

CEEM - Consultants for Environmental Engineering and Management

Professor Rudolph GmbH



35 years of independent Engineering and Management Consulting

www.professor-rudolph.de



**CEEM - Consultants for Environmental
Engineering and Management**
Professor Rudolph GmbH

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Editor:

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MMXII IV Eco

GWFA - Global Water Franchise Agency GmbH

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E-Mail: info@waterfranchise.com

Internet: www.waterfranchise.com

Cooperation with the

**IEEM - Institute of Environmental
Engineering and Management**

at the Private University of Witten/Herdecke gGmbH

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**35 years of independent
Engineering & Management Consulting**

Who we are

CEEM - Consultants for Environmental Engineering and Management with headquarter in Witten and affiliated companies in Berlin and Prague and project offices in Eastern Europe, Asia, Oceania, Africa and Latin America employs highly skilled experts with long years of experience. During 35 years, we have been supporting more than 300 private and public water, sanitation and waste management utilities with all **kind of surveys, design engineering, construction supervision, plant management consulting, project development, business planning up to financial engineering, and general cost-reduction programmes**, within the national as well as the international water sector. The close integration of technical know-how with economic expertise, verified in construction and operations, basing on the latest state-of-the-art in water science, but always focusing on practical implementation, has been the basis of successful development, since the begin of Rudolph Consulting, until today.



Prof. Dr.-Ing. Dr. rer. pol. Dr. h.c. Karl-Ulrich Rudolph



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Trade register: Amtsgericht Bochum, HRB 8193

Board of directors: Professor Dr.-Ing. Dr. rer. pol. Dr. h.c. Karl-Ulrich Rudolph (CEO)

Dipl.-Ingenieur Helmut Balke (p.p.a)

Dipl.-Ökonom Daniel Gregarek (p.p.a)

By integrating technical engineering and economic financing know-how, CEEM - the Professor Rudolph GmbH, is among the leading advisors in Germany and the international water sector.

Our portfolio comprises consulting and engineering services in the fields of water supply, sanitation, waste disposal, environmental economics as well as organisation and management, up to financial arrangement through GWFA.



Sewage Treatment Plant Habichtswald



With our assistance, the very first BOOT-Model for wastewater utilities in Germany was realised 1981, as well as the very first German PPP (Cooperation Model) 1984 and the very first Lease, Rehabilitate Operate-Model (a speciality under the German law, with tax privilege for public entities in wastewater and solid waste).

We have been able to adapt and apply our long-term project experience from our home country by implementing privatization projects and cost optimization programs in Eastern Europe, Latin America, Southeast Asia and other countries.

In 2006, our newly developed Water Franchise Concept won the World Bank's Global Competition "Development Marketplace" in the category "Water Management".

Step Screen



Activated Sludge Tank Zell am See



Lamella Separator



The peaceful reunification of the former GDR - German Democratic Republic in the East with the FRG - Federal Republic of Germany in the West was a great historic move. When the wall came down, which had separated families for decades, a new era of freedom had begun, with welfare spreading from West to East. A huge challenge was the ecologic rehabilitation and development of water & sanitation in the former GDR and in the former GUS countries, with sometimes devastated aquifers and land, especially in the industrial zones.

A lot of work during this period was focused on the five East German federal states, on Eastern Europe and on the former GUS. It was founded in early 1990 as a joint venture of leading wastewater experts.

Our fields of activity include consulting and engineering services in water supply, sanitation, storm water treatment, hydraulic engineering, flood control and project management.



Flood Protection Promnitz



Our business is water: drinking water and industrial water supply; clean water from sewage, lakes and streams.

We pursue the approach of holistic counselling from planning to construction, from initial start-up to maintenance, from investment planning to refinance.

We combine technology and management to enable engineers and business professionals to work in pro-active environmental management rather than for reactive crisis management “end-of-pipe”. Our clients are municipalities, public corporations, authorities and industry.

Flood Protection Promnitz



Flood Protection Pansch



Storage Basins Sewage Treatment Plant Leuna



The roots of CEEM lie in the former GfA GmbH, a private company limited, responsible for sewage treatment in the old textile town of Nordhorn, Germany, under a contract with the City signed 1961 (which today might be classified as a concession model PSP - private sector participation). Under this scheme, the GfA plant was very successful in cost-efficiency with full compliance to stringent effluent standards. To spread this success and know-how, on request of the State Government and regional municipalities, it was decided to found a consulting company named Rudolph Consulting.

