

Metals & Mining

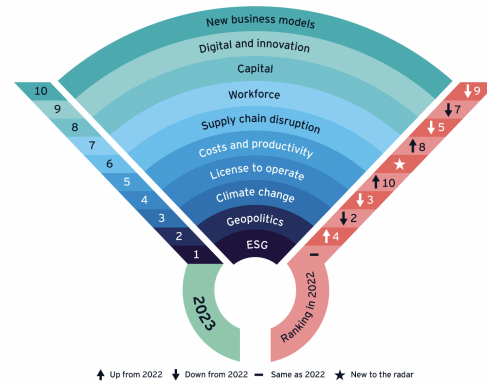
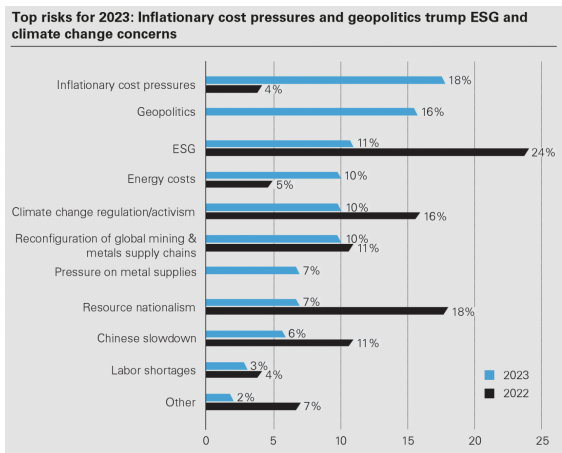
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Metals and Mining Outlook

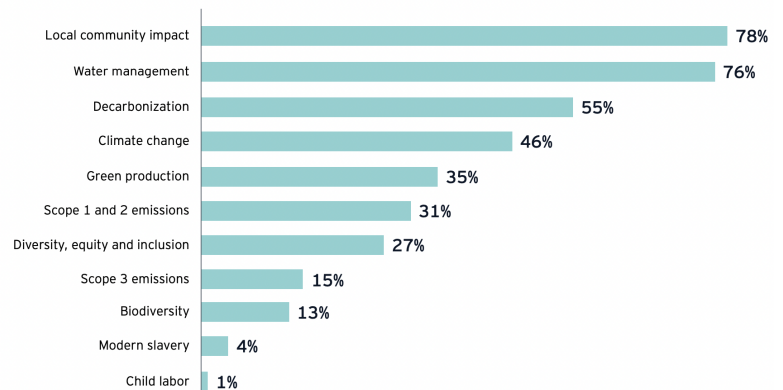
Despite muted demand in 2023 due to global headwinds, inflation is expected to pressure the metals markets. 2023 prices are expected to average lower than in 2022 across the industrial commodities with year-over-year drops ranging from 7% for copper to 33% for lithium. Supply-chain shortages and inflationary pressures in Europe and the U.S are slowing EV sales growth. With a more heightened sense of international competition for resources in terms of battery metal supply chains, the market has potential growth, but also leads to extreme volatility for buyers. ESG still maintains high risk and opportunity this upcoming year due to its improvement on transparency and reporting. With this new shift, lack of supplies and a new outlook on operations, there is uncertainty in the M&M industry. In addition, Theo Yameogo, Americas Mining & Metals Leader, states the significance geopolitics has had on this sector due the war in Ukraine, climate events, new governments in mining regions and shifting relationships in other operations.



Potential Growth

Traditionally, mining operations follow an economic model that known as *take, make, dispose*, but opportunities are explored to create byproducts from waste that can be used within mining. Companies are focusing on net positive impact and reducing their biodiversity and environmental damage. Many companies are re-evaluating their mining operations and are focusing on a long-term strategic vision for mine closures. With a lot of commotion among the mining companies, a lot of focus is being placed in remote operations and commissioning, health and safety, collaboration, decarbonization.

The requirement for additional supply will stem not only from raw materials, such as copper for electrification and nickel for battery-powered EVs that are projected to experience substantial demand growth beyond their current utilization, but also from specialty commodities such as lithium and cobalt for batteries, tellurium for solar panels, and neodymium for permanent magnets utilized in both wind power generation and EVs. Moreover, certain commodities, primarily steel, will play a crucial role in enabling new and old technologies.



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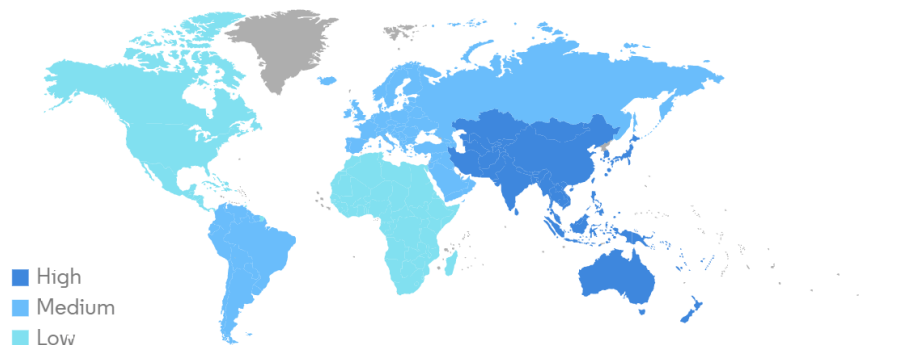
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Replacing Traditional Batteries

As China reopens this year, the metals market is rebounding rapidly. The copper, lithium, and nickel markets are witnessing soaring demand and increasing concerns over inventory measures. Demand is expected to continue to increase over the next few decades as electric vehicles (EV) will attempt to replace traditional gasoline-fueled cars. In 2022, the global electric vehicles market size was approximately 18.1MM units, and is expected to reach 148.4MM units by 2028 (41.2% increase). In the future, society is expected to see more technological advances towards renewable energy with electric vehicles that use lithium-ion batteries, as these new batteries lead to a higher storage capacity and increased energy density compared to traditional batteries. As a result, these new batteries allow electric vehicles to be able to travel longer distances after a single charge.

Lithium-ion Battery Market - Growth Rate by Region, 2022-2027



Source: Mordor Intelligence



With China's prevalence in the lithium market, their companies have signed agreements with large lithium-producing countries, such as Bolivia, and have begun processing lithium into battery-grade inputs and manufacturing. Lithium-ion batteries are expected to represent the second-largest end-use market for nickel. The biggest producers of lithium include China, Australia, and Chile, with CATL (Contemporary Amperex Technology Co. Limited) being the largest lithium-ion battery manufacturer, headquartered in Ningde, China.

Effect on Demand and Prices

Industries around the world are trying to build EV battery facilities towards their mission to achieve clean energy by using these metals in the most sustainable way. As nations move towards becoming more environmentally-friendly, the demand for metals found in lithium-ion batteries and electric vehicles – lithium, copper, and nickel – is continually increasing. BloombergNEF estimated the demand for the metals used in next-generation batteries doubled from 2022, and will almost quadruple by the end of the decade. In addition, as metal inventories are decreasing, costs are rising. Base metal prices are expected to increase 10-20% this upcoming year.

Overall, regardless of the chosen path towards cleaner future and decarbonization, significant alterations in demand are inevitable, and will result in a transformation of the metals and mining industry, presenting new opportunities for value generation while concurrently causing some value streams to diminish.

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