**Water Resources investigation and management**

<table>
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<tr>
<th>Institution</th>
<th>Project Title</th>
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<tbody>
<tr>
<td>Geological Survey of Ethiopia - MoE, Czech Republic</td>
<td>Hydrogeological study of the Western lowlands and adjacent highlands of Ethiopia. The main project objective is training Ethiopian hydrogeologists in groundwater resources assessment. Such training will contribute to the national programs for groundwater assessment and development. Transfer of know-how is practically implemented in two pilot studies: (i) hydrogeological study of the Dabus River Basin, and (ii) Hydrogeological map of the Asosa-Kurmu, Abu Ramla, Ghimbi- Tosho Terara and Adi Ramets-Gulch Areas in a scale of 1:250 000.</td>
</tr>
<tr>
<td>Geological Survey of Ethiopia – Czech Development Agency</td>
<td>Water Resources Management and Environmental Protection Studies of the South-Eastern Part of Jemma River Basin for Improved Food Security. The main objective of the field work for hydrogeological mapping was to identify water-bearing lithological units, recharge and discharge areas as well as groundwater flow direction, to categorize water quality within water bearing formations, to indicate the suitability of groundwater for different purposes, and to compile hydrogeological and hydrochemical maps. The work covers aerial photo and satellite image interpretation, meteorological and hydrological data analysis, quantification of inventoried water points, collection of representative water samples and data for hydrochemical studies, and evaluation of water resource management of the area.</td>
</tr>
<tr>
<td>Geological Survey of Ethiopia – MoE, Czech Republic</td>
<td>Groundwater Resource Assessment of the Southeastern Lowlands and Associated Highlands. The main objectives of the field work for hydrogeological mapping were to identify water-bearing lithological units and their basic characteristics, to identify recharge and discharge areas as well as groundwater flow direction, to categorize water quality within water bearing formations, to indicate the suitability of groundwater for different purposes, and to compile hydrogeological and hydrochemical maps with accompanying explanatory notes of the study area based on the information and analysis made. The work covers the interpretation of aerial photos and satellite images, meteorological and hydrological data analysis, quantification of inventoried water points, collection of representative water samples and data for hydrochemical studies, and evaluation of water resource management of the area. The study area covers about 200 000 km² and consist of map sheets: Gonder, Harar, Bedesa, Dodola, Filtu, Negele, Addis Ababa, Ginnir, Megalo, and Sede.</td>
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<tr>
<td>Czech Development Agency – Sidama Zone Water Bureau</td>
<td>Rehabilitation of water resources in Ethiopia. The main objective of the project is provide a secure income of the people to drinking water. The project is fulfilled through the construction of water supply in Daye, Bona, and Hagere Salam in the Sidama Zone, Ethiopia. The work is concentrated on the design of a new pipeline systems from wells to distribution points, construction of new pipelines, and construction of distribution points of potable water, including capacity building through education and training in the management of water supply systems (WASCA).</td>
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**Water Works Design**

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<tr>
<td>State Amelioration Authority Plzen</td>
<td>Revitalization study of Nezdicky brook. Revitalization concept of water network and partial catchment of Nezdicky brook and surrounding 58.49 km². Revitalization action included technical and biological solutions, designs of vegetative cover, regeneration of ponds and water reservoirs.</td>
</tr>
<tr>
<td>State Amelioration Authority Praha</td>
<td>Strebovka Brook revitalization project documentation. Conception and solution of revitalization measures of the Strebovka river, a length of 1.775 km. Revitalization measures included regeneration of current river fortification, design of engineering measures and vegetative cover.</td>
</tr>
<tr>
<td>Ministry of Agriculture of the Czech Republic</td>
<td>Implementation of anti-drought measures in Bravicieni, Moldova consisting of proposal, design, implementation of water collection and wastewater treatment system in dry area. Implementation of outputs in the area of water protection and proposal, design and implementation of irrigational system with use of recycled wastewater and other sources of water available in dry region of Bravicieni</td>
</tr>
<tr>
<td>Bulgaria - Ministry of Environment and Water</td>
<td>Wetlands restoration and pollution reduction, Bulgaria. Technical and economic studies for the design of wetlands restoration and nutrient trapping. Project prepared in cooperation with the Bulgarian office of Harress Pickel Consult GMBh.</td>
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## Sanitation, hygiene and flood protection

### Czech Development Agency
*Improvement of Water and Sanitation system in Cimislia town, Central Moldova* consisting of enhancement of the technical know-how of the management and operational staff of the Cimislia Water Supply and Sanitation Company and the local Municipality experts staff, Awareness raising campaign for selected communities, Study tour for local experts to the Czech Republic, Elaboration of technical papers and brochures.