Today, CEEM is among the few institutions that offer, in addition to the usual services of engineering consultants, extensive planning and advisory services to elaborate solutions for operational problems.

The range covers classical engineering services and project management in the fields of water, wastewater and solid waste.



Aquator Sewage Treatment Plant Nordhorn



Aquator Polymer Dosing



Aquator Nitrification



Aquator Process Air Blower



Technical and business advisory support, management of supply and disposal facilities, sewage sludge and mechanical sludge dewatering services complete the range of our activities.

Environmental challenges require a high level of commitment, competence, experience and creativity. Having developed as management buy-out from a large textile plant operating company, a formerly public private partnership enterprise, we do have the background to provide skills and know-how for practical implementation to operate and maintain facilities.

Because of the expertise and experience in design, construction, construction management, construction supervision and plant operations, we are top in the region as our clients' partner to solve a wide range of specific wastewater problems and applications.

Construction Pumping Station Sewage Treatment Plant Wittlage





Lahnstraße 31 • 12055 Berlin, Germany

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Trade register: Amtsgericht Charlottenburg, Berlin, HRB: 116916 B

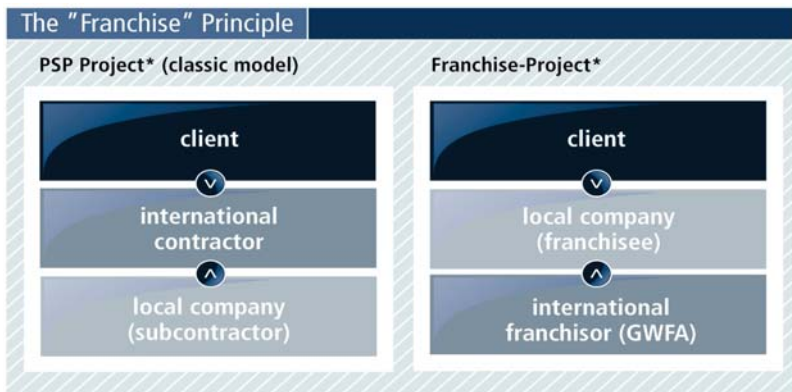
Board of directors: Dipl.-Ökonom Thomas Block
Dipl.-Ökonom Daniel Gregarek

A comprehensive and ready to use Water Franchise concept has been developed in the context of a research project funded by the German Federal Ministry of Education and Research (BMBF-FKZ 03 30 734 A, www.iwrm-southafrica.de). In 2006, it was awarded by the President of the World Bank with the prize for water management in the Global Competition “Development Marketplace”.



The Water Franchise concept has attracted the attention of territorial entities, international supply and disposal enterprises, donor banks and local companies. This positive response has induced the HUBER SE (Germany's largest manufacturer for wastewater technologies), the REMONDIS Aqua International GmbH (Germany's largest water & waste service provider) and the CEEM - Professor Rudolph GmbH to establish the GWFA - Global Water Franchise Agency GmbH.





In the past, major water projects were conducted by large foreign enterprises with little involvement of local companies, the franchise system enables local decision-makers in both self-responsible management of these services and a long-term secured operation. The involvement of a local entrepreneur implies a sustainable regional economic concept, which reduces political concerns about the professionalization of the water sector and leverages the acceptance for efficient and sustainable solutions among the population.

Franchising is an internationally proven business model. Companies like McDonald's or Hilton Hotels guarantee a consistent level of quality worldwide. Within the water sector, the franchise concept is an innovation with a wide range of opportunities. The franchisee owns and operates the facilities, while the franchisor provides logistics, technology and financing know-how as well as international marketing concepts. In the water sector, this model provides a conditioned performance guarantee for projects so economic viability is ensured to potential donors.

As an Agency, the GWFA is open to new cooperation and partners, who wish to contribute additional know-how, products or capabilities on the supply side, or who wish to develop and realise projects within the water and environmental services sector as franchisee.

