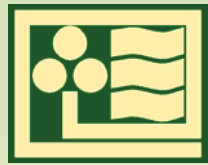


# Research Institute for Soil and Water Conservation

## Centre of research in the area of soil and water Conservation in the Czech Republic



Výzkumný ústav meliorací a ochrany půdy v.v.i.  
156 27 Praha 5 – Zbraslav, Žabovřeska 250  
Director: Ing. Jiří Hladík, PhD  
Telephone exchanges: +420 257921640  
<http://www.vumop.cz>

### Research Institute for Soil and Water Conservation, v.v.i.,

was established on the 1st January 2007 pursuant to Act No. 341/2005 on Public Research Institutions (v.v.i. is the Czech abbreviation for this type of institution) for an indefinite period of time by transformation of the allowance organisation Research Institute for Soil and Water Conservation in Prague, which continued the traditions of an institute founded already in 1954. The purpose of the Institute establishment is the development of science knowledge in complex ameliorations, pedology and informatics related to these disciplines. The Institute is an artificial person with research including the management of research infrastructure as the main object of its activity.

### The main activity is science and research in these areas:

- methodology for the study of general territorial relations in the framework of soil and water conservation during complex reallocations of land
- protection of agricultural soil from erosion
- principles of management for the zones of differentiated protection of permanent grasslands in watersheds of water-supply reservoirs
- agro-engineering erosion-control measures
- reclamation of lands devastated by the extraction of mineral resources in the North Bohemian Brown Coal Basin
- revitalisation of small streams
- measures for the runoff regulation in an agricultural watershed
- general methodical procedure for optimum management of state-owned land
- methodology for the calculation of water retention in a watershed during floods
- application of an alternative management system of soil and water conservation in landscape
- agricultural drainage in cultivated landscape
- measures in agricultural landscape for the improvement of water bodies
- reclamations of spoil bank Anthrosols in the North Bohemian Brown Coal Basin
- Assessment of the influence of preferential flow through soil on nitrate leaching in conditions of the crystalline rock system of Bohemian and Moravian uplands

### Other activities provided for central and local government bodies:

- a complex of activities connected with the updating of evaluated pedoecological units (EPEU), elaboration of the relevant
- background materials about the area distribution of EPEU for the introduction of land evaluation into land registry and administration of the national EPEU database in accordance with special rules
- maintenance and application of the EPEU numerical database, creation of special outputs from the database of complex soil survey and from the EPEU database and its updating
- monitoring of the load of extraneous substances in soils in relation to the protection of food chain
- monitoring of water quality and ecological condition of water bodies and partial watersheds
- development of documentation of protective zones of water-supply reservoirs and background data for plans of watershed areas
- methodical and counselling activity and pedological and amelioration surveys
- elaboration of expert opinions, conceptions, prognoses, commentaries and background materials for the founder's

### Additional activities, services provided for other organisations:

- research and development in life and engineering sciences
- or social sciences
- consultancy in the discipline of ameliorations
- consultancy in the discipline of soil science
- the activity of technical consultants in the agriculture
- provision of software and consultancy in the field of hardware and software
- data processing, databank services, network administration
- organisation of specialised courses, trainings and other
- educational events including lecturing
- publishing house

### References:

- PÚ Blansko – Study of erosion control and flood protection in the Luh watershed (Moravian Karst)
- PÚ Bruntál – Complex reallocations of land in Loučky and Zátor
- ČEZ – Biological reclamation in Chvalčice
- MUS – Reclamation construction in Vrřany, Stage III

### Department of Soil Water Regime

Dept. Head: Zbyněk Kulhavý Ing. CSc.  
[kulhav@hydromeliorace.cz](mailto:kulhav@hydromeliorace.cz)

- modification of water regime of agricultural soils and lands
- optimisations of moisture regimes of soils and runoff conditions in catchment basins under agricultural use
- issues of hydrological balance in catchment basins under agricultural and forestry use, including the determination of effects of irrigating, draining, and combined structures on water management interests
- Integrated monitoring, real-time modelling and forecasting of hydrological processes in small agricultural and forest catchments.*



### Characteristic of the Institute departments

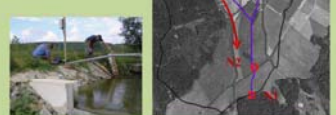
Scientific and research departments are the basic organisational units of the Institute, which have had unambiguously and long term established responsibilities for the achieving of activity goals and development in the appropriate science field or a part thereof.

