal Regime and Incentives</b></p> <ul style="list-style-type: none"> <li>• <b>Summary:</b> Western Australia has a <b>straightforward, tiered royalty system that applies a rate depending on the state of the mineral</b> at the time of sale. Most mining projects are subject to percentage rates according to the value of the mineral in its sale state. The royalty system is based on the <b>idea that mineral resources are owned by the community</b>, the royalty is the purchase price for the mineral resource, and as such, the <b>community expects a fair return for the exploitation of its non-renewable mineral endowment</b>. A key factor in Western Australia's <b>low sovereign risk status</b> is its royalty system, which <b>provides the industry with a straightforward, transparent, stable, and predictable arrangement</b>. Western Australia requires prospecting and exploration licenses for the early stages of a project, as well as mining leases for operational mines. The royalty system is three-tiered and applies royalty rates depending on the form of the mineral when it is sold (e.g., ore, concentrate, or final form) and the level of processing. Western Australia uses two systems to collect mineral royalties: (i) Specific rate: a flat rate per tonne of mineral produced – generally applied to low-value construction and industrial minerals; and (ii) Ad valorem – proportion of the “royalty value” of the mineral (defined as the quantity of the mineral in the form in which it is first sold the multiplied by the price in that form, minus deductions)</li> <li>• <b>Key Developments Impacting Fiscal Regime for Critical Minerals in Western Australia include:</b> <ul style="list-style-type: none"> <li>○ <b>Clear mining tax regime:</b> Mineral royalty rates were established by the Mining Act 1904 and Mining Act 1978, as well as additional State Agreements in Western Australia. This <b>structure was designed with equity, efficiency, adequacy, stability, transparency and simplicity</b> in mind to <b>encourage investment and proper management</b>. The basis of the royalty rates is to return about 10 percent of the value of the ore, excluding transportation and processing and is applied to the minerals when they are first sold. Royalties are applied on a specific material across an industry, opposed to evaluating on a mine-by-mine basis. The following three-tier royalty rates, introduced in 1981,<sup>18</sup> apply to the various stages of processing: <ul style="list-style-type: none"> <li>▪ Bulk materials (crushed and screened), 7.5 percent of free-on-board value, i.e. the value on a ship for export.</li> <li>▪ Mineral concentrates, 5 percent of the value.</li> <li>▪ Metallic form, 2.5 percent of the value</li> </ul> </li> <li>○ <b>Industry centered approach:</b> The <i>Future Battery and Critical Minerals Industries Strategy</i> was launched in January 2019 to increase cooperation across government agencies with the mining industry. This initiative provides a framework for government agencies to coordinate a clear message to investors to focus on investment attraction, project facilitation, research and development, and adoption of new battery technologies. Increased incentives supporting the construction of local infrastructure across the entire battery value chain helps attract investors and the government focus on facilitating strategic project planning by serving as a partner, to enable access to industrial land, common-user infrastructure, resources, supplies, and a workforce. This</li> </ul> </li> </ul>

<sup>17</sup> [https://www.dmirs.wa.gov.au/sites/default/files/atoms/files/227494\\_about\\_dmirs\\_2022\\_web\\_0.pdf](https://www.dmirs.wa.gov.au/sites/default/files/atoms/files/227494_about_dmirs_2022_web_0.pdf)

<sup>18</sup> [Mineral Royalties \(dmp.wa.gov.au\)](https://www.dmp.wa.gov.au)



Country	Leading Practice Analysis and Lessons Learned
	<p>industry centered and holistic approach has increased investment in local mining and processing projects, while expanding their contribution to the battery supply chain.</p> <ul style="list-style-type: none"> <li>○ <b>Temporary assistance to maintain production:</b> A royalty rebate scheme was introduced for by the State Government at the end of 2020 to three lithium mineral producers in Western Australia: Galaxy Resources' Mt Cattlin operations, Pilbara Minerals' Pilgangoora operations and Altura Mining's Pilgangoora operations. Spodumene – the mineral from which lithium is derived – has seen a fall in prices over the last two years, putting these companies' operations at risk. The mining company will receive a <b>50 per cent royalty rebate on spodumene concentrate</b> for up to 12 months for operational mines, <b>where the employee count does not drop significantly from current numbers</b>. If prices improve significantly (equal to or greater than \$550 per tonne for a given quarter), the rebate will not be provided. This industry supported measure is <b>designed to assist in preventing the loss of more than 600 jobs and save more than \$20 million in annual royalty revenue</b> over the coming years. At the conclusion of the assistance period, the companies will fully repay the rebates over a period of two years, so that there is no cost to the State Government. This indicates to potential investors that the government is dedicated to the success of mining activities and will intervene to support if needed.</li> </ul>
Western Australia	<p><b>5. ESG Regime Requirements</b></p> <ul style="list-style-type: none"> <li>• <b>Summary:</b> Western Australia is a <b>leader in environmental regulations for mining</b> with a strong regulatory regime for environmental and community impacts, and for geotechnical, physical, and geochemical stability of mining projects from their inception to reclamation, and closure. Western Australia places a <b>high importance on protection of biodiversity, indigenous communities, and archeological resources</b>. Western Australia takes a holistic approach in their governance structure, considering the environmental, Aboriginal community, and worker's right. This <b>approach engages all stakeholders of potential mining projects</b> and outlines clear expectations and guidelines so that projects are completed in an expected and responsible manner so that all stakeholders benefit.</li> <li>• <b>Key Developments Impacting the ESG Regime for Critical Minerals in Western Australia include:</b> <ul style="list-style-type: none"> <li>○ <b>Work Health and Safety (Mines) Regulations 2022:</b> Western Australia's mining regulatory regime includes a strong, well-defined mining health and safety regulatory framework governed by the <i>Mines Safety and Inspection Act of 1994</i> and <i>Mines Safety Regulations 1995</i>, and executed by <i>Department of Mines, Industry Regulation, and Safety (DMIRS)</i>, <i>Safety Regulation Group</i>.<sup>19</sup> In 2022, the Government of Western Australia amended its safety programs with the new Work Health and Safety Act, which strengthened protections for workers and auditing processes. DMIRS is the safety regulator for the minerals, petroleum, and dangerous goods industries in Western Australia, and executes its safety functions through the Safety Regulation Group. The government formed the Group in 2017; the Group engages with the mining industry in two ways: (i) raising awareness of safety roles and health matters in the workplace; and (ii) seeking compliance with and enforcement of safety legislation when necessary. DMIRS has six groups which coordinate and regulate mining sector-related activities under the umbrella of a Director General, including the Safety Regulation Group, which is the principal enforcer of mine health and safety. Western Australia demonstrates its <b>commitment to health and safety regulatory operations through comprehensive strategic objectives</b>. For example, the Safety Regulation</li> </ul> </li> </ul>