IEEM - Institute of Environmental

Engineering and Management at the



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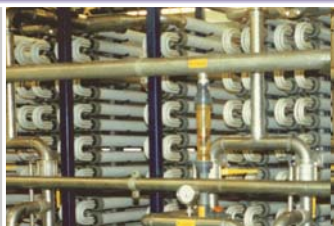
E-Mail: mail@uni-wh-utm.de • **Internet:** www.uni-wh-utm.de



Students and postgraduates of economics, natural and health sciences (medicine) and from engineering take part in project-related internships in our consulting offices as well as related service companies; this ensures a close link between science and practical application. Frequently, some of the best graduates decide to join our group and become a permanent member of staff in one of our offices. Within this academic environment, they join our work with access to the best available technologies and innovations, including pilot plants and laboratory equipment.

The close cooperation with the University of Witten/Herdecke has been established since 1996 through IEEM - Institute of Environmental Engineering and Management. It enables the Rudolph Consulting Group with all its clients the best possible access to the latest research and scientific findings worldwide.

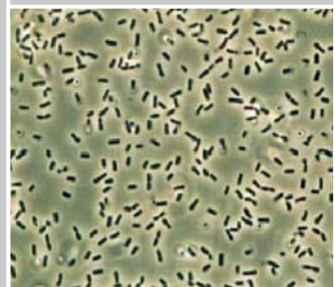
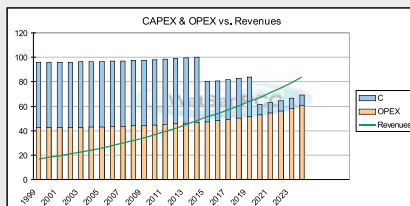
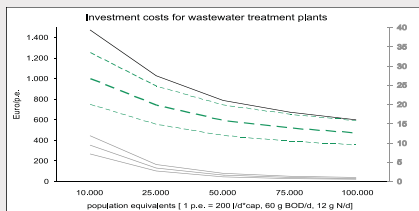
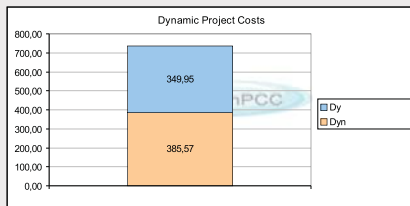
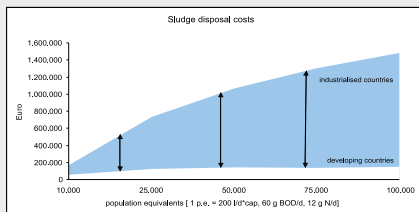
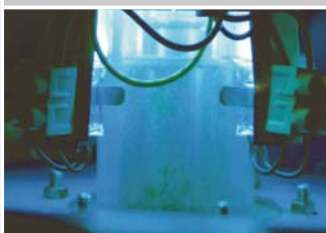




Science stimulated by practical application



Practical application inspired by science



Water Supply & Sanitation Project Cost Calculator





**WATER
SUPPLY**

**STORM WATER
MANAGEMENT**



**WASTEWATER
COLLECTION**

**WASTEWATER
TREATMENT**



**WASTE
MANAGEMENT**

The listed fields of activity provide a short overview, only, as reader's digest within this brochure. Broader descriptions, including other fields of activities and specific topics, can be found in the project reference sheets or on our website www.professor-rudolph.de.

Being experts in engineering and economics, we have specialized in innovative technological and organizational concepts in the field of water supply, such like:

- Approaches for customer-oriented services, for example concepts for recording and billing of water consumption (customer management)
- Concepts for the implementation of automatic meter reading (AMR), taking account of the overall technical system ("smart systems")

PROCESSING AND DISTRIBUTION



- Concepts for water loss reduction, esp. leakage and water theft (collaboration with the UN Water DPC Group on Water Efficiency)
- Overall view of technical and economic aspects of water use in the context of IWRM (Integrated Water Resources Management)
- Innovative concepts for pricing, fees and financial models
- Statements as referees, experts before court and within contract disputation, arbitration

From its origin, rainwater is one of the cleanest natural water resources. However, as storm water runoff it is inevitably regarded as contaminated water. This results in a high demand to develop and implement cost-effective and environmentally sound solutions for urban drainage. Area requirement for infiltration, sewer sizing for discharging with intelligent storage capacity control systems either as combined sewer or as separate sewerage system, wastewater treatment plant dimensioning and for appropriate effluent quality are the essential parameters of project optimisation.

