Competence Centre
for Effective and Ecological Mining
of Mineral Resources

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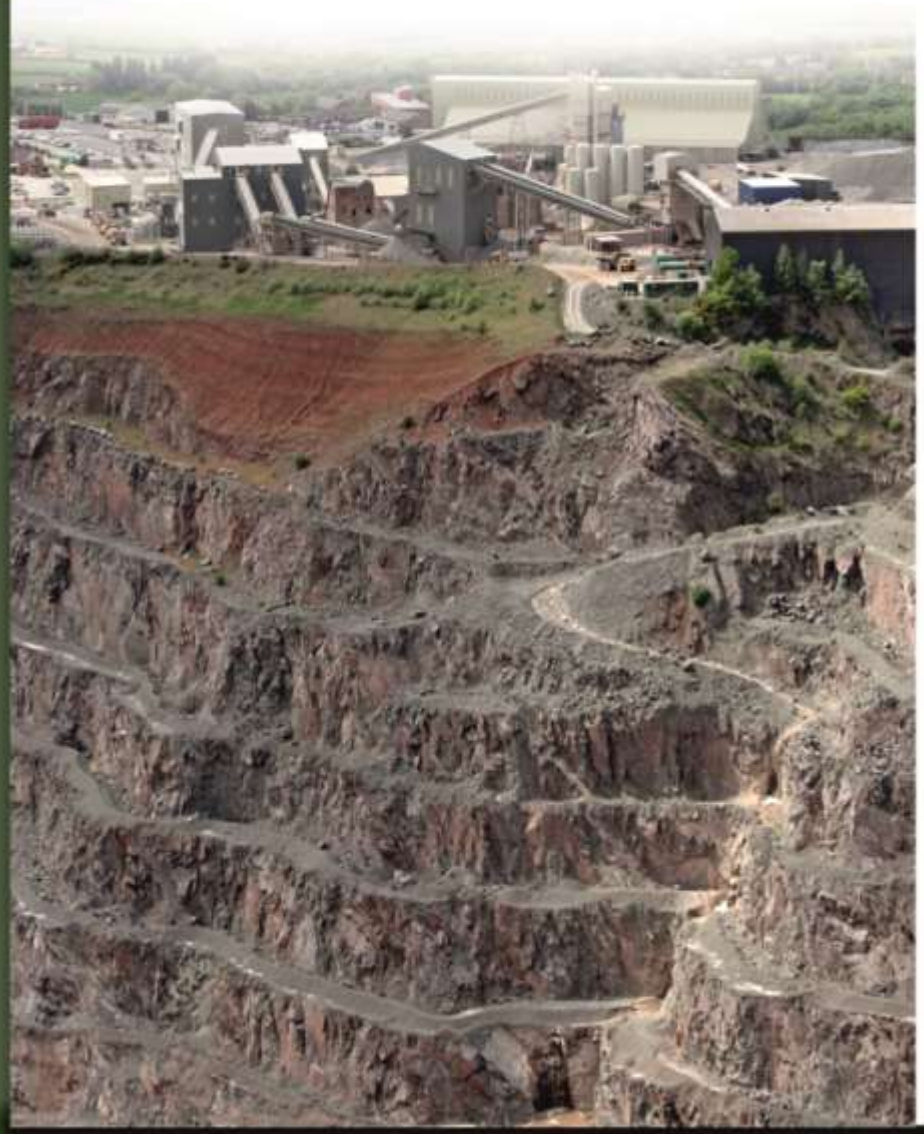
Program Centra kompetence



CEEMIR

Competence Centre for Effective and Ecological Mining of Mineral Resources - TE02000029

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\+ the CEEMIR team leader

Project Competence Centre for Effective and Ecological Mining of Mineral Resources - TE02000029 is solved with TA ČR financial support.

http://www.hgf.vsb.cz/ceemir/en/

Consortium members

VŠB – Technical University of Ostrava

Czech Geological Survey

DIAMO, state enterprise

RPS Ostrava, a.s.

Sedlecký kaolin, a.s.

WATRAD, spol. s r.o.

