

Special Report

# Rising Resource Nationalism in Metals Critical for EV Batteries

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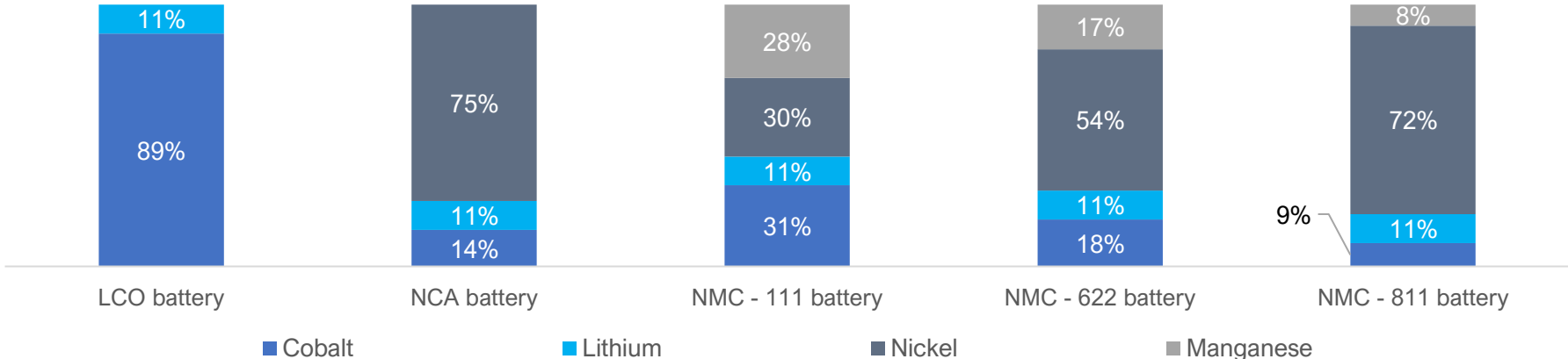
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# Introduction to EV battery metals

- Critical metals are metallic or non-metallic elements that are vital for many emerging technologies. However, scarcity of substitutes and limited suppliers create supply constraints for majority of countries.
- In the last five years, the critical minerals market doubled in size to USD 320 billion, expanding at a CAGR of ~19%, and is forecast to double again before the end of the decade.
- Out of all the critical metals, we have identified three major ones, namely **lithium, cobalt, and nickel**, also known as battery metals. These metals are essential components in the production of rechargeable batteries used in various electronic devices and electric vehicles (EVs) as well as energy storage technologies, contributing to the growth of the renewable energy sector.
- Recently, EV manufacturing and energy storage solutions have seen exponential growth, creating increased demand for these battery metals. EV batteries, for example, require on average 200 kg of critical minerals per vehicle, roughly six times the amount needed for a conventional car.
- In this report, we discuss the impact of rising resource nationalism on these battery metals by a few major countries, along with ongoing counter measures to mitigate the impact.

## Share of raw materials in lithium-ion batteries by battery type



Note: LCO: Lithium cobalt battery, NCA: Lithium nickel cobalt aluminum oxide battery, NMC-111: 33.33% of nickel, manganese, & cobalt, NMC-622: Nickel (60%), manganese, & cobalt (20% each), NMC-811: Nickel (80%), manganese, & cobalt (10% each)

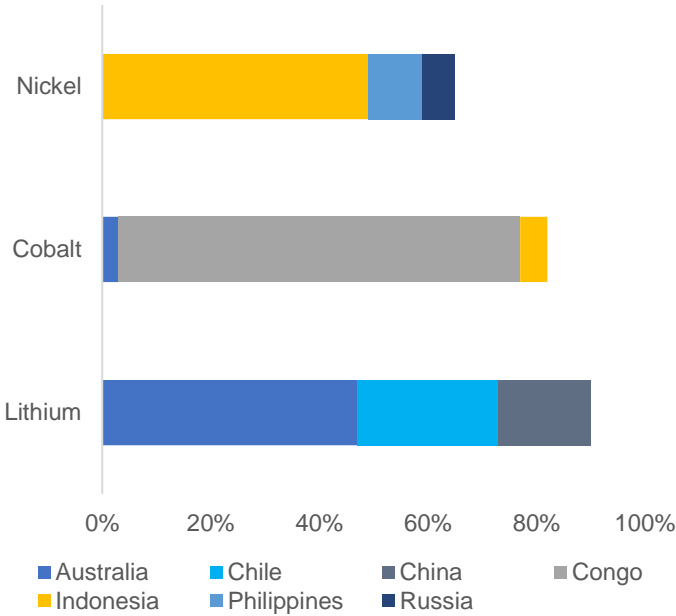
# Crucial properties of metals for manufacturing EV batteries