STORM WATER MANAGEMENT; NEAR-TO-NATURE



Basin-ditch-system



Semi-central infiltration basins



Within the semi-central infiltration basins integrated stream

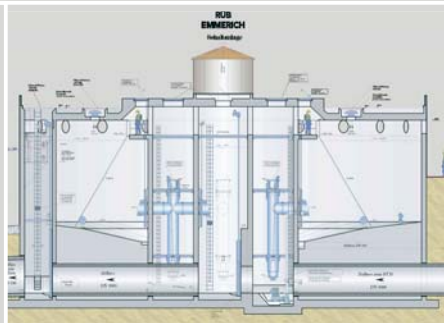


Renaturation drainage ditch

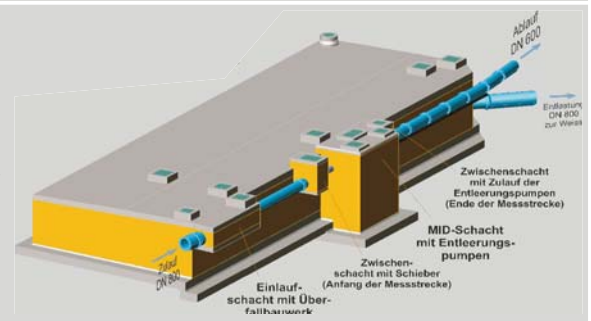
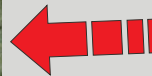
INFILTRATION SYSTEMS, RAINWATER UTILIZATION