### Czech Development Agency
*Rehabilitation of sanitation system in Nisporeni, Moldova* consisting of the reconstruction of two pumping stations and a central wastewater treatment plant for 1.000m3/day, Design works, long-term development plant of local water utility, Water and wastewater tariff study, investment plan, environmental and social analyses, hygiene and water use awareness campaign, and a study tour for experts from the local water and sanitation company.

### VPÚ DECO
*Hydro-technical calculation and computer simulation models for sewage and water pipeline networks, Czech Republic.* Design of technical solution and negotiation of the project with government authorities and various investors.

### Ministry of the Environment CR, State hydro-meteorological Services of Moldavia
*Surface water monitoring and flood protection of the Reut River basin in Moldavia.* Construction of 3 monitoring stations in the Reut river basin with data transmission and warning signals through the Internet and mobiles, provision of joint measurements using modern techniques and their professional evaluation, training employees of the state hydrometeorological services of Moldavia and elaboration of a sample flood protection project plan. Equipping of the workplace of the Beneficiary to promote independent development of monitoring and flood protection after the completion of the project.

### Usti upon Labe District Authorities
*Flood protection plan* in hardcopy as well as in digital form using GIS for Elbe and Ohre rivers. Implementation of the principles of the Decision supporting system (DSS) resulted in interactive use of the plan as an early warning tool.

### Liberec District Authority
*Flood protection plan* in hardcopy as well as in digital form using GIS for small rivers of the district. Implementation of the principles of the Decision supporting system (DSS) resulted in interactive use of the plan as an early warning tool.

## Irrigation

### Golf Resort Prague
*Water management including irrigation of golf complex.* The complex with area of 66 ha will be supplied by irrigation water from cascade of three reservoirs collecting water from the Chvalka River. Water from the river will be diverted by a small weir and special diverting canals. The canals between the reservoirs will be open and the banks of the canals will be paved by stones. Drip and sprinkler irrigation will be applied over an area of 17.3 ha.

### Ministry of Finance of the Czech Republic
*Water management including a system of pumping and irrigation.* Pumping system of water from Nova Voda Lake and its distribution to sprinklers. The water is distributed by a pipe with a diameter of 1830 mm and sprinklers are distributed into three segments covering a total area of 16 ha. Each segment consists of 6 large sprinklers the regime of which is controlled by computers based on the ambient air temperature.

### Town of Brandys upon Labe River
*Water management consisting of the design of an irrigation system.* Diversion of water from the Labe River into separated reservoirs for irrigation water. Diversion spillway dam and 453 and 418 m long canals transfer river water into separated reservoirs. Canals were constructed based on GIS selected depressions and accumulated water is used for watering of marshland vegetation and for irrigation of adjacent areas.

### Ministry of Foreign Affairs of The Czech Republic
*Abtak Dam reconstruction in the Khoshi Valley, Logar province, Afghanistan.* Complete reconstruction of Abtak weir structure in the Khoshi Valley and reconstruction of more than 3 km of an intake canal for micro hydro power plant and irrigations. The project included the building of new structures.
dividers for farmers next to the headrace canal.

Reconstruction of Jabar Khan Karez near Mizrakhel village, Logar province, Afghanistan
Reconstruction of a 7 km underground feeder canal for irrigation in the Mizrakhel region. This karez was a single source of irrigative water for three villages.

New headquarters for NDS in the Khoshi Valley, Afghanistan
Building of a new HQ for the Afghan national police. Two buildings with offices and a dormitory.

Geology

Geological and Engineering Geology Investigation

Geological Survey of Ethiopia – Czech Development Agency

Capacity building in engineering geology and hydrogeology in Ethiopia. The main objective of the project was the transfer of know-how and experience with the compilation of maps in the framework of the editing and compilation of 3 maps from the central part of the Ethiopian Rift Valley. The area covers about 60,000 km² and consists of Dilla, Dolo and Hosain a map sheets in a scale of 1:250,000 and Hawassa, Shashemene and Angecha map sheets in a scale of 1:50,000.