<sup>19</sup> Government of Western Australia Department of Mines, Industry Regulation and Safety, "Minerals safety legislation", Historical Legislation and compliance, accessed October 20, 2022, <http://www.dmp.wa.gov.au/Safety/Minerals-safety-legislation-8321.aspx>

Country	Leading Practice Analysis and Lessons Learned
	<p>Group reports their progress and conducts their operations to drive the <i>Towards 2020 Regulation Strategy</i>, goals for world-leading regulation, smarter systems, and well-informed industry. Western Australia is an <b>excellent example of a government mining regulator that performs a variety of safety functions, reports often, and uses their revenue in a strategic way to streamline and conduct operations on a regional level</b>. Its safety and health regulatory functions are important in that Western Australia's government reports annually to maintain regulatory effectiveness, transparency, and achieve an overall goal of improved mine health and safety.</p> <ul style="list-style-type: none"> <li>○ <b>Protect and support indigenous peoples.</b> Western Australia began a review of the Aboriginal Heritage Act of 1972 in early 2018 to identify issues and their corresponding gaps in legislation through <b>consultation of industry representatives, Aboriginal people, cultural professionals</b>. As result of this research, the Aboriginal Cultural Heritage Bill was passed to provide greater protections of the Aboriginal community and their heritage. They will be able to better negotiate how their lands can be used for mining.</li> <li>○ <b>Address challenges in employee's working environment.</b> The State Government released a risk management framework in April 2019 to address the psychosocial hazards of fly-in, fly-out labor, which is common for many extraction projects in Western Australia. The framework aims to <b>foster strong mental health for these workers</b> through a supportive culture, appropriate accommodations with time for breaks and recreation. Additionally, the Work Health and Safety Action replaced previous legislation to not only address physical health, but also mental wellbeing.</li> <li>○ <b>Evaluate environmental impacts as it relates to current climate change goals.</b> Australia's Environmental Protection Agency released updated guidelines for the evaluation of greenhouse gas emissions to be included in the environmental review process. Proposals for new projects or significant expansions that undergo environmental review will be subject to evaluation on how the specific project will hinder or enable the government to meet their net zero goal by 2050. Western Australia's specific climate goals reference a focus on decreasing emissions from the mining industry and leverage the Net Zero Emission Mining projects which is led by the Minerals Research Institute of Western Australia. This program offers up to \$1.5 million of co-funding to reduce energy use of mining projects, potentially through improving mining and processing mechanisms, as well as additional funding for small to medium mining equipment, technology and services businesses.</li> </ul>
Canada	<p><b>1. Historical Production and Development of Critical Minerals<sup>20</sup></b></p> <ul style="list-style-type: none"> <li>• <b>Summary:</b> Canada is one of the leading mining countries in the world and one of the largest producers of minerals and metals. Canada currently ranks fifth globally in the production of nickel, it's a key global producer of copper and cobalt, and hosts advanced mineral projects for REE, lithium, and vanadium. Valued at \$102 billion in 2020, mineral exports accounted for 21 percent of Canada's total domestic exports. Canada is seeking to build more resilient critical mineral global supply chains by working with international partners to align policies; raise economic and ESG standards; advance joint research and development; and encourage new investment opportunities.</li> </ul>

<sup>20</sup> <https://www.canada.ca/en/campaign/critical-minerals-in-canada/canadian-critical-minerals-strategy.html>

Country	Leading Practice Analysis and Lessons Learned
	<ul style="list-style-type: none"> <li>• <b>Key Developments Impacting Production and Development of Critical Minerals in Canada include<sup>21</sup>:</b> <ul style="list-style-type: none"> <li>○ <b>The Canada-U.S. Joint Action Plan on Critical Minerals</b> is focused on advancing bilateral interest in securing supply chains for the critical minerals needed for strategic manufacturing sectors, including clean technology, aerospace and defense, and communication technology.</li> <li>○ <b>The Canada-EU Strategic Partnership on Raw Materials</b> is focused on engaging the European Commission and European Union Member States on Canada's critical mineral and battery value chains. The objective of the partnership is to advance the value, security and sustainability of trade and investment into the critical minerals and metals needed for the transition to a green and digitalized economy.</li> <li>○ <b>The Canada-Japan Sectoral Working Group on Critical Minerals</b> is focused on facilitating commercial engagement between Canadian and Japanese businesses across the critical mineral value chain, strengthen government-to-government information sharing, and encourage cooperation on international standard setting for critical minerals.</li> <li>○ <b>Multilateral Engagements:</b> Canada is pursuing other initiatives on critical minerals to support the global transition to green energy and more resilient supply chains. Notable multilateral organizations and initiatives include the G7/G20; the International Energy Agency (IEA); the World Bank; the International Renewable Energy Agency (IRENA); the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF); and the Energy Resource and Governance Initiative (ERGI).</li> <li>○ <b>Other Developments:</b> At the end of 2022, citing national security concerns, the Canadian government ordered <b>the divestiture of three Chinese investors in Canadian critical minerals companies</b>. The approach in Canada is closely aligned with the U.S. and Australia, which have implemented similar frameworks to place greater regulatory scrutiny on foreign investments in the critical minerals sector.</li> </ul> </li> </ul>
Canada	<p><b>2. Investment Opportunities and Incentives</b></p> <ul style="list-style-type: none"> <li>• <b>Summary:</b> <i>Investment Canada Act</i> (ICA), is Canada's federal legislation that regulates foreign direct investments into Canada. On Dec. 9, 2022, Canada published its new <i>Critical Minerals Strategy</i>.<sup>9</sup> The Strategy has as its key objective for Canada to become a global supplier of choice for critical minerals and the clean digital technologies they enable. It outlines the following priorities for the government: increase investment, boost extraction, enhance regulatory oversight, and harmonize policies with allies, all while being mindful of growing national security considerations tied to critical mineral supply chains.</li> <li>• <b>Key Developments Impacting Investment for Critical Minerals in Canada include:</b> <ul style="list-style-type: none"> <li>○ As part of the Critical Minerals Strategy, the government developed the <b>Strategic Innovation Fund (SIF)</b> to <b>support critical mineral projects</b> and a <b>new 30 percent critical mineral exploration tax credit (METC)</b> that will be introduced and become available to investors under certain flow-through share agreements to support specified exploration expenditures in Canada. The overarching objective of the SIF investment (government budget for 2021 and 2022 includes a \$1.5 billion for SIF) is to</li> </ul> </li> </ul>

<sup>21</sup> <https://www.canada.ca/en/campaign/critical-minerals-in-canada/our-critical-minerals-strategic-partnerships.html>

