Clean water for a liveable future

Insights
2025/2026

wte
STRABAG GROUP

Content

Clean water for a liveable future

Wastewater disposal
to the highest standards

Water supply
with reliable quality

Sewage sludge utilisation
with optimal self-sufficiency

As a reliable and experienced partner working with municipalities and companies, we use our broad spectrum of services to preserve and care for one of the most valuable elements: water. We set standards in terms of processes and technology, and ensure quality of life for future generations with our precise solutions.

Foreword from the Management Board

Dear WTE business partners,

ensuring a secure supply of clean water is one of the most important tasks of our time. Climate change and rising standards for water quality are putting increasing pressure on existing systems. In many regions of the world, a reliable supply of clean drinking water is under threat. There is a need for effective and sustainable solutions. WTE has been familiar with these requirements for more than four decades and develops technologies and plants worldwide for a safe and efficient water infrastructure – with responsibility and vision.

To continue meeting this high standard in the future and to further expand our technical expertise, we have taken an important strategic step: since March 2026, WTE is part of the STRABAG Group. As part of one of Europe's leading technology groups for construction services, we are significantly increasing our capabilities. We are combining expertise, implementing projects in an even more holistic manner, and tapping into additional markets. True to the motto "SHAPING THE FUTURE OF WATER & ENERGY – TOGETHER," we can jointly develop solutions for water, sewage sludge, waste, energy, and biogas – all from a single source. Our cooperation has already yielded concrete results in the past: Employees from WTE and STRABAG have jointly obtained certification for integrated project management (IPA). This enables us to meet the requirements for participating in relevant tenders and to actively help shape new project formats.

For more information on IPA certification: see pages 44/45

As a company operating in the water and wastewater sector, we see innovation as the key to processes and technologies that address the growing challenges posed by resource scarcity, climate change, and environmental impact. A current example is the KonBioN project, in which we are developing new processes for nitrate removal. The specially developed NERO reactor is currently being trialled at a drinking water treatment plant. If the positive results seen so far are confirmed in the long term, the process could be used more widely in drinking water treatment in future, thereby making an important contribution to ensuring water quality in a sustainable manner.

For more information on KonBioN/NERO:: see pages 20/21.

Christian Zoller
Managing Director since 2026

Reinhard Bodner
Managing Director since 2026

When it comes to digitalisation, we also rely on innovative solutions. To ensure the ongoing development of our WARIOS Software Suite, we combine digital technologies with process engineering expertise, thereby creating intelligent, efficient and sustainable systems for water management. These developments enable us, for example, to make processes in wastewater treatment plants more transparent, to use resources more effectively and to provide even better support to our customers.

For more information on WARIOS: see pages 24/25.

This report provides an insight into our work and the responsibility we take for our projects, our employees and the environment – in keeping with the title of this brochure, Insights.
On the following pages, we demonstrate that sustainable progress can only be achieved through collaboration, innovative strength and clear objectives. WTE will firmly continue along this path and help shape the future of water and energy – together with STRABAG.

We thank you for your trust and for accompanying us on this journey.

Kind regards,

Essen, April 2026

Christian Zoller

Reinhard Bodner

About this report

Our commitment to clean water in focus

The WTE Group is committed to integrated water management, with a clear focus on wastewater treatment and sewage sludge utilisation. Our range of services encompasses the design and realisation of modern wastewater treatment plants, the thermal utilisation of sewage sludge and solutions for drinking water treatment. Through our efforts, we are helping to create a future in which as many people as possible have access to clean water.

This report provides an insight into our latest projects and technologies, along with the developments that are shaping the services we provide – offering direct insight into our work and its impact on people and the environment. For example, you can learn all about our highlight project KonBioN and the groundbreaking NERO reactor for efficiently eliminating nitrates from wastewater (pages 20/21). It also highlights the expansion of our expertise in developing our in-house WARIOS software and digital operational management (pages 24/25). And gain an overview of ongoing project developments in Germany and beyond.

Our mission is to combine technical excellence with a sustainable mindset. We operate responsibly and with a long-term perspective – using the sustainability goals of the United Nations as a guideline for our business activities.

WTE now Part of the STRABAG Concern

Specialised in goal-oriented water management

The WTE Group is one of the most established providers of municipal and industrial water management solutions, headquartered in Europe. Since its foundation in 1985, WTE has been developing and implementing tailor-made solutions worldwide in wastewater treatment, water supply, utilisation of sewage sludge and energy recovery. Today, more than 20 million people in 20 countries benefit from the WTE Group's projects.

With the successful completion of the acquisition by the STRABAG Concern in 2026, WTE Wassertechnik GmbH has become part of an internationally active technology concern for construction services. For WTE, this integration opens new opportunities to further develop its international project business and to advance innovative solutions in the field of water infrastructure.