Radioactive Waste Repository Authority

Geological, engineering geology and geophysical surveys for the assessment and scale down of potential sites for the next steps of a deep geological repository sitting process. The project involved the performance and assessment of investigation work at 6 sites in the Czech Republic. The investigation work involved both geological issues and technological delineation of surface areas in the vicinity of the geological area of the repository.

Czech Embassy in Addis Ababa

Engineering geology exploration for new proposed construction of the Czech Embassy in Addis Ababa, 30 drilled testing boreholes and assessment of characteristics for foundation design in area of Kebele 22.

Geophysical Measurements / Geophysical Well Logging

Czech Development Agency

Surface geophysical measurements for siting of wells. The project consists of the following works – geophysical and hydrogeology survey, prospection of existing wells, finding of location for the new 3 wells, (Daye, Bona, Hagere Salam) in the Sidama Zone, Ethiopia. Surface geophysical methods Vertical Electric Sounding (VES) and Symmetric Profiling (SP) were used for siting of well with depth of 100 to 150 m in aquifers consisting of volcanic rocks, with supervision of subsequent drilling works, including capacity building through education and training. Services also included data collection and utilizing surveying technologies and capacity building in water resources protection.

Czech Development Agency

Surface geophysical measurements for the determination of 9 potential sites (Kebele) for wells for drinking water supply in 3 weredas (Boricha Woreda: Konsore Chafa, Alabo Arife, Dila Arife, Dila Olika, Loka Abaya Woreda: Hantate, Felka, Argeda Haro Dimtu, Argeda, Darra Woreda: Adame Teso) of Sidama Zone. Methods of VES, Very Low Frequency (VLF), Dipole Elmag Profiling (DEMP), and excitation polarization were used for well siting.

Ministry of Finance of CR

Well logging of hydrogeological and groundwater monitoring wells for risk assessments and different remedial investigations: Spolchemie Ústí nad Labem; Chemopetrol Litvinov; former military areas Kuřívody, Hradčany, Luštěnice, Boží Dar, Černice, Všejany, Jiřice, Lině, Bechyně; factory areas Škoda Plzeň, Permon Roztoky, TRW Volant Počernice, TRW Lucas Varity Jablonec n. N., AVIA Letňany, SVA Holýšov, Mydlovary, UD Zadní Chodov, Transporta Chrudim, Spolana Neratovice.

Technical University, Madrid, Spain

Well logging and tomography for assessment leakage from small dams in Catalunya, Valencia, Extremadura and Madrid areas in cooperation with engineering geology characteristics after sealing curtains constructed by cement injection wells.

Czech Hydrometeorological Institute

Inspection of technical condition of monitoring wells well logging and camera inspections of shallow and deep wells from the National monitoring network. Age of monitoring well varied from 60 to 15 years and decision about their reconstruction or closing was done based on technical well logging.

Czech Railways

Well logging for assessment of engineering geology characteristics for design and construction of railway tunnel design Dobrovského in Brno; railway tunnel constructions Votice and Brezno, railway tunnel design and construction around Plzen – Ejpovice.
Waste Recycling and Solid Waste Management

**ORC Group, Ostrava**  
Supply of electronic waste recycling line. The line for recycling of TV screens has capacity of 200pc/8h based on equipment for treatment of screen glass with a capacity of 5 000 kg/8h. The line was installed and training of line staff was provided. Additional equipment was supplied for the treatment of screen glass with capacity of 1 500 kg/h.

**SKP-CEDR, Pardubice**  
Supply of electronic waste recycling line. A line for recycling of mother boards, chip boards and plastic cables with a capacity of 350 kg/h. The line was installed and training of line staff was provided.

**Malec Village**  
Supply of electronic waste recycling line. A line for recycling of TV screens has capacity of 10pc/h is based on equipment for treatment of screen glass with a capacity of 300 kg/h. The line was installed and training of line staff was provided.

**O-Pal Sp. Z.o.o.**  
Supply of electronic waste recycling line in Sknierniewice, Poland. A line for treatment of screen glass with capacity of 300 kg/h. The line was installed and training of line staff was provided in the site.

