



Moore Global is a leading niche mining advisory and assurance professional services firm providing a world-class service to our clients. The multi-disciplinary and multi-commodity professional team spans the Moore Global Member Firm network with specialist teams in centres of excellence in key markets. Critical minerals has become a particular area of focus across the value chain and across Sectors in the Moore Global network.

What is a Critical Mineral?

A critical mineral is a metallic or non-metallic element essential for modern tech, economies, or national security, and has a supply chain at risk of disruption. The demand for critical minerals has doubled in the past five years, due to reasons such as the spread of high-tech devices for personal and commercial use, the construction of wind turbines, electric vehicles, solar panels, the improvement of battery performance, etc.

Overview of Brazil and the mining industry

Brazil holds a prominent position within the global mineral production landscape, boasting the extraction and trade of over 90 different mineral resources. Notably, it stands as the foremost producer of niobium on a global scale and ranks as the second-largest producer of iron ore. Leading the way in the mining industry as the world's third-largest mining corporation is the Brazilian conglomerate, Vale, which primarily specializes in iron ore extraction. The Brazilian mining sector also contributes significantly to the global supply of essential minerals such as gold, kaolin, nickel, coal, and phosphates.

The nation's mineral wealth offers substantial prospects for investment, given its confirmed reservoirs of several strategically vital resources, and it's worth noting that less than half of Brazil's expansive territory has been comprehensively geologically surveyed. The mining industry in Brazil plays a pivotal role in the country's economy, generating over 204,000 direct employment opportunities across a network of more than 7,300 enterprises. Annually, this sector extracts an impressive volume of minerals, surpassing 1.05 billion tons, and contributes to a substantial revenue stream exceeding \$50 billion.

What is the potential of Brazil regarding Critical Minerals?

At the 2023 Prospectors and Developers Association of Canada (PDAC 2023) event, the Geological Survey of Brazil (SGB) delivered an assessment of Brazil's capacity in relation to specific vital minerals. This encompassed the presentation of comprehensive data and insights concerning Copper, Graphite, Lithium, Nickel, Phosphate, Potash, Rare Earth Elements, and Uranium.

1 H Hydrogen																	2 He Helium	
3 Li Lithium	4 Be Beryllium																	10 Ne Neon
11 Na Sodium	12 Mg Magnesium																	18 Ar Argon
19 K Potassium	20 Ca Calcium	21 Sc Scandium	22 Ti Titanium	23 V Vanadium	24 Cr Chromium	25 Mn Manganese	26 Fe Iron	27 Co Cobalt	28 Ni Nickel	29 Cu Copper	30 Zn Zinc	31 Ga Gallium	32 Ge Germanium	33 As Arsenic	34 Se Selenium	35 Br Bromine	36 Kr Krypton	
37 Rb Rubidium	38 Sr Strontium	39 Y Yttrium	40 Zr Zirconium	41 Nb Niobium	42 Mo Molybdenum	43 Tc Technetium	44 Ru Ruthenium	45 Rh Rhodium	46 Pd Palladium	47 Ag Silver	48 Cd Cadmium	49 In Indium	50 Sn Tin	51 Sb Antimony	52 Te Tellurium	53 I Iodine	54 Xe Xenon	
55 Cs Cesium	56 Ba Barium	*	72 Hf Hafnium	73 Ta Tantalum	74 W Tungsten	75 Re Rhenium	76 Os Osmium	77 Ir Iridium	78 Pt Platinum	79 Au Gold	80 Hg Mercury	81 Tl Thallium	82 Pb Lead	83 Bi Bismuth	84 Po Polonium	85 At Astatine	86 Rn Radon	
87 Fr Francium	88 Ra Radium	**	104 Rf Rutherfordium	105 Db Dubnium	106 Sg Seaborgium	107 Bh Bohrium	108 Hs Hassium	109 Mt Meitnerium	110 Ds Darmstadtium	111 Rg Roentgenium	112 Cn Copernicium	113 Nh Nihonium	114 Fl Flerovium	115 Mc Moscovium	116 Lv Livermorium	117 Ts Tennessine	118 Og Oganesson	
57 La Lanthanum	58 Ce Cerium	59 Pr Praseodymium	60 Nd Neodymium	61 Pm Promethium	62 Sm Samarium	63 Eu Europium	64 Gd Gadolinium	65 Tb Terbium	66 Dy Dysprosium	67 Ho Holmium	68 Er Erbium	69 Tm Thulium	70 Yb Ytterbium	71 Lu Lutetium				
**	89 Ac Actinium	90 Th Thorium	91 Pa Protactinium	92 U Uranium	93 Np Neptunium	94 Pu Plutonium	95 Am Americium	96 Cm Curium	97 Bk Berkelium	98 Cf Californium	99 Es Einsteinium	100 Fm Fermium	101 Md Mendelevium	102 No Nobelium	103 Lr Lawrencium			

Energy Transition

Food Security

Brazil's reputation as a major iron ore exporter is well-established, yet the realm of critical minerals presents an intriguing avenue for fresh investments, employment opportunities, and economic diversification.

