Project BATTRACE - Using Geo-Based Fingerprinting for Battery Raw Material Traceability

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Traceability is one of the ways to increase transparency along the battery raw materials supply chain. Ideally, traceability of raw materials would not be required if there was global trust that all mining companies act in a socially, environmentally, and economically sustainable way. When in place, sustainability and responsibility standards should ensure transparency and trust along the mining supply chains.

However, as the global demand for battery minerals is expected to grow exponentially, the increased demand may introduce financial incentives for some companies or actors with poor performance to adopt unsustainable business practices. The technological ability to trace raw materials back to their geographical origin would work as a barrier against any actors trying to claim false origins for their raw materials.

BATTRACE is a research project where the Geological Survey of Finland has been developing a novel method for battery mineral traceability, called geo-based fingerprinting. In geo-based fingerprinting, a material's origin can be traced back to its original source based on certain material characteristics, such as its mineralogical and elemental compositions.

There are currently many ongoing initiatives to introduce traceability to battery mineral supply chains. Geo-based fingerprinting could be used as a method for traceability for several raw materials used in batteries. As the geological and elemental characteristics of a sample cannot be altered, the geo-based fingerprinting method developed in BATTRACE has unique potential in working as a standalone traceability technology or as a complementary verification method with any other traceability system.