Country	Leading Practice Analysis and Lessons Learned
	<p>help <b>build a world-class critical mineral supply chain</b> that can <b>lighten the dependency</b> of Canada on foreign supply chains.<sup>22</sup></p> <ul style="list-style-type: none"> <li>○ The Federal Government proposed to provide up to <b>\$3.8 billion from its FY22 budget</b> to support over eight years the <b>implementation its new Critical Minerals Strategy</b>. The budget notes that the government's investment focus will be on "priority critical mineral deposits" and that the government will <b>work closely with affected Indigenous groups</b> and through <b>existing regulatory processes</b>. A key focus of this strategy is making critical mineral mining projects less risky: The budget outlines the following: <ul style="list-style-type: none"> <li>▪ "Up to <b>\$1.5 billion over seven years</b>, starting in 2023-24, for <b>infrastructure investments that support the development of the critical minerals supply chains</b>, with a focus on priority critical mineral deposits.</li> <li>▪ <b>\$79.2 million over five years</b>, starting in 2022-23, for Natural Resources Canada to provide public <b>access to integrated data sets to inform critical mineral exploration and development</b>.</li> <li>▪ <b>\$144.4 million over five years</b>, starting in 2022-23, to Natural Resources Canada and the Natural Resource Council to support <b>research, development and the deployment of technologies and materials to support critical mineral value chains</b>. These investments aim to make Canada an attractive country for investments to develop these supply chains.</li> <li>▪ <b>Investments</b> aimed at <b>facilitating existing regulatory processes</b>, including those applicable to critical minerals projects, such as:</li> <li>▪ <b>\$10.6 million over three years</b>, starting in 2024-25, to Natural Resources Canada to <b>renew the Centre of Excellence on Critical Minerals</b>. The Centre works with provincial and territorial governments and other partners to <b>provide direct assistance to help developers navigate regulatory processes</b> and existing support measures; and</li> <li>▪ Up to <b>\$40 million over eight years</b>, starting in 2022-23, to <b>Crown-Indigenous Relations</b> and Northern Affairs Canada to <b>support Northern regulatory processes</b>.</li> <li>▪ <b>\$70 million over eight years</b>, starting in 2022-23, to Natural Resources Canada to <b>advance Canada's global leadership on critical minerals</b>, in particular to meet its responsibilities under the <i>Extractive Sector Transparency Measures Act</i>, and aim to make Canada a trusted partner in the global critical minerals supply chain."<sup>23</sup></li> </ul> </li> <li>○ On October 28, 2022, the government adopted the <i>Policy Regarding Foreign Investments from State-Owned Enterprises (SOEs) in Critical Minerals under the Investment Canada Act</i>. The Policy was issued due to concerns related to some investments into Canada by SOEs being motivated by non-commercial imperatives that are contrary to Canada's interests. The purpose of the Policy is <b>to attract responsible investments that support Canada's national security objectives</b>.<sup>24</sup></li> </ul>

<sup>22</sup> <https://www.jdsupra.com/legalnews/canada-s-new-critical-minerals-strategy-7118171/>

<sup>23</sup> <https://www.torlys.com/our-latest-thinking/publications/2022/04/federal-budget-2022-invests-in-critical-minerals-development-in-canada>

<sup>24</sup> <https://mcmillan.ca/insights/foreign-investment-in-canada-minerals-are-critical-and-annual-report-released/>

Country	Leading Practice Analysis and Lessons Learned
Canada	<p><b>3. Policy, Legal, Regulatory, and Governance Regime<sup>25</sup></b></p> <ul style="list-style-type: none"> <li> <b>Summary:</b> Canada is a federalist state with responsibilities and powers split between the Federal Parliament and the ten provincial governments. The provincial legislatures have legislative jurisdiction over the natural resources and so are primarily responsible for regulating the exploration and extraction of minerals. The Constitution Act, 1867 outlines the federal government's legislative authority, including taxation and regulating trade and commerce, and anything not under the exclusive jurisdiction of the provinces. The 1982 amendments to the Constitution Act, 1867 explicitly define and recognize the provinces and territories' jurisdiction and rights to manage their own non-renewable natural resources.<sup>26</sup> Canada's three territories, the Yukon, the Northwest Territories, and Nunavut are under federal jurisdiction but governed by three territorial governments. The Yukon and Northwest Territories regulate mineral rights within their respective territories but mineral rights in Nunavut are under federal law. </li> <li> <b>Key Developments Impacting Policy, Legal, Regulatory and Governance Regime for Critical Minerals in Canada include:</b> <ul style="list-style-type: none"> <li> <b>The Canadian Minerals and Metals Plan was established in 2020</b>, with annual action plan released every year. The <b>six strategic goals</b> of this plan provide additional government resources to support economic development and competitiveness, indigenous participation, the environment, innovation, local communities, and global leadership. Each goal focuses in on discrete actions that are published in the annual action plan. Federal, provincial, and territorial governments led the development of this pan-Canadian plan in collaboration with partners and stakeholders to set a forward-looking strategy to solidify Canada's position as a global mining leader.<sup>27</sup> </li> <li> On Dec. 9, 2022, Canada published its new <b>Critical Minerals Strategy</b> to "increase the supply of responsibly sourced critical minerals and support the development of domestic and global value chains for the green and digital economy."<sup>28</sup> The Strategy includes <b>five key focus areas</b>, including: support economic growth, competitiveness, and job creation; promote climate action and environmental protection; advance reconciliation with Indigenous peoples; foster diverse and inclusive workplaces and communities; and enhance global security and partnerships with allies. </li> <li> Applicable federal laws still apply to all mining projects, including laws regarding the environment, indigenous peoples, and imports and exports. </li> <li> <b>Territorial governments provide regulations for mining activities</b>, unless on federal lands or if it involves uranium, of which the Canadian government oversees. Canada has <b>separate regulatory bodies</b> in each of the ten provinces, three territories, and the federal government to provide oversight of mining activities in each jurisdiction. Each province has different ministerial bodies, legislation, and regulations for mining activities, including mineral rights, ESG requirements and standards, workplace protections, etc. For example, in British Columbia, the Ministry of Energy, Mines, and Petroleum Resources is responsible for the mining sector, </li> </ul> </li> </ul>

<sup>25</sup> [Mining in Canada: overview | Practical Law \(thomsonreuters.com\)](https://www.thomsonreuters.com/canada/mining-overview/)

<sup>26</sup> [Roles and Responsibilities of Governments in Natural Resources \(nrcan.gc.ca\)](https://www.nrcan.gc.ca/roles-responsibilities-governments-natural-resources/)

<sup>27</sup> [What is the Canadian Minerals and Metals Plan? \(minescanada.ca\)](https://www.minescanada.ca/what-is-the-canadian-minerals-and-metals-plan/)