Battery metals are essential to produce batteries and enables the functioning of modern battery technologies. Some common battery metals and their key characteristics are mentioned below:

- 1. Lithium:** Lithium is essential for efficient energy storage in widely used lithium-ion batteries. It also finds application in portable electronics, EVs, and renewable energy systems.
- 2. Cobalt:** Cobalt enhances lithium-ion battery performance, particularly in lithium-cobalt oxide batteries used in smartphones and laptops, providing high energy density and extended cycle life.
- 3. Nickel:** Nickel is crucial in lithium-ion battery cathodes. It is used in NiCd and NiMH batteries in older electronics and NCA/NMC batteries powering EVs.

Property	Lithium	Nickel	Cobalt
High Energy Density	Yes	Yes	Yes
Lightweight	Yes	Relatively	Moderate to High
High Electrochemical Potential	Yes	No	No
Cost-Effectiveness	Moderately Expensive	Yes	Moderately Expensive
Abundance	Limited	Limited	Limited
Common Battery Types	Lithium-ion	Nickel-cadmium, Nickel-metal hydride, Lithium-ion (NCA, NMC)	Lithium-ion, Lithium-cobalt oxide (LiCoO <sub>2</sub> )
Major Producing Companies	Albemarle (US), SQM (Chile), Ganfeng (China), Tianqi (China), Livent (US)	Glencore (Switzerland), China Molybdenum Co., Umicore (Belgium), Huayou Cobalt (China), Eurasian Resources Group (Luxembourg)	Vale (Brazil), Norilsk (Moscow), BHP (Australia), Anglo American (UK), Jinchuan Group (Hong Kong)

Share of top three producing countries in mining of selected minerals, 2022



Source: Wikipedia, IEA

# Key factors fueling resource nationalism

Resource nationalism, seen worldwide, involves governments taking steps such as export restrictions and nationalization to assert control over natural resources with the aim of protecting national interests and enhancing economic benefits.

## Geographical concentration

- The mining of certain metals is highly concentrated among just a few countries.
- In lithium production, Australia, Chile, and China, the top three contributors, collectively hold sway over more than 90% of the market.
- Meanwhile, the top three nickel producers (Indonesia, the Philippines, and Russia) together command two-thirds of the market.
- Similarly, in cobalt production, the Democratic Republic of the Congo (DRC) holds a dominant position, contributing to 70% of global mining.

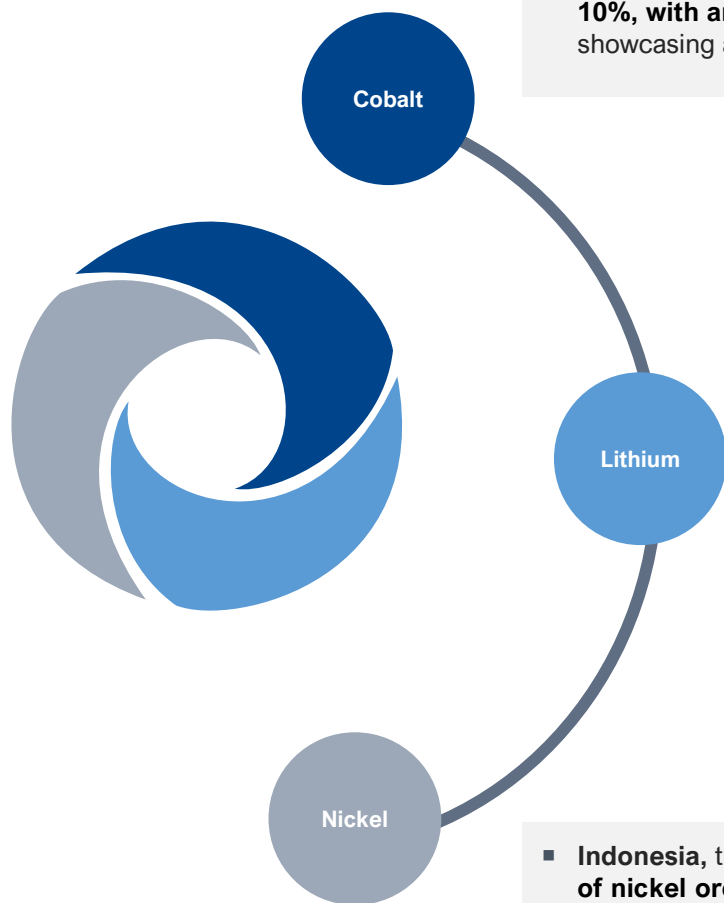
## Influence of China

- China maintains a dominant role in critical minerals mining, refining, and manufacturing accounting for 85–90% of the global rare earth elements.
- In refining critical minerals, China produced 65% of global cobalt, 58% of refined lithium, and 35% of refined nickel in 2019.
- Furthermore, it produces 75% of global batteries and plays a major role in the EV manufacturing sector.
- China has imposed restrictions on exports of critical minerals to various countries, including the US, Japan, and Sweden.

