CREA Hydro & Energy

RESEARCH, DEVELOPMENT, AND INNOVATION

HUMAN RESOURCES DEVELOPMENT

PARTNER NETWORKING

INTERNATIONALIZATION

Cluster

CREA Hydro&Energy

Water Management • Ecological Services
Renewable Energy Sources

BRONZE Cluster Management Excellence
STRIVING FOR CLUSTER EXCELLENCE

www.creacz.com

BRONZE Cluster Management Excellence
STRIVING FOR CLUSTER EXCELLENCE

Extract

from the Federal Register maintained by
the Regional Court in Brno
Section L, Insert 13351

Registration Date:	January 1, 2014
Date of establishment:	July 14, 2008
File number:	L 13351 maintained at the Regional Court in Brno
Name:	CREA Hydro&Energy, z.s.
Address:	Traubova 1546/6, Černá Pole, 602 00 Brno
Identification number:	227 29 674
Legal Form:	Association

The correctness of this extract is confirmed
by the Regional Court in Brno.

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MINISTRY OF INDUSTRY AND TRADE OF THE CZECH REPUBLIC

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National Cluster Association

The National Cluster Association (NCA) is a non-governmental non-profit organization that brings together entities and individuals with the aim of coordinating and promoting sustainable development of cluster initiatives and cluster policy in the Czech Republic. This is based on the concentration of knowledge, experience, and expertise to strengthen the competitiveness of the Czech Republic. It establishes a long-term and competent platform for the development of cluster initiatives and an active interface for their internationalization. NCA advocates for creating conditions for more effective utilization of cluster benefits in line with the development policy of the European Commission.

NCA brings together **32/5** cluster organizations and technological platforms / research and support organizations and associations **884/207** companies / other members.

NCA was founded in 2008, and the CREA Hydro&Energy cluster was one of its founding members.

More information is available on the website **www.nca.cz**

NCA CZ NATIONAL CLUSTER ASSOCIATION

Czech National Committee on Large Dams

The Czech National Committee on Large Dams (CZCOLD) is a non-profit association representing the Czech Republic in the International Commission on Large Dams (ICOLD) and supports the development of professional knowledge in the preparation, construction, and operation of dams and reservoirs for the economic and cultural development of the state. The Czech Dam Committee is also a member of the Czech Scientific and Technical Water Management Society.

Individuals with high professional qualifications and legal entities in the field, known as collective members, can become members of CZCOLD. CREA Hydro&Energy has been one of the collective members since 2011.

More information is available on the website **www.czcold.cz**

ČPV CZCOLD CTCHGB

Czech Association for Landscape Water Management

Czech Association for Landscape Water Management (AVK ČR) is the leading member of the Technological Platform for Sustainable Water Resources, founded in 2009. The TP SWR aims to contribute to the development of common visions and the definition of research and innovation priorities in water management. It promotes a holistic approach to intelligent methods in assessing and solving sustainability issues of water resources in the Czech Republic and improving co-operation between the research and user spheres and their internationalization. The platform addresses issues of sustainable water resource management in the Czech Republic and is the only Czech member of the largest European platform in the water sector, Water Europe.

CREA Hydro&Energy has been an active member of AVK ČR since 2014.

More information is available on the website **www.avkcr.cz**

AVK

Water in Landscape – Centre for Vocational Education

The association Water in Landscape – Centre for Vocational Education, z.s. (CoVE WiL) was founded in 2023, headquartered at Mendel University. The establishment of the association was a result of the iWATERMAP project and was attended by representatives from MENDELU, VUT, CREA Hydro&Energy, SPŠ Stavební Brno, and Lipka. Association members have been collaborating on international projects such as PoVE Water (Erasmus+) and Water4All (Horizon Europe). The association is conceived as a non-profit organization to support innovative solutions in water management education and awareness activities in sustainable water resource management. It also serves as a communication platform in the field of water management and related disciplines.

For more information, contact: **vodavkrajine.spolek@gmail.com**

About CREA Hydro&Energy Cluster

"A cluster is a set of regionally interconnected companies (entrepreneurs) and associated institutions and organizations, especially tertiary education institutions (universities, higher vocational schools), whose connections have the potential to strengthen and enhance their competitiveness." [CzechInvest Agency]

Clusters are one of the effective mechanisms for regional economic development.

CREA Hydro&Energy Cluster is a non-profit non-governmental organization, in the form of an association, founded in 2008.

CLUSTER FORMATION

The collaboration among companies at the core of the cluster dates back to before 2000 when there were occasional joint participations in marketing and business activities. The organized association without legal personality was established in 2004 when the export alliance Czech Renewable Energy Alliance (CREA) was formed.

The cluster evolved "bottom-up," initiated by the natural need to create regional networks and business collaboration. In 2007, companies within the current core independently mapped the industry within the South Moravian Region and significant entities in the Czech Republic. In June 2008, the founding meeting of the association took place, adopting the name CREA Hydro&Energy, association statutes, and the main cluster goals.

CLUSTER STRUCTURE

The core of the cluster consists of the most active members represented in the association's bodies, primarily SMEs and universities. Other regular members, active partners, and strategic partners, such as subsidy providers, regional authorities, etc., form the rest of the cluster. The legal form of the cluster is an association, open to additional interested parties. The majority of members are from the South Moravian Region, with representation from neighbouring Olomouc and Pardubice regions.

VISON AND GOALS OF THE CLUSTER

The cluster's vision is to enhance the competitiveness of Czech companies in the field of water-related technologies, both domestically and, especially, in foreign markets. The goal is to create a comprehensive entity capable of complex deliveries in the industry.

Objectives of Cluster Activities

- Support research, development, and innovation to increase the competitiveness of cluster members
- Promote regional, interregional, and cross-sectoral cooperation for the industry's development in the Czech Republic and other areas of interest
- Develop international cooperation and internationalization in the industry

COMMON PROJECTS

The main activity of the association is the implementation of joint projects in areas defined by the association's mission. Specialized working groups have been established for most areas, overseeing activities in their respective domains.