<sup>28</sup> [Introducing Canada's Critical Minerals Strategy - Canada.ca](https://www.canada.ca/en/mines-energy/minerals/critical-minerals-strategy/)

Country	Leading Practice Analysis and Lessons Learned
	<p>but the Ministry of Environment and Climate Change Strategy, the Environmental Assessment Office, and the Ministry of Forests, Lands, Natural Resource Operations and Rural Development provide additional oversight of mining operations.</p> <ul style="list-style-type: none"> <li>○ The federal government has indicated <b>plans to align its laws closer to the United Nations Declaration on the Rights of Indigenous Peoples</b>. This has been echoed by some provinces, including British Columbia, which has enacted its Declaration on the Rights of Indigenous Peoples in 2019.<sup>29</sup> Canadian current law does not include the right of Indigenous veto, which exists in the United Nations Declaration.</li> <li>○ From a regulatory enforcement perspective, British Columbia is <b>proposing an amendment to its Mines Act to separate the responsibility for the permitting of mines from the oversight, health, safety, and enforcement responsibilities</b>. The Chief Inspector of Mines currently is responsible for both functions. The proposal would create a <b>separate Audit Unit</b> headed by a Chief Auditor focused solely on compliance and enforcement.<sup>30</sup> The goal of these changes is to <b>increase permitting efficiency and improve decision-making timeframes</b> while providing <b>regulatory and safety oversight to prevent environmental disasters, especially related to tailings management</b>.</li> </ul>
Canada	<p><b>4. Fiscal Regime and Incentives</b></p> <ul style="list-style-type: none"> <li>• <b>Summary:</b> In addition to income tax, mining companies must pay mining taxes and/or royalties to the corresponding jurisdiction of their mining operation. Most jurisdictions evaluate the mining and processing operations profit, with many jurisdictions deducting a processing allowance, capital depreciation, and exploration expenses to end up with the taxable income. Key fiscal incentives include: <ul style="list-style-type: none"> <li>○ <b>Mineral Exploration Tax Credit (METC):</b> 15 percent to enable exploration companies to gather equity funds in addition to the regular tax deduction associated with flow-through share (see below) investments.</li> <li>○ <b>Canadian Exploration Expense:</b> 100 percent deductible in the year that they occur and used to offset pre-product development expenses;</li> <li>○ <b>Foreign Resource Expense and Foreign Exploration and Development Expense Claims:</b> 10 – 30 percent for exploration and development expenses incurred abroad by Canadian mining companies.</li> <li>○ <b>Flow-Through Shares:</b> Corporations can issue flow-through shares on certain expenses to the share purchases to reduce taxable income with a 100 percent tax deduction for the amount invested in the shares and a 15 percent tax credit for any eligible expenses.</li> </ul> </li> <li>• <b>Key Developments Impacting the Fiscal Regime for Critical Minerals in Canada include:</b> <ul style="list-style-type: none"> <li>○ <b>Territorial mining royalties are defined by the territories:</b> The Quartz Mining Act<sup>31</sup> defines the Yukon mining royalties. The Northwest Territories Lands Act<sup>32</sup> legislates the Northwest Territories mining royalty rates, and the Nunavut Mining Regulations<sup>33</sup></li> </ul> </li> </ul>

<sup>29</sup> [Mining in Canada: overview | Practical Law \(thomsonreuters.com\)](#)

<sup>30</sup> [Mining in Canada: overview | Practical Law \(thomsonreuters.com\)](#)

<sup>31</sup> [Quartz Mining Act \(yukon.ca\)](#)

<sup>32</sup> [Mining Regulations \(gov.nt.ca\)](#)

<sup>33</sup> [Nunavut Mining Regulations \(justice.gc.ca\)](#)



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	<p>outline the Nunavut mining royalty scheme. There are multiple financial mechanisms to support the mining industry, including support of exploration activities. Because of the mining industries cyclical and capital intensive nature, with long timelines until revenue generations, the income and mining tax systems aim <b>to help mining companies recover their initial capital investment before significant taxes</b>. There are also <b>expense claim structures for exploration and development activities</b>.</p> <ul style="list-style-type: none"> <li>○ <b>Special tax treatments under income tax laws incentivize mining investment across the entire value chain.</b> These programs include adjustments to capital cost allowances, with a 25 percent depreciation rate on qualifying mining capital assets and an even further accelerated rate assets for assets acquired before commercial production or major expansions greater than 5 percent of the mine's gross income. There are also <b>stipulations that allow for loss carry-over to reduce the impacts of price fluctuations</b>.</li> <li>○ <b>Unique financing options allow mining companies to raise capital from investors to support projects.</b> One such instrument is <b>flow-through shares, which allow a company to obtain financing for development and exploration activities tax free</b>. The expenses flow-through to the investor, who then gains tax advantages, including tax deductions. In addition, there is METC that allows for a <b>15 percent credit to enable exploration companies to gather equity funds</b> in addition to the regular tax deduction associated with flow-through-share investments. The METC was extended in 2018 so that it is active until March 31, 2024. This tax credit can be applied against federal income tax obligations a company has in the year the investment was made. The credit is flexible and can be carried back three years and carried forward 20 years. Taxpayers can also claim the Canadian Exploration Expense (CEE) deduction at the same time, which applies to both federal and provincial or territorial income tax liabilities.</li> </ul>
Canada	<p><b>5. ESG Regime Incentives</b></p> <ul style="list-style-type: none"> <li>• <b>Summary:</b> Canada has numerous initiatives to facilitate comprehensive ESG, including the following: Impact Assessment Act of 2019 (replacing the Canadian Environmental Assessment Act of 2012); Towards Sustainable Mining Initiative; and Green Mining Initiative.</li> <li>• <b>Key Developments Impacting ESG Regime for Critical Minerals in Canada include:</b> <ul style="list-style-type: none"> <li>○ A focus on innovation to improve more environmentally friendly mining practices: Canada's Green Mining Initiative fosters innovation to enhance mine productivity, minimize water usage, manage mine waste, and improve energy efficiency. CanmetMINING, a branch of the Natural Resource Canada, manages the research plan and performance monitoring for these goals. Attaching research efforts to targeted goals to establish a greener mining industry will enable Canada to best meet their climate change goals and make mining a more environmentally friendly industry.</li> <li>○ <b>Clear impact planning:</b> In 2019, Canada enacted the Impact Assessment Act (IAA), replacing the Canadian Environmental Assessment Act (2012). This updated framework continues to <b>provide clear, comprehensive expectations for applicants and expanded the mechanisms to consider the environment, impacted communities, and Indigenous peoples</b>. The IAA focuses on both the positive and negative aspects of a major project, like mines, roads, or dams, on the economy, environment, people, and communities. The goal of the Act is to <b>identify and understand potential impacts during the project development phase and to outline mitigation strategies to address potential negative impacts</b>. The IAA created the Impact Assessment Agency of Canada, which leads the federal impact assessments. The Agency is responsible for managing the process but multiple parties participate, including: the proponent, who must submit project plans, studies, and potential impacts and mitigation measures; experts, including scientists and representatives from other government agencies to provide information across the scope of the project, including social, health, economic, and environmental factors and mitigation measures; indigenous groups, including First</li> </ul> </li> </ul>

