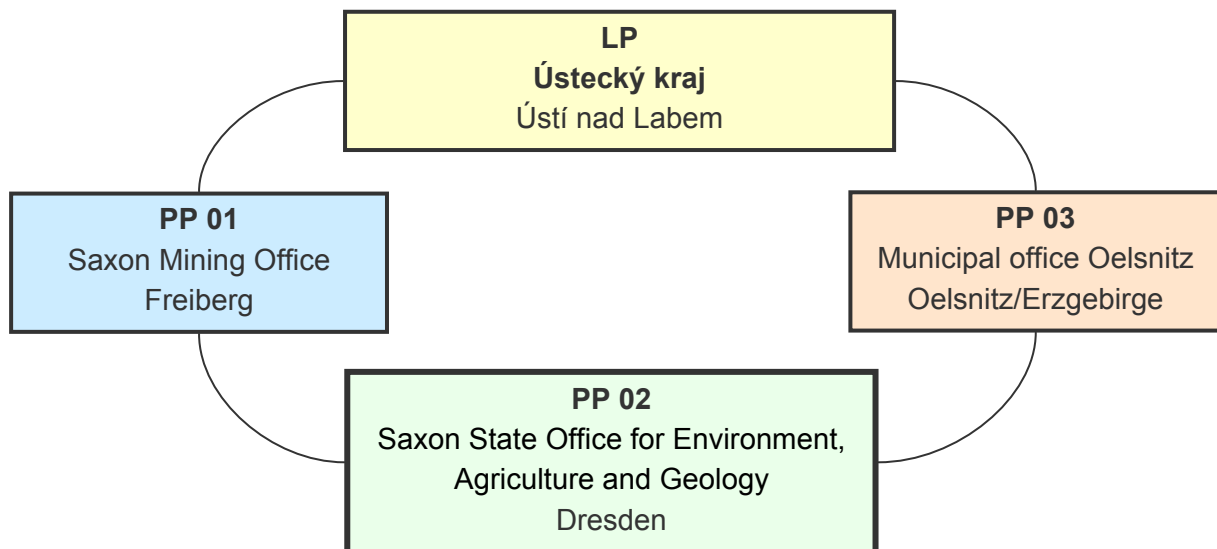


Description of project VODAMIN (2010 – 2013)

In regions of active mining and post-mining landscapes the natural water balance is impaired. Negative effects are large and long-term changes in water quantity and quality of groundwater, percolating water and surface water in the flowing and standing water bodies or in drifts. In these areas, the implementation of the aims of the European Water Framework Directive is particularly difficult.

Because of such mining consequences both Saxon and Czech mining areas are affected, a cross-border Ziel-3-project (sponsored by European Regional Development Fund) called VODAMIN was initiated. In this project, the region Ústí nad Labem (CZ), the Saxon Mining Office, the Saxon State Office for Environment, Agriculture and Geology and the city Oelsnitz/Erzgebirge are working together. Lead Partner is the Ústí region.



Project partner VODAMIN (2010 – 2013)

As part of this EU-project, cross-border joint actions have been established, dealing with the effects of past and present mining activities on the water quality of ground and surface waters.

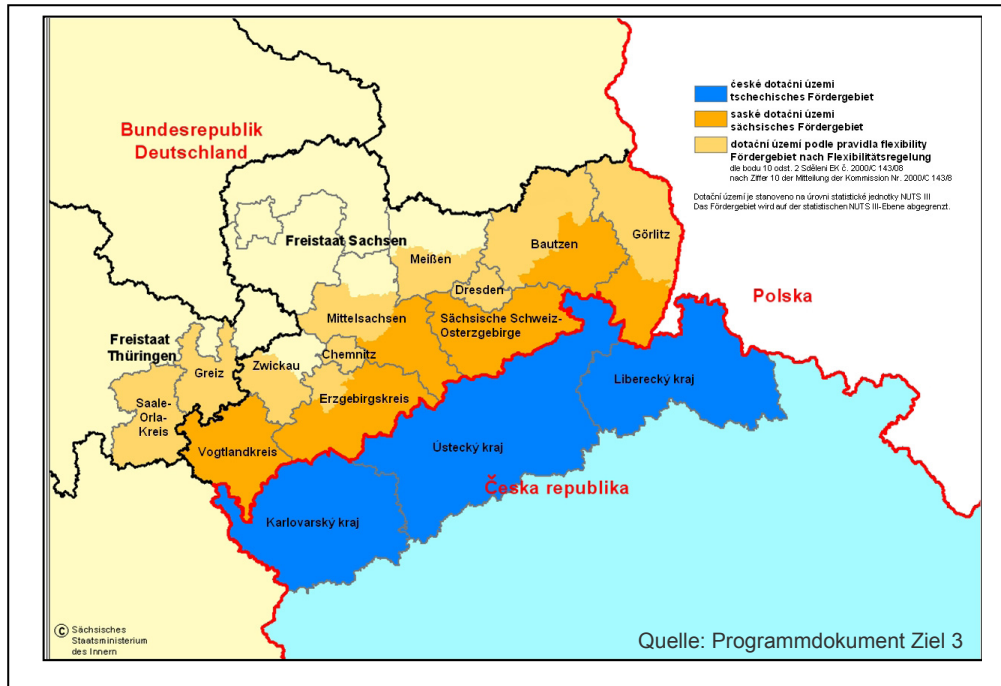
This concern is illustrated by the name VODAMIN: “VODA” = water and “MIN”= mining.