Cluster Development Projects

Projects in Research, Development, and Innovation

- Development of new methods to enhance the safety of water infrastructure
- Development of special technologies and methodologies for water management in the landscape
- Development of special technologies for harnessing water energy
- Development of special technologies for water purification and treatment

Research Infrastructure Development Projects

- Brno Research Centre
- Olomouc Research Centre

Human Resources Development Projects
Marketing and Promotion Projects
International Cooperation and Internationalization Projects

> **CREA HYDRO&ENERGY CLUSTER IS A NON-PROFIT ORGANIZATION AND WAS FOUNDED IN 2008**

CREA Hydro & Energy

PARTNERS AND MEMBERS
OF THE CLUSTER

CREA Hydro & Energy

Povodí Moravy, s.p.

Povodí Moravy, s.p. is responsible for the management, operation, and maintenance of watercourses and water management facilities in the Morava River basin. Covering an area of 21,133 km2, it oversees:

- **10,834 km of watercourses (including 3,761 km of significant watercourses)**
- **1,060 km of protective embankments**
- **29 significant water reservoirs**
- **135 small water reservoirs**
- **171 weirs and 94 locks**
- **13 navigation locks**
- **15 small hydropower plants**

The basin administration is divided among three branches located in Náměšť nad Oslavou, Olomouc, and Uherské Hradiště. The company operates in a total of 7 regions and 67 municipalities with extended powers.

Key Activities of the Company:

- **Implements flood protection measures**
- **Manages the waterway of Baťa's Canal**
- **Collaborates on international projects**
- **Conducts specialized surveying activities**
- **Has an accredited water management laboratory**
- **Operates commercial fishing**

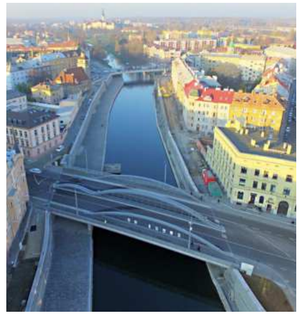
In recent years, Povodí Moravy, s.p. has successfully completed significant projects involving flood protection measures, reservoir reconstruction, and river revitalization. Examples include the completion of the II. B stage of flood protection for the city of Olomouc, the revitalization of the Bečva River near Černotín and Skalička, and the expansion of the weir in Hranice. Simultaneously, the company continues to prepare strategic projects, including the Vlachovice reservoir and the Skalička water facility.

Povodí Moravy, s.p.

Dřevařská 11, 602 00 BRNO
tel.: + 420 541 637 111
e-mail: info@pmo.cz
www.pmo.cz

PPOVODÍ MORAVY, S.P. PROVIDES ADMINISTRATION ON TERRITORY OF 21,133 KM²

Masarykova Bridge, Olomouc



Reconstruction of the Hranice weir

Revitalization of Trkmanka near Velké Pavlovice

jihomoravský kraj

Our priority is to protect the landscape for future generations

We are fully aware that in order to preserve the natural character of our region as we know and love it, we must take proper care of it. South Moravia is the most drought-prone region in the Czech Republic, and this problem is getting worse every year.

We support tree planting, build reservoirs and return streams to their original beds. All to help preserve the most precious thing we have in the landscape - water. Successful examples of regional support in practice include a landscaping reservoir in Kuželov, school teaching gardens in Židlochovice and a system of ponds in Borkovany.

The South Moravian Region has been supporting measures to improve water management and reduce the impact of drought for many years, and is constantly expanding its activities in this area. Since 2017, it has supported 476 projects through funding of over CZK 56 million from the Support for Combating Drought and Support for Climate Change Adaptation Measures grant programmes.

The Support for Adaptation Measures grant programme has been supplemented with two more grants. Thanks to these grants, applicants can draw funds for the revitalisation and construction of small watercourses and reservoirs, water retention in the landscape, follow-up care of greenery, anti-erosion measures, tree planting and more. The region will allocate CZK 20 million for these purposes, and plans on continuing its support in the future.

The Landscape Prize, launched in 2022, is also a great opportunity to encourage and reward better water retention in the landscape. A total of 43 projects from all over the region entered the first year of the competition. The Water in the landscape 2022 brochure was also produced to mark the occasion. We are currently preparing the next year of the competition.

cena za KRAJINU **www.cenazakrajinu.cz**

Overview of grants for 2023

Support for small watercourses and small reservoirs
grant 1
maximum grant CZK 500,000

Water retention in the landscape
grant 2
maximum grant CZK 500,000

Follow-up care of greenery
grant 3
(applications only accepted in the 1st round) maximum grant CZK 60,000

Project documentation
grant 4
maximum grant CZK 100,000

Conceptual documents
grant 5
maximum grant CZK 60,000

Establishment of grassed areas in public spaces and in the landscape
grant 6
maximum grant CZK 40,000

Innovation Centre of the Olomouc Region

PAVING THE WAY FOR NEW IDEAS AND INNOVATIVE TECHNOLOGIES IN PRACTICE

The Innovation Centre of the Olomouc Region (ICOK) has been dedicated to improving the business environment in the Olomouc Region for an extended period. Our mission is to foster the development of an open innovation ecosystem in the Olomouc Region, respecting societal challenges and technological trends with sustainable solutions.

What does this mean?

- **We are a partner for the development of innovative businesses, offering education, networking, and expert advice**
- **We assist with financing and business planning, serving as guides in finding investors, acting as partners and advisors**
- **We nurture entrepreneurship, talent, and creativity**
- **We pave the way for new ideas and innovative technologies**
- **Our collaborating partners include public institutions, universities, schools, strong business players, and non-profit organizations in the Olomouc Region**
- **We are a flexible team actively seeking solutions, connecting you with the best resources**

Inovační centrum Olomouckého kraje

Jeremenkova 1142/42, 779 00 Olomouc
www.inovaceok.cz

ICOK INOVAČNÍ CENTRUM OLOMOUCKÉHO KRAJE

Olomouc region

GEOtest, a.s.

