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## **New Report on Lithium Mining and Community-Engaged Research**

Please read our new report on lithium mining for the Natural Resources Defense Council (NRDC) coauthored with researchers from Cal Poly Pomona, the Plurinational Observatory of Andean Salt Flats (OPSAL) and UC Santa Barbara. Here is a link to NRDC's landing page where English and Spanish versions of the report are available to download: <https://www.nrdc.org/resources/exhausted-how-we-can-stop-lithium-mining-depleting-water-resources-draining-wetlands-and>

Our report focuses on lithium brine evaporation, which has become controversial due to water depletion and Indigenous rights violations in South America. We detail examples of frontline communities and "exhausted" ecosystems from across different salt flats and offer 8 recommendations to avoid further damage. One of those recommendations is to encourage, invest in, and implement alternative ways to obtain lithium, including extending the life of batteries on and off the road, recycling lithium-ion batteries, extracting lithium from geothermal brines and direct lithium extraction (DLE). Geothermal lithium development could be a beneficial coupling of renewable energy with a less damaging process of lithium extraction than brine evaporation. However, appropriate safeguards must be in place for environmental justice and equity. Potential environmental impacts should be considered, including land management, increased air pollution and freshwater use, as well as the need for careful monitoring of brine reinjection in an ecosystem like the Salton Sea with rapidly increasing salinity. For more information on unresolved problems associated with brine reinjection, even in "closed-loop" geothermal systems, see: Flexer, Victoria, Celso Fernando Baspineiro, and Claudia InÃ©s Galli. 2018. "Lithium Recovery from Brines: A Vital Raw Material for Green Energies with a Potential Environmental Impact in Its Mining and Processing." *Science of The Total Environment* 639 (October): 1188-1204. <https://doi.org/10.1016/j.scitotenv.2018.05.223>.

Building on our research and advocacy related to lithium mining in South America, I have begun to conduct community-engaged research on geothermal lithium development at the Salton Sea with graduate students at the Lyle Center for Regenerative Studies at Cal Poly Pomona, particularly Alexa Buss, Audrey Snyder and Arthur Levine. We have held more than a dozen interviews and listening sessions so far this year, as well as document analysis and participant observation. This is just the initial phase of a long-term study that we are developing to maximize local community and environmental benefits and minimize potential social and ecological burdens. Here are some key takeaways from research completed thus far:

• Community members have expressed concern about the speed at which Lithium Valley is being planned and developed without resolving existing environmental injustices. There is a widespread impression that the exclusive focus on extracting

lithium may come at the expense of addressing the current environmental and public health crisis resulting from air pollution. Exposed playa should be prioritized for dust mitigation without delay, including on land that is licensed for geothermal development and mineral resources. Synergistic solutions should be explored between land, water and air quality management on the one hand and resource extraction on the other.

â€¢ Concerns have also been expressed about community engagement being conducted in a manner that "checks a box," causing many community members to feel left out of the decision-making process. Community engagement needs to be conducted in such a way that committee members and the industry can take into consideration with the lived experiences and concerns of community members integrated into the planning process.

â€¢ There has been considerable discussion of limited educational opportunities in order to employ a local work force for Lithium Valley. This should begin at the pre-K or elementary level, including perhaps a STEM center for K-12, as well as increasing collegiate level learning opportunities.

â€¢ Concerns have also been expressed about lacking infrastructure, e.g. roads, hospitals and charging stations for electric vehicles.

â€¢ Community members were not satisfied with the LVC community forum in Fall, 2021. They believed that there was too much time spent on introducing the commissioners, and not enough time spent listening to the concerns of the community. There are still unanswered questions that community members may have relating to the environmental impact of geothermal lithium development, as well as the public health impact. For instance, the potential for increased seismic activity from drilling is a concern, as well as the impact of such seismic activity on safe operations.

â€¢ Many responses suggested that there needed to be more localized forms of community engagement, and that the community needed to be included throughout this entire process. Government entities and the industry need to meet community members in locations that are accessible to them. Industry and policy jargon may be difficult to understand for those who are not regularly involved in these fields of business or government. The length and timing of meetings may also limit participation.

â€¢ The proposed Imperial County investment plan focuses on job creation, economics, and funding infrastructure, such as roads to support Lithium Valley development. Such plans could more directly address wider concerns about infrastructure needs beyond the site location, as well as community engagement and public health.

â€¢ In sum, community members have expressed the need for a holistic plan that is not solely reliant on development related to potential lithium extraction. This means there needs to be a stronger focus on increasing infrastructure, education, dust mitigation, and habitat restoration. As we have mentioned previously, community benefit agreements, severance taxes or sovereign wealth funds may also help redistribute revenue from resource extraction for the public good. However, as we have seen in South America, benefit-sharing agreements may also silence dissenting opinions from marginalized community members and may lead to state abandonment. These agreements are a good start, but there should still be consistent standards for free, prior and informed consent, as well as regulation, transparency and monitoring. See also: Peterson St-Laurent, Guillaume, and Philippe Le Billon. 2015. "Staking Claims and Shaking Hands: Impact and Benefit Agreements as a Technology of Government in the

Mining Sector.â€” The Extractive Industries and Society 2 (3): 590â€”602.  
<https://doi.org/10.1016/j.exis.2015.06.001>.