

Silver in Technology



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Where is Silver Produced?

- The number one silver producing country in the world is Mexico, but many other countries mine their own silver as well, including the United States.
- Below is a link to a chart that shows the top silver producing countries in the world as of 2019, according to [silverinstitute.org](https://www.silverinstitute.org).

Top 20 Producing Countries

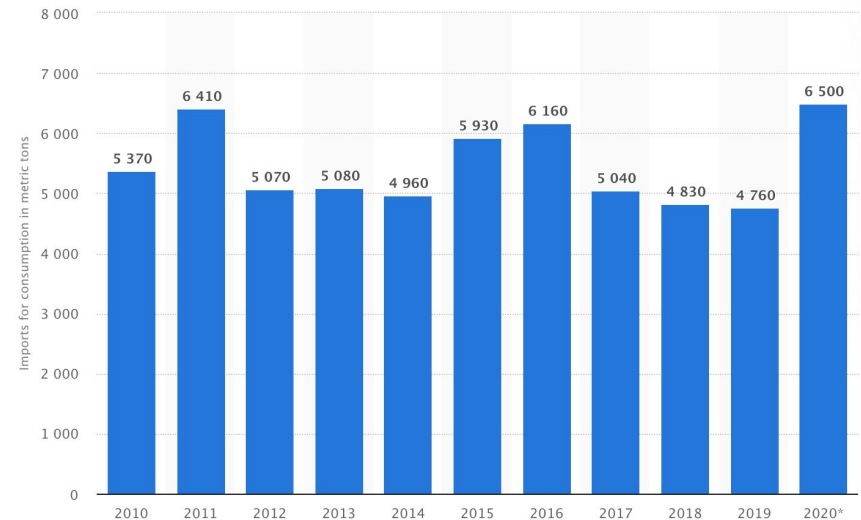
Million ounces	2018	2019	Y/Y
Mexico	194.5	190.3	-2%
Peru	146.5	135.4	-8%
China	110.0	110.7	1%
Australia	40.3	42.9	6%
Russia	43.1	42.4	-2%
Poland	40.9	40.4	-1%
Chile	40.0	38.2	-4%
Bolivia	38.3	37.2	-3%
Argentina	30.9	34.8	13%
United States	29.8	31.5	6%
India	21.2	20.4	-4%
Kazakhstan	19.5	16.7	-14%



How much Silver is imported to the United States?

According to Statista, The United States imported about 6500 metric tons of silver for consumption in 2020 alone.

US Silver Imports from 2010 to 2020:

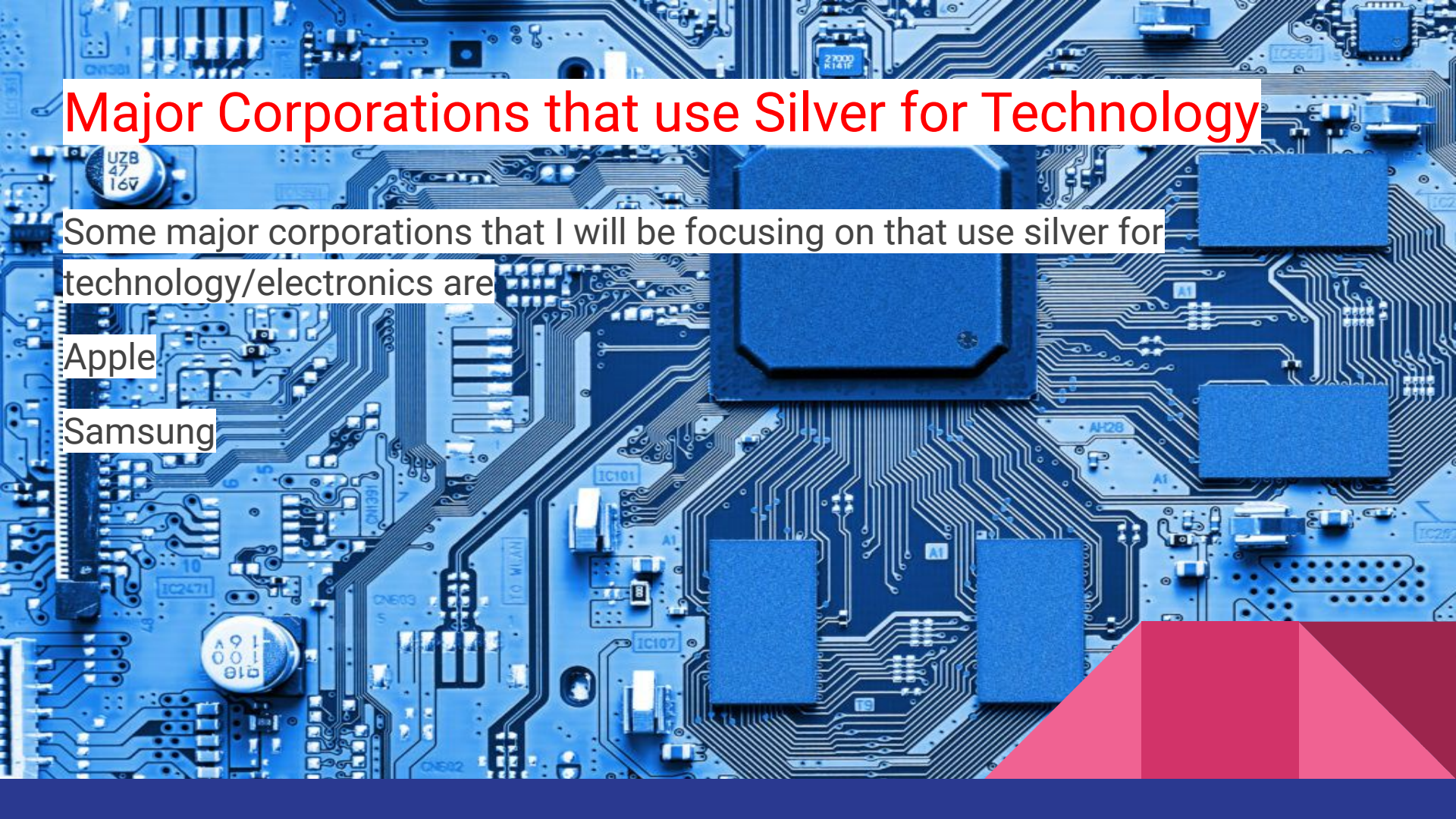


Major Corporations that use Silver for Technology

Some major corporations that I will be focusing on that use silver for technology/electronics are

Apple

Samsung



Production Processes

Silver-bearing ores are mined by open-pit or underground methods and then are crushed and ground.

The specific extraction process for silver depends on if the major metal is copper, zinc, or lead



Copper Extraction

The smelting and converting of copper sulfide concentrates result in a “blister” copper that contains 97 to 99 percent of the silver present in the original concentrate.

This is smelted in a small furnace to oxidize virtually all metals present except silver, gold, and platinum-group metals. The metal recovered, called doré, generally contains 0.5 to 5 percent gold, 0.1 to 1 percent platinum metals, and the balance silver. This metal is cast to form anodes and electrolyzed in a solution of silver-copper nitrate.

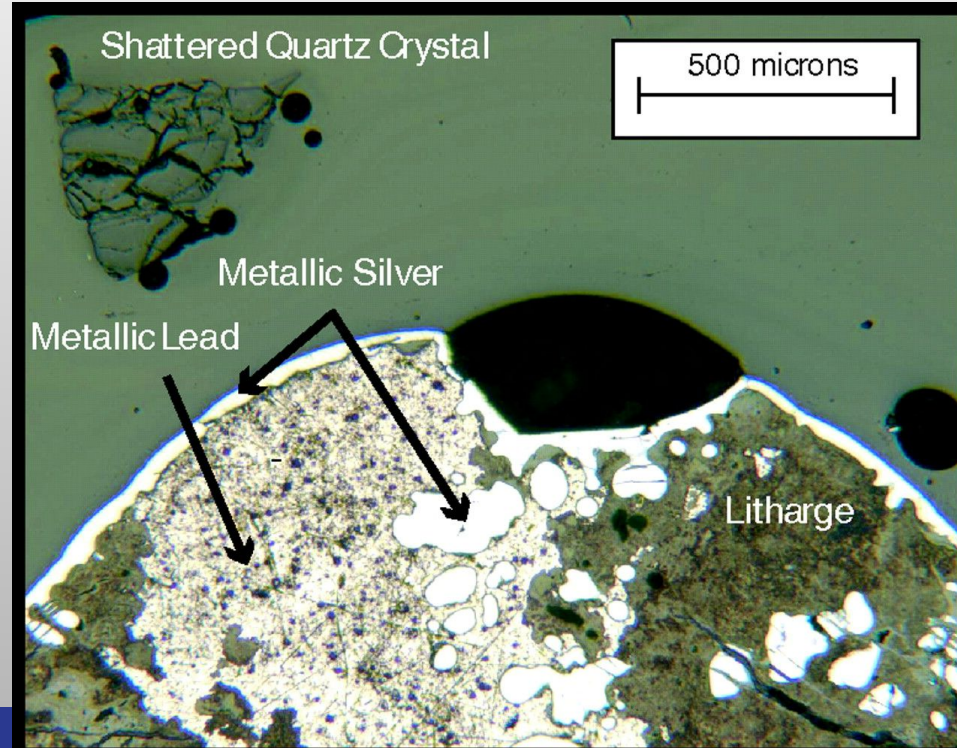


Lead Extraction

Lead concentrates are first roasted and then smelted to produce a lead bullion from which impurities such as antimony, arsenic, tin, and silver must be removed.