**Draslovky Kolin a.s.**  
Development of biological waste treatment plant in chemical establishment producing cyanide and other chemicals.

**PURUM s.r.o Pribram,**  
Waste management plan (required by low) for mechanical-biological treatment plant for communal waste

**Academy of Science**  
Demolition of two buildings HILASE and ELI, excavation of contaminated and other soil, sorting, crushing, loading and landfiling of excavation and demolition waste.

**Byckovice near Litomerice**  
Landfill sanitation consisting of collection of waste material from un-sanitized landfill, sorting of material, loading and transport to different landfills, monitoring of groundwater pollution nearby former landfill.

**Rynoltice**  
Recycling of automotive industry plastic materials (PP,ABS, PC+ABS, PP+EPDM) crushing by a blade mill, removal of iron parts and production of plastic rolls for reuse.

Wastewater Treatment Technologies Design and Operation

**Nyrsko Wastewater Treatment Plant**  
Modeling of treatment plant construction impact on groundwater flow conducted for Nyrsko - COV, The changes in the groundwater flow, which may have been caused by the construction of the plant, were modelled. The influx into the basement of the construction was simulated as well as the interrelation between the quaternary aquifer and the surface water of the Uhlava River.

**AJAX&BLUNDELL a.s.Jihlava**  

**RD Pribram s.p.**  
Elaboration of technological background materials for designing solutions for cleaning mine waters at the Kutna Hora site. Removal of heavy metals (Fe, Zn, Cd, Mn, Cu, As) from acid mine water in the sense of Governmental Decree 82/99 Coll.

**DIAMO s.p.**  
Testing of a system for treatment of waste mining water polluted by As and other heavy metals at Bestvina – Kank, near Kutna Hora. The system was designed and constructed in the framework of a research and development project financed by Ministry of Trade and Industry and co-financed by AQUATEST a.s.

**ORC Group, Ostrava**  
Supply of electronic waste recycling line. The line for recycling of TV screens has capacity of 200pc/8h is followed by equipment for treatment of screen glass with capacity of 5 000 kg/8h. The line was installed and training of line staff was provided. Supply of additional equipment for treatment of screen glass with capacity of 1 500 kg/h.

**Ministry of Agriculture of the Czech Republic**  
Wastewater treatment as a part of anti-drought measures in Braviceni, Moldova consisting of proposal, design, implementation of water collection and wastewater treatment system in dry area,
Implementation of outputs in the area of water protection and proposal, design and implementation of irrigational system with use of recycled wastewater and other sources of water available in dry region of Bravicieni.

**Remediation**

**Remedial Investigation and Supervision of Remedial Projects**

**BRANO a.s**  
Remedial investigation of the company’s site and nearby pumping field located along the Rakovnik stream. Results of investigation were used for a feasibility study of remedial action, including mathematical modeling and a proposal for monitoring.

**SSZ Karlovy Vary**  
Supervision of remedial work, wrap factory of bitumen pulp, Rozmital p.Tr. Supervision of remediation of soil polluted by PCBs. Assessment of remedial action stage and checking of remedial technologies and equipment. Remedial work carried out by Geotest Brno.

**Military Academy Brno**  
Supervision of remedial work, Namest n.Oslavou. Peer-review of curative action design at airports contaminated by petroleum matter with specifications for military airports.

**NPF/MOF**  
Supervision of remedial work to remove contamination around the JmDZ Brno - Rohatec plant. Assessment of pilot project, monitoring of the pilot remedial action, economic control, valuation of procedure efficiency and technologies. Contamination of soil and groundwater by polycyclic aromatic hydrocarbons. Remedial work performed by UVR Mnisek p.B.

**MoE CZ**  
Supervision of remedial work to clean-up pollution at the former Soviet Army airport at Hradcany in Ralsko military space. Supervision of remedial work and decontamination efficiency valuation. Contamination of soil and groundwater by petroleum matter and chlorinated hydrocarbons. Remediation by KAP Prague.

**Sandvik Chomutov**  

**Remediation of Contaminated Water and Soil**

**DIAMO s.p.**  
Remedial action by the consortium “Clean Ostrava” for remediation of a sludge pond filled with acid sludge from an oil refinery. AQUATEST as a member of the consortium is responsible for decontamination of groundwater and soil beneath and inside the surroundings of the sludge pond.

