# Gradiant's AlkaLi: Transforming Lithium Extraction for a Sustainable Future



### Lithium Industry's Environmental Challenges and Innovations

**Demand and Environmental Impact**

Lithium, a crucial component for lithium-ion batteries, is vital for the transition to clean energy. Its demand is soaring, with a 2023 report from Popular Mechanics estimating a need of 250,000 to 450,000 tonnes by 2030, up from a production of 105 tonnes in 2021. The International Renewable Energy Agency (IRENA) supports this growth, projecting a tenfold increase in demand between 2020 and 2030.

However, lithium extraction has significant environmental repercussions. Traditional extraction methods, especially from brine in regions like South America’s lithium triangle, consume vast amounts of water—up to 500,000 liters per ton. This process, often in arid areas, depletes local water resources and risks contaminating them. Moreover, the chemicals used are toxic, potentially harming ecosystems and communities.

**Geopolitical Concerns and Industry Innovations**

Lithium’s supply chain is also geopolitically sensitive. Although most lithium is mined in Australia and South America, China dominates its processing, posing a risk to global supply stability.

Innovative solutions are emerging to address these issues. Gradiant, a startup specializing in industrial wastewater treatment, has launched alkaLi, a spin-off aimed at more environmentally friendly lithium extraction. AlkaLi’s method, detailed in a Forbes report, involves using resins and membranes to extract lithium from brine more efficiently and with a smaller environmental footprint. This method is also reportedly 50% cheaper.

**AlkaLi’s Potential Impact**

Gradiant’s co-founder Prakash Govindan notes the massive and growing demand for lithium. He suggests that alkaLi’s innovative approach could revolutionize the industry, potentially making the U.S. competitive with China in lithium processing. Given the environmental and geopolitical stakes, alkaLi’s advancements could play a critical role in sustainable lithium production, balancing the urgency for clean energy with the need to protect the environment.