Within the STRABAG Concern, WTE particularly contributes its expertise in engineering, process technology, plant construction and the operation of complex water and wastewater infrastructure projects. At the same time, both companies benefit from the bundling of their expertise: while STRABAG strengthens its position along the entire value chain of water infrastructure, WTE can further develop and deploy its technological solutions in an expanded international environment.

11,000,000 m³*
Wastewater treated per day

> 9,900,000*
People supplied with safe drinking water

In addition to the parent company WTE Wassertechnik GmbH, the WTE Group includes several investment companies active in various European markets, including WTE Betriebsgesellschaft mbH (Germany), WTE Polska (Poland), WTE Baltic (Lithuania) and WTE Projektentwicklung GmbH (Austria). Together, they combine their expertise to develop and implement projects along the entire water infrastructure value chain.

*Based on the work performed by WTE and Strabag.

"By combining WTE's technical expertise with STRABAG's financial strength, international presence and implementation skills, we aim to unlock additional growth potential."

Reinhard Bodner,
WTE Wassertechnik GmbH,
Managing Director

More about the WTE Group:
wte.de/company

"The bundling of competencies and the constant exchange of know-how are the key to sustainable water management, which is characterised by constant innovation."

Christian Zoller,
WTE Wassertechnik GmbH,
Managing Director

40 years WTE

Four decades of passion for water

For four decades now, WTE has stood for pioneering spirit, quality and groundbraking water technology. Our company was founded in February 1985 as Krüger GmbH in Bad Homburg – at that time with a focus on environmental and energy facilities. With the change of name to Krüger-Hölter Wassertechnik GmbH in 1989, the company specialised in water treatment plants – a clear strategic direction and the foundation for WTE‘s subsequent success story. In the same year, the company headquarters were relocated to Friedrichsdorf near Frankfurt.

Headquarters Ruhr Area

In the early 1990s, the first major expansion step was taken: a branch office was established in Essen with around 15 dedicated employees. Short distances, a strong team spirit and an entrepreneurial spirit of optimism made the location a vibrant centre for technical know-how. In 1993, the Essen branch officially became the headquarter and the regional presence was expanded through a further branch office in Hecklingen. In the meantime, Krüger-Hölter has become increasingly involved in privatisation and operational models and has implemented numerous projects in Germany.

Focus on water technology

After further name changes, the company became a 100 percent subsidiary of Berlinwasser Holding AG in 1997. From then on, the focus was on design, construction, operation and distribution of modern water supply and wastewater treatment plants, supplemented by a wide range of accompanying services. Furthermore, the company became the first service provider in the water industry to have all processes along the entire value chain certified.

International Expansion

In the 2000s, the company had around 300 employees and five subsidiaries. This decade was marked by international expansion. Projects have been implemented in Poland, Austria, Russia, Croatia and many other countries. In 2002, the company changed its name to WTE Wassertechnik GmbH. Initially, the three letters WTE stood for Water. Technology. Energy. Today, they also symbolise the concise area of expertise Water to Energy. In 2003, WTE became a 100% subsidiary of the Austrian company EVN AG.

Innovative methods

Since 2010, WTE has continued to focus on sustainable water supply and wastewater solutions, especially in the area of energy recovery from wastewater. As an innovative option, WTE uses microbial fuel cells, which harness the metabolism of bacteria to generate bioelectricity and also purify part of the wastewater in the process.
Thermal sewage sludge utilisation is also becoming increasingly important. WTE supports cities and municipalities with its expertise in the safe and efficient disposal of sewage sludge through mono-incineration – for example Berliner Wasserbetriebe. At the Berlin-Waßmannsdorf site, WTE is constructing a pioneering sewage sludge incineration plant, which is nearing completion. In Halle-Lochau and Hanover-Lahe, WTE has already completed modern sewage sludge mono-incineration plants, which generate electricity or district heating through targeted thermal utilisation.
Large infrastructure projects also fall into this period. For example, the the largest project in the company‘s history to date: the Umm Al Hayman Wastewater Treatment Plant in Kuwait. With a capacity of 1.7 million population equivalent, the plant ensures water as a 100% reusable resource and protects the ecosystem.

Ready for the future

Today, with over 550 employees, more than 125 completed projects in 20 countries and ten branches, WTE is one of the leaders in Europe – and beyond. Around 20 million people benefit from our sustainable services, and a further four million from the technical and commercial operational plant management of water treatment plants. Having been part of the STRABAG Concern since 3/2026, WTE has been able to continue its expansion course and further develop its international project business in a targeted manner.

A part of the founding team.

Former German Foreign Minister Hans-Dietrich Genscher visited WTE for its 10th anniversary.

