

Creating an integrated electric vehicle battery value chain in Finland

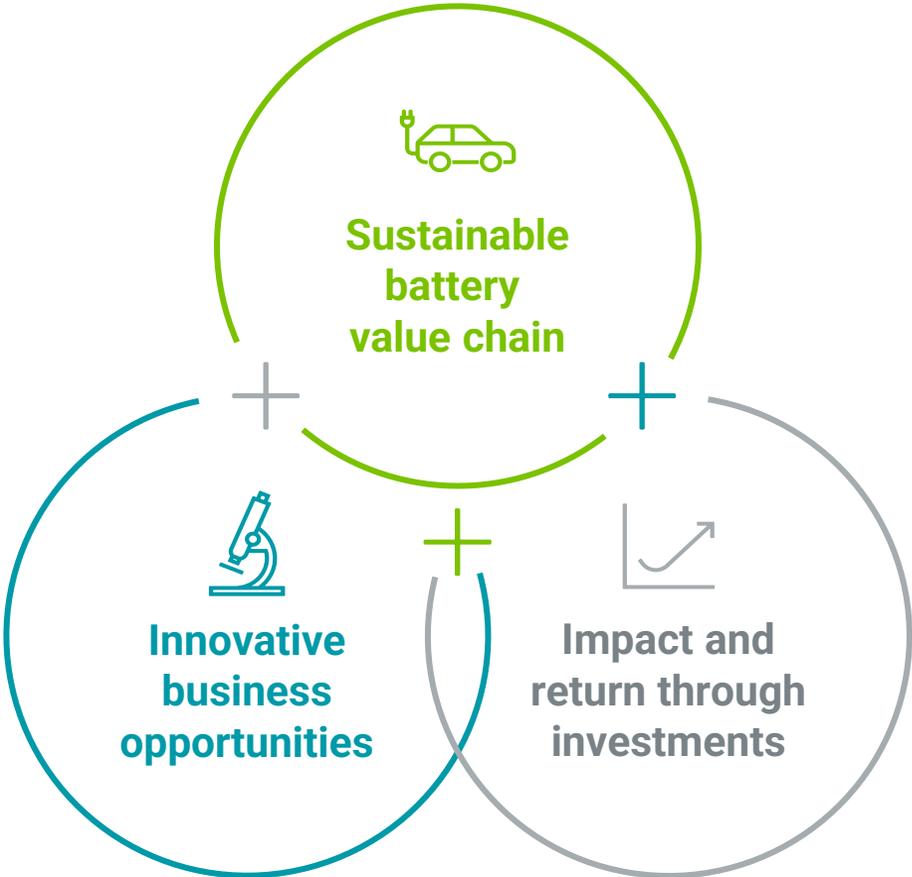
Jukka Salmela



Introduction to Finnish Minerals Group



Finnish Minerals Group strategy



Our purpose



Special Assignment

Government's holding and development company for mining industry and battery value chain



Mission

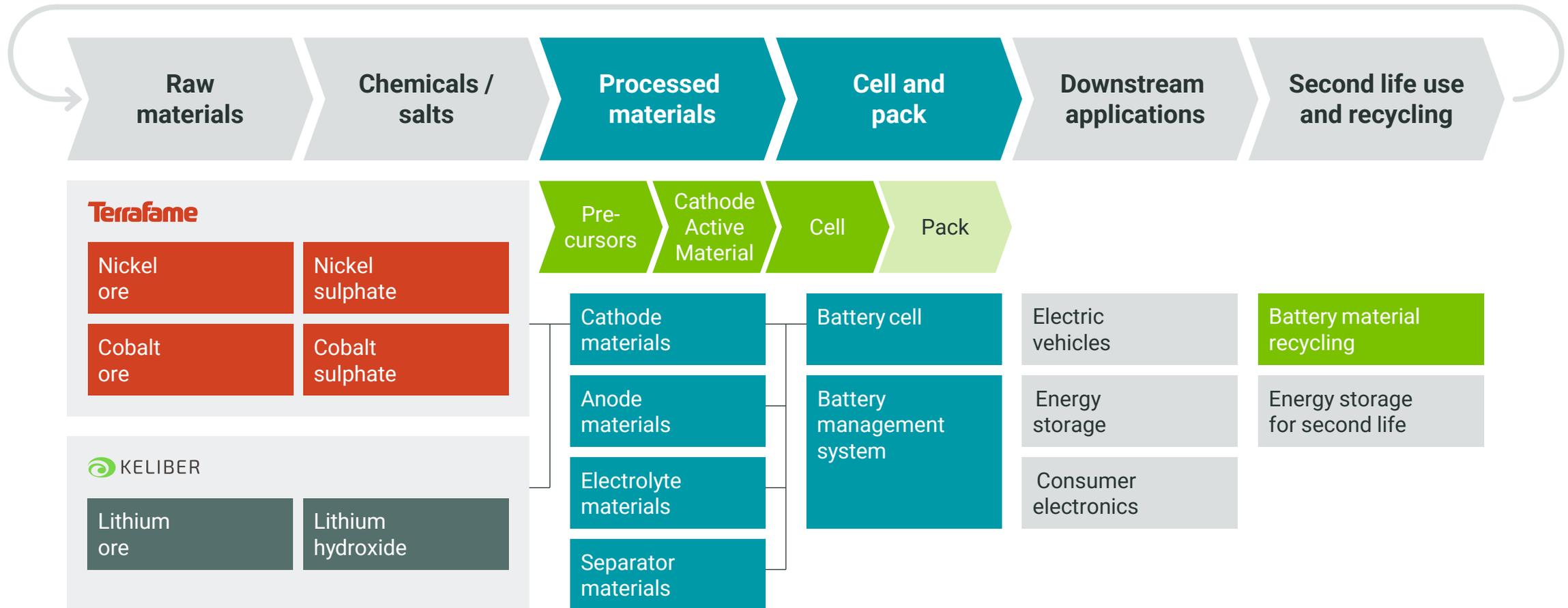
Responsibly maximising the value of Finnish minerals



