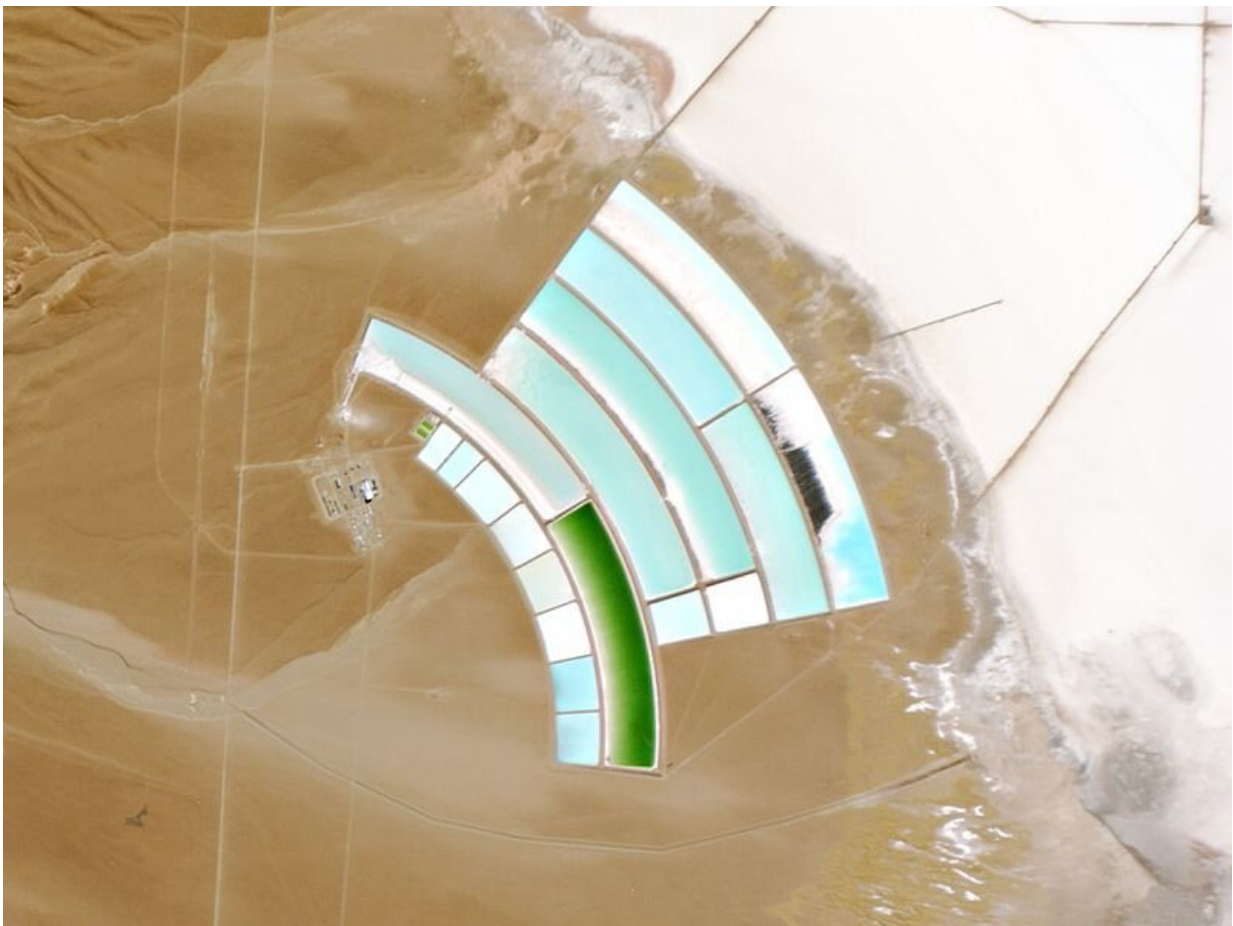


As demand for EVs grows, social and ecological risks of lithium 'gold rush' assessed

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Salar de Olaroz Lithium Mine, Argentina July 5, 2015. Credit: Planet Labs, Inc./Wikimedia Commons, [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/)

Lithium may be the lightest of all metals, but demand for it has been extremely heavy in recent years.