## Rising demand and prices

- The International Energy Agency (IEA) highlights a substantial surge in worldwide demand for crucial minerals such as lithium, cobalt, and nickel, propelled by the shift toward clean energy.
- Over 2017–22, there was a threefold increase in lithium demand, 70% surge in cobalt demand, and 40% rise in nickel demand.
- Notably, prices have consistently surpassed historical averages, indicating the heightened significance of these minerals in the current energy landscape.

# Growing resource nationalism on battery metals

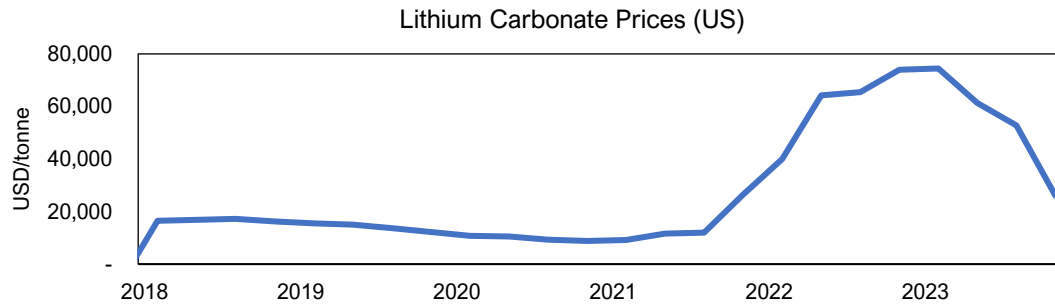


- The DRC supplies **73% of global production**, and in 2018, **the country doubled its stake in mining companies to 10%, with an extra 5% on license renewals**. This action aims to enhance the DRC's control over its cobalt industry, showcasing a prime instance of resource-rich nations taking stronger ownership of their cobalt resources.

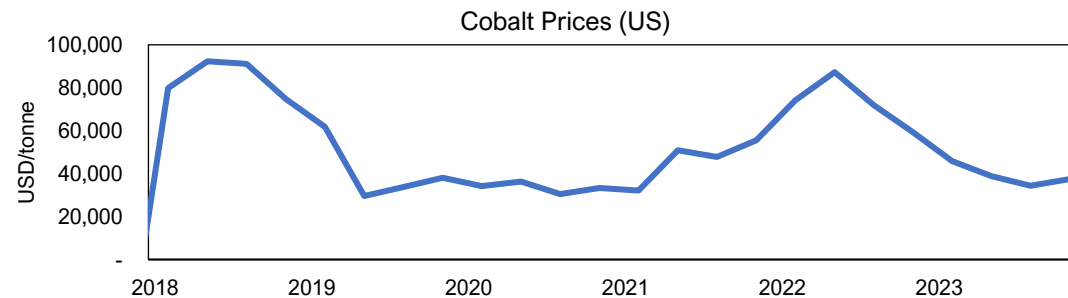
- In April 2023, **Chile** declared the nationalization of lithium reserves shifting control to a government-owned entity from companies such as SQM and Albemarle. Private entities must now form partnerships with the state for lithium extraction.
- In 2008, **Bolivia nationalized its lithium reserves**, and since 2017, a government-owned company manages all aspects of lithium, with private firms mandated to collaborate.
- **Mexico nationalized lithium mining** in 2022 and **nationalized its lithium deposits** in 2023. The country created a state-run entity responsible for all aspects of lithium exploration, mining, and refining.
- In 2022, **Zimbabwe**, the fifth-largest global lithium producer, implemented a **ban on raw lithium exports**. This move aims to prioritize its revenue generation from the extraction of its minerals
- In 2022, **Canada urged China to divest from three lithium mining companies**, citing national security and critical mineral concerns for the protection of local supply chains.
- The **Lithium Triangle (Argentina, Bolivia, Chile)** is discussing the formation of an OPEC-style organization to check global lithium prices. **With 58% of the world's lithium resources**, their collaboration could reshape the market.

- **Indonesia**, the world's largest producer of nickel and holding 22% of the global nickel reserves, **banned the export of nickel ore in January 2020**. It further ramped up trade protection measures by raising export taxes on copper, laterite, zinc, and lead concentrates from 0–5 to 5–15% in 2024 depending on the product and its smelter development progress.