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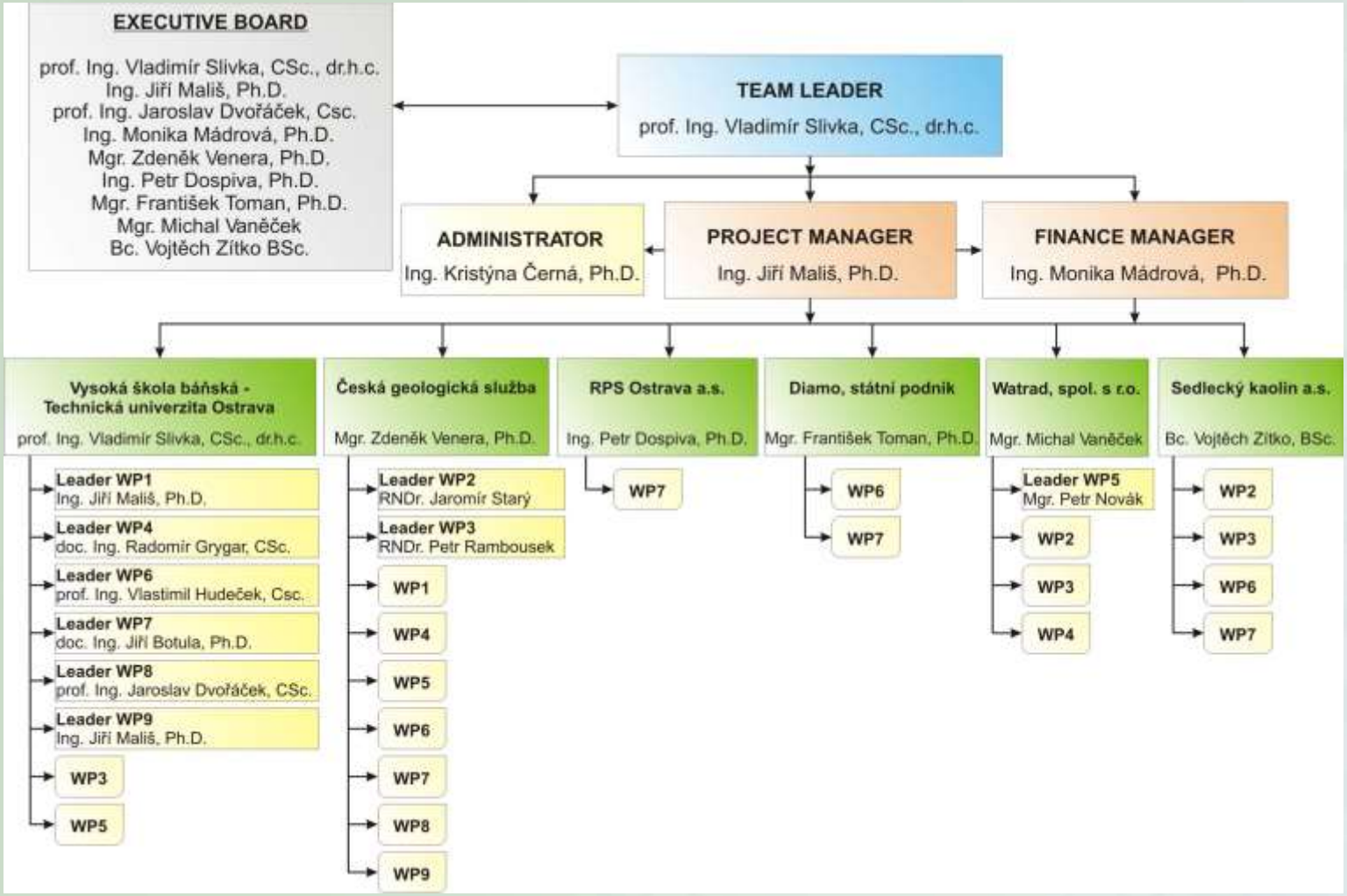
Consortium Structure



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Project objective

The main objective is a review of reserves of selected non-energy minerals belonging to EU critical commodities, including selection of suitable mineral resources and proposal for effective and environment-friendly mining and processing.

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Work packages

WP1	Management of the Centre
WP2	Potential resources in the Czech Republic
WP3	Mineralogical and geochemical characteristics of prospective resources
WP4	Spatial modelling of mineral deposits
WP5	Legislative and environmental determination of mineral availability
WP6	Analysis of mining and technical conditions of availability of selected mineral deposits
WP7	Technologies for mineral and waste processing
WP8	Economics of mineral deposits
WP9	Publication of project results

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WP2 - Potential resources in the Czech Republic

OBJECTIVES

- Determination of useful components, their mineralogical and physical parameters and harmful substances for extraction in deposit objects
- Proposal for principles of geochemical and mineralogical monitoring in mining-affected areas
- More precise metallo/minerogenetic maps as GIS outputs

ACTIVITIES

- Mineralogical and geochemical characteristics of raw materials and determination of useful components
- Mineralogical and geochemical methods for observing the environmental impacts of mining and processing of raw materials
- Special mineralogical and geochemical methods for the determination of age and genesis of mineralisation
- Revaluation of deposit objects based on the (existing data) , specification of metallogenetic conditions.