STORM WATER TREATMENT AND RETENTION IN COMBINED AND IN SEPARATED SEWERAGE SYSTEMS



↑ Retention Tank - above ground structure ↑

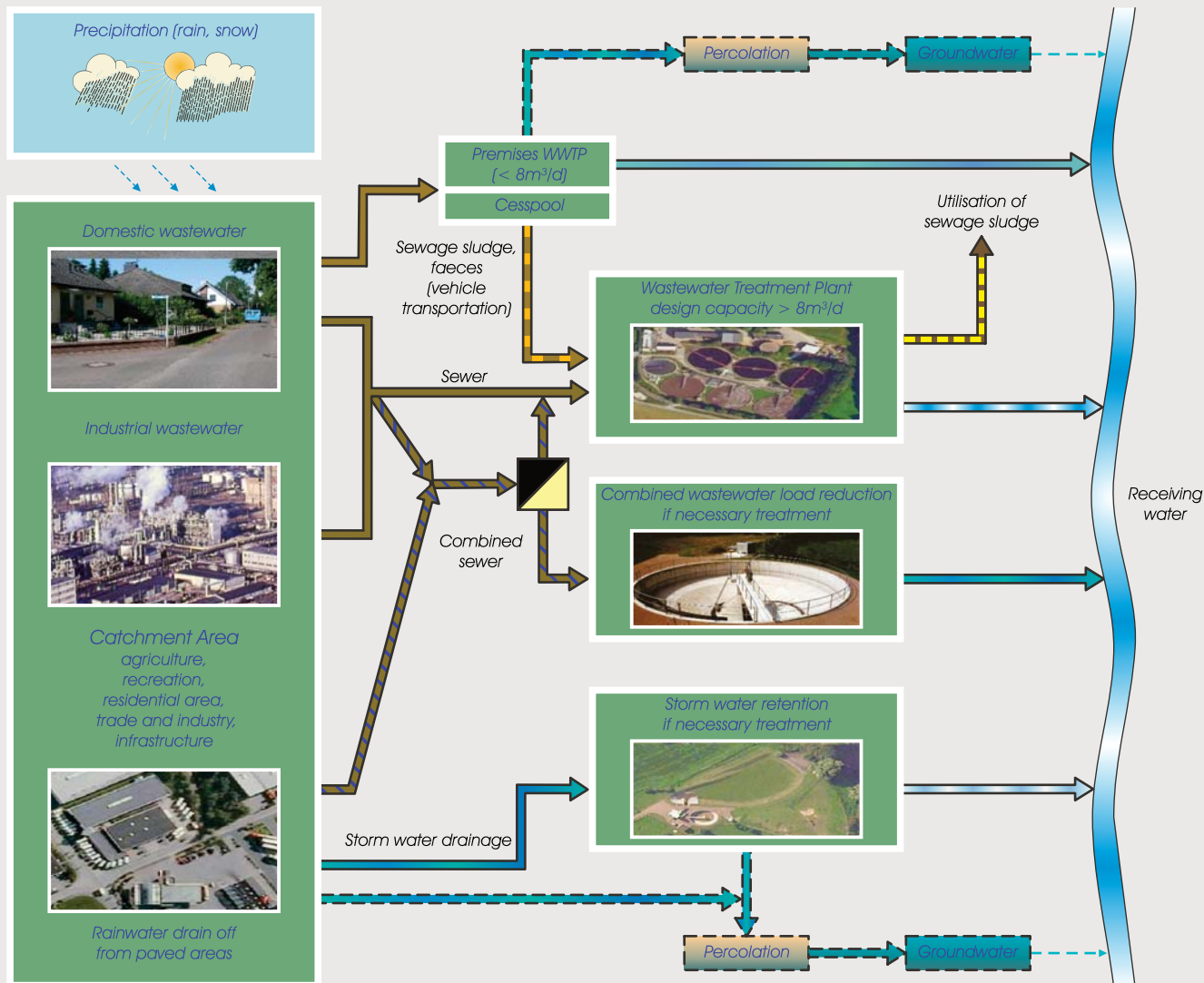


↑ Retention Tank - underground structure ↑



↑ Self Cleaning Cyclone Purification and Retention Tank ↑

MASTER PLANNING OF MUNICIPAL WASTEWATER COLLECTION



SEWER CONSTRUCTION AND REHABILITATION



Inliner process



Robot driven repair



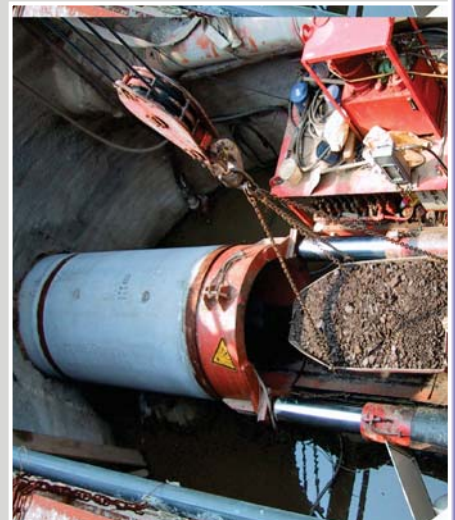
Pressure pipe construction



Wrapped pipe process



Pipe construction (open coverage type)



Pipe driving



**Domestic
wastewater
treatment**
(Wilnsdorf)

**Industrial
wastewater
treatment**
(Bitterfeld)



**Innovative
sewage treatment**
e. g. lamella technology
(Zell am See)

**Alternative
sewage treatment**
e. g. SBR technology
(Zierenberg)



**Treatment & recycling of
leachate from
landfill sites**
(Hoxfeld)

**Wastewater
ponds**
(Nordhorn)



**Low cost
water reuse
for irrigation**
(Piura)



**Wastewater
disinfection
by UV-irradiation**
(Norderney)



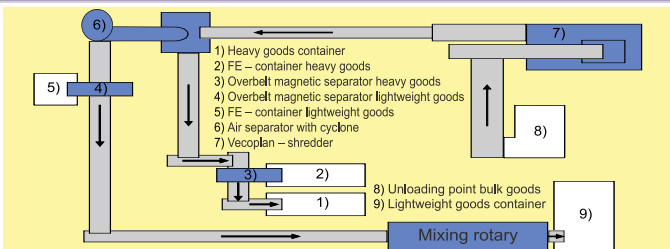
**Advanced purification
and recycling**
(Windhoek)



**Treatment
and disposal
of sewage sludge**
(Freren)



- Overall concepts for waste disposal and waste utilization
- Utilization of fermented municipal waste, organic industrial wastes, biodegradable waste and sewage sludge for the extraction of biogas
- Advisory services for cost-efficiency improvements, incl. organization and privatization
- Tariff calculation, price strategy, expert statements before court