- optimum land plot size and arrangement of road network concerning the restoration of ownership rights, management, and landscape stability
- soil conservation and water management measures in catchment basins, updating and additional determination of soil quality,
- developing designs and projects of land consolidation

### Department of Land Consolidation

Dept. Head: Ing. Jana Podhřázká, Ph.D.,  
[podhraska@vumopbrno.cz](mailto:podhraska@vumopbrno.cz)

Survey of amount of discharge and suspended solids depending on the soil conservation practices in experimental basin Náměčický stream. Experimental profiles – N1, N2 discharge and amount of suspended solids from extreme precipitations are observed.



### Department of Central Laboratories

Dept. Head: Ing. Hana Macurová.  
[macurova@vumop.cz](mailto:macurova@vumop.cz)

- Carrying out serial chemical, physical, and microbiological analyses of soils, water and plant
- Introducing of new analytical techniques in order to keep them in line with internationally acclaimed principles
- Compliance with quality assurance system pursuant to the standard ČSN EN ISO/IEC 17025: 2005



### Department of Soil Resources Utilization

Dept. Head: Doc. Ing. Tomáš Kvítek, CSc.,  
[kvitek@vumop.cz](mailto:kvitek@vumop.cz)

- rational utilisation of land resources in areas under special management regime
- differentiated soil conservation and water protection in catchment basins and selection of land plots for this protection by determination of crops in the catchment basin
- extensive methods of use of permanent grasslands
- design of protective zones of water source reservoirs
- conservational and landscape forming functions of grasslands



### Department of Soil Conservation and Reclamation

Dept. Head: Ing. Martin Típl, [tipl@vumop.cz](mailto:tipl@vumop.cz)

- deepening of knowledge on the processes of water and wind erosion and their consequences
- new methods of erosion control of organisational, agrotechnical, and technical nature
- issues of reclamation of territories damaged by mining and other industrial activities
- reclamation of landfills of solid municipal waste and specific issues of reclamation of tailings ponds and settling pits

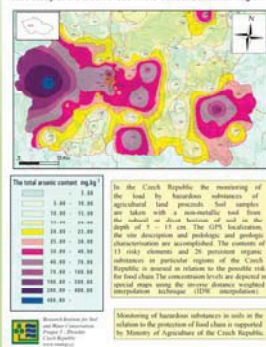


### Department of Soil Hygiene

Dept. Head: Ing. Radim Vácha, Ph.D.  
[vacha@vumop.cz](mailto:vacha@vumop.cz)

- evaluation and judging of regional environmental load with pollutants, including the related geographical information system
- retrospective monitorin of hazardous elements in soil
- immobilisation of hazardous elements and persistent organic xenobiotic substances in soil
- methods of remediation and decontamination of health hazardous soils

### MONITORING OF THE LOAD BY HAZARDOUS SUBSTANCES IN AGRICULTURE SOILS IN THE CZECH REPUBLIC - case study of the arsenic load in the Central Bohemian Region

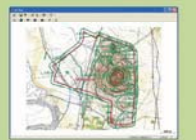


### Department of Soil Survey

Dept. Head: Ing. Ivan Novotný, [novotny@vumop.cz](mailto:novotny@vumop.cz)

- systematic national updating and additional valuation of soil quality, including the supplementary survey on established localities and evaluation thereof
- updating of graphic and numerical background materials for the valuation of soil quality
- annual systematic updating and calculation of average soil price in respective cadastral districts pursuant to the Regulation No. 613/92 Code
- cooperation with the MA CR and ČÚZK when introducing the soil quality valuation into the real estate cadastre, including guidance and professional activities
- methodological guidance to personnel of Land Register Authorities, who carry out updating of valuated soil ecological units

In 2006 Research Institute for Soil and Water Conservation has begun, in terms of grant project M7F000704901, a particular research phase solving development and implementation of the Geographic Information System for Soil and Water Conservation-SOWAC GIS.



### Department of Soil Science

Dept. Head: Ing. Jan Vopravil, Ph.D.  
[vopravil@vumop.cz](mailto:vopravil@vumop.cz)

- soil genetics and soil classification and their theoretical and practical aspects
- interrelations between soils and other parts of environment especially water
- aspects of transport and transformation processes in soils
- categorization and evaluation of soil production potential
- backgrounds for qualitative and quantitative protection of soils and underground and surface water
- aspects of actual state and development of soils in relation to anthropogenic influences
- problems of limiting and degrading factors affecting soil production and non-productual functions

