blue networks
Consulting Engineers for Water Management and Environmental Engineering

# COMPANY PROFILE

We are consulting engineers for water management and environmental engineering and we are specialised on the sustainable optimisation and conservation of pipe-bounded infrastructures. Furthermore, we provide several services in the fields of urban water management, energy and environment.

**Dr. Joerg Koelbl**
Owner & Managing Director of Blue Networks

More than 15 years of experience in

- Water Management
- Environmental Engineering
- Engineering Geology

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|---|---|
| PhD | Graz University of Technology |
| MEng. | Mining University of Leoben |

Working experience in several countries in

- Europe
- Africa
- Middle East

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# PIPE NETWORK CONSULTING & ASSET MANAGEMENT

During the past few decades, the focus of urban infrastructure management was on building-up and extending network infrastructures like the drinking water supply, sanitation systems, gas supply and district heating.

**The challenge for the future is in the conservation and sustainable optimisation of these underground network infrastructures.**

We provide innovative solutions for asset management and the operation and maintenance of pipe networks.

## NON-REVENUE WATER MANAGEMENT & NETWORK MONITORING

- Water Loss Audit
- Advise on non-revenue water management strategy
- Implementation of innovative and cost efficient network monitoring systems
- Leakage reduction by use of up-to-date leak detection technology
- Optimisation of failure documentation and statistics
- Capacity building by individual training programmes

## HYDRAULIC MODELLING

We use up-to-date hydraulic modelling software to analyse the network, identify hydraulic weak points, stagnation zones and other optimisation potentials and we define appropriate measures for network optimisation and optimised operational efficiency.

- Set-up of hydraulic model
- Calibration by field measurements
- Analysis of the network
- Analysis of fire water capacities
- Measures for network optimisation
- Analyse of network monitoring options and optimisation of network zoning

## CONDITION ASSESSMENT

Assessing the asset condition according structural and functional criteria is the basis for further maintenance planning activities.

- Analyses of system functions on the basis of hydraulic modelling analyse.
- TV-inspections of sanitary sewer systems
- Failure documentation and water loss performance indicators of water distribution systems
- Asset condition data are recorded in a data base and accordingly in a digital network cadaster and are thereby available for further planning

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# PIPE NETWORK CONSULTING & ASSET MANAGEMENT

## PIPE REHABILITATION PLANNING

PiReM | Systems

We are part of the interdisciplinary PiReM-network with commercial and scientific partners. With the innovative software tool PiReM we provide computer based, up-to-date rehabilitation planning services and support herewith a professional asset management for water supply networks and other utility services.

Long term planning - Definition of scenarios:

- How much do we have to spend on renewal?
- How about the budget available?
- How will the investment affect the aging structure of the network?
- How will be its impact on the net book value?

Intermediate-term planning– Development of priorities:

- Which pipes have to be replaced?
- Which pipes bear special risks on the system?
- Are there any synergies due to renewal projects with other infrastructure operators?

## TECHNICAL RISK MANAGEMENT

We carry out systematic risk management according to FMEA methodology (Failure Mode and Effects Analysis):

Risk analysis → Risk assessment → Risk mitigation

Benefits:

- Detailed overview of system and product risks
- Identification of risks at an early stage
- Action plan for risk mitigation
- Evaluation of insurable risks (cost-benefit analysis)
- Transparency
- Basis of decision-making in operation and maintenance management

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# STRATEGIC CONSULTING & OPERATION MANAGEMENT

**The choice of a proper strategy and company organisation is crucial for an effective and efficient O&M management.**

With the required farsightedness, we provide consultancy services for water supply utilities, multi-utility companies and municipalities on:

- Strategic issues in utility management
- O&M management models
- Development of effective and efficient organisational structures
- Operational and organisational structure
- Optimisation of utilities performance
- Sustainable tariff arrangement

## PERFORMANCE ASSESSMENT & OPTIMISATION

On the basis of jointly defined target values, we check and supervise the implementation of optimisation measures in regular audits and workshops.

- Supply safety , Quality, Efficiency, Sustainability, Customer Service

## SUSTAINABLE TARIFF ARRANGEMENT

We advise on sustainable tariff arrangement under consideration of cost-influencing and location-related frame conditions, such as: quantity and quality of water resources, drinking water protection areas, network structure, topography, specific network delivery rate. Our tariff calculation considers future investment needs for the conservation of the supply system. We provide arguments for the implementation of cost recovering tariffs and earmarked reserve funds.

## PROCESS MANAGEMENT

Municipalities and public utilities are faced with increasing cost pressure and claimed improvement in efficiency: Process management is an effective instrument for a continuous improvement of work flows.

We provide support in the implementation of a process management system:

- Development of an individual process map adjusted to your organisational structures
- Definition of business processes and work flows
- Management and staff training
- Process performance assessment by regular process audits and implementation of improvement measures
- PDCA methodology: Plan-Do-Check-Act

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# URBAN WATER MANAGEMENT & HYDROGEOLOGY

**Safe and sustainable water supply systems are our main objective!**

In the field of urban water management we provide the following services:

- Consulting
- Engineering, Tendering, Supervision of construction works
- Processing of subventions

We provide feasibility studies, compile expert reports and we support our clients from an early project phase up to the completion of the project realisation.

## WATER SUPPLY SYSTEMS

- Development of groundwater resources including designation of water protection areas
- New water supply systems
- System expansion projects and rehabilitation planning

## WATER TREATMENT

- Engineering and process optimisation of water treatment plants
- Conventional treatment
  - Filtration, Coagulation/Flocculation, De-ironing, De-Manganisation, De-Acidification
- Micro-/ Ultrafiltration, Screen filtration
- Disinfection

## STORM WATER MANAGEMENT

With increased sealing and housing density, storm water management becomes more and more important. We are experienced in ground investigations and analyses of infiltration characteristics and we carry out geotechnical and hydrogeological studies. We plan the infrastructure required for reliable storm water management (drainage systems, water-retaining structures, infiltration systems, storm water sewer systems, (oil-)separators, flood protection.

## HYDROGEOLOGICAL MONITORING

We carry out hydrogeological monitoring for wells, natural springs and surface waters.

- Quantitative investigations: Discharge measurements of natural springs, Pumping tests, Groundwater level measurements, Discharge measurements of surface water
- Qualitative analyses: pH, Temperature, Electrical conductivity, Turbidity, Special sampling according to requirements

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# ENVIRONMENT & ENERGY

**Challenges in the field of environment and energy are growing!**

## ENVIRONMENTAL IMPACT STUDY

Approval processes for environmentally relevant projects can be complex, cost-intensive and bear certain risks for the project applicant. Thus appropriate coordination and sensitiveness are required. We have experience in the coordination and steering of environmental impact studies. For project applicants we coordinate all activities required in the environmental approval process.

## RENEWABLE ENERGY

- Groundwater heat pumps
- Geothermal energy
- Drinking water power plants
- Photovoltaic

We are competent partner for your project.

## ENERGY EFFICIENCY

Energy efficiency in the sector of public supply infrastructure is a hot topic.

- We analyse energy saving potentials,
- develop energy concepts,
- optimise the energy efficiency of water supply systems,
- use potential for renewable energy production through drinking water power plants,
- reduce operating costs
- and finally provide a contribution to climate protection.