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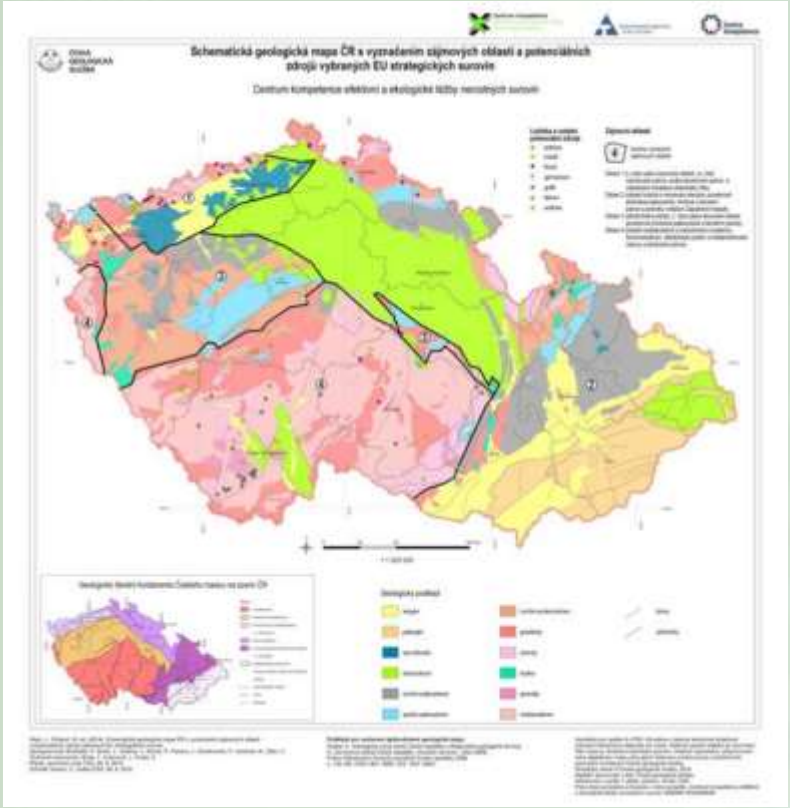
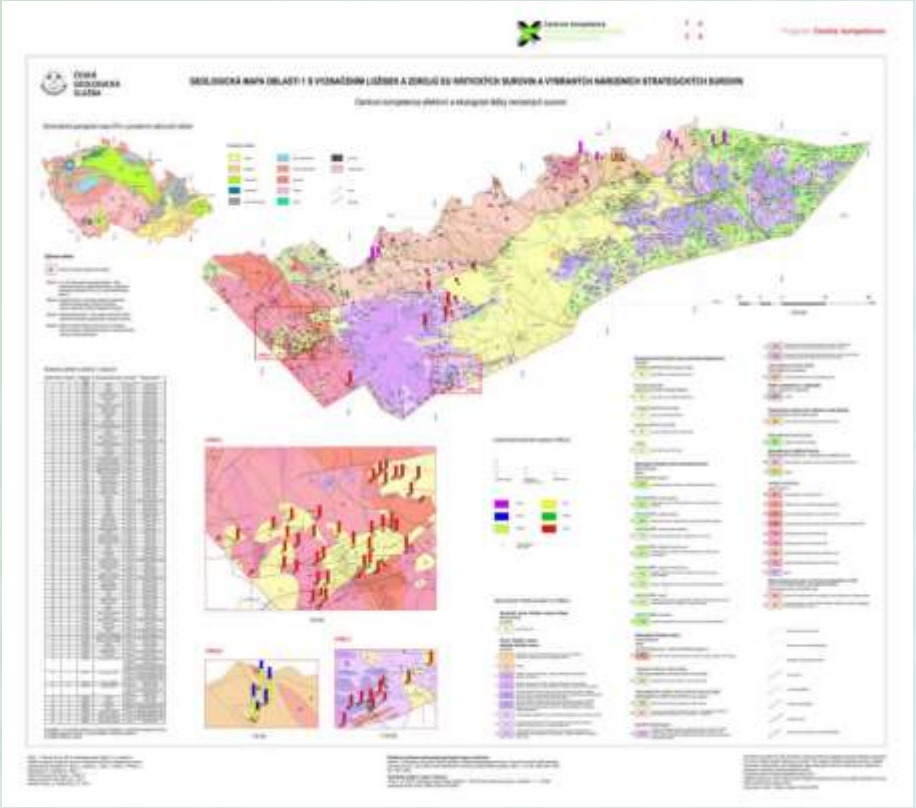
WP2 - Potential resources in the Czech Republic

Studied areas in the Czech Republic



Geological map of the area 1 higligting deposits of critical raw minerals



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WP3 - Mineralogical and geochemical characteristics of prospective resources

OBJECTIVES

- To create data sheets for perspective localities in terms of contents of critical raw materials
- To propose next course of action in applied research in a case of selected localities
- To make special maps of raw materials

ACTIVITIES

- Methods for observing the environmental impacts of mining and processing of raw materials
- Methods for the determination of age and genesis of mineralisation
- Mineralogical and geochemical characteristics of raw materials
- Revaluation of deposit objects based on the ascertained components