GEOtest is one of the largest Czech companies specializing in geology and environmental protection. With a reliable partnership spanning over 40 years, the company boasts a quality and experienced team, including professionals with extensive international experience. Established in 1968 as GEOtest Brno, n.p., the company underwent transformation from a state enterprise to a joint-stock company in 1992.

The services provided by GEOtest extend not only across the Czech Republic but have reached global dimensions, particularly in Southeast Asia, including Indonesia, Vietnam, the Philippines, Sri Lanka, Iraq, Kuwait, Mongolia, Afghanistan, and currently, Uzbekistan, where the company is involved in geotechnical supervision of dam reservoir construction.

GEOtest offers a broad spectrum of services, ranging from the exploration of drinking water sources, determining their yield and quality, to geotechnical, geophysical, and engineering geological surveys for dams, tunnels, highways, and industrial areas. The company provides comprehensive exploration, assessment, and consulting services in the construction of new waste disposal sites, evaluation of existing landfills, or the remediation and reclamation of old landfills. Services also include waste management, removal of old environmental burdens, and addressing the consequences of environmental accidents. Environmental studies such as Environmental Impact Assessment (E.I.A.), risk analysis, or life cycle analysis are part of GEOtest's expertise. The company operates accredited testing laboratories focused on chemical analyses of water and soil, as well as mechanical-physical tests of soil and rocks.

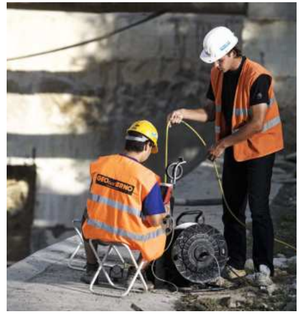
GEOtest has experience in preparing, processing, and managing projects for the World Bank and UN, as well as projects funded by EU funds in the Czech Republic.

WE ARE A RELIABLE PARTNER WITH MORE THAN 40 YEARS OF TRADITION

GEOtest
WWW.GEOTEST.CZ

GEOtest, a.s.

Šmahova 1244/112, 627 00 Brno
e-mail: info@geotest.cz
www.geotest.cz



VODNÍ DÍLA – TBD a. s.

VODNÍ DÍLA – TBD is an engineering and consulting firm specializing in technical and safety supervision of water structures in the Czech Republic.
The company is an active member of the Czech and International Dam Committees, the Association of Water Management of the Czech Republic, the Czech Scientific-Technical Water Management Society, and other institutions. Additionally, the company is a co-founder of the CREA Hydro&Energy cluster. With a team of approximately 60 experts in water management and environmental fields, modern equipment, extensive experience, participation in research and development projects, and continuous employee training, the company ensures the delivery of top-notch engineering and consulting services.

For owners, managers, and operators of water structures such as dams, we offer a range of services, including:

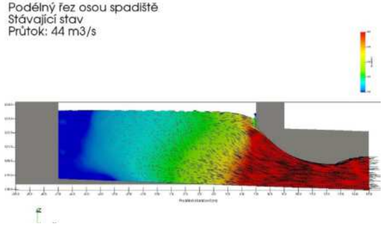
- Technical and safety supervision of water structures
- Comprehensive services for the safe operation of water structures in all phases, from preparation and construction to completed construction, trial operation, and ongoing operation according to legal regulations
- Structural-technical surveys, analyses, inspections, and revisions of hydrotechnical objects
- Geodetic and special measurements
- Hydrotechnical and geotechnical calculations
- Modelling of surface and groundwater flow in 2D and 3D (determination of flood-prone areas, assessment of the impact of construction on flood-prone areas, flow of water through safety overflows, flow of water in pipes, etc.)
- Assessments for the categorization of water structures as TBD (technical and safety supervision) and determination of the need, scope, and conditions for TBD performance
- Preparation of documentation for the operation of water structures (handling and operational rules, flood plans, emergency plans)

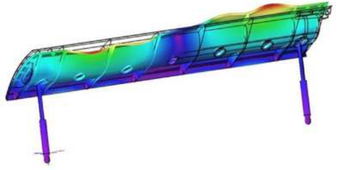
Research and Development projects include:

- Categorization of water structures using GIS
- Evaluation of the effectiveness of sealing elements in water structures
- Research on new geodetic methods for automatic monitoring of water structures
- Research and application of temperature measurement methods – optical cables and thermography
- Optimization of safety overflows using 3D modelling of water flow
- Measurement and modelling of dynamic effects on the barrier structures of water structures
- Methodology for determining threshold values for TBD
- Potential use of dry reservoirs
- Solutions for ponds and small water reservoirs in terms of minimum residual flows and flood safety
- Development of a digital twin of a dam

VODNÍ DÍLA – TBD a. s
tel.: +420 721 222 313
Headquarters: Hybernská 1617/40 Praha 110 00
e-mail: brno@vdtbd.cz
Brno Branch: Studená 909/2, 638 00 Brno – Lesná

VODNÍ DÍLA - TBD





AQUA PROCON s.r.o.

AQUA PROCON is a leading Czech design and engineering company with international presence in the field of water management. The company's primary mission is to provide comprehensive services in design, engineering, and financial preparation of construction projects, ensuring the implementation of the project, including project management or turnkey delivery as well as support and optimization of the operation of construction management.