Vision

We provide materials for climate neutrality

+ We are developing a sustainable battery value chain in Finland





Our current asset portfolio

Terrafame

66.8%

Terrafame Oy

- + Multi-metal company producing nickel, zinc, cobalt and copper
- + Production of nickel and cobalt sulphates is at ramp-up phase
- + Offers the lowest carbon footprint in the industry

KELIBER

22.9%

Keliber Oy

- + The first vertically integrated lithium producer in Europe
- + Planned annual production 15.000 t/a of battery-grade lithium hydroxide
- + Keliber aims to start its production in 2024

SOKLI

100%

Sokli Oy

- + Globally significant phosphate and rare earth elements resource
- + Finnish Minerals Group acquired asset in December 2020
- + Preliminary project development started earlier this year



EV battery value chain development

+ Finnish industry supports the creation of battery value chain



Keliber is starting operations for **lithium mining**
Going to produce **battery-grade lithium chemicals**



Largest **cobalt refinery** outside of China

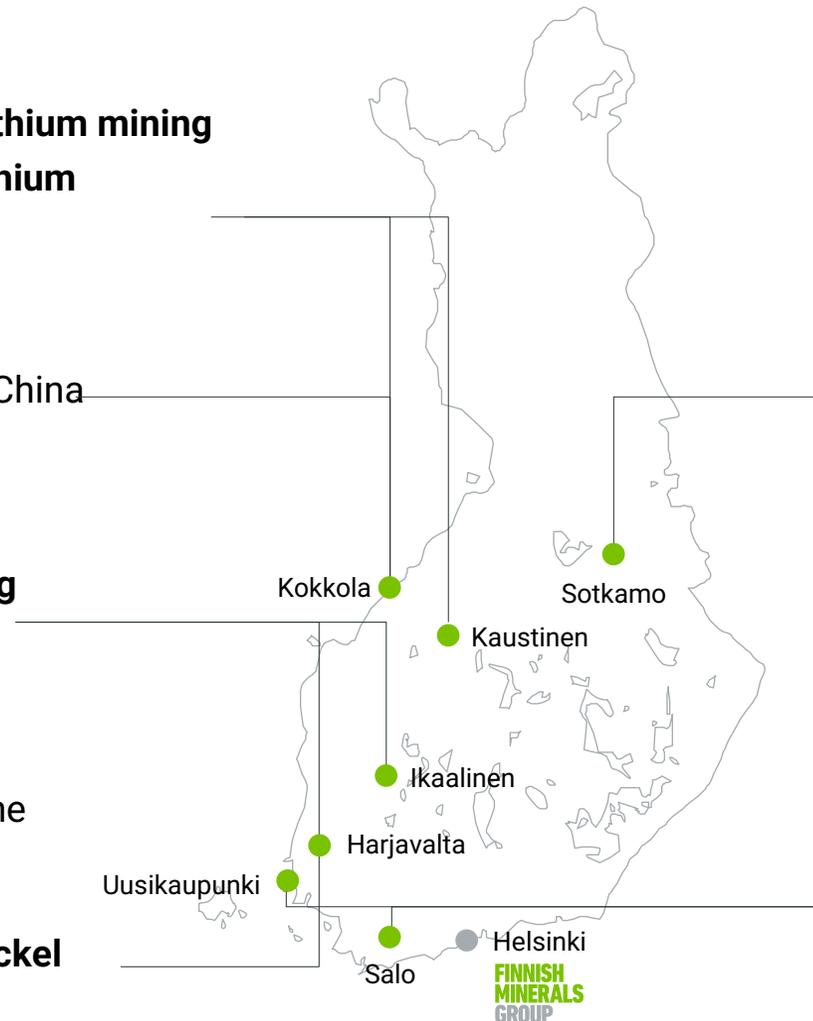


Fortum is building and expanding operations across **battery recycling value chain**