**Ministry of Environment CZ**  
Remediation of soil and groundwater pollution at the former site of the Soviet army in Kurivody. Contamination by chlorinated hydrocarbons endangering water sources was limited by remedial pump and treat with foam columns.

**Czech Rail**  
Remediation of locomotive depot in Nymburk. Remediation of soil and groundwater contamination is being carried out by combining pump and treats technologies with in-situ biodegradation.

**Chemopetrol a.s. Litvinov**  
Remediation of contamination at a refinery and chemical plant site. Complementary investigation of soil and groundwater contamination. Design and implementation of remedial procedures directed to reducing concentrations of petrol hydrocarbons, phenols, and heavy metals. Modeling, GIS and long-term monitoring of pollution development is used for evaluation of remedial efficiency.

**GALENA a.s / NPF/MOF**  
Remedial action at a pharmaceutical industry site. Groundwater and soil is contaminated by volatile organic compounds, heavy metals and oil hydrocarbons from several decades of company operations.

**UNOPS Yugoslavia**  
Clean-Up of Environmental Hotspots at HIP PetroHemija, Pancevo, Federal Republic of Yugoslavia Remedial project elaborated with financing from the United Nations Office for Project Services. Pump and
treat method combined with the innovative technology of Steam Enhanced Extraction is applied for the removal of 1,2 Dichloroethane pollution resulting from the bombing of the Pancevo industrial complex during the Kosovo conflict.

**Environment**

**Environmental Consultancy**

**URS UK**  
**Environmental inspection** of British Petroleum network of petrol stations undertaken on behalf of BP as part of the vendor due diligence in respect of the proposed divestment of the Aral CR, a.s. retail business in the Czech Republic, a wholly owned subsidiary of BP.

**Raisio Oyj Finland**  
**Environmental inspection** of Candy Plus Sweet Factory, s.r.o. sites located in Rohatec and Petrvald, Czech Republic, in cooperation with Balcar Polánský Eversheds.

**Landfill Prague, Dablice ASA**  
**Monitoring of municipal solid waste landfill** site operation on superficial groundwater. Design and implementation of monitoring system, regime sampling and groundwater analysis.

**Bohemia Cement Radotin**  
**Monitoring of the quality and groundwater level** of the aquifer and surface water quality. Field measurements, sampling, and laboratory analysis. Impact of extraction of limestone on the regime and quality of the water sources used for supplying the village of Kosor.

**Zakum Development United Arab Emirates**  
**Marine Environmental Monitoring Program, Abu Dhabi.** Project prepared in co-operation with the German company Texplor. Project focused on the performance of marine biological monitoring investigations across the Arabian Gulf to determine the nature and magnitude of pollution from the discharge of effluent.

**Moravian Oil Company Hodonin**  
**Luzice oil field Environmental Impact Assessment**, conducted for Moravian Oil Company Hodonin. Project for collection of EIA documentation for a permit to inject liquid waste from oil drilling and processing into old oil wells at the Luzice oil field.

**European Union**  
**Environmental Impact Assessment of Nuclear power plant in Cernavoda, Romania.** Aim of project was to provide the owner with an independent EIA for the proposed completion of the NPP according to EU standards and practices and an assessment of radiological protection provision at the project site.

**ENEL**  
**Environmental Impact Assessment of Nuclear power plant in Mochovce, Slovakia.** The aim of project was to provide the owner with an independent EIA for the proposed expansion of the NPP by the operation of two new blocks.

**MERO CR**  
**Extension of the central re-fuelling station Environmental Impact Assessment.** Elaboration of the complex documentation on the impact of proposed extension of current re-fuelling station on the environment.

**Social Economic Consultancy Risk Assessment**

**Peruvian Ministry of Tourism and International Trade**  
**Feasibility study for development and protection of mineral water in Cajamarca and Churin, Peru**

The study consists of geology, balneology and architeconic design, including cost of project and assessment of its economic feasibility. The main objective was the transfer of know-how from the development and use of mineral and thermal waters for balneology and balneotherapy. Four sites were selected to assess the possibility of using thermal and mineral waters, two of which led on to the construction of balneological facilities. Activities required the cooperation of many Peruvian and Czech experts during geological and hydrogeological mapping, water sampling and measurement, determination of chemical parameters, etc. Outputs included assessment of architectural design of balneological facilities, including estimation of investment and return on investment (ROI).