The company's areas of activity include:

- Sewerage and Wastewater Treatment (Urban drainage and wastewater management, Sewer networks, Wastewater treatment, Stormwater and treated wastewater recycling, Sludge and gas management)
- Water Management (Water supply systems, Water sources for drinking water systems, Sludge management, Water transport and distribution, Pumping stations, Basins and water tanks, Mechanical and technological equipment, Control systems)
- Municipal Infrastructure (Roads, parking lots and paved areas, Water supply and sewerage systems, Retention tanks, Stormwater management, Street lighting, High-voltage and low-voltage power lines)
- Environment, Adaptation to Climate Change (Decentralized stormwater management, Stormwater infiltration, reducing water consumption, Erosion control measures, Increase of water retention in the landscape, Improvement of surface water quality)
- Watercourse Construction (Flood protection, Small water reservoirs, Dredging and construction of ponds, Stream and river adjustments and revitalization, Polders and retention reservoirs)
- Ground Transportation (Roads, Urban and local roads, Roundabouts, Parking areas, Infrastructure for cycling, Road bridges, Pipeline bridges)
- Civil Engineering and Architecture (Residential buildings, Office buildings, Civil amenity structures, Multipurpose buildings, Industrial and agricultural buildings).
- Agricultural Construction Solutions (Infrastructure of agricultural areas, Land drainage, Agricultural land irrigation, Silage troughs, Erosion control, Landscape elements to slow down water runoff from fields and meadows)
- Industrial Construction Solutions (Infrastructure of industrial areas, Retention tanks, Sewage and stormwater drainage, Wastewater treatment, Cooling and process water treatment technologies)
- Development, Research, and Innovation (BIM, GIS, GEOBIM, Specialized software and GIS applications for water management, agriculture, and vineyards, Tertiary wastewater treatment using modern technologies, Acquisition, analysis, and use of UAV data for water management, adaptation measures to climate change, agriculture and vineyards)

AQUA PROCON s.r.o. **Palackého třída 768/12, 612 00 Brno, Czech Republic** **tel.: +420 541 426 011** **e-mail: info@aquaprocon.cz**

AQUA PROCON

PS PROFI s.r.o.

DEVELOPMENT AND IMPLEMENTATION COMPANY

PS PROFI is a developmental and implementation company focusing on special services for water structures. The company boasts its own diving team for executing special tasks and repairs in submerged areas, along with providing consultancy, training, and comprehensive deliveries. The company is committed to environmental protection, utilizing ecological procedures, materials, and technologies, and places significant emphasis on safety and health protection during work.

DESIGN AND CONSTRUCTION WORK
The company has its own construction and design team with many years of experience.

DIVING WORK
The company provides a wide range of underwater services.

TECHNOLOGICAL WORKS
The company carries out all tasks related to the technological equipment of water structures.

PROVIDED SERVICES

- Consultancy
- Drawing documentation
- Proposals for necessary equipment for successful implementation of orders (blocking plugs, protective walls, modifications to the mechanical technologies of dams and weirs)
- Flood protection
- Hydrodynamic modelling
- Design and implementation of small hydropower plants

PS PROFI's Activities Abroad:

IRAQ
- Establishment of the Iraqi company CREA Company in 2009
- Implementation of dozens of projects as part of the restoration of water management in Iraqi Kurdistan

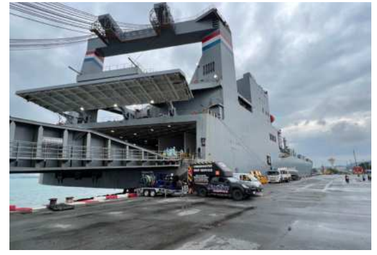
KEY PROJECTS:
- Monitoring for the Dokan and Derbendikhan dams
- Advisory and supervision for dam construction for the Ministry of Agriculture and Water Resources
- Inspection of the Derbendikhan dam

Derbendikhan Dam, Iraq

THAILAND
- Establishment of the Thai company MaxiDive in 2017, specializing in ocean vessels
- Utilization of equipment manufactured based on proprietary development and construction

OFFERED SERVICES:
- Extensive cleaning of ship hulls from deposits
- Repairs and cleaning of ship propellers
- Real-time ship inspections

Hull cleaning of the US NAVY CAPE HORN at Sattahip Harbour in Thailand



PS PROFI s.r.o.

Traubova 1546/6
602 00 Brno
Tel.: +420 545 212 310
www.psprofi.cz

Strojírny Brno, a.s.

The company Strojírny Brno is a leading Czech manufacturer of water turbines and all hydrotechnical equipment for the operation of hydroelectric power plants. Founded in 1991, the company has gradually transformed into a strong entity operating not only in the Czech market but practically worldwide. In a modern production plant, they possess equipment and technologies that meet the demanding requirements of customers from around the world.

Their extensive experience, surpassing a thousand completed projects, serves as the foundation for continuous improvements and the company's know-how. The high and stable quality of deliveries is ensured through numerous obtained certificates for installations in water treatment plants. The primary goal of the company is product quality and customer satisfaction.

The company specializes in the production of water turbines for small hydroelectric power plants, including Kaplan, Francis, and Pelton turbines. They also manufacture hydromechanical equipment such as screens, cleaning machines, gates, and more. Additionally, they engage in repairs, overhauls, and modernizations of all types of water turbines, regardless of the diameter of the impeller and turbine power. This includes hydromechanical equipment on rivers and reservoirs.

Strojírny Brno, a.s.
Blanenská 1278/55, 664 34 Kuřim **e-mail: strojirnybrno@strojirnybrno.cz** **www.strojirnybrno.com**

Strojírny Brno
Water Turbines & Hydro-Mechanical Equipment

ABO valve s.r.o.

ABO valve has become a Central European leader in the production of butterfly valves over the last 30 years. Our valves currently regulate flows in 70 countries worldwide. We manufacture valves for common industrial applications, but we also specialize in the development and production of valves for extreme conditions. ABO valve is a purely Czech company with a strong export orientation.

INDUSTRIES WHERE YOU CAN FIND ABO VALVES

- Chemical and petrochemical
- Oil and gas
- Energy
- Water management and wastewater
- Pulp and paper, HVAC, maritime transport, food industry, pharmaceuticals

OUR PRODUCTS

- Resilient seated butterfly valves for industrial use
- High performance and Triple eccentric butterfly valves for very demanding working conditions
- Check valves
- Knife gate valves
- Ball valves and check ball valves
- Filters, actuators and accessories

ENERGY SECTOR

Eccentric valves for energy projects can be used for very hot water or steam under pressure. These are butterfly valves with Teflon sealing for operating conditions up to 200°C or metal-to-metal valves for extreme conditions – up to 500°C. Our team of technical engineers is always ready to help customers choose the right equipment, providing the best solutions for any industry.