BASF has selected Harjavalta as the first location for European battery materials production

The plant will be adjacent to **Nornickel** nickel and cobalt refinery



Terrafame

Terrafame mines **nickel, zinc, cobalt and copper**, being one of the largest nickel producers in the world

Expanding into **battery grade nickel and cobalt sulphate production**

valmet automotive

Premium vehicle manufacturer focusing on e-mobility

Planning to launch volume **production of EV battery packs** in Salo



Finnish Minerals Group's greenfield investment cases under preparation



● Cell

FREYR Battery and FMG are developing a cell plant project in Vaasa.

Backed by availability of locally produced raw materials and renewable energy, cells produced in Vaasa will lead to sustainability.



● pCAM + CAM

Johnson Matthey selected Vaasa as the location for 30kt/a eLNO[®] integrated pCAM and CAM plant.

FMG and Johnson Matthey entered into strategic partnership agreement for FMG to invest in development of sodium sulphate treatment facility and pre-treatment of nickel and cobalt sulphates for eLNO production.



● pCAM

CNGR, world's largest ternary (NCM) precursor manufacture and FMG are developing a pCAM plant in Hamina port.

CNGR is key supplier to the largest cell companies and EV OEMs and wants to supply their customers' European facilities with local pCAM supply.

Undisclosed partner

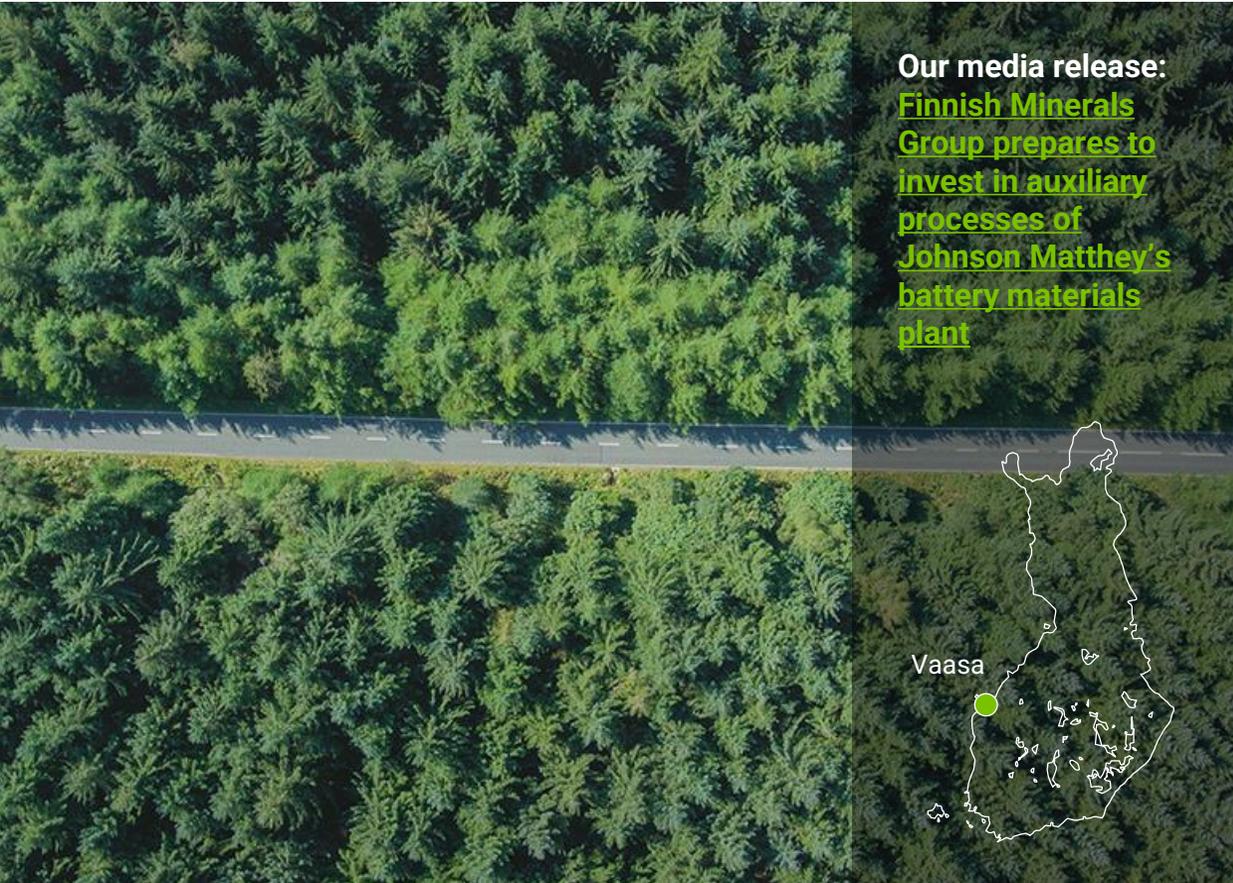


● CAM

Kotka CAM plant is being developed together with one of the leading CAM manufacturers globally.

