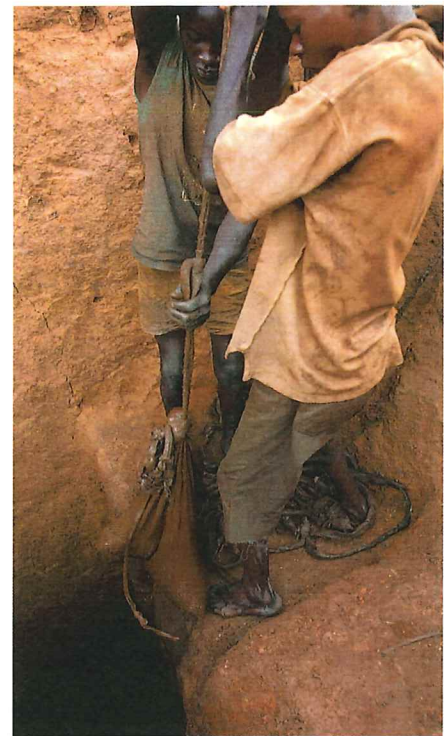


Child Labor in the EV Supply Chain

'Our daily lives are powered by a human and environmental catastrophe in the Congo.'

Summary.

- Cobalt is a necessary metal for the lithium-ion batteries used in electric vehicles (EVs). The majority of this cobalt comes from Chinese-owned cobalt mines in the Democratic Republic of the Congo (DRC).
- Thirty percent (30%) of cobalt from the DRC is mined by non-industrial "artisanal" workers. "Artisanal" mining is a euphemism for low-paid, subsistence miners and their families, including children, living and working in brutal and unsafe conditions.
- Many of the ultimate purchasers of the cobalt, including EV and EV battery makers, belong to various industry organizations supposedly working to ensure that the supply chain does not include cobalt produced by child labor. These organizations, however, have little actual control or influence over the cobalt production. They provide, in reality, little more than fig leaf reputational protection for the EV industry.
- EVs have no environmental or economic justification.
- The EV supply chain relies on Communist China. So reliance on EVs endangers US national security.



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The EV industry depends on cobalt from the Congo.

- Cobalt is used in almost every lithium-ion rechargeable battery in the world. It is combined with other metals to make cathodes, the positively charged part of the battery.
- In 2021, 111,750 tons of cobalt were mined in the DRC – 72% of global supply. This figure is expected to increase as EV demand increases.
- Tesla, Ford, General Motors, BMW and Chrysler are just some of the companies that buy some, most or all of the cobalt by way of battery manufacturers and cobalt refiners in China, Japan, South Korea, Finland and Belgium.

Life in the DRC is poor and brutal.

- Though the DRC holds trillions of dollars of untapped mineral deposits, the national budget is only \$7.2 billion -- about the size of the state of Idaho although Idaho has 1/50 of the population of the DRC.
- The DRC ranks 175th out of 189 on the United Nations Human Development Index. More than 75% of the people in the DRC live below the poverty line. One-third suffer food insecurity. Life expectancy is only 60.7 years. Child mortality is 11th worst in the world. Only 26% have access to clean drinking water and on 9% have electricity.
- Countless children are compelled to work to support their families.

How does artisanal cobalt mining function in the DRC?

- Thirty percent (30%) of cobalt from the DRC is from artisanal mining.
- The best cobalt is located 60-90 feet below ground. Artisanal miners, often children, dig dangerous tunnels to reach it. No money is paid for digging the tunnels. Bodies are often not recovered from collapsed tunnels.
- Hand mining tools are used to access the cobalt, which is collected in bags and carried to roadside buying houses, where they are sold. The buyers weigh the ore, assess its quality and pay the miners at a set rate based on the estimated quality.
- Artisanal cobalt enters the formal supply chain via an informal ecosystem of miners, roadside buying houses (usually Chinese-run) and traders.
- The buying houses and traders manage to launder minerals purchased from the artisanal miners into the formal supply chain of cobalt produced by more legitimate industrial production.
- There is no regulation or other scrutiny at any point as to the source or conditions under which the cobalt was mined.
- Artisanal miners work for \$1-2 per day. Children don't actually receive the money. They work to help their families.
- Almost all the buying houses are operated by Chinese buyers. Chinese companies own 15 of the 19 industrial mining operations
- Sulfuric acid is used to separate the copper from the cobalt. Because the Chinese processing



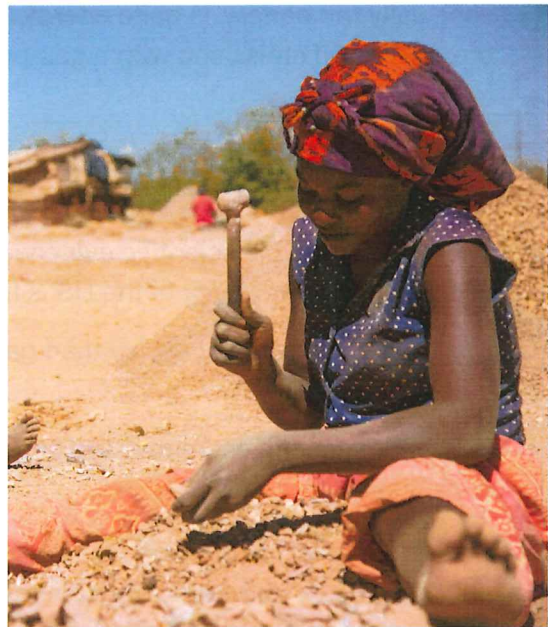
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facilities don't contain emissions, everyone, including children, are covered in yellow-ish dried sulfuric acid used in to process the ore. It blows over homes, and falls on food and water and everyone.