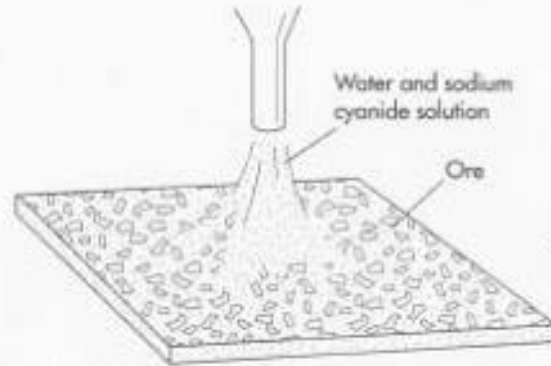
Silver is removed by the Parkes process, which consists of adding zinc to the molten lead bullion.

<https://youtu.be/h0n5NPMcd6U>

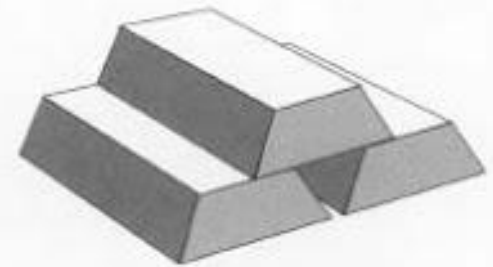


Zinc Extraction

Zinc concentrates are roasted and then leached with sulfuric acid to dissolve their zinc content, leaving a residue that contains lead, silver, and gold—along with 5 to 10 percent of the zinc content of the concentrates.



A sprinkler system of water and sodium cyanide is applied to the ore. Zinc dust is then added to remove the precious metal from the solution.



The silver precipitate is filtered and melted, then formed into bullion bars.

