Salar de Uyuni, die größte Salzpfanne der Erde

Lithium in Bolivia

AN UNPROMISING REALITY

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The global demand for lithium in the world has local impacts on the world's largest salt flat in the area Salar de Uyuni of Bolivia, leaving negative environmental and social impacts, in a country dependent on the export of raw materials.

Extractivism is an extremely harmful type of appropriation of natural resources. It involves the extraction of large volumes of resources, which has a great environmental impact. It is part of an economy which is reliant on export of the extracted resources, especially in the nation states of Latin America. In short, extractivism is dedicated to satisfying global production chains, without allowing nature to regenerate, also causing different forms of violence. Bolivia has historically been associated with mining extractivism, from silver during colonialism, tin during the 20th century, lead and zinc during the 1990s, up to the most recent gold and lithium mining.

A lithium review

Lithium has many uses like batteries for the production of electric cars and smartphones as well as psychiatric drugs, reinforced aluminum and ceramics for prosthetics. Lithium batteries have been on the market since 1991. Of course, batteries not only consist of lithium (which represents 3 per cent of the total price) but also cobalt, nickel, manganese and graphite (this is why batteries are a product of complicated supply chains and international forces). Nevertheless, lithium has the lightest and highest capacity to date, which makes it usable for electric cars. As these can thereby compete with traditional cars, lithium could imply a paradigm shift. As its world reserves have not been quantified, there is a worldwide race for its appropriation. Lithium is found in brines, rocks and seawater, and water mining must be used to extract it. The ratio is 2,000 liters of water to obtain 1 ton of lithium. The best known place for lithium in the world is the "lithium triangle" in Bolivia, Chile and Argentina. But, more and more deposits are being found, as in Peru and Mexico. Moreover, China has the world command of renewable energies and controls the world production of lithium batteries, which is why the country imports the most lithium, relegating by far the EU and the U.S.A.

Lithium in Bolivia

In Bolivia, lithium is found mainly in the Salar de Uyuni, a volcanic area in the Andes mountain range, southwest of Potosí and is the largest salt flat in the world, with around 10,000 km², at an altitude of 3,970 meters above the sea level. Lithium is found south of the salt flat, near the Río Grande López, and Bolivia's largest mining company, San Cristóbal is also nearby. As there is evotranspiration[1], which is 8 times higher than rain water, the water resources are probably fossil waters and won't regenerate with lithium mining.

The Salar de Uyuni was declared a fiscal reserve in the 1960s. In the 1990s, the neoliberal government signed a contract with a transnational company, allowing it to use water without limitation. Thanks to the struggle of the communities of the region, it was annulled. From then on, social organizations have promoted the national industrialization of lithium in order to have sovereign power over their resources. In 2007, the government of Evo Morales commissioned the development of a project for a pilot lithium plant. A year later, it was declared a strategic resource of the State. In 2008, the project was inaugurated, the state company "Bolivian Lithium Deposits" was created, which considered the production of 15,000 tons of lithium per year. This happened against the backdrop that between 2001 and 2008, the world price rose from $ 1,700 to $ 6,000 per ton (an increase of 400 per cent), due to the interest in car batteries.

Since 2011 until recently, plants and equipment were installed for a capacity of 350,000 tons of production per year; 900 million dollars were invested, but only 480 million were executed; and international partners for battery industrialization were unsuccessfully sought. In other words, the project is truncated because Bolivia does not produce anything at the moment. There is also a lack of transparency of information and social participation, which generates uncertainties, for example, about the volume of water in the area, heavy metals in aquifers, pollution and impact by pumping to drinking water sources.

Lithium local problems

The San Cristóbal mining company, which operates near the project's area, exploits heavy metals that reach the sub-basins of the Río Grande de Lípez. Heavy metals, such as arsenic, pose risks to lithium production and public health, as the ingestion of arsenic is related with a higher risk of blotter, lung, skin, liver and kidney cancer.

In the case of lithium, as it is extracted by water mining, it would use 18 million cubic meters of water if its plants were operating at their maximum capacity. Furthermore, aquifers do not recharge at the same rate as their induced evaporation causing drought and water shortages in the communities, affecting the availability of water in future scenarios. Another impact is the generation of industrial waste and hazardous waste, which can reach around 4 million m³ per year. Environmental impact studies do not mention how they are going to be in charge of them, nor the impacts they can cause.

On the geopolitical level, Bolivia has the risks of price fluctuations, battery patents, competition between producers and depletion of reserves. Battery production requires technology and know-how that Bolivia does not have. Still, it has not left the extractivist vision and nothing indicates that the transnational corporations will decentralize their production centers to Latin America. Another concern is the violation of human rights, as people's health, a healthy environment and life.

Legally, the Bolivian mining law does not establish prior consultation for mining rights, so it is not a requirement to inform the communities to legalize the exploitation of lithium. This means that the people who are directly affected by the contamination of their water resources and their fields, are not consulted whether they want or need the lithium plants, because it is a "state issue".

Impacts on women and communities

There is a differentiated impact of extractivism on women. In the case of mining, prostitution establishments are set up as a socially accepted service, which may be linked to trafficking networks for girls and adolescents. The number of widows of mine workers due to the dangers of working in the mines is also rising. Additionally, pollution makes traditional agricultural jobs (which are led by women) impossible. Many of the local female leaders against extractivism are victims of sexual and psychological violence due to the macho culture in Bolivia. Women who report mining companies are often threatened and discriminated against by the communities themselves.

The State is the main violator of rights, since it directly enters the territories of the communities, disrupting their ways of life with external people and machinery. It does not carry out prior consultation and simply starts the exploration and exploitation processes. Potosí is the poorest department in the country and the Salar de Uyuni communities are impoverished. Lithium has raised hopes for economic development, which has led to an acceptance of this project. However, conflicts have intensified in recent years. One of the main problems is the capture of revenue, since the mining law estimates that the municipality's royalties are only 3 per cent. If Bolivia wants to venture into the industrialization of lithium, it must prioritize the socio-environmental impacts, placing the communities as central actors, which suffer the consequences of demands mainly by China and Europe otherwise.

Remark: 1 Evotranspiration is the quantity of water that goes back to the atmosphere as a result of evaporation.

About the author: Matilde Rada is a social researcher and political scientist, feminist and defender of the right to self-government of communities.