- One might reasonably expect the city of Kolwezi, the DRC city where most of the cobalt is mined, to be a boom town in which fortunes are made by intrepid prospectors. Nothing could be further from the truth. The scale of destruction is enormous and the magnitude of suffering is incalculable.

The EV industries efforts to reduce and eliminate child labor are nothing more than virtue signaling.

- The EV industry operates efforts like the Responsible Minerals Initiative (RMI) and the Global Battery Alliance (GBA) to address the labor and environmental problems associated with cobalt mining in the DRC. These efforts have accomplished little if anything.
- There are no enforced corporate commitments to international rights standards, third party audits or zero tolerance policies on forced and child labor.
- Civil society organizations in the DRC have no chance to realize their goals so long as the government is corrupt and the Chinese rule the mining provinces. The Chinese pay billions to the government and the politicians close their eyes. Civil society organizations are allowed to exist only to show they exist.
- There is no such thing as a clean supply chain of cobalt from the Congo. All is tainted by various degrees of abuse, including slavery, child labor, forced labor, debt bondage, human trafficking, hazardous and toxic working conditions, low wages, injury and death, and incalculable environmental harm. The OECD estimates that as much as 70% of cobalt from the DRC is connected with child labor.
- Ineffective corporate efforts make the situation worse. Because of the fig leaf protection offered by GBA and RMI, no one actually tries to improve conditions.
- Even monitoring the situation is impossible as conditions are adversarial at every turn, including aggressive security forces, intense surveillance, the remoteness of many mining areas, distrust of outsiders and the sheer scale of hundreds of thousands of people engaged in the feverish excavation of cobalt in medieval conditions.



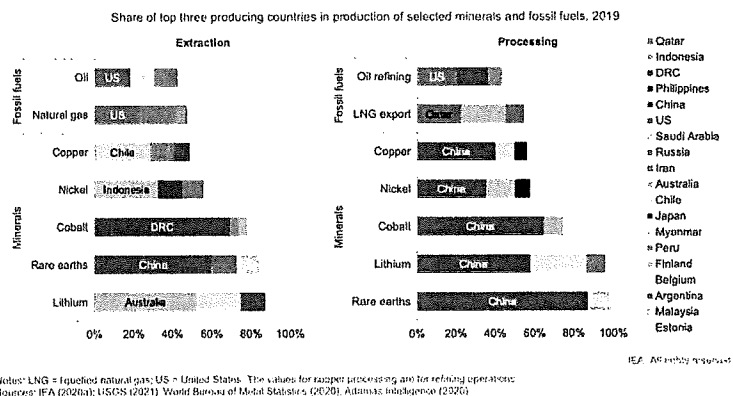
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EVs have no environmental or economic justification.

- Even accepting for sake of argument that fossil fuel emissions contribute to “global warming,” widespread adoption of EVs would not significantly reduce global warming on any foreseeable time scale.
 - Even if the US zeroed out emissions entirely today, average global temperature would only be reduced by 0.04°F by the year 2050, per UN climate models. That estimated temperature is not even close to being measurable.
 - Passenger vehicles only amount to about 16% of US emissions. So if all cars in the US were EVs, the average global temperature would only reduced by 0.0064°F by 2050.
- Although EVs do not emit greenhouse gases while being driven, their manufacture, especially the battery, is quite energy intensive. EVs must be driven 30,000 miles or more to break even on emissions with a gas-powered car, likely more if their charging depends on fossil fuel plants.
 - But even if everyone drove an EV that was manufactured and charged without any emissions, it would not affect “average global temperature” in any measurable way.
- There is no credible scientific evidence that EVs significantly improve air quality and public health. The vast majority of the US is fully compliant with overly protective EPA air regulations.
- EVs are much more expensive than gas-powered cars and require expensive new charging infrastructure.
- EVs would cost an estimated \$50,000 more without the current \$22 billion in government subsidies.
- Because of the lack of consumer demand for EVs, General Motors abandoned plans to build 400,000 EVs by mid-2024, “the latest sign that automakers are concerned about the viability of the market for battery-powered cars.”

EVs endanger US national security.

- Morgan Stanley: “Currently, up to 90% of the EV battery supply chain relies on China, with the two largest Chinese battery companies controlling more than half of the global market. Chinese companies have spent decades developing the technology, and therefore dominate labor and manufacturing infrastructure, as well as mining of critical materials required to make EVs.”



- China [threatened](#) the EU over its anti-subsidy probe into Chinese electric vehicles.
- Tesla [relies](#) on China as a supplier and as a market for 40% of its new cars in the country. "The risk of not being able to sell in China is crippling to Tesla," said an industry supply-chain consultant.
- EVs rely on cobalt, lithium and rare earths. The [availability](#) of these minerals and metals depends on China.
- China recently [restricted exports of graphite](#), a key component of EV batteries, in response to challenges of its global dominance in EV batteries.

Note: Information and quotes from "[Cobalt Red: How the Blood of the Congo Powers Our Lives](#)" unless otherwise noted/linked.