Mineral supply chains
Regulation, risk, responsibility

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The world produced roughly 2.8 billion tonnes of metals in 2021. Here are all the metals we mined, visualized on the same scale.
BATTERY SUPPLY CHAIN
lithium-ion battery

MINING → REFINERY → BATTERY CELL → BATTERY PACK → END USE

Anode, Cathode, Separator, Electrolyte, Electrode foils

Social justice

Fair distribution of benefits & costs
Touchy subject
Distribution of value for an Apple iPad
2010, % of total

Profits:
- Apple: 30
- Other US: 2
- South Korean: 7
- Taiwanese: 2
- Other: 6

Costs:
- Chinese labour: 2
- Non-Chinese labour: 5
- Cost of materials: 31
- Distribution & retail: 15

Source: Personal Computing Industry Centre

https://www.economist.com/finance-and-economics/2012/01/21/ipadded
THE TOP 20 MINING COMPANIES IN THE WORLD IN 2021

Mining is one of the few industries that emerged from the COVID-19 pandemic in excellent financial and operational shape and the forecast is even brighter.

In today's graphic, we show the world's biggest mining companies by market capitalization and their main mining activity.

BHP and Rio Tinto led the race to diversify beyond iron ore, the top producer of copper, steel, and other critical minerals.

Fortescue, the biggest producer of iron ore, is the world's largest producer of iron ore and a leading supplier of ore to the steel industry.

Predicted global copper consumption is expected to grow by 33% by 2024.


top 20 mining companies

BHP
Rio Tinto
Fortescue
Codelco
Anglo American
Antofagasta
China Molybdenum
Freeport McMoRan
Northern Miner
Rio Tinto
Antofagasta
Anglo American
Codelco
Freeport McMoRan
China Molybdenum
Northern Miner
Rio Tinto
Antofagasta
Anglo American
Codelco
Freeport McMoRan
China Molybdenum
Northern Miner
Rio Tinto
Antofagasta
Anglo American
Codelco
Freeport McMoRan
China Molybdenum
Northern Miner
Ranks
1.
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18.
19.
20.

Source: Visual Capitalist, company reports, regulatory filings, and news reports.

44,670,000
Global Number of People Working in ASM

https://delvedatabase.org/data
Regulation
Metaphor of the supply chain

Supply chain regulation = replacing “weak links” in the chain (Gibb, 2020)

Source: https://www.minespider.com/blog/exploring-the-gold-supply-chain
“Customers, consumers and governments hold companies accountable not only for their own actions, but for the actions of suppliers, vendors and business partners. **Remember, your organization is only as strong as its weakest link.** Being aware of the risks your organization faces – supply, supplier and price – and adopting a best-practice supply chain management process, building on an accountable, risk-based approach, will keep your organization out of trouble. It will also keep you on the right side of regulators whilst ensuring supply-chain sustainability and allowing you to move forward with confidence”

Thomson Reuters blog, 2016
https://blogs.thomsonreuters.com/answerson/the-weakest-link/
Due diligence

“An on-going, proactive and reactive process through which companies can ensure that they respect human rights and do not contribute to conflict” (...) Through this process, “companies can identify, prevent, mitigate and account for how they address their actual and potential adverse impacts as an integral part of business decision-making and risk management systems”. (OECD, 2016)
Risk
| Serious abuses associated with the extraction, transport or trade of minerals |
| Direct or indirect support to non-state armed groups |
| Public or private security forces |
| Bribery and fraudulent misrepresentation of the origin of minerals |
| Money laundering |
| Payment of taxes, fees and royalties due to governments |
Risk as something that can be calculated and managed
Prevention, mitigation, reaction
Responsibility
Responsible Sourcing Policies

Tesla, Inc. and its subsidiaries ("Tesla") requires our suppliers (defined as all companies or individuals from which Tesla is receiving goods and services as well as their personnel, agents and subcontractors) to conduct their worldwide operations in a responsible manner, consistent with Tesla’s mission to accelerate the world’s transition to sustainable energy and in adherence to this responsible materials policy and the principles enumerated herein in addition to the requirements in our Human Rights Policy and Supplier Code of Conduct. Tesla will work collaboratively with our suppliers to ensure diligent implementation of the requirements set forth herein and will verify and enforce compliance fairly and consistently when necessary.

Legal And Regulatory Compliance

Tesla suppliers are responsible for ensuring that their operations and the products and services supplied to Tesla comply with all national as well as other applicable laws and regulations. This responsibility includes, but is not limited to, compliance with relevant laws governing bribery, corruption, and conflicts of interest.

When sourcing 3TG materials, Tesla expects suppliers to share our goal and implement steps to create a conflict-free supply chain. Where our suppliers source directly from smelters or refiners ("SoRs"), we require sourcing only from SoRs that have been validated as conflict-free by the Responsible Minerals Initiative’s (“RMI”) Responsible Minerals Assurance Process (“RMAP”) or equivalent program. For our suppliers who do not source directly from an SoR, we expect them to engage with their own supply chain and require sourcing only from SoRs that are conformant to the RMAP. When we discover suppliers with non-conformant SoRs, Tesla requires these suppliers to transition to a fully conformant supply chain without delay. Suppliers may be requested to provide evidence of changes to their supply chain to prove the removal of non-conformant SoRs. Tesla recognizes the importance of mining to local communities and encourages ethical sourcing from the Democratic Republic of Congo (DRC). As recommended by the OECD, we do not support an embargo, implicit or explicit, of any DRC material, but instead allow sourcing from the region when it can be done in a responsible manner through audited value chains.
Thank you

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