Country	Leading Practice Analysis and Lessons Learned
	<p>Nations, Metis, and Inuit communities, who provide expertise on the project impacts and highlight potential impacts on their communities from the projects; and the general public, including both individuals and community groups, who provide local knowledge and insights and share how projects might impact communities.</p> <ul style="list-style-type: none"> <li>○ <b>Active public participation:</b> Canada aims for <b>robust public participation as part of an “open, informed, and meaningful impact assessment process.”</b> Engaging the public in matters that affect their community enables them to not only voice concerns related to a project, but also better understand the benefits. Their input can lead to design changes that lead to improved outcomes. With the focus of identifying potential problems before they occur, impact assessments require plans to mitigate these harms if the project moves forward, for which public input is crucial and valuable. Requirements for public participation plans also clearly communicate the activities that companies can take to engage communities about their projects.</li> <li>○ <b>Focus on involvement of indigenous communities in the impact assessment process:</b> The Canadian government outlined a specific <b>indigenous engagement plan to gather input from indigenous communities and allow them to establish the level of involvement</b> they would like in the assessment process with the agency. The applicant is responsible for compiling a list of potential impact communities, as well as information on how they plan to include these communities in the different phases of the impact process. In addition, the new legislation includes funding for the public and indigenous peoples to participate in the assessment process. These programs <b>provide reimbursements to applicants</b> for staff salaries, administrative costs, external third-party fees, and travel expenses for individuals, non-profit organizations or indigenous groups when contributing to an impact assessment.</li> <li>○ <b>Meeting climate commitments:</b> Canada enacted the <i>Strategic Assessment of Climate Change</i> in August 2019. The IAA introduces new requirements focused on a project's environmental, health, social, and economic effects, which are reviewed during the federal impact assessment. The expressed purpose of the <i>Strategic Assessment of Climate Change</i> is to support the Government of Canada to meet their commitments regarding climate change for the Paris Agreement, Canada's individual 2030 target, and their overall goal of achieving net-zero emissions by 2050. Each new requirement provides clear methodologies and review procedures to support project proponents to convey to regulators how a specific project will affect Canada's climate commitments. The new requirements also provide for engaging projects throughout the impact review process, with early engagement as a first step. Quantifying and describing net greenhouse gas emissions, upstream greenhouse gas assessments for potentially large emissions projects, and transparent review criteria are integral parts of this legislation.<sup>34</sup> In addition, aligning with the increased climate commitments in the future years, regulators also tighten stipulations and focus on impact throughout the project timeline.</li> <li>○ <b>A clear framework with public key performance indicators helps mining companies communicate their benefit to communities while meeting societal expectations:</b> In 2004, the <i>Towards Sustainable Mining (TSM)</i> initiative began requiring site-level reporting on 30 indicators of social and environmental performance, leading to annual assessments from C through AAA. The individual indicators detail assessment criteria categorized into eight (8) protocols: biodiversity conservation, climate change, crisis management, indigenous and community relationships, child and forced labor, safety and health, tailings management, and</li> </ul>

<sup>34</sup> Government of Canada, “Strategic Assessment of Climate Change”, Canada.ca, October 2020, accessed October 7, 2022, <https://www.canada.ca/en/services/environment/conservation/assessments/strategic-assessments/climate-change.html>



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	<p>water stewardship. For example, the biodiversity protocol has three (3) performance indicators: corporate biodiversity conservation commitment, facility level biodiversity planning and implementation, and biodiversity conservation reporting. For the biodiversity conservation reporting indicator, the criteria are listed for each assessment level, with AAA requiring management review these biodiversity reports that are independently verified on a regular basis and community feedback on the report is sought out and reported to the public. The criteria are updated every few years to incorporate new information and standards, with the last update occurring in 2019.</p>
Brazil	<p><b>1. Historical Production and Development of Critical Minerals</b></p> <ul style="list-style-type: none"> <li> <b>Summary:</b> Similarly to Western Australia and Canada, Brazil has a long mining history and has grown as a critical mineral producer. Brazil is <b>third largest producer of graphite in the world</b>, and the <b>second largest producer of high-quality flake graphite; the sixth largest lithium producer and the eighth largest nickel producer</b>.<sup>35</sup> The Government of Brazil is taking strategic steps to increase critical mineral production in the country. Through the <b>Pro-Strategic Minerals policy</b>, the government has issued a list of specific critical minerals it aims to boost production of, and that are deemed of special interest to the country. These minerals include lithium, graphite, nickel, cobalt, vanadium, tantalum, copper, REE, and titanium, amongst others. Similarly to Western Australia, Brazil is also a <b>low cost producer for lithium</b>. In addition, Brazil is also a <b>low cost producer of vanadium</b>. Brazilian <b>graphite mining operations</b> in Minas Gerais are among the <b>most profitable operations</b> in the world. Brazil's existing REE production is low, but the country has significant potential to expand production. </li> <li> <b>Key Development Impacting Historical Production and Development for Critical Minerals</b> <ul style="list-style-type: none"> <li>Unlike Western Australia and Canada, Brazil has only a small electric vehicle industry and does not have facilities to process lithium, so it can be used for batteries. <b>Exports are seen as a good solution to advance the country's lithium sector</b>. Specifically, Sigma Lithium Resources' <b>Grota do Cirilo project production is earmarked for South Korean battery company LG Energy Solution Ltd.</b>, a partnership that may further increase the role of Brazil in the market. Brazil could become a midstream processor of lithium chemicals as part of a greater strategy to develop a downstream lithium-ion battery industry. Brazil could achieve this by constructing a facility to process the spodumene ore produced by Sigma Lithium Resources into lithium carbonate and/or lithium hydroxide (Brazil currently plans to export this ore unprocessed). This type of venture may also help to encourage the construction of cathode-manufacturing facilities and lithium-ion battery manufacturing. Discussions with existing global lithium-ion battery companies about investment in Brazilian initiatives, such as 'Colossus Cluster Minas Gerais', which aims to build a 35 GWh battery Gigafactory, may help to accelerate the business case for commercial lithium processing.</li> <li>Brazil exports 85 percent of its nickel production. If Brazil decides to <b>develop downstream battery facilities</b>, it is likely that <b>battery grade nickel would be available or could potentially be produced by Brazil's nickel industry</b>. Recently, the US Government announced investment of \$30 million in the mining company TechMet (in Piaui) for processing strategic minerals nickel and cobalt in Brazil.</li> </ul> </li> </ul>