2002 I Zell am See, Austria

For more than 20 years, WTE has been operating the Zell am See Wastewater Treatment Plant, which WTE also designed and built.The purification capacity is 16,450 m³ per day, which corresponds to 70,000 population equivalents (PE).

2005 I Vienna, Austria

WTE completed the expansion and modernisation of Vienna's main wastewater treatment plant. Even today, with a capacity of 4 million PE, the plant remains one of the most modern in Europe.

2011 I Czajka, Poland

The Czajka Wastewater Treatment Plant is the largest in Poland: the purification capacity corresponds to 2.1 million PE. The modernisation thus doubled the previous performance.

2018 I Prague, Czech Republic

In Prague, WTE, as a partner within an international consortium, built a state-of-the-art wastewater treatment plant. It was commissioned in 2018 with a capacity of 1.2 million PE.

2024 I Umm Al Hayman, Kuwait

The design and construction of the wastewater treatment plant in Umm Al Hayman is WTE's largest project to date. The plant, which is also operated by WTE, provides water supply for the region.

Under construction I Berlin, Germany

WTE is implementing a sewage sludge utilisation plant for Berliner Wasserbetriebe at the Waßmannsdorf site, which complements the Berlin-Ruhleben site and enables 100% of its own thermal utilisation.

2004 I Zagreb, Croatia

The new construction of the central wastewater treatment plant makes a significant contribution to environmental protection in the region and currently has a capacity of 1.2 million PE. WTE operated the plant until 2024.

2007 I Larnaca, Cyprus

In Cyprus, water is of great importance due to the water scarcity. The expansion and modernisation of the wastewater treatment plant by WTE ensures the reuse of water in agriculture.

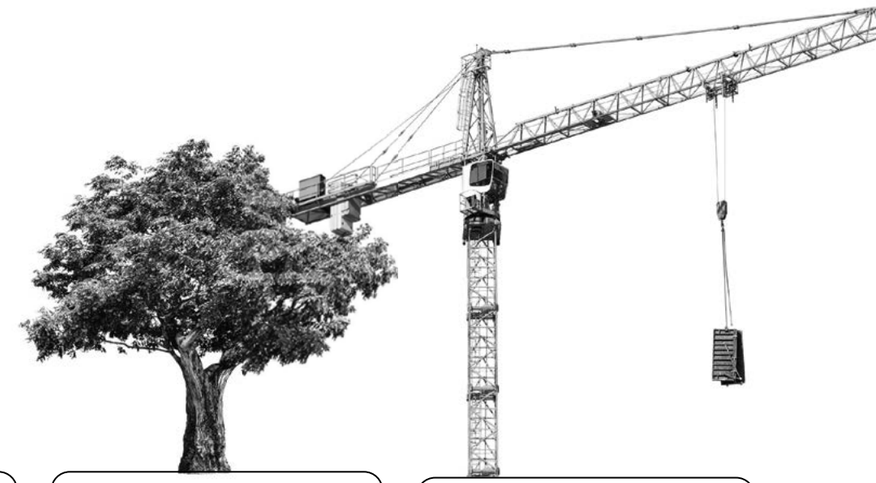
2023 I Hanover, Germany

As part of a joint venture, WTE build a thermally and electrically self-sufficient sewage sludge mono-incineration plant with maximum district heat extraction.

Under construction I Skopje, North Macedonia

The new construction of the wastewater treatment plant including sewage sludge incineration for 650,000 PE sets new standards for environmental protection in the region and improves the water quality of the Vardar River.

PEOPLE. PLANET. PROGRESS.



STRABAG

Technology Group for Construction Services

STRABAG SE is a leading European technology group for construction services distinguished by innovation, quality, and sustainability. The group also focuses on future-oriented solutions in the area of water infrastructure.
With activities at more than 2,400 locations in over 50 countries, STRABAG is shaping infrastructure for a livable future.

Acting Together for the Future

Under the motto WORK ON PROGRESS, STRABAG is clearly committed to achieving climate neutrality by 2040. An ambition that is also embedded in its Strategy 2030. Even today, the Group is shaping the future of construction with the goal of maximizing added value for people while minimising environmental impact.

Accordingly, Strategy 2030 is built on three pillars: PEOPLE. PLANET. PROGRESS., from which the key strategic focus areas are derived.