RESEARCH, DEVELOPMENT, AND CERTIFICATION

We have our own design and development department. As part of technological consultancy, we can prepare individual solutions tailored to your specific requirements. Our products are certified by various international organizations such as TUV Nord, TUV SUD, Lloyd's Register, ABS, API, WRAS, DVGW, and others.

www.abovalve.cz **www.facebook.com/AboValve/cz** **www.linkedin.com/companyabo-valve**

ABO valve

Designtec s.r.o.

We offer a broad portfolio of technical calculations and expertise based on the application of numerical simulations in the fields of structural mechanics, geotechnics, geomechanics, hydrogeology, and geothermal energy. Company extensive expertise and long-term experience of our employees in mathematical modelling, processes-automation, and programming, gained from variety of projects mainly carried out in the D-A-CH region, enable us to provide our customers from various industrial sectors with both simple and complex solutions for a wide range of technical problems.

Our core competences include structural, geotechnical and hydraulic calculations based on the Finite Element Method (FEM), performed especially in the ANSYS software environment.

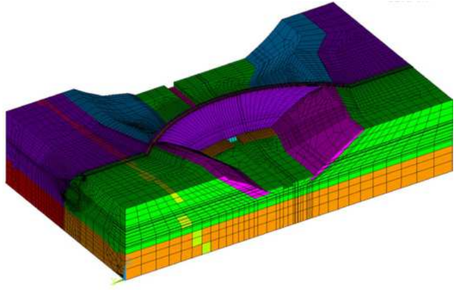
- Tasks related to steady and unsteady fluid flow in porous media.
- Interaction between structures and the surrounding environment (Soil-Structure Interaction).
- Coupled multi-physics coupled field problems, such as thermal-hydraulic, hydraulic-mechanical, and thermal-hydraulic-mechanical problems, with applications in geothermal energy utilization and simulation of nuclear waste repository behaviour
- Technical and natural seismicity events.
- Structural statics and dynamics, including assessments according to relevant standards.
- Stability assessments of slopes, simulation and assessment of dams and other hydraulic structures, simulation and assessment of flood protection measures and retaining walls and more.

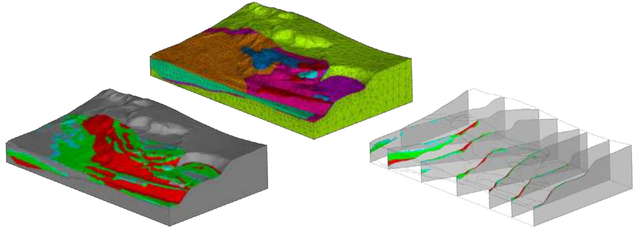
We are also engaged in the development of customized software solutions and the implementation of specific material models and technical solutions in the field of computer-aided engineering (CAE) and finite element analysis (FEA).

Our expertise includes:

- Integration of processes and automated data exchange between engineering software tools (FEA/CAD tools, MATLAB, Excel),
- Automation of repetitive tasks,
- Digital twins,
- Custom software development using PYTHON, Visual Basic, C#, C++, Jscript, MATLAB, and other programming languages,
- Utilization of artificial intelligence and machine learning technologies.

Designtec s.r.o. **Náklo č.p. 66, 783 32 Náklo** **Tel.: +420 774 586 528** **email:info@designtec.cz** **www.designtec.eu**





HG Partner s.r.o.

HG PARTNER S.R.O. HAS BEEN SUCCESSFULLY OPERATING IN THE MARKET FOR MANY YEARS AND TRANSFORMED INTO ITS CURRENT FORM IN 2005.

The company's core activities include project work and engineering services in the fields of hydrotechnical structures, geotechnical constructions, and geology. The company's central motto is to provide services of the highest quality, on time, professionally, and with respect for the environment. For this reason, the company has adopted a quality management system according to ČSN EN ISO 9001:2000 and an environmental management system according to ČSN EN ISO 14001:2004. In the field of project activities, we offer studies, projects for spatial decisions, projects for building permits, handling of construction permits, preparation of construction documentation, technological procedures, budgets, and flood plans. In addition to project and engineering activities in investment construction, we also provide author's supervision or technical supervision for investors.

OVERVIEW OF SERVICES PROVIDED

HYDROTECHNICAL STRUCTURES
River channel modifications, waterway structures, dams, flood protection, embankments, weirs, reconstruction and design of locks, small hydropower plants, revitalization, stream regulation, gravel barriers, pond restoration, and more.

GEOTECHNICAL STRUCTURES
Excavation support systems (diaphragm walls, Larse walls, sheet pile walls, ground anchors), foundations (mat foundations, piles, micropyles), injections, jet grouting, gravel columns, retaining structures (retaining walls, gabions, reinforced slopes), and more.

GEOLOGICAL SERVICES
Engineering geological surveys and inspections.

ENGINEERING
Investor's technical supervision, design of construction work procedures, and more.

Headquarters:
HG partner s.r.o.
Smetanova 200, 250 82 Úvaly
Tel.: +420 777 161 198,
+420 246 082 015
E-mail: vrzak@hgpartner.cz

Branch Letovice:
HG partner s.r.o.,
Masarykovo nám. 3a,
679 61 Letovice

FP Křešice

Study and Design of Bawanur Dam in Garmian

Design of the Quatabian Dam in Sulaymaniyah

ELZACO s.r.o.

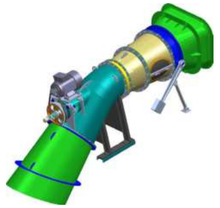
RENEWABLE ENERGY AND SMALL HYDROELECTRIC POWER PLANTS

- Consulting and advisory Services
- Flow, head, and efficiency measurement of machinery
- Feasibility study for project evaluation
- Control systems connected to the Internet and GSM
- Production and repair of turbine machinery
- Turbines for water supply systems
- Turbines of our own development and design
- Pelton, Francis, and Bánki turbines
- Direct-drive turbines of the ELZA series

Letohrad Small Hydroelectric Power Plant

Fully regulated spiral axial turbine

Direct-drive ELZA turbine



ELZACO s.r.o.