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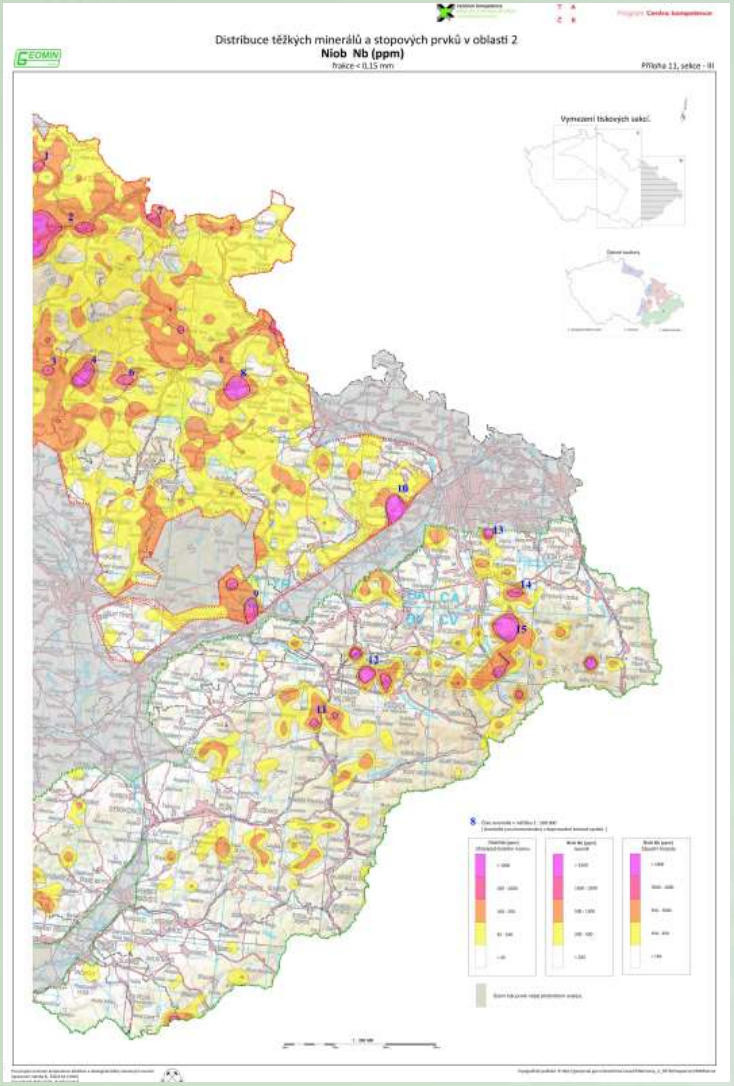
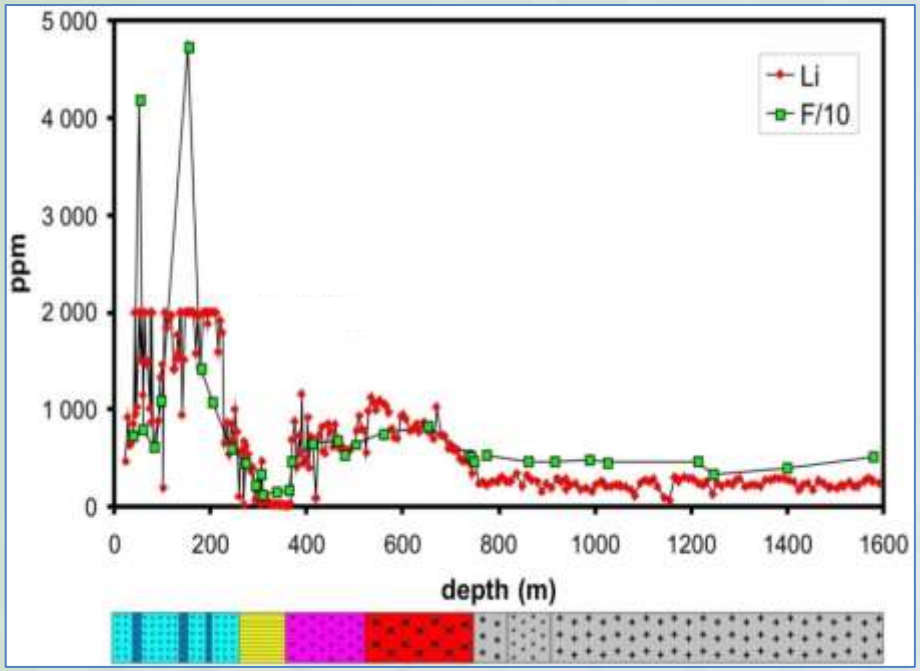
WP3 - Mineralogical and geochemical characteristics of prospective resources



Map of Nb distribution in the area 2



Li / F distribution in the CS-1 borehole

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WP4 - Spatial modelling of mineral deposits

OBJECTIVES

- Conversion of selected deposits to digital models by suitable mathematical procedures based on study and revaluation of data from archive materials

ACTIVITIES

- Search for available information on selected mineral deposits
- Evaluation of data from on selected deposits and entering the data into the database
- Exploratory data analysis and geostatistical structural analysis for individual selected deposits
- Elaboration of algorithms for modelling for individual selected deposits
- Selection and creation of software for ore deposit modelling for ensuring compatibility
- Modelling of structural-tectonic conditions of individual selected deposit
- Modelling of spatial distribution of observed attributes of individual selected deposits
- Visualisation of individual 2D and 3D models of deposits

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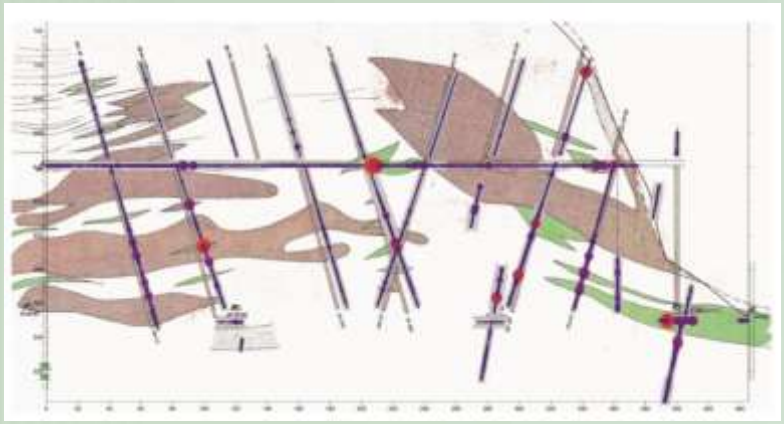
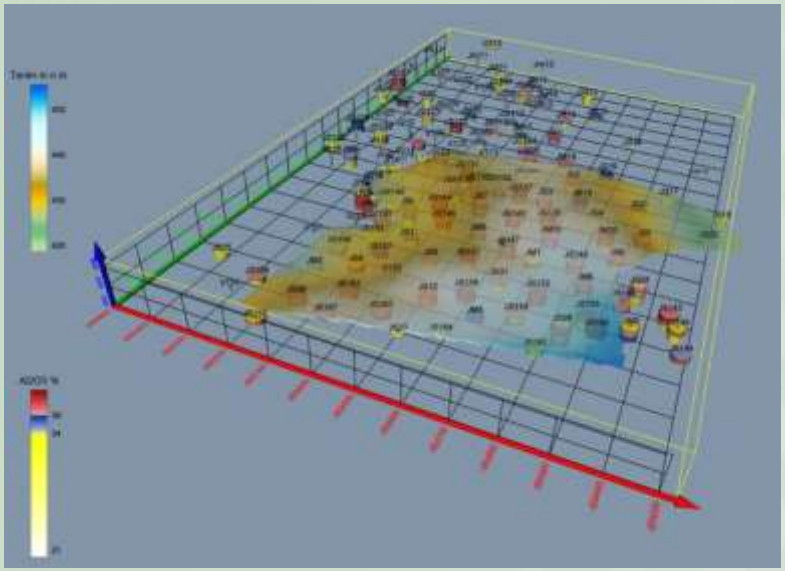
WP4 - Spatial modelling of mineral deposits