<sup>35</sup> S&P Global

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	<ul style="list-style-type: none"> <li>○ The Government of Brazil <b>has developed a number of key national initiatives</b> (discussed below) to further <b>develop its critical mineral sector, participate, and collaborate in diversifying the supply chain</b>. “There is interest from Brazil to <b>import minerals from Latin America and collaborate in the industrialization chain</b>. Brazil is in the transition to low-carbon energy and this is a good opportunity to <b>strengthen relations with neighboring countries</b> as well as to jointly <b>develop new technologies</b>,” said the Director of the Department of Mineral Transformation and Technology, Ministry of Energy and Mining, Brazil.<sup>36</sup></li> <li>○ <b>Lessons Learned:</b> The Government of Brazil should <b>encourage its existing producers to pursue faster and larger expansions</b> for specific mines such as the lithium mines operated by Companhia Brasileira de Lítio (CBL) and AMG Brazil. The government should also encourage that certain <b>projects, such as the nickel projects achieve timely production by 2030</b> to capture potential higher returns of the forecast tight market. Any expansion would need to be done on an economically sustainable basis, but the government could assist by <b>implementing measures, such as credit guarantees, higher capital allowances, and tax reductions</b>, as required and appropriate. In addition, the government should focus on <b>developing downstream processing facilities to capture more of the nickel value chain domestically</b>. A portion of Brazil’s nickel production could be refocused from direct exports towards the downstream development of domestic cathode-manufacturing and lithium-ion battery production. <b>Proactive marketing</b> by the Government of Brazil with existing global lithium-ion battery companies about investment and construction of battery Gigafactories in the country, may help to increase the consumption of domestic nickel production.</li> </ul>
Brazil	<p><b>2. Investment Opportunities and Incentives</b></p> <ul style="list-style-type: none"> <li>• <b>Summary:</b> The Government of Brazil has taken strategic steps to attract responsible investors in the country. Such steps include <b>easing its mineral leasing laws</b> in order to attract foreign investment for lithium, nickel, and copper mines; <b>streamlining the licensing process</b> of newly listed strategic mineral projects through the development of the Pro-Strategic Mineral Policy and <b>reducing restrictions on foreign ownership</b> of mining projects along Brazil’s border area.</li> <li>• <b>Key Development Impacting Investment in Critical Minerals in Brazil Include:</b> <ul style="list-style-type: none"> <li>○ The Government of Brazil issued <b>Decree No. 11,120 of July 5, 2022</b>, which allows for <b>unrestricted foreign trade operations of lithium minerals, ores, and their derivatives</b>. According to this decree, Brazilian lithium imports and exports will no longer require preliminary authorization from government entities. This measure is expected to <b>attract lithium investments</b>.<sup>37</sup> This measure is “expected to move lithium investments in Eastern Europe and Asian countries towards Brazil”<sup>38</sup>. This measure could also <b>increase legal certainty and predictability for mining companies</b>, while reducing bureaucracy.</li> </ul> </li> </ul>

<sup>36</sup> <https://www.igfmining.org/beps/blog/three-emerging-policy-trends-for-critical-minerals-in-latin-america/>

<sup>37</sup> The Decree No. 11,120, of July 5, 2022, allows for foreign trade operations of lithium minerals, ores, and their derivatives. The measure promotes the opening and dynamization of the Brazilian lithium market, with the objective of positioning Brazil in a competitive way in the global chain and attracting investments for research and mineral production, and for the advancement of production capacity in the stages of processing and production of components and batteries.

<sup>38</sup> <https://www.reuters.com/markets/commodities/brazil-eases-rule-lithium-exports-amid-rising-demand-2022-07-07/>

Country	Leading Practice Analysis and Lessons Learned
	<ul style="list-style-type: none"> <li>○ The Government of Brazil has also issued <b>Decree No. 10,657, of March 24, 2021, the Policy for Supporting the Environmental Licensing of Investment Projects for the Production of Strategic Minerals (Pro-Strategic Minerals Policy)</b>. Pro-Strategic Minerals policy allows for an acceleration of development procedures to reach critical mineral production, mainly by <b>easing the licensing process of newly listed strategic mineral projects</b><sup>39</sup>. The Pro-Strategic Minerals Policy has been qualified under the <b>Investment Partnerships Program (PPI)</b>, which is a governmental body dedicated to expanding and accelerating the implementation of projects with the participation of the private sector in Brazil. The Decree also instituted the Inter-ministerial Committee for the Analysis of Strategic Mineral Projects (CTAPME), including representatives from the PPI, the Ministry of Mines and Energy (MME), the Ministry of Science, Technology and Innovations, the Institutional Security Office, and the Special Secretariat for Strategic Affairs of the Presidency of the Republic. CTAPME will <b>analyze projects</b> and select those considered highly important for the country's development. It will also serve as an <b>intergovernmental mechanism to help expand production of strategic minerals in an environmentally sustainable way</b>.</li> <li>○ <b>The US – Brazil Critical Mineral working group</b> is expected to support the advancement of bilateral diplomatic engagement and technical cooperation on critical minerals, including improving critical minerals security in the United States and Brazil, promoting economically viable mining and production streams, stimulating investments, promoting technological innovation and increasing U.S.-Brazil interconnectivity throughout supply chains for critical minerals.</li> <li>• <b>Lessons Learned:</b> The initiatives outlined above, show a willingness and commitment by the Government of Brazil to attract responsible foreign investment. Brazil should continue to focus on <b>building an investment framework</b> to support critical mineral projects. The government could assist by <b>implementing measures, such as credit guarantees, higher capital allowances, and tax reductions</b>, as required and appropriate. The government may also want to consider an <b>innovation fund similar to the SIF in Canada</b> to support exploration activities. The government should provide <b>specific financial incentives</b>, similar to those in Canada and Western Australia, <b>to support the implementation of its National Mining Plan (PNM) 2050</b>.</li> </ul>
Brazil	<p><b>3. Policy, Legal, Regulatory, and Governance Regime</b></p> <ul style="list-style-type: none"> <li>• <b>Summary:</b> The main laws and regulations on mining in Brazil are the following: (i) Mining Code and its regulatory decree; (ii) Federal laws on specific mining regimes; (iii) National Policy on Dams Safety; and (iv) Regulations from the National Mining Agency (Agência Nacional de Mineração or ANM). In parallel to mining, environmental matters are subject to both federal, state and municipal laws. As certain aspects of mining activities are required to consider environmental matters, state and municipal laws on this regard also apply to mining, in addition to federal laws.</li> <li>• <b>Key Development Impacting Policy, Legal, Regulatory, and Governance Regime include:</b> <ul style="list-style-type: none"> <li>○ <b>Similar to Western Australia and Canada, the Government of Brazil is enhancing its current policy, legal, regulatory, and governance framework to increase critical mineral production and responsible investment in the country.</b> Specifically, the</li> </ul> </li> </ul>