Boženy Němcové 727/10,
78701 Šumperk

www.elzaco.cz

Kavyl, spol. s.r.o.

ABOUT THE COMPANY

Kavyl was founded in 1994 and has established a reputable position as a recognized company specializing in the following areas:

- **Water management structures**
- **Landscape design and comprehensive green maintenance**
- **Wood production**

In each of these fields, Kavyl focuses on precise and thorough execution of its activities. Our goal is not only to satisfy our clients but also to work in harmony with nature, a principle that the company upholds.

Water Management and Engineering Structures:

- Construction and reconstruction of water reservoirs
- Revitalization of watercourses
- Construction of dry reservoirs and levees
- Soil erosion and flood control measures
- Establishment and restoration of wetland ecosystems

Kavyl, spol. s.r.o.
Mohelno 563, 675 75 Mohelno

Branch:
Bohunická 251/37
619 00 Brno - Horní Heršpice

www.kavyl.cz

VZD INVEST s.r.o.

Our design company, VZD INVEST, has been operating in the Czech market since 2005. We provide comprehensive services in the field of water management. We offer customized projects according to the investor's specific requirements, handle financial resources from grant programs, and take care of all necessary documentation.

AREAS OF EXPERTISE

- Small water reservoirs, levees, dry reservoirs
- Revitalization of watercourses
- Wetland habitats
- Soil erosion and flood control measures
- Fish passages
- Small hydropower plants
- Landfill reclamation
- Slope stabilization
- Pedestrian pathways
- Cycling paths
- Forest and agricultural roads
- Educational trails and amenities
- Environmental impact assessments
- Parks
- Public green spaces
- Implementation of management plans

VZD INVEST, s.r.o.
Kpt. Nálepky 2332
530 02 Pardubice

www.vzdinvest.cz

Branch:
Hraničky 354/59,
625 00 Brno

VARS BRNO, a.s.

We are leaders who continuously bring new solutions to the market. We don't just fulfil our customers' wishes; we actively propose innovations that help them in the efficient management of transportation infrastructure and traffic control. Together with our clients, partners, and scientific institutions, we are advancing the world of traffic management towards autonomous decision-making, maximum efficiency, and sustainability.

The core of our team consists of several dozen IT professionals—specialists in their field working on the development of new solutions and specific products for our customers. At the same time, we take care of existing clients by providing 24/7 support for our products.

VARS BRNO, a.s.
Kroftova 3205/90
616 00 Brno, Žabovřesky
Tel.: +420 515 514 111
E-mail: info@vars.cz
www.vars.cz

VARS
Člen skupiny VINCI ENERGIES

URGA s.r.o.

HYDROGEOLOGY, GEOLOGY, AND ENVIRONMENTAL REMEDIATION

- Geological exploration, mapping, and evaluation of mineral deposits, raw materials, and construction materials.
- Engineering geology and geotechnical surveys for construction projects and reconstructions.
- Hydrogeological surveys and assessment of water resources. Development of geothermal energy sources.
- Economic and structural geology. Laboratory services for mineralogy and petrology. Design of processing technologies for industrial minerals.
- Remediation technologies and studies for environmental protection. Technologies for processing river and reservoir sediments, deposits, and industrial waste.
- Comprehensive service offerings for building construction and reconstruction. Radon gas surveys and dimensioning suitable insulation solutions.

URGA s.r.o.
Mobil: +420 732 586 765
Tel.: +420 585 228 410
E-mail: urga@urga.cz
www.urga.cz

URGA s.r.o.
Hydrogeologie, geologie a nápravná životního prostředí

AW-DAD, s.r.o.

The company AW-DAD, s.r.o. offers design and engineering services related to investment construction, repairs, and maintenance of watercourses and hydrotechnical structures, as well as in secured waste disposal sites. The technical equipment of the company is focused on and further developed to meet the specific requirements of this type of business and ensure a high technical standard of the performed work.

AW-DAD, s.r.o. provides services to both larger and smaller private companies and state enterprises in the Czech Republic. Since 2008, the company has also implemented projects in other countries, particularly in Kurdistan and Southeast Asia.

AW-DAD, s.r.o.
Liberecká 778/10
412 01 Litoměřice

OTHER MEMBERS

Friendly Power, s.r.o.
A consulting company specializing in economic, marketing, and educational advisory services, including a focus on digitization and new technologies.

Ing. Petr Poštulka
Architectural and engineering activities and related technical consulting.

Ing. Jan Matoušek - AGROSTAV Jevíčko
A development, design, and construction company in the field of ecological buildings and technologies for renewable energy sources (water, wind, waste).

Matoušek

Geotop ROSA, s.r.o.
A company specializing in geodetic activities, including the preparation of geometric plans, geodetic measurements, GPS measurements, and other services.

GEOTOP
GEOTOP ROSA s.r.o

AQUAS vodní díla, s.r.o.
A company specializing in the supply of technological units and construction works in water management.

AQUAS
vodní díla s.r.o.

TECHNOTRADE spol. s.r.o.
Comprehensive solutions for machine systems. They combine expertise in hydraulics, electronics, software, and electric drives.

TECHNOTRADE

Global Urga Trade, s.r.o.
A business company specializing in geology and hydrogeology with a focus on foreign countries.

CREA
Hydro & Energy

Czech Hydrometeorological Institute

The Czech Hydrometeorological Institute (CHMI) has a long history that dates back to the 19th century. The State Meteorological Institute and the State Hydrological Institute began their activities after the establishment of Czechoslovakia and the transfer of competencies from the central Austro-Hungarian institutions in 1920. However, as early as 1875, a fully-fledged hydrological service was established in the form of the Hydrographic Commission for the Kingdom of Bohemia, which was responsible for operating and evaluating data from the pluviometric and hydrometric network in the Elbe River basin. It was likely the third institution of its kind in the world.