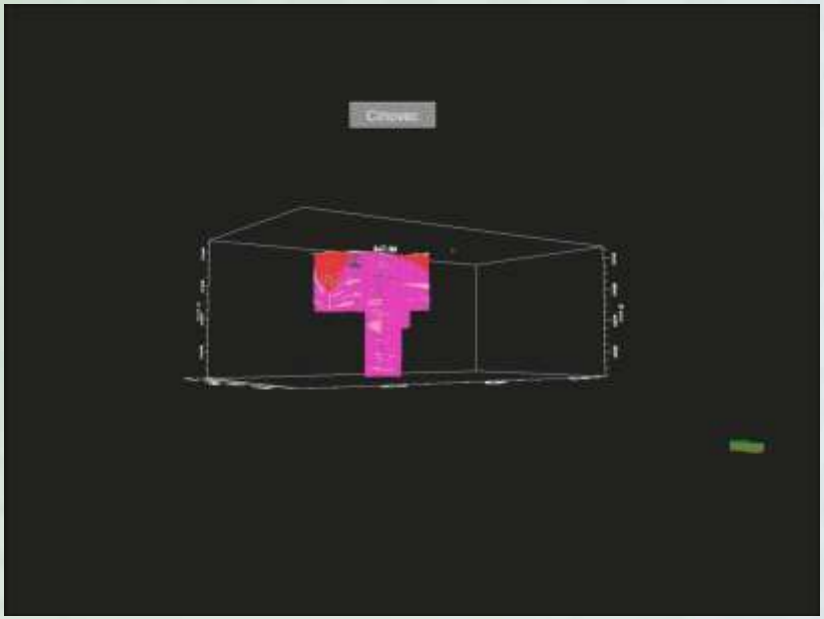
Errors in archive documentation



Model of the kaoline deposit Jimlikov



Fence diagram of the Cinovec deposit area



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WP5 - Legislative and environmental determination of mineral availability

OBJECTIVES

- Analysis of valid legal standards related to mineral mining and processing
- Assessment of localities of selected mineral deposits with regard to the environment
- Assessment of environmental impact of mineral mining and processing

ACTIVITIES

- Analysis of existing legal standards related to mineral mining and processing
- Selection of deficiencies and critical points of existing legislation
- Proposal for a modification to valid legislation
- Effects of mining facilities on the environment and their construction and operation risks
- Influence of mineral processing on the environment

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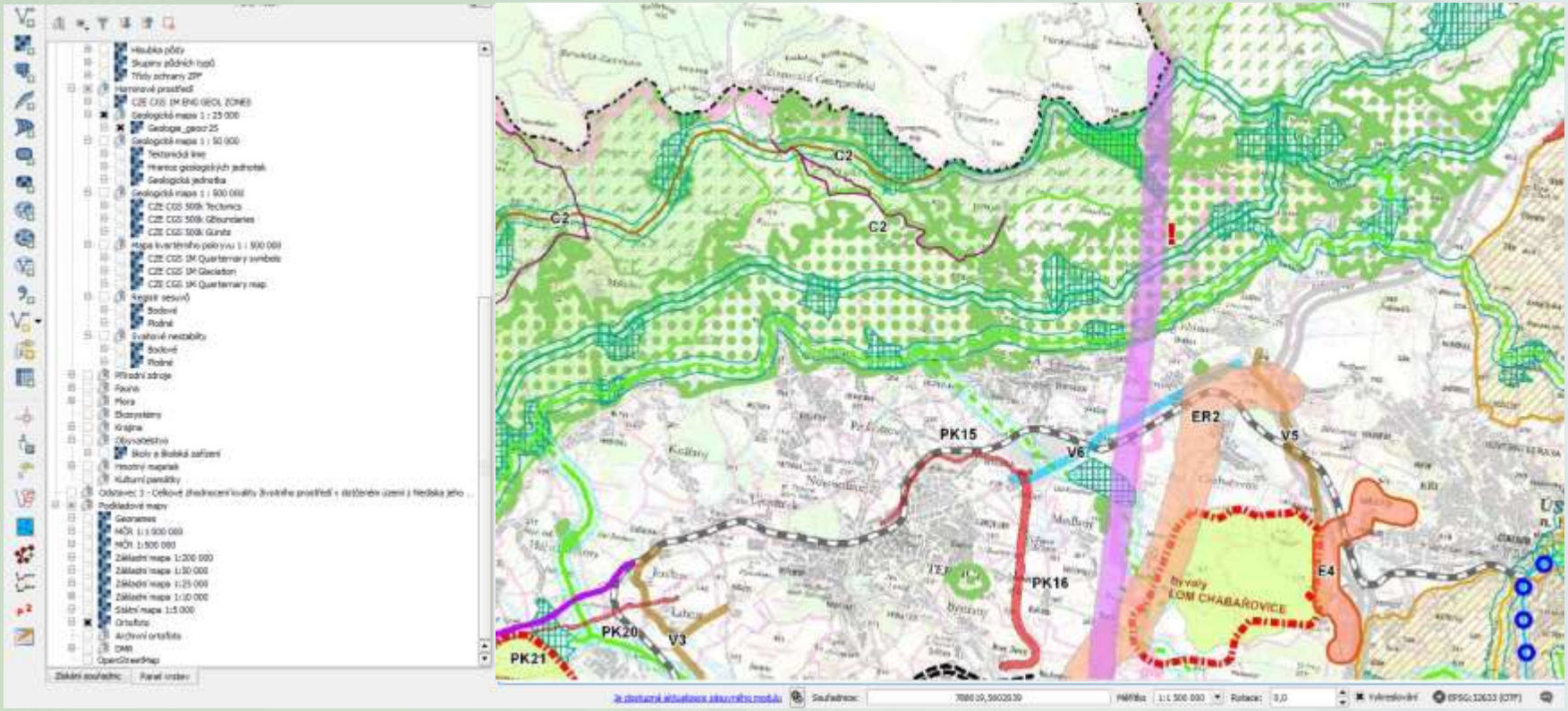
WP5 - Legislative and environmental determination of mineral availability