Together with Hamina pCAM plant the Kotka CAM plant creates a strong battery material ecosystem in South-East Finland.

+ Aiming for new high-tech solutions with Johnson Matthey

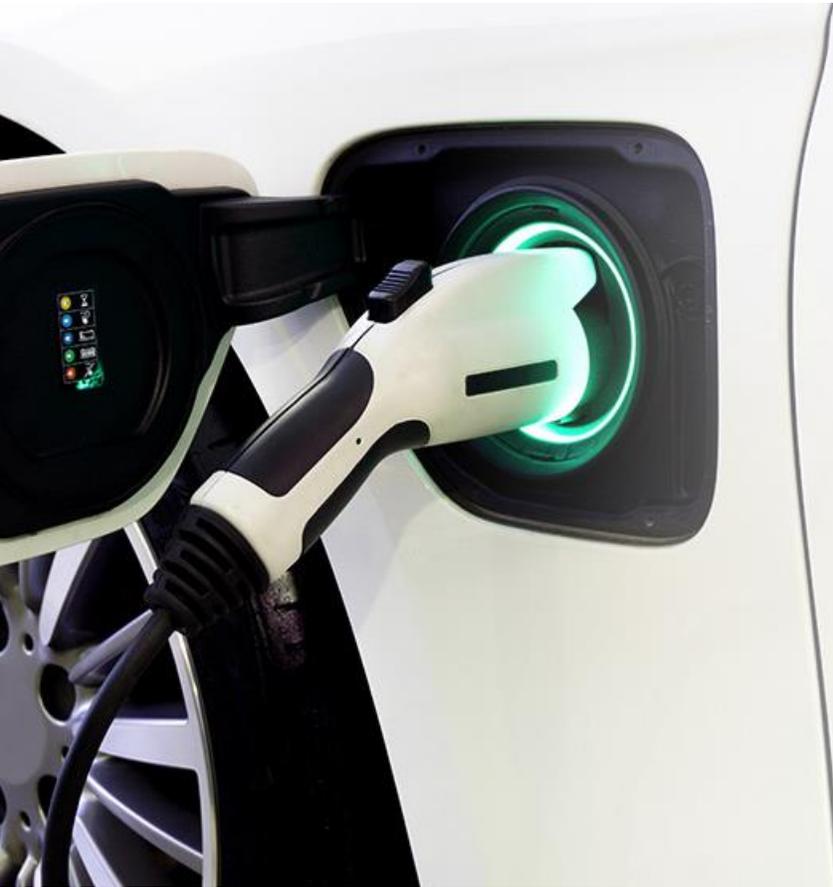


Our media release:
[Finnish Minerals Group prepares to invest in auxiliary processes of Johnson Matthey's battery materials plant](#)

- + In April 2021, we announced our strategic cooperation with Johnson Matthey, a British listed company.
- + Our partner is going to establish a cathode material production facility in Vaasa and is now focusing on the EIA process.
- + Finnish Minerals Group is planning to invest in the development of selected auxiliary processes required in the production of battery materials.
- + We have since 2015 carried out sodium sulphate-rich effluent treatment research and development work.



Pursuing a battery cell investment with FREYR



Our media release:
[Finnish Minerals Group and FREYR to work together to establish battery cell production in Finland](#)



- + Finnish Minerals Group and FREYR Battery have signed a Memorandum of Understanding (MoU) to pursue cooperation in implementing a battery cell investment in Finland.
- + Our shared aim is to identify cooperation and business models, and technical implementation options, as well as to evaluate the possibility of establishing the plant in Vaasa.
- + The cooperation was announced in August 2021.

FINNISH MINERALS GROUP

SUOMEN MALMIJALOSTUS



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