In 1954, the Hydrometeorological Institute was established, combining meteorological and hydrological services, to which air quality services were added in the 1960s. With such a broad scope, covering meteorology, climatology, aviation meteorological services, hydrology, water quality, and air quality, CHMI is a unique organization on a global scale.

Our Mission

The fundamental mission of CHMI is to serve as the central state institute of the Czech Republic, providing objective expert services in the fields of air quality, hydrology, water quality, climatology, and meteorology, primarily for the state administration.

The activities of CHMI in these fields include:

- Establishing and operating monitoring stations and networks
- Professionally processing observation, measurement, and monitoring results
- Creating and maintaining databases of observed elements
- Providing forecasts and warnings
- Conducting and coordinating scientific and research activities

Our Vision

"The data, products, information, and services created by CHMI contribute to improving the quality of life in the Czech Republic."

Brno Secondary School of Construction

At the secondary school, you can study in the field of Construction, with specializations in Building Reconstruction and Architecture, Civil Engineering, and Transportation and Water Management Structures. Additionally, there is an option to study Geodesy and Cadastre.

The focus of the study of water management structures primarily involves issues related to water supply networks and water treatment, urban wastewater collection and treatment, stream regulation, dams, ponds, land drainage, and irrigation. The curriculum also covers the main structures of civil engineering and knowledge of technological processes in construction and transportation.

Students of Water Management Structures regularly participate in projects. For instance, in September 2022, selected 4th-year students visited Leeuwarden, Netherlands, where they explored the Water Campus, attended lectures on water purification, and engaged in practical activities alongside students from the Netherlands, Malta, and Latvia.

Upon graduation, students can find opportunities not only in water management companies but also in geological exploration, surveying offices, construction companies, and certain branches of government administration. Completing this field of study also provides a solid foundation for pursuing higher education.

Presentation of students on internship in Holland in September 2022

Practical teaching of students on internship in Holland in September 2022

SPŠ stavební Brno, p.o.
www.spsstavbrno.cz

SPŠ STAVEBNÍ
STŘEDNÍ PRŮMYSLOVÁ ŠKOLA STAVEBNÍ
BRNO

Brno University of Technology

Brno University of Technology (VUT) has established itself as a prominent Central European university with a focus on technology since its foundation in 1899. Today, we have 18,000 students, and in addition to teaching at eight faculties and three research institutes, we also place great emphasis on science and research. This is evidenced by the establishment of five scientific centres and participation in two centres of excellence.

VUT in Brno is a founding member of the CREA Cluster, with the Faculty of Civil Engineering (FAST) and the ADMAS research centre being the most involved in cluster cooperation. The ADMAS centre specializes in materials engineering, water quality, waste disposal, water engineering, and economics. Other parts of VUT collaborating with the cluster include the Faculty of Mechanical Engineering and the Faculty of Chemistry.

The Brno campus of VUT is located in close proximity to the Technology Park, which houses branches of global companies such as IBM, Red Hat, Vodafone, Zebra Technologies, and the Central European Institute of Technology (CEITEC). Students have the opportunity to intern at these companies, work there during their studies, and secure permanent positions after graduation. Similar opportunities are available to students of VUT within the cluster and its member and partner companies. International projects, in which students can actively participate, are highly popular.

DON'T WAIT FOR THE FUTURE.
SHAPE IT WITH US.

ww.vut.cz • www.zvut.cz
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BRNO UNIVERSITY OF TECHNOLOGY

Mendel University in Brno

Mendel University in Brno was founded in 1919 as the first independent agricultural and forestry university in the Czech Republic. Gradually, with the inclusion of other fields (horticulture, economics and regional development), it emerged as a university that comprehensively solves all issues, especially of production landscapes. Since 1994, it has been named after Gregor Johan Mendel. Currently, the university is constituted of five faculties, an institute of lifelong learning and two school enterprises (agricultural and forestry), and a botanical garden and an arboretum.

The university has been represented in the CREA cluster since 2010, the most important cooperating faculty is the Faculty of Forestry and Wood Technology. In the cluster, it is particularly involved in the implementation of projects related to the issue of water in the landscape, namely at the level of scientific research, educational, and internationalization projects. Among other things, it uses a living laboratory (Living lab) located on the territory of the school's forest enterprise, focused on research in the field of water retention in forest landscapes, to solve the mentioned projects.

www.mendelu.cz **www.ldf.mendelu.cz**

Mendel University in Brno

MENDELU Faculty of Forestry and Wood Technology

Collective research

Web Mapping Application for Urban Drainage Problem Solving

Innovation of Data Processing and Urban Drainage Issue Solutions

Focus:

- Urban drainage systems in large urbanized areas, including adjacent landscapes (watersheds)
- Efficient and ecological drainage and wastewater treatment, managing stormwater
- Design and implementation of adaptive measures to mitigate the negative impacts of ongoing climate change

Project Goals:

- Qualitative shift in data collection, processing, and analysis using digitization and automation based on the "WATER 4.0" principle
- Research and development of a system for collecting, archiving, analysing, interpreting, and presenting data
- Creation of specialized software for automatic evaluation of the characteristics of the area of interest
- Development of a specialized web application for designers

Application Benefits:

- Automatic delineation of extraterritorial watersheds for a municipality by simply entering the municipality's name (Czech Republic)
- Procedure for creating a land cover layer combining cadastral data and infrared image data
- Creation of sewerage districts based on an oriented sewer network and the establishment of sub-watersheds based on the location of relief chambers
- Relatively quick estimation of flows at any profile on the sewer network

Digital Twin of a Dam

A digital twin is a virtual model of a real physical object (such as machinery, structures, technological units, etc.) designed to faithfully represent the physical properties of its real counterpart. It provides information to end-users based on contextualization of measured data and simulation technologies.