A GIS project summarizing EIA relevant information in the Czech Republic



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WP6 - Analysis of mining and technical conditions of availability of selected mineral deposits

OBJECTIVES

- Proposal for a suitable mining method for underground/surface mining of selected deposits
- Proposal for re-mining and use of existing suitable mining waste dumps and ponds

ACTIVITIES

- Analysis of modern foreign mining technologies
- Analysis of previous mining in deposits of the Czech Republic
- Possibilities of exploitation of ore and industrial mineral resources in the Czech Republic
- Geomechanical assessment of rocks
- Use of deposits accessible in the Czech Republic in the past
- Proposals for the ways of development by means of new mine workings
- Possibilities of use of mining waste dumps and tailing ponds
- Proposal of study of selected deposits
- Evaluation of safety aspects and risks

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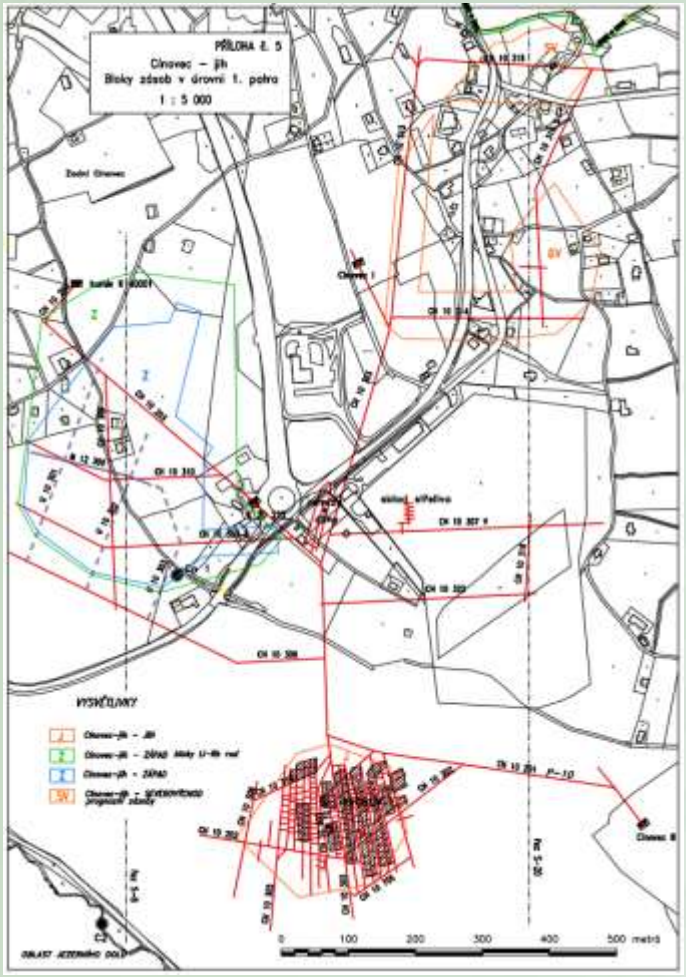
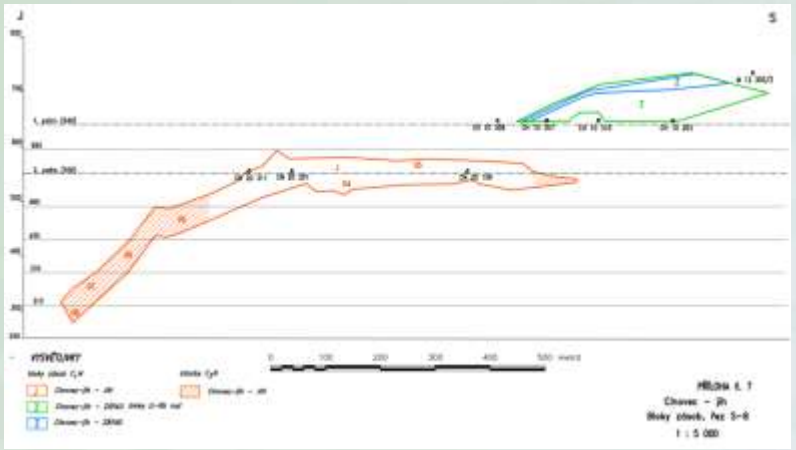
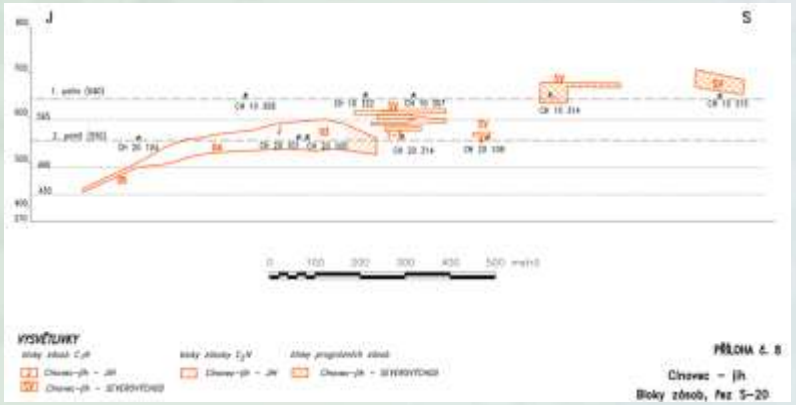
WP6 - Analysis of mining and technical conditions of availability of selected mineral deposits