Various consortia of organizations are collaborating to promote the critical minerals sector, driven by its great potential.

What is the potential of Brazil regarding Critical Minerals? (cont.)

Brazil is noteworthy in this context, as it falls among the countries holding substantial reserves of vital resources. To highlight, it boasts a significant 12.4% share of global nickel reserves, a substantial 13.6% portion of manganese reserves, and an impressive 18.3% stake in global rare earth elements reserves. This positioning emphasizes the attractive opportunities within the critical minerals sector.

Overview of Critical Minerals Potential of Brazil (SGB Research)

Copper:

- 1,6% world's mined copper
- 99.5 Mt of produced ore (ROM)²
- 8th exporter world ranking
- 11th importer world ranking

Graphite

- 3rd world's biggest reserve
- 2nd world's largest producer

Lithium

- 7th world's biggest reserve
- 5th world's largest producer.

Nickel

- 3rd world's biggest reserve
- 8th world's largest producer

Phosphate

- 3rd world's biggest reserve
- 3rd world's largest producer

Potash

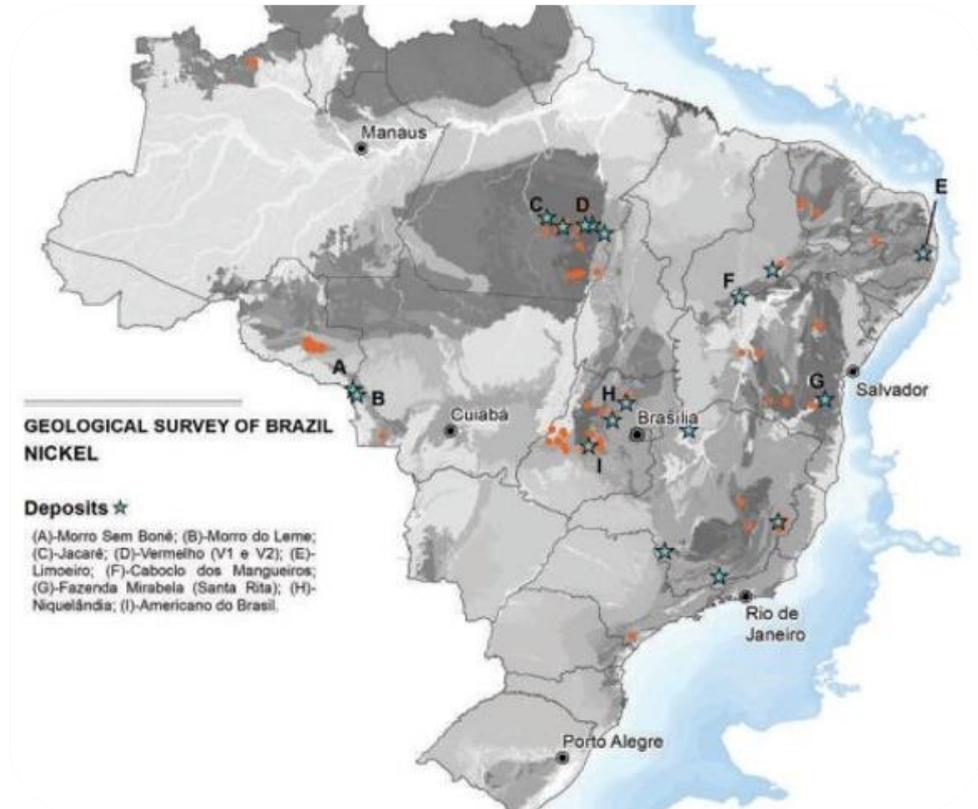
- 12th world's biggest reserve
- 12th world's largest producer

Rare Earth Elements

- 3rd world's biggest reserve
- Total Produced REE 903t²

Uranium

- 7th world's biggest reserve
- 14th world's largest producer



In Brazil, IBRAM (the Brazilian Mining Association) hosted an event with over 200 representatives from the mining sector to chat about the future of mining. This resulted in a Commitment Letter, where the sector committed to making big changes in how it deals with people and nature. This document set the stage for the ESG Agenda, where participants talked about and defined practices, measures, and goals for improvement, while also spreading the word about best practices.

To find out more about the opportunities for your business in the Energy, Mining and Renewables sector, including ESG solutions, please contact one of our Moore experts below.



MARCELL ASSIS
Head of ESG
Moore Belo Horizonte (Brazil)
marcell.assis@moorebh.com



PATRICIA PETRI
ESG Consultant
Moore Belo Horizonte (Brazil)
patricia.petri@moorebh.com