Key Benefits of Digital Twins for Technical Safety Supervision (TBD):

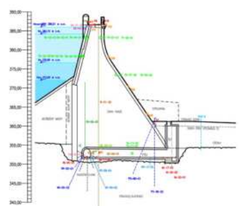
- Ongoing safety assessment
- Predictive maintenance
- Encourages active management and feedback

The project aimed to create a digital twin of the Bystřička Dam. The digital twin, through a web application, links real-time monitoring results of TBD variables on the actual structure with predicted results from a simulation model.

This application directly enables:

- Visualization of selected TBD variable values in real-time
- Efficient implementation of necessary interventions to ensure the safe operation of the dam
- Prediction and optimization of procedures for dam operation management
- Detection of potential undesired phenomena in the structure's response and analysis of their causes
- Access to information about the current safety reserve of the dam in real-time

Supported by the OP PIK Program
Project Number: CZ.01.1.02/0.0/0.0/20_336/0023663



Utilization of Sediments

The CREA cluster, in collaboration with scientists from the Biological Centre of the Czech Academy of Sciences (BC CAS), sought innovative solutions for transforming dredged sediments from the bottoms of water bodies into a 21st-century raw material. In line with ecological principles and a circular economy, they explored new ways to use sediments as a construction material for water management structures, particularly for the construction of breakwaters and islands.

As part of the project, partners initially collected sediment samples from reservoirs across the entire territory of the Czech Republic to determine their composition and create a comprehensive typology of these materials. They dried the samples and then tested how they could be used in construction mixes along with other additives such as recycled concrete, hydraulic binders, quarry dust, or slag. For each recipe, they verified strength, elasticity, and compressibility. It was also necessary to develop and verify the technology for producing these mixes and construction structures.

Among the first prototypes of products were bags, cubes, and hedgehogs, which are used to build submerged breakwaters to protect shores from erosion or to channel water flow. They were also used in the construction of an island on the Nové Mlýny reservoir, which now serves both as a breakwater and as a nesting site for birds and other organisms, creating a natural environment for life. The next steps include focusing on the time efficiency of the work and simplifying the work process with regard to ongoing activities on the water.

Supported by the OP PIK Program
Project Number: CZ.01.1.02/0.0/0.0/19_263/0018826

CREA Hydro & Energy

Platform of Vocational Excellence

PoVE Water Scale Up is an international platform that draws on existing and emerging needs of professional competencies and skills in the water sector, translating them into excellent professional quality.

It ensures an upward convergence of professional education and training with knowledge triangles (EU) and strong involvement in regional economic and social ecosystems. The project aims to create the necessary infrastructure for integrating professional excellence into the water sector in Europe, laying the groundwork for the development of professional curricula and subsequently enhancing students' competencies.

PoVE Water Scale Up builds upon a pilot project and is expanded to involve 23 entities from 8 countries.

PoVE Water
Vocational Excellence

Erasmus+

Partnership Water4All

Water4All
Water security for the planet

HORIZON EUROPE

Water4All is a European partnership under the Horizon Europe program with the ambition to address global water challenges. The partnership aims to tackle issues related to water as a means to confront climate change, assist in achieving the United Nations' Sustainable Development Goals, and enhance the competitiveness and growth of the European Union.

Water4All brings together a broad and cohesive group of 81 partners from 31 European and non-European countries. The partnership project was initiated in 2022 and will last for 7 years.

The partnership is built on five pillars:

Pillar A: Strategic Direction
Pillar B: Innovation Development
Pillar C: Science-Policy-End Users
Pillar D: Demonstration Activities
Pillar E: Internationalization

The cluster is a co-leader of Pillar E and a partner in Pillars A and C. Alongside the CREA cluster, partners from the Czech Republic include Mendel University in Brno, Technology Agency of the Czech Republic and Ministry of the Environment of the Czech Republic.

Co-funded by the European Union

Eurocluster CircInWater

EURO CLUSTERS

CircInWater

This European project, funded by the European Institute of Innovation and Technology (EIT) and the Executive Agency for Small and Medium-sized Enterprises (EISMEA) through the EUROCLUSTERS initiative, aims to revive Europe. The goal is to support a triple transformation and the development of water-friendly solutions in the agriculture-food and energy-intensive industries.

Within the project, the following support is offered:

- Support for Research and Development through Innovation lump sum
- Support for Small and Medium-sized Enterprises (SMEs) growth through Knowledge lump sum
- Support for SMEs expansion into international markets through Internationalisation lump sum

Project partners:

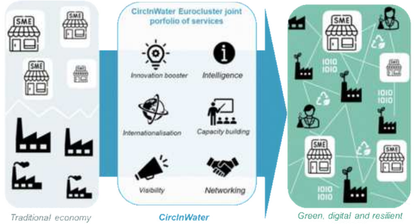
- ZINNAE, Spain
- Blue Economy Mikkeli, Finland
- Water Cluster Finland, Finland
- ICOK, Czech Republic
- CREA Hydro&Energy, Czech Republic
- France Water Team, France

Key sectors addressed by the project:

- Agri-food Sector
- Energy-Intensive Industry

Target markets:

- USA
- Canada



CircInWater support for SMEs to develop and implement water-smart solutions for agri-food & Energy-intensive industries as part of their transition pathways

COSME euWater4i-SD

EUWATER 4i-SD

This international project, led by a consortium of five European clusters, aims to support the internationalization of small and medium-sized enterprises (SMEs) in South America and East Africa.

The project offers:

- Market research and regular updates on new opportunities
- Professional advice and training to support internationalization
- Business and B2B missions to target territories
- Identification of new opportunities for public and private financing

Project partners:

- ACLIMA, Spain (project leader)
- France Water Team, France
- CREA Hydro&Energy, Czech Republic
- Ecoliance, Germany
- Green Synergy Cluster, Bulgaria

Key sectors addressed by the project:

- Construction
- Energy
- Agriculture
- Industry
- Water Management

ESCP4i Partnership

CREA Hydro & Energy

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