Blocks of calculated raw mineral reserves within the Cinovec deposit







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WP7 - Technologies for mineral and waste processing

OBJECTIVES

- Proposal for an optimal technology for processing and obtaining useful components
- Project for an optimized technological line

ACTIVITIES

- Information search for suitable ways of processing the selected raw materials
- Taking of technological samples of selected raw materials and their characteristics
- Taking of bulk samples and their analysis from the point of view of processing
- Laboratory tests concerning the processing of selected raw materials
- Optimization of selected technological processes and their experimental verification
- Proposal and design of a technological line

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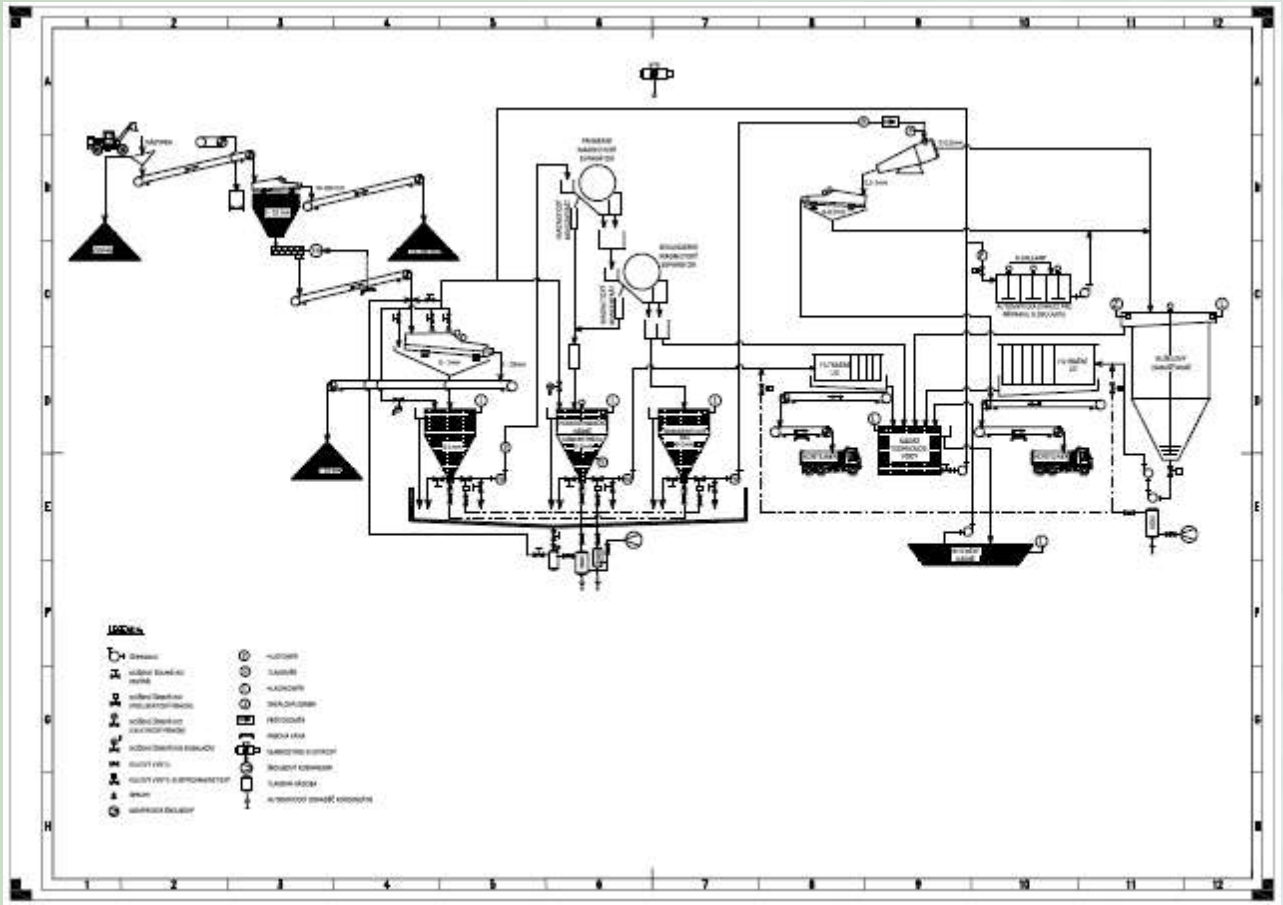
WP7 - Technologies for mineral and waste processing