**Holostrevy Road Authority Stribro**  
**Risk assessment of the Holostrevy Tarmac Mill.** The area of interest was heavily contaminated with heating fluids containing PCBs contaminating the soil, groundwater, surface water, stream sediments and fish tissue in the proximity of the facility. Detailed congener PCB analysis was carried out. The transport
of the PCBs in groundwater was assessed by the model SUTRA. Present PCB concentrations were evaluated using the toxicological models Risk - Human and Risk Assistant. On the basis of the resulting target limits a feasibility study of the cleanup requirements was performed.

Lustenice Local Authorities Risk assessment of the former military site (massive contamination by CHCs – DNAPL and TPH LNAPL) including feasibility study.

Research and Training

Research and Development (R&D)

**Ministry of Environment CZ / PHARE**

Development of a Management Information System (MIS) for approximation. Project prepared in cooperation with the French company BRGM. The aims of the project were to formulate an information system for the management of meta-data and information, to ensure public access and participation through the world wide web and to improve pollution monitoring in line with EU rules and practices.

**USAID EcoLinks/Major of Slatina Romania**

Integrated Municipal Waste Management System. Project performed under the USAID EcoLinks challenge grants scheme in Slatina, Romania. Aim of the project was to provide the municipality with an integrated solid waste management system and provide consultation for the closure of an old unmanaged landfill and opening of a new sanitary landfill. Project included proposals for the development of alternative fuels.

**Ministry of Environment CR**

Revision of the National Standard criteria for polluted soil and groundwater sanitation. The aim of the commission was based on international experience to revise existing and design new methodical direction for the ‘Criteria of polluted soil and groundwater for the purposes of result consideration of the preliminary survey on monitoring of contamination’, incl. Proposal of specified values of A, B and C for groundwater and soil.

**EU EUREKA program**

EMOS - Environmental monitoring interpretation system. International project for software development (gdbase), which is composed, of the core on which special software is connected depending on clients’ requirements or specific situation at the site.

**EU EUREKA program**

MADWICA International project of research and development into implementation of the European Water Directive 60/2000/EC. Implementation of this directive and its principles in the field of water resource protection zones and rational utilization of groundwater resources with emphasis on modern IT. Development of a universally useable tool for decision making in river basins throughout Europe.

**CAWAB – Institute of Chemical Technology, Prague**

Applied research. The project is focused on the preparation of a captive population of microbial xenobite degraders utilized in complex bioremediation of wastewater. The project connects the current issues of the technological utilization of single-cell organisms with the requirement to innovate the processes of biological decantation of water containing a multi-compound mixture of chemically related and unrelated organic pollutants or even undesirable inorganic compounds (heavy metals ions).

**Czech Technology Agency**

Information System for Analysis and Assessment of Groundwater Resources in Dependence on Human Activities and Climatic Changes – using the results of long term groundwater monitoring for assessment of groundwater resources and their dynamic changes.

Training and Transfer of Know-how

**EU funded project Cobraman**

Expert trainer of European land managers from throughout the European Union in Brownfield management, Most, Ostrava,

**State hydrometeorological Services of Moldavia**

Training employees of the state hydrometeorological services of Moldavia in surface water monitoring and flood protection of the Reut River basin and elaboration of a sample flood protection project plan. Equipping of the workplace of the Beneficiary to promote self-development of monitoring and flood protection.

**Czech Telecom, a.s**

Consultation, activities of authorized persons pursuant to Act. 157/1998 Coll., on Chemicals and
Chemical preparations. Training of employees, expert assistance to competent employees

**VALEO Autoklimatizace**  
Environmental Management System training, training of key management, training of internal auditors (in cooperation with BUREAU VERITAS QUALITY INTERNATIONAL), support in formulation of EMS documentation, implementation of the system.

**UVR, Mnisek**  
Construction of a Research and Development Park for minimizing the impact of waste on the environment and material use of waste material.

**Czech Development Agency**  
Course materials for the Addis Ababa University (Department of Post-Gradual Studies) in the framework of the project “Improving the quality of University education in the applied earth sciences focused mainly on geohazards and hydrogeology”.