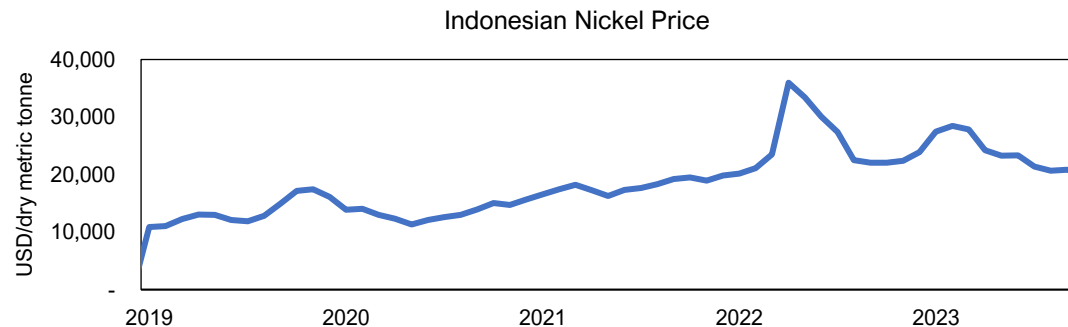
# Key pricing trend of battery metals



Lithium prices have risen rapidly due to EV demand, coupled with tight supply resulting from resource nationalism. However, the prices have recently moderated due to slowing demand for EVs and oversupply of lithium in some geographies.



Cobalt prices surged early in 2022 but declined thereafter as supply chain constraints eased, and demand for portable electronics stumbled.



Nickel prices soared in early 2022 due to the Russian invasion of Ukraine, causing concerns about reduced exports. Although prices later fell, they remain elevated compared to pre-pandemic levels.

Source: Bloomberg

# Countermeasures to address resource nationalism threats

In response to the threats of rising nationalism leading to the scarcity of battery metals, countries worldwide are implementing various measures. These countries are taking coordinated steps to tackle the challenges posed by resource nationalism. Here are some of the recent steps undertaken by major economies to address such challenges.

<p>Policies, Incentives, Regulations</p>	<ul style="list-style-type: none"><li>▪ Governments worldwide are implementing policies to ensure stable, secure, and onshore critical mineral supply chains. For example, Australia's Critical Minerals Strategy targets economic growth through increased production and supply chain development. The European Critical Raw Materials Act focuses on securing materials for strategic sectors aligned with 2030 climate and digital goals, while Canada's Critical Minerals Strategy aims to enhance the supply of responsibly sourced critical minerals, supporting green and digital economy value chains.</li><li>▪ Incentives such as tax benefits and exploration credits boost domestic production, for instance, the US Inflation Reduction Act of 2022.</li><li>▪ Efforts are being made to improve mining regulations and simplify permitting processes to attract investors.</li></ul>
<p>Reduced dependence on a few producer countries</p>	<ul style="list-style-type: none"><li>▪ There is growing focus on diversifying imports to mitigate supply risks and reduce concentration in certain regions.</li><li>▪ The US is leading in efforts to diversify critical mineral supply sources and diminish reliance on foreign markets.</li><li>▪ There is a notable move to decrease dependence on China in the mining and metals space through diversification efforts. For example, the US and EU are cutting reliance on China for mining and metals by strengthening ties with Africa, investing domestically, and implementing the Inflation Reduction Act for clean energy.</li></ul>
<p>Collaborative agreements</p>	<ul style="list-style-type: none"><li>▪ The US-led Mineral Security Partnership, initiated in June 2022, involves collaboration between the EU and 12 countries to decrease dependence on China and enhance the global critical minerals supply chain.</li><li>▪ The US and Japan signed an agreement in March 2023 to develop a secure supply chain for critical minerals.</li><li>▪ The EU's Critical Raw Materials Act, updated in 2023, prioritizes diversifying critical mineral imports and boosting domestic production.</li></ul>





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# Connect with our Team



**Ashwinikumar  
Dole**

Associate Vice-President  
Investment Research

+91 22 3937 9999

ashwinikumar.dole@aranca.  
com



**Meenakshi  
Agarwal**

Assistant Manager  
Investment Research

+91 22 3937 9999

meenakshi.agarwal@aranca  
.com



**Ronak  
Vijayvargiya**

Assistant Manager  
Investment Research

+91 22 3937 9999

ronak.vijayvargiya@aranca.  
com



**Shreya Verma**

Senior Analyst  
Investment Research

+91 22 3937 9999

shreya.verma@aranca.com



**Mayur Thorat**

Analyst  
Investment Research

+91 22 3937 9999

mayur.thorat@aranca.com

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