More about
WORK ON PROGESS
work-on-progress.strabag.com/en

PEOPLE

STRABAG builds for and with people. With each project, the company creates added value for its employees as well as for society.
– Employee focus
– Global-local presence

PLANET

The Group is actively committed to climate protection and aims to make its projects climate-neutral by 2040.
– Circular economy
– Expertise in the energy sector

PROGRESS

As a technology leader in construction, STRABAG is continuously developing new competencies, using data-based methods and driving innovation along the entire value chain.
– Technology leadership
– Vertical integration

”

Our Strategy 2030, with its three pillars of People. Planet. Progress., is paying off. With innovative strength, sustainability, and a strong team, we are actively shaping change – optimistically, with an eye to the future, and beyond legislative periods. I am convinced that technological progress in line with our economic goals will strengthen our market position in the long term.”

Stefan Kratochwill,
STRABAG SE,
CEO

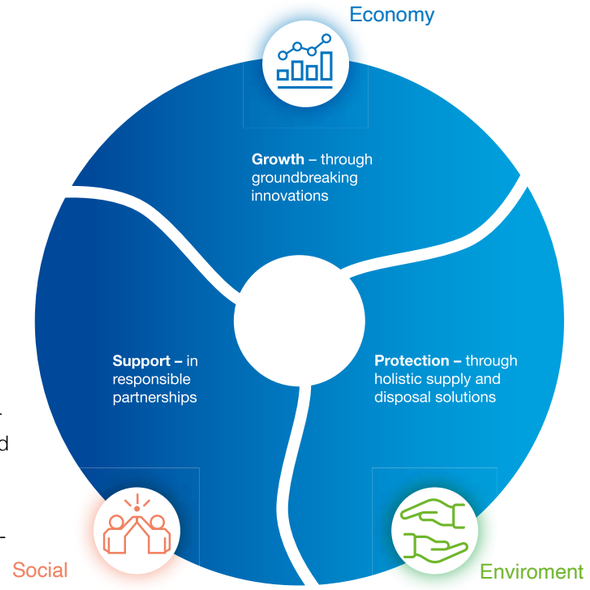
STRABAG‘s Strategy 2030 thus ideally complements WTE‘s principles of holistic water management. With the three fields of action Growth, Protection and Promotion, WTE pursues similar goals – developing sustainable infrastructure, protecting resources and advancing innovation in the water sector (see pages 18/19).

Integrated water management

Orientation and principles for our day-to-day work

Our work centres on the most important resource on our planet: water. Using this vital resource responsibly, now and in the future, calls for technical excellence, forward-looking design and resilient infrastructure. Our plants help to strengthen supply reliability, increase material recycling and make efficient use of energy potential.

All our activities therefore revolve around integrated water management. For us, this means combining economic reliability with ecological and social responsibility across the entire value chain – from the design and construction of our plants to plant operation.



The activities we engage in to achieve this can be divided up into three focus areas:

- Growth represents economic stability, responsible corporate growth and sustainable value creation.
- Protection includes measures to safeguard the environment and resources and to enhance closed-loop material cycles.
- Support covers the development of our employees, social responsibility and corporate citizenship.

We treat closed loop economy not just as an ecological concept but also as a strategic guiding principle: We maintain resources, utilise residual materials and continuously optimise the necessary processes – with the aim of aligning ecological and economic sustainability.

In this context, as a water and energy management company with international operations, we support the sustainable development goals of the United Nations, which form the basis of our group-wide sustainability objectives (see page on the right). These serve as a guiding framework for responsible business practices and sustainable value creation.

Sustainability as a global task

With its Agenda 2030, the United Nations has adopted a global action plan for promoting lasting peace, economic development and the protection of vital natural resources. Since 2016, the member states been working towards making this shared vision a reality. The 17 goals for sustainable development provide global guidance for this.

Economy

Customer orientation
- Design custom plants
- Plan projects in line with customer needs
- Take specific regional features into account

Quality and reliability
- Give clients a genuine feeling of safety
- Create design reliability in the process

Innovation
- Create technical industry standards
- Help to drive scientific progress

Ethics and integrity
- Act in accordance with code of conduct
- Follow ethical principles

Digitalisation
- Continuously digitalise plants
- Automate processes step by step

Partnerships
- Collaborate with local governments and within the group

Environment

Resources and resource cycle
- Use resources conscientiously
- Exploit synergies to the full
- Close the resource cycle
- Create recycling structures
- Recover valuable resources
- Dispose of pollutants safely

Climate-relevant emissions
- Constantly reduce emissions
- Optimise processes for climate protection

Energy efficiency
- Plan energy-efficient plants
- Use renewable energy

Operating materials
- Reduce use of chemicals

Social affairs

Health and safety
- Make workstations safe
- Prevent accidents effectively
- Create awareness of risks
- Protect employee health
- Constantly improve the work environment

Working conditions and corporate culture
- Actively strengthen employee satisfaction
- Keep employee turnover low
- Cultivate an inclusive workplace culture
- Foster a diverse and accepting corporate culture

Support and development
- Create opportunities for further training
- Provide freedom for development
- Give constructive