<sup>39</sup> Through the Pro-Strategic Minerals policy, the Government of Brazil has issued a list of specific critical minerals it aims to boost production of, and that are deemed of special interest to the country. Resolution No. 2 of June 18, 2021, defines the list of strategic minerals for the country. <https://www.in.gov.br/web/dou/-/resolucao-n-2-de-18-de-junho-de-2021-327352416>

Country	Leading Practice Analysis and Lessons Learned
	<p>development of key documents such as the <b>PNM 2050</b> which outlines long-term objectives for the mineral sector in Brazil, the <b>development of the Pro-Strategic Mineral Policy</b> which streamlines the licensing process, <b>the Lithium Decree</b> which allows for <b>unrestricted foreign trade operations of lithium minerals, ores, and their derivatives</b>, and the <b>establishment of CTAPME</b> tasked with analyzing projects in the mining sector and helping expand production of strategic minerals in an environmentally sustainable way, and the <b>development of a draft regulatory framework for exploitation of REE</b> which is in progress, are examples of critical steps the government has taken to advance developments in a mining sector in line with leading practices. Furthermore, from a sector governance perspective, the creation of the <b>ANM</b> in 2017 as an <b>autonomous regulator</b> with the authority to ensure that mineral resources in Brazil are managed in a <b>socially sustainable</b> way represents an important institutional development for the country. Important regulations regarding <b>tailings dams' safety and mines closures have been developed or updated</b>, utilizing leading practice regulatory policy tools such as <b>regulatory impact assessment and stakeholder engagement</b>.</p> <ul style="list-style-type: none"> <li>○ <b>Lessons Learned:</b> The Government of Brazil should continue to build on legal and regulatory reform. As part of this process, the government should consider the following to further advance the development of the mining sector and attract responsible investments include (i) <b>update key legislative pieces</b> governing the mining sector, such as the Mining Code (1967) and complementary regulations; (ii) <b>streamline access to and circulation of up-to-date domestic resource data</b> to domestic and international exploration companies to encourage exploitation and to promote critical mineral development in Brazil; (iii) <b>gather and distribute more extensive information</b> for the regions considered to have significant potential; (iv) <b>publish more broadly</b> online and in a range of languages legacy CPRM geological data, reports, and studies; and (v) <b>'market' these documents</b> to expand their circulation, use, and impact. Brazil would also benefit from <b>fostering the systematic collaboration and coordination between the federal and sub-national administrations</b> (states and municipalities) to ensure regulatory coherence, reduce overlaps and regulatory gaps, and to use resources more efficiently.</li> </ul>
Brazil	<p><b>4. Fiscal Regime and Incentives<sup>40</sup></b></p> <ul style="list-style-type: none"> <li>• <b>Summary:</b> In Brazil, there are <b>no special tax incentives for the mining industry</b>; the mining projects can use the general incentives provided for all other activities. Brazilian legislation <b>does not provide for any tax advantages or incentives</b> to persons engaged in mining activities, or their investors and lenders. Specifically: <ul style="list-style-type: none"> <li>○ The Brazilian corporate income tax (IRPJ) is levied at the rate of 15 percent on taxable profits;</li> <li>○ A 10 percent surcharge is levied on the actual profits, presumed profits or profits determined by the tax authorities, in excess of 240,000 reais per year;</li> <li>○ Brazilian legal entities are <b>allowed to carry forward losses indefinitely</b>, which is of paramount importance for companies that undertake exploration, development and later mining activities; however, such losses can only offset 30 percent of taxable profits, which can result in deferral of the utilization of the losses in the event that the legal entity sustains material losses and profits that are not substantial;</li> </ul> </li> </ul>

<sup>40</sup> <https://www.dentons.com/en/insights/newsletters/2022/january/17/dentons-global-mining-guide/dentons-global-mining-guide-2022/brazil#Taxes>

Country	Leading Practice Analysis and Lessons Learned
	<ul style="list-style-type: none"> <li>○ <b>Mining activities are subject to a statutory royalty known as <i>Financial Compensation for Mineral Resource Exploitation (CFEM)</i></b>, which is calculated based on the revenue arising from the sale of the mineral product. <b>Royalties from CFEM aim to mitigate negative impacts on mining regions.</b> The rate varies depending on the substance and, in most cases, the applicable rate is 2 percent. The highest rate currently is applicable to iron ore, at 3.5 percent (although it may be reduced to 2 percent for marginal projects). The rate for gold is 1.5 percent. The tax reform currently under Congressional review, may result in an increase of the CFEM rates;</li> <li>○ <b>Allowable deductions are restricted</b> only to those taxes that are levied on the sale of products. <b>External transportation and insurance costs are not deductible</b>, which <b>increases significantly the CFEM</b> payable by those producers that have logistics associated with their mining business. For those companies that use a mineral substance in their industrial process to create an industrialized product, the statutory royalty will be calculated based on current market prices or a reference price, both to be defined by the ANM;</li> <li>○ <b>Control, monitoring, and supervision of research activities, mining, exploration and exploitation of mineral resources fee (TFRM)</b> is a fee charged by certain states (such as Minas Gerais, Pará, Amapá, Mato Grosso do Sul and Goiás) <b>levied on the sale or transfer of the mineral resource for processing</b>;</li> <li>○ <b>Annual Tax per hectare (TAH)</b> is an annual tax on mining rights to be paid to the National Department of Mineral Research by the holder of the prospecting authorization;</li> <li>○ <b>Landowner Royalty is required to be paid on a monthly basis in the amount of 50 percent of the CFEM due</b> during the exploitation phase, under the concession system, if the land does not belong to the surface right holder; and</li> <li>• Four states (Minas Gerais, Pará, Goiás, and Amapá) have created <b>inspection fees</b>. A close review of these state fees shows that they are actually <b>proportionate to the mine production and are tantamount to an additional royalty</b>.</li> <li>• <b>Key Developments Impacting Fiscal Regime for Critical Minerals include:</b> <ul style="list-style-type: none"> <li>○ Brazil National Congress is considering changes to the country's fiscal regime. The National Congress is currently <b>reviewing a significant and comprehensive tax reform</b> with the main purpose of <b>rationalizing the tax system and easing tax management</b> both from the perspective of companies and the government. Streamlining the tax processes in a transparent way also has positive implications for responsible investment in the sector.</li> <li>○ Brazil recently started using <b>auctions to award mineral exploration licenses</b> for copper and other minerals. This is a change from the usual first-come-first-served approach seen in the sector. The main challenge to auctioning mineral deposits is having sufficient geological information to design a competitive tender. This initiative has the potential to <b>maximize revenues</b> for the country. Bidders are often required to <b>compete on royalty rates, state equity shares, and pay signature bonuses</b> if they are successful. Brazil is auctioning previously approved mining projects that have returned to the ANM for various reasons, such as a rejection of application or expiry of titles.<sup>41</sup></li> </ul> </li> </ul>