Project area and key issues

The scope of VODAMIN contains parts of the following euro regions: Erzgebirge/Krušnohoří, Neisse-Nisa-Nysa, Euregion Egrensis and Elbe/Labe. Directly integrated are:

Czech Republic: Ústecký kraj

Administrative district Saxony: Bautzen, Görlitz, Erzgebirgskreis, Sächsische Schweiz/Osterzgebirge



Within this scope, VODAMIN is concerned with regionally diverse impacts of surface and underground mining. These include impacts of:

1. underground mining of tin in Zinnwald/Cínovec
2. lignite opencast mining in the Lusatia an the North Bohemia coal district
3. underground mining of pit coal in the coal district Lugau/Oelsnitz

As part of VODAMIN total of 34 sub-projects will be processed. These are mainly studies and reports, performed with varying degrees of laboratory and field investigations.

In addition, two investment measures planned:

- Construction of a groundwater measuring point in Lugau/Oelsnitz and a percolating- and groundwater measuring point in the opencast mine Nochten
- Pilot project: electrochemical sulphate reduction in the pilot plant of the mine water treatment plant Rainitz

The 34 sub-projects fall into the following technical topics:

- Water balance in brown coal fields and post mining areas of northern Bohemia and Lusatia (regarding surface-, percolating- and groundwater): Investigation of interactions and impacts on the environment and infrastructure (chemical, ecological, quantitative status / potential)
- Cleaning of mining-impacted surface water, leachate, groundwater and mine water
- Investigation and stabilization of the pits and surface water situation in the former ore and coal mining in Zinnwald/Cinovec and Lugau/Oelsnitz
- Action plans for the restoration of the transboundary stream “Heerwasser” in Zinnwald/Cinovec
- Action plans for mining sites and post mining landscapes

Table 1: underground mining

project partner	topic
LP	Hydrological, hydrochemical and hydrogeological investigations and on-site evaluations (Zinnwald/Cínovec)
	Mining development assessment (impact on mining of the transboundary stream Heerwasser/panský potok)
	Joint cross-border measure proposals to stabilize the economic situation of water (Zinnwald/Cínovec)
	Summary of studies on the Czech and German sides: Recommendations / conceptions to improve the situation on the border waters Heerwasser/Panský potok
PP 01	Consequences of the impact of dump leachate on buildings and infrastructure (Lugau/Oelsnitz)
	Effects of mine water rise on the stability of mining structures (Lugau/Oelsnitz)
	Collection and evaluation of large-scale mine water rise in the former territory Lugau/Oelsnitz/Zwickau and assessment of the risk potential for Oelsnitz, development of a methodology
	Concepts and recommendations for dealing with mine water rise in Saxony and the Czech Republic
	Monitoring of large-scale mine water rise in the former coal district Lugau/Oelsnitz/Zwickau, establishment of a deep groundwater measuring point
PP 02	Investigations on the spot and analysis of water conditions and water qualities in the border region Zinnwald/Cínovec
	Interaction of groundwater and surface water in the border area Zinnwald/Cínovec
	Mining development assessment (mining-related material input in running waters (Heerwasser/Panský potok))
	Transboundary water management measures to stabilize the situation in Zinnwald/Cínovec (water runoff, improve the chemical status and ecological potential)
PP 03	Possibilities for the use of pits and dump water for special applications
	Flooding concepts (for example mining area Oelsnitz)
	Post mining monitoring (topographical dates/GIS)

Table 2: lignite opencast mining (coal district northern Bohemian and Lusatia)

project partner	topic
LP	Hydrological, hydrochemical, geological and hydrogeological evaluations / reports (North Bohemia)
	Hydrological, hydrochemical, geological and hydrogeological on-site evaluations (North Bohemia)
	Water quality monitoring, development of a network of measuring points in North Bohemia
	Evaluation of long-term water balance, the impact of climate change on the water system in the affected area, interactions of underground and surface water
	(Mathematical) models of water balance, runoff characteristics, water level of underground waters before and after mining
	Study on mine water treatment, suggestions in improving the purification of mine water
	Evaluation of the water body according to the requirements of the EU Water Framework Directive (North Bohemia district), opportunities for revitalization of water bodies
	Collection / database of permits issued for water management in the affected area
PP 02	Studies of ammonium in eastern Saxony mining lakes
	Cleaning methods and evaluation and selection of procedures for acid-mine-Drainage
	Methodology for the detection of interactions between groundwater and surface water in lignite areas
	Study on current cleaning methods
	Feasibility study: using sulphate mine water for fertilization in agriculture
	Effects of high iron concentrations on the biology of surface waters
	Economical measure comparison for different methods of collecting, draining and cleaning mining-contaminated groundwater
	Electrochemical sulphate reduction in a pilot plant of the mine water treatment plant Raintza
	Percolating- and groundwater measuring point in the opencast mine Nochten
Summary of studies and recommendations for improving water quality in mining areas	