Technology scheme for Li concetrate separation from a tailing pond



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WP8 - Economics of mineral deposits

OBJECTIVES

- Economic justification of importance of deposits of specific minerals to ČR

ACTIVITIES

- Economics of mineral deposits
- Economics of specific mineral deposits

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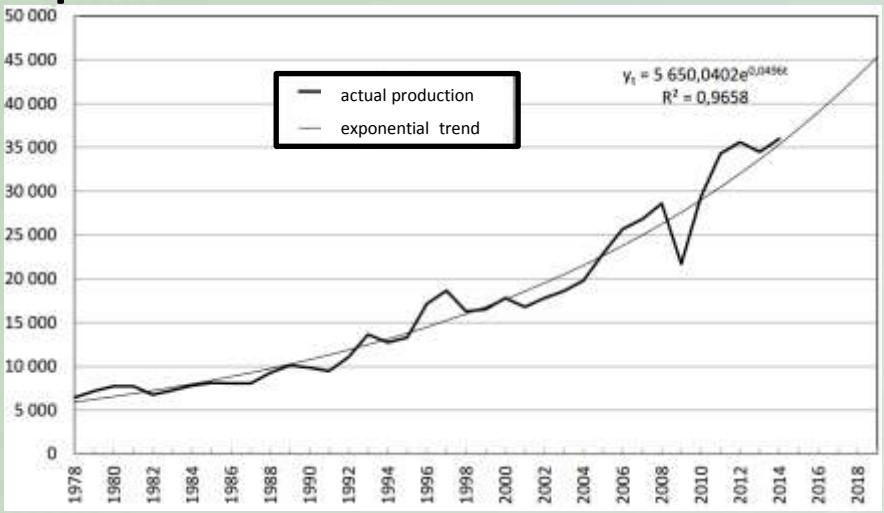
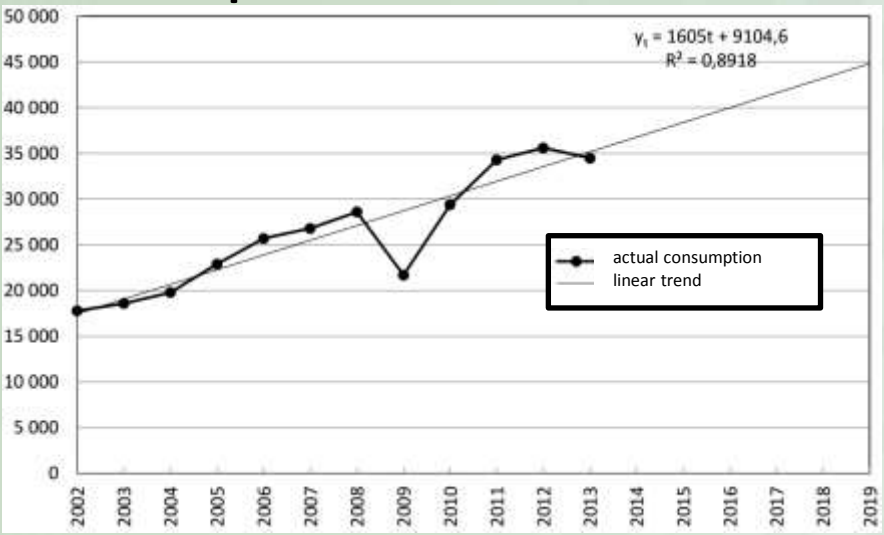
WP8 - Economics of mineral deposits

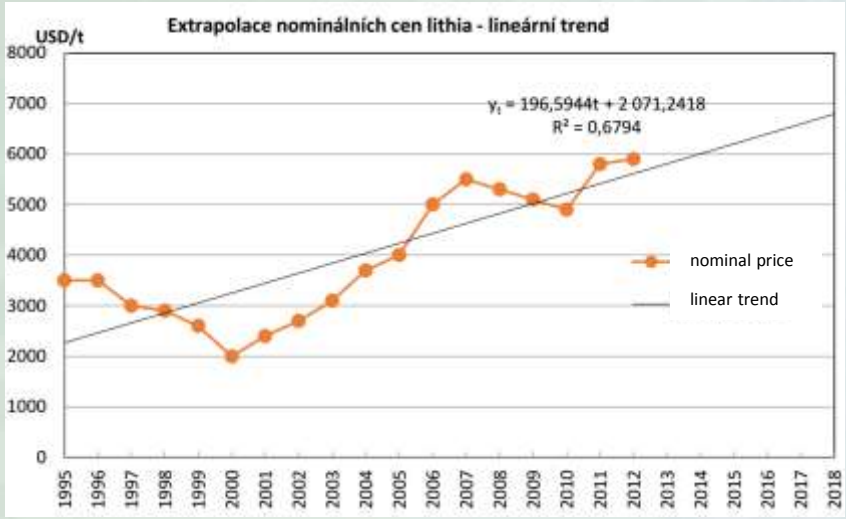
Li production in metric tonnes



Li consumption in metric tonnes



Extrapolation of Li nominal prices



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Thank you for your attention

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