<sup>41</sup> <https://www.igfmining.org/beps/blog/three-emerging-policy-trends-for-critical-minerals-in-latin-america/>

Country	Leading Practice Analysis and Lessons Learned
	<ul style="list-style-type: none"> <li>• <b>Lessons Learned:</b> The Government of Brazil should consider <b>developing a mining fiscal regime that is designed with equity, efficiency, adequacy, stability, transparency and simplicity</b> to encourage investment and proper management of mineral resources. The government should consider <b>adopting an industry-centered approach such as that of Western Australia</b> to increase cooperation across government agencies with the mining industry. This initiative should provide a <b>framework for the government to coordinate a clear message to investors to focus on investment attraction, project facilitation, research and development, and adoption of new technologies</b>. The government may also want to consider <b>special tax treatments</b> (such as those in Canada) and <b>temporary assistance to maintain production</b> (such as that being implemented in Western Australia) to relieve companies from operational risks during an economic downturn.</li> </ul>
Brazil	<p><b>5. ESG Regime Incentives</b></p> <ul style="list-style-type: none"> <li>• <b>Summary:</b> The <i>Indigenous and Tribal Peoples Convention 169 (ILO 169)</i> establishes states' obligations to <b>consult with indigenous peoples on decisions that affect their land, communities, and rights</b>. In the context of mining projects, this requires governments to relinquish power over key decisions to Indigenous populations if a project will impact their lands or rights—including decisions on whether or how the project should proceed. <b>The treaty has been widely ratified by states in Latin America, including Brazil</b>. From an electricity usage perspective, Brazil has an <b>inherent competitive advantage</b> in terms of its <b>carbon footprint</b>, because the country uses <b>mainly hydroelectricity</b>. This is becoming increasingly important to manufacturers of lithium-ion batteries and original equipment manufacturers (OEMs) when sourcing raw materials, and it may provide an opportunity for Brazil to secure off-take agreements for cobalt and associated nickel products, potentially at a price premium. Graphite produced in Brazil using hydropower (which encompasses 65 percent of Brazil's power supply) has the <b>potential to be marketed as 'green' graphite</b>, thereby aligning it with the efforts of many auto and battery manufacturers to enhance the green credentials of their own products.</li> <li>• <b>Key Developments Impacting the ESG Regime for Critical Minerals include:</b> <ul style="list-style-type: none"> <li>○ Through the Pro-Strategic Minerals policy, the government is focusing on <b>easing the licensing process by facilitating</b>, for example, the <b>dialogue between the environmental agency</b> responsible for conducting the environmental licensing process and <b>authorities such as the managing bodies of Conservation Units</b>, the National Indian Foundation (FUNAI), the National Institute for Colonization and Agrarian Reform (INCRA) and the National Institute of Historic and Artistic Heritage (IPHAN).</li> <li>○ Following the severe impact caused by accidents at two tailings dams, first at Mariana and then at Brumadinho, Brazil's <b>mining companies have aligned more closely with international standards around ESG</b> as reported by the Brazilian Mining Association (IBRAM). For example, ANM issued Resolution 13 on August 8, 2019. This resolution banned the construction of mining dams using the upstream construction method and provided a deadline for all existing upstream construction dams to be removed from service and decommissioned. The Resolution also set out timeframes for all other mining dams to follow standards for operation, maintenance, and inspection, based on the size of the impoundment. This resolution was the government's decisive action to prevent tailings dam failures. On April 30, 2021, ANM also published Resolution 68, which requires all mines in Brazil to submit updated mine closure plans. There are also requirements that information is tied to a geographic information system (GIS) per Brazilian standards, and that the professionals responsible be appropriately qualified. In addition, ANM issued Ordinance No. 70.389 on May 17, 2017, to address mining dams. This ordinance outlined in detail the requirements for permitting, construction, operation, and closure of mining dams. The ordinance was updated by ANM Resolution No. 32 of 2020. The standard includes</li> </ul> </li> </ul>



Country	Leading Practice Analysis and Lessons Learned
	<p>specific criteria for dam construction, evaluating the risks of mining dams, requirements for emergency action plans, schedules and contents of dam inspections, and related issues.</p> <ul style="list-style-type: none"> <li>○ Sigma Lithium represents one of the largest and highest-grade hard rock lithium spodumene deposits in the Americas. Sigma Lithium has been at the forefront of <b>environmental and social sustainability</b> in the EV battery materials supply chain. The Grota do Cirilo project developed by Sigma, includes a <b>state-of-the-art green-tech processing plant</b> that uses <b>100 percent renewable energy, 100 percent recycled water, and 100 percent dry-stack tailings</b>. Sigma collaborated with communities of Itinga and Araçuaí to design transformative new social initiatives, which allocates funding to build 2,000 rainwater collection systems and to empower 10,000 women through microcredit.<sup>42</sup></li> <li>• <b>Lessons Learned:</b> Brazil should continue to work with industry, local communities, research organizations, and other appropriate parties <b>to expand the opportunities for tailings reuse and tailings reduction</b>. Brazil should look to international examples of success and adopt approaches being developed by industry and academia to reduce the volume of materials that require long-term storage and management. Brazil has taken steps to improve the relationship with indigenous communities. In Brazil, the big mining projects are investing more in local infrastructure, educational programs, and local agenda development. Brazil should aim for <b>robust public participation as part of an “open, informed, and meaningful impact assessment process.”</b> Engaging the public in matters that affect their community enables them to better understand the benefits, and also allows them to participate in identifying opportunities for improvement. A <b>clear framework with public key performance indicators</b> (similar to that of Canada) for mining companies, a <b>regulatory regime that includes a strong, well-defined mining health and safety regulatory framework</b> (similar to that of Western Australia), and a <b>focus on involvement of indigenous communities in the impact assessment process</b> (similar to that of Canada), helps mining companies communicate their benefit to communities while meeting community expectations .</li> </ul>

<sup>42</sup> <https://batteriesnews.com/sigma-lithium-successfully-initiates-commissioning-greentech-plant-schedule-budget/>

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