

ENVIMINE – developing environmental and geodynamical safety related to mine closure in the Barents region

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Lead Partner of the project:

Geological Survey of Finland – Northern Finland Office

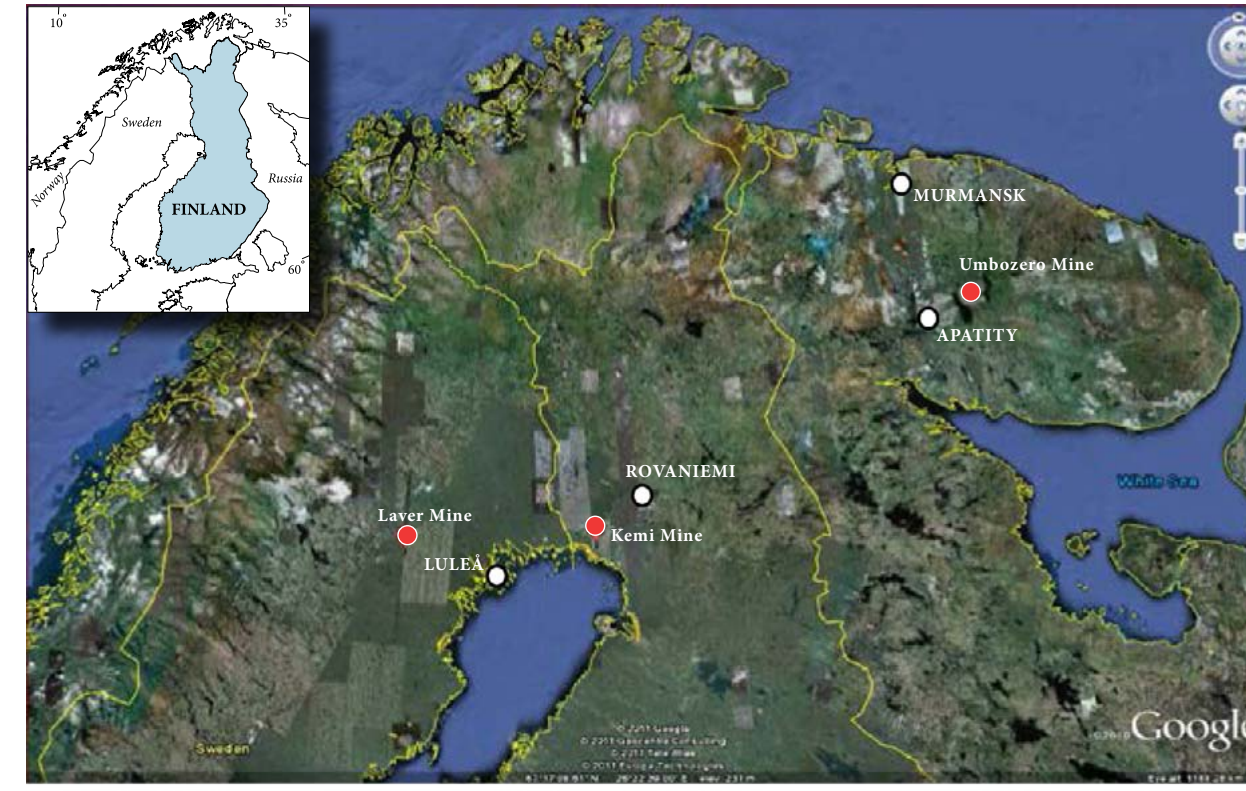
Partners:

Russian Academy of Sciences – Kola Science Centre – Mining Institute
Luleå University of Technology – Division of Geosciences

Associates:

The Kemi Mine – Finland
The Umbozero Mine – Russia
Boliden Mineral AB – Sweden

A project of mining environmental research in the Barents region is carried out in cooperation between Finland, Russia and Sweden in 2012-2014. The study area in Finland is the chrome mine of Kemi, in production since 1968, the closed mines of Laver in Norrbotten and Umbozero in Murmansk region. Laver mine with Cu mine was in operation 1936-1946 and Umbozero mine with loparite ore and rare metals 1984-2004.



The study areas of the project.

The objectives are to develop a methodology for environmentally safe mine closure, under specific conditions in the Barents region, and to produce information for target groups with interest of the mining environment. The aim is to create new, updated database of the mine sites and develop multilateral relations between Finnish, Russian and Swedish organizations, responsible for environmental management. The aim is also to develop and carry out environmental research with best available techniques (BAT), to exchange experiences and scientific knowledge.



Field measurements of water samples. Umbozero, Russia.



The Kemi Mine, Finland.



View over the landscaped Laver Mine, Sweden.



The closed mine of Umbozero, Russia.



View to the Khibiny Tundra from the Umbozero Mine.

Field studies started in 2012, and will continue during 2013. Research of construction and composition of surficial deposits in tailings and their surroundings are made, and quality of groundwater, surface water and bottom sediments of streams in the mine sites and reference areas of surroundings will be analyzed. Field work are carried out by means of geophysical measurements (GPR, ground penetrating radar), XRF measurements, drillings, hydrological studies, installing groundwater observation wells, sampling and analyses of surficial deposits, sediments, groundwater and surface water. Conclusions and recommendations for after care plan and monitoring of water quality will be made on basis of previous and new research data. The project is partly funded by the European Union Kolarctic ENPI CBC Program.



Field studies by GPR in the tailings of the Umbozero Mine, Russia.



XRF measurements in the tailings of the Umbozero Mine, Russia.

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