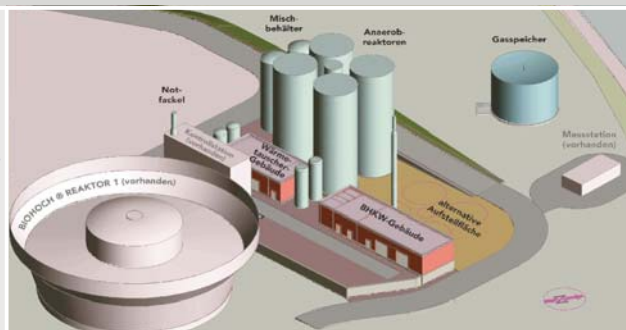
Waste 2 Energy

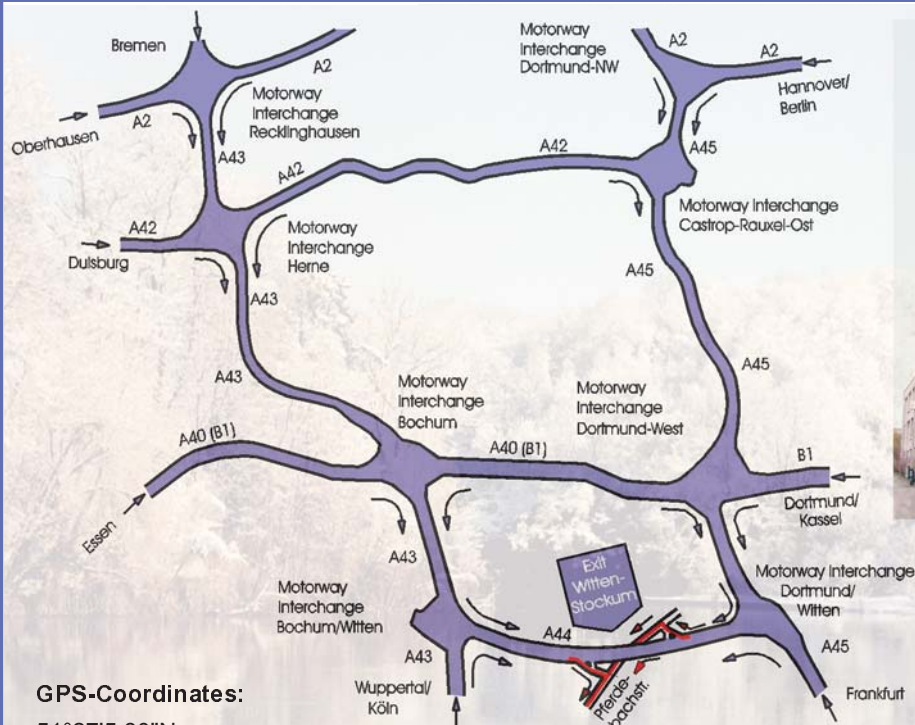


Digestion plants for sewage sludge and organic waste



Combined heat and power units with biogas purification





GPS-Coordinates:

51°27'5.80"N

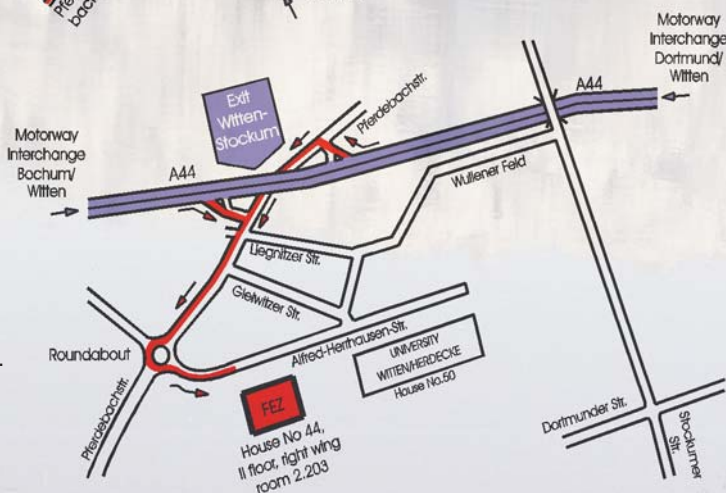
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Travelling by taxi:

From S-station Bochum-Langendreer 5 min,
 from S-station Witten-Annen Nord 5 min,
 from central station Witten 10 min,
 from central station Bochum 15 min,
 from central station Dortmund 20 min,
 from the airport Dortmund-Wickede 30 min,
 from the airport Düsseldorf International 60 min.

Travelling by public transportation:

From central station Witten by bus No. 371
 up to bus stop "Universität Witten-Herdecke".



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