Negative Impact of Mining Silver

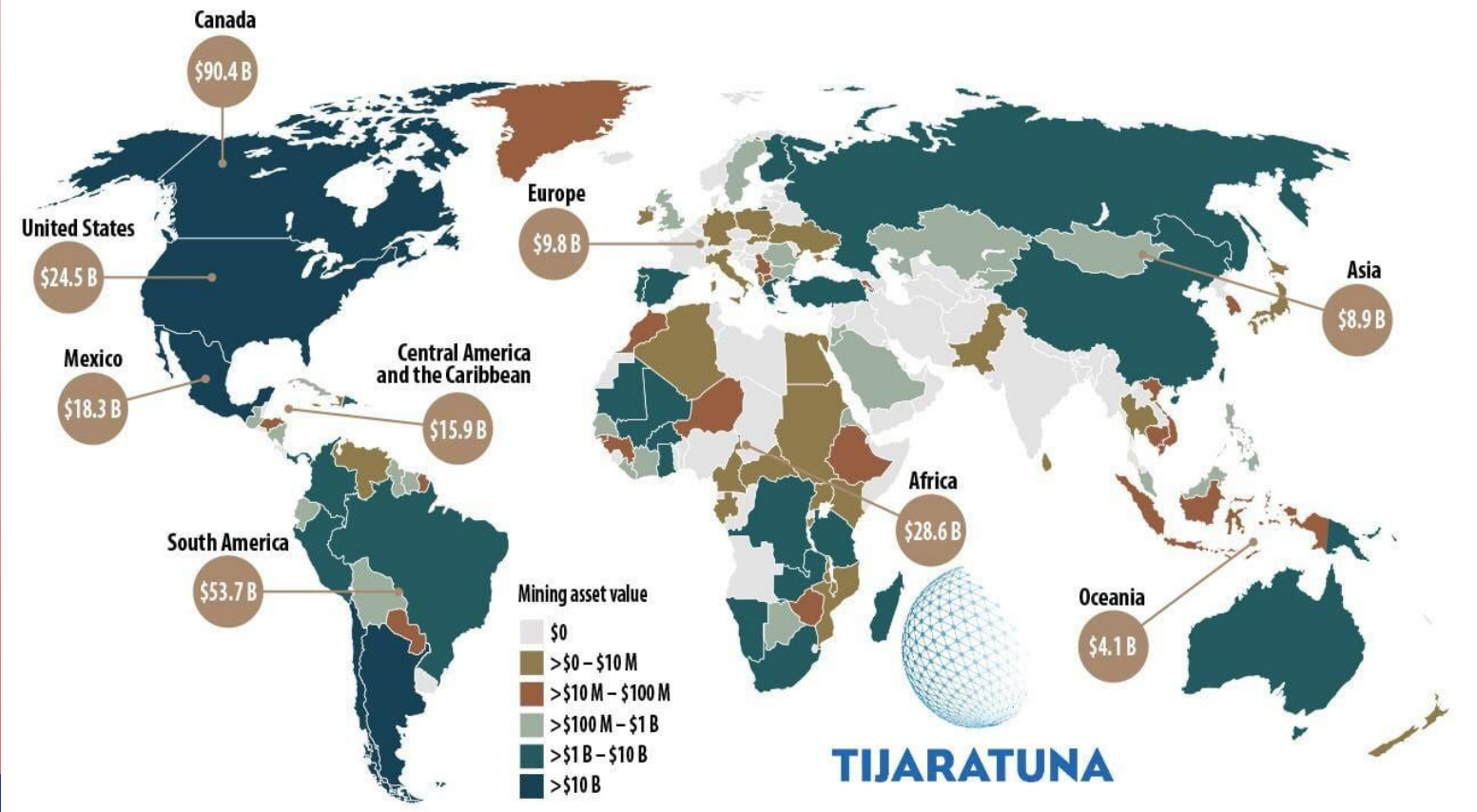


Mining silver can have a big impact on the environment.

It can cause erosion, contamination of groundwater and contamination of soil and surface water.

Mining in general also contributes to the formation of sinkholes and loss of biodiversity.

Map Flows of Silver Trade



Fetishism

In Apple advertisements and infographics on their website, the company raves about how their A14 Bionic chips are the fastest chips in smartphones but never have really told us what is inside these chips. They have been known to contain different precious metals like copper and silver.

I also found out that they now use silver in their lightning cables and other charging cables like this airpods case for example.

A14

A14 Bionic is the fastest chip in a smartphone. And it pushes what's possible. Like crunching trillions of operations on the Neural Engine. Or shooting in Dolby Vision — even pro movie cameras can't do that. It's superefficient for great battery life. And it's ahead of its time, prepared to power pretty much anything that comes next.

Same chip as iPhone 12 Pro

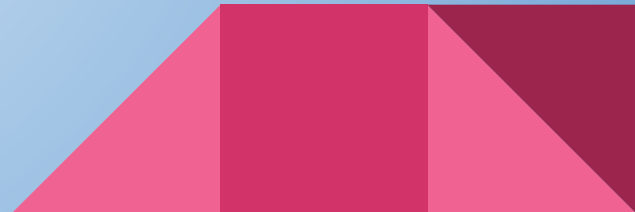


Injustices caused by the Silver trade

In places like Mexico and China they conditions for miners that range from substandard to hazardous.

- Less equitable pay
- More hazardous work conditions

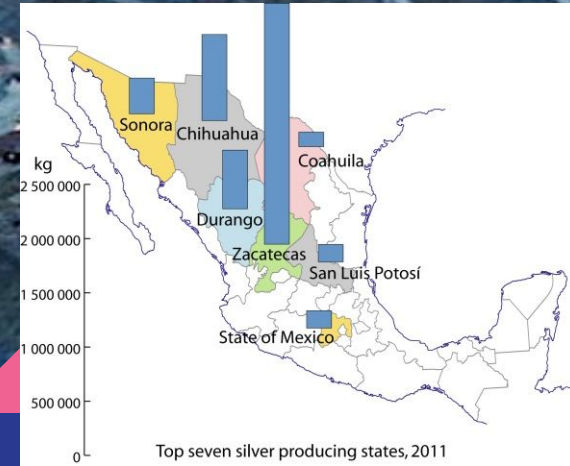
Not the same occupational standards as places such as America and Canada.



Social Movements

As far as I can tell from looking information up, there has been no major social movements to stop or combat the terrible conditions that face miners.

In Mexico, Andrés Manuel López Obrado ran for office and won because he promised to improve workers conditions such as the mining industry, but since he has been in office he has yet to do that.



Sources

- <https://www.silverinstitute.org/>
- <https://www.statista.com/statistics/253307/us-gold-imports-for-consumption-since-2007/#:~:text=In%202019%2C%20some%204%2C700%20metric,the%20United%20States%20for%20consumption.>
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