That's because lithium is a major player in the transition to clean energy: a critical component of the batteries that power smartphones, laptops and, critically, electric vehicles (EVs.) Most of the world's supply is currently mined in South America, but a global "gold rush" is on to find new sources—such as Canada, where several new mining projects are in the exploration phase.

Thanks to the Climate Positive Energy (CPE) initiative at the University of Toronto, one of several institutional strategic initiatives, Amalie Wilkinson was able to spend this past summer focusing on research into the potential risks associated with lithium mining. Specifically, her work focuses on the potential social and ecological impacts of lithium extraction in Canada.

The CPE's goal is to help develop policy solutions that will ensure Canada's place as a clean energy role model—a goal Wilkinson shares personally. It's also one reflected in the work the group has been doing as part of a team that includes partners from the University of Guelph, the University of Sydney and the University of California, Santa Barbara.

"We're looking at the cost to Indigenous communities and to the habitat," says Wilkinson, a member of University College who is entering the third year of a honors bachelor of arts degree program, majoring in international relations and peace, conflict and justice studies. "We're examining those dynamics, and then asking what solutions could be implemented so that we can tackle climate change without endangering the entire environment.

"We want to inform how we can make a clean transition a just transition."

Recently, an Anishinabeg First Nation in the Abitibi-Témiscamingue region of Quebec asked to lead its own environmental assessment of one mining project scheduled to be established on ancestral land. Another proposed project has raised environmental concerns.

"The main issue there is that the proposed mine is near a body of water called an 'esker,' which is a type of geological formation—typically a long narrow ridge of sand and gravel left after a glacial period marking the former beds of meltwater streams," says Wilkinson. "It produces a lot of high-quality water, so when the [mining company](#) came in, the community had a lot of concerns about the fact that the water could be contaminated."

As part of the CPE project, Wilkinson spent a week with a team in Abitibi-Témiscamingue this summer conducting field interviews with stakeholders. "We've also done online interviews with companies and other industry players, as well as broader civil society actors, to try and get a full picture of what the perceptions are."

In addition, they performed an intensive review of academic and other literature on the subject.

Lithium-ion batteries present a real solution to the problems created by energy sources such as fossil fuels: they are rechargeable and store energy efficiently. So how can lithium be sourced in a way that minimizes harm to people and habitats?

It's still very much an open question, though solutions may be at hand. One thing to note, says Wilkinson, is that fully replacing gas-powered vehicles with EVs is not necessarily desirable.

"That's mainly a solution for rich countries. And it would have massive impacts on local landscapes through mining as well as emissions

produced from mines: so the first thing is only taking as much as we need, and not producing more than that."

Reducing transport costs is also key, as is the testing of nascent technologies such as direct lithium extraction. "Essentially, this removes lithium from the mines as water, then returns the water to the ground. It's a way of consuming less water than has been done in mines in South America, for example."

A committed environmental activist, Wilkinson has been interested in sustainability issues since she was in Grade 4, when she became interested in the problem of deforestation. "I sent a letter to our federal government. The response I got disillusioned me with the [political process](#)—there didn't seem to be much political will to protect our environment," she says.

Involvement with human rights issues and advocacy followed in high school. But Wilkinson experienced a big turning point last year when she was encircled by a giant wildfire during a canoe trip in northern Saskatchewan.

"It was a situation where I was looking straight into this massive fire that had been exacerbated due to climate change," she recalls. "I realized something like this can reach you wherever you are, even in a Global North country like Canada—and it's something that's only going to get worse. It really flipped a switch inside of me. I said to myself, 'You've got to do something. If it's not going to be you, who's going to do it?'"

Spurred into action, Wilkinson soon founded the Toronto chapter of Stop Ecocide. Launched in England in 2017, the organization seeks to make "ecocide"—defined as widespread, long-term damage to the environment caused by such activities as deforestation, industrial fishing and oil spills—an international crime.

Her lithium research is already earning praise. In August, the CPE held its first research day project showcase and student awards event. Wilkinson was one of three undergraduate researchers who was presented an award by a panel of judges from the fields of business and innovation.

"I was honored that the judging panel recognized my research," she says. "For me, it was very much a testament to how new and how critical this research is, looking at the perspectives of communities who are impacted by mining for a clean transition in Canada.

"The local stakeholders in Quebec's emerging lithium sector have not yet had a significant voice in academic discussions around critical minerals and clean energy. In my opinion, it is important that this change."

Provided by University of Toronto

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