

To Save the Environment: Sustainability at the Expense of the Salaries

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THE GLOBAL POLICY HORIZONS LAB

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SUMMARY

-Countries in the lithium triangle have allowed and encouraged mining operations despite the protests of the indigenous communities living there

-Mining operations in the lithium triangle increasingly threaten the environment, the economic well-being of indigenous communities in mining territories, and in turn the culture of said indigenous peoples



Background

The lithium triangle is an area across Bolivia, Chile, and Argentina that contains roughly 65% of Earth's land lithium. Found in salt brines concentrated in the Salar de Atacama in Chile, the Salinas Grandes in Argentina, and the Salar de Uyuni in Bolivia, lithium demand has been skyrocketing for years as the desire for lithium-ion batteries has also increased. These batteries, used in rechargeable electronics and electric cars, are viewed as the future of sustainable energy. What is seen as a path to a greener future in much of the Global North is instead seen as a path to destruction among the indigenous populations in the lithium triangle, with leaders claiming that lithium mines "ruin one zone to satisfy another," (Quote from Francis Mandoca, head of Chile's Atacama Indigenous Council). Lithium mining, while holding promise for the future of clean energy, is destroying the environment in the lithium triangle, the economy of those living in the region, and the community of indigenous peoples in the region.

Environmental Degradation Across the Lithium Triangle

The lithium triangle, already an arid region, is further destabilized by lithium mining. The method of lithium extraction used, though considered a "soft" mining practice (Rentier et. al, 2024) because it does not require explosives or invasive operations, requires copious amounts of freshwater. This freshwater is directly drawn from the ecosystem, leaving the already arid region "high and dry," as one commentator stated (Greenfield, 2022). This excessive water usage also has been detrimental to the vegetation and wildlife of the area, causing erosion of soil and lowered populations of endangered animals such as flamingoes.

The geological impacts of lithium mining are equally significant. Mining has caused the Salar de Atacama in Chile to begin sinking at a rate of 1-2 centimeters per year, with the most sinkage happening in the areas where mining is most aggressive (Delgado et. al, 2024). This sinking tangibly underscores the damage to the environment caused by what is considered the future of environmental healing.

Mining practices in the lithium triangle also generate waste and contaminates, which are being discarded throughout the landscape of the triangle. Chemicals, including lithium (which can cause nausea, psychosis, and other health issues) are leaching into the groundwater and soil, making the area more toxic. This contamination of the soil and water threatens both the health and safety of indigenous communities living in the area and the agriculture and livestock farming on which these communities survive.

Economic Degradation Across the Lithium Triangle

The communities living within the lithium triangle rely heavily on the tourism business. In the Salar de Uyuni in Bolivia, salt sales to tourists make up a significant portion of earnings that support the communities living there. Because of the aforementioned excessive water usage, the ecological life that attracts many tourists is disappearing and with it the tourists. The mining



is also harming the geotourism market, as the salares are losing the aesthetic beauty that attracts so many tourists. This loss of tourism threatens the economy of the region, and despite promises from governments and mining companies alike, revenue has not made its way back into the mining community (Rentier et. al, 2024).

Community Degradation Across the Lithium Triangle

The population of indigenous peoples in the lithium triangle is threatened with the loss of its land, resources, and way of life by lithium mining. Mining companies take land from the indigenous communities to perform their mining operations, and though the International Labor Organization (ILO) specifies that indigenous communities must be consulted and give consent before any operation is performed on their land, this has been discouraged in Argentina and not followed by the other countries of the lithium triangle (Orjuela, 2024).

The Atacameño people of the region rely on the land for agriculture, while the Kolla people of the region rely on the land for livestock cultivation. With the contamination of the land, these ways of life are threatened, with resources being depleted by the mining companies leaving the indigenous populations with inadequate resources to continue their lives and cultural practices. The Kolla people see the salares themselves as sacred, and as the salares are increasingly disrupted, so are their beliefs and culture. If things continue along this trajectory, the indigenous communities of the area will be forced out.

To Halt the Degradation: Policies Must Change Across the Lithium Triangle

A developed dependency upon the mineral for economic stability and support poses a future threat to economic security in the region. Lithium is now classified as a non-renewable resource as it is being mined at a rate faster than the environment can naturally replenish it. Therefore, the lithium trade must not destroy already existing economic sources like the salares themselves. Lithium mining has already done significant and irreversible damage, such as the sinking of the Salar de Atacama, confirming Mandoca's statement that lithium mining "ruin[s] one zone to satisfy another." Without new regulations, including but not limited to compliance with international law, the land and peoples on it will be lost. Mining companies must be required by the laws of the countries of the lithium triangle to return revenue and due compensation to the communities on the salares that are losing their environment and economy. The mining corporations must not be solely trusted with fulfilling this responsibility. These countries have a legal and moral responsibility to protect both the salares and the people on them, as their devastation will not halt the climate change's destruction of the planet. Lithium-ion batteries do pose a great path for the future, but at the current rate of mining and environmental degradation, the path to sustainability is not sustainable.



Table 1: Environmental, Economic, and Community Degradation Across Countries

Degradation	Argentina	Chile	Bolivia
Environmental Degradation	-Excessive water usage -Harm of livestock and agriculture in Indigenous communities	-Excessive water usage -Harm of livestock and agriculture in Indigenous communities -Sinking of the Salar de Atacama	-Excessive water usage -Harm of livestock and agriculture in Indigenous communities -Groundwater becoming increasingly contaminated
Economic Degradation	-Loss of tourism due to loss of water and land aesthetic -Lack of adequate compensation for revenue from mining	-Loss of tourism due to loss of water and land aesthetic -Lack of adequate compensation for revenue from mining	-Loss of tourism due to loss of water and land aesthetic -Lack of adequate compensation for revenue from mining
Community Degradation	-Land being taken from Indigenous peoples -Toxins leaking into the environment -Violations of international law damage autonomy of Indigenous communities	-Land being taken from Indigenous peoples -Toxins leaking into the environment making area uninhabitable	- Land being taken from Indigenous peoples -Toxins leaking into the environment -Contamination of salt loses revenue and support for local communities



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ABOUT THE AUTHOR

Xine Straw is an International Relations and Languages and Transcultural Studies in Spanish double major at Webster University. She is focusing on the effects of corporatism in Latin America in the past and how, if left unchecked, it will affect the region in the present and future.





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The current Director of the Lab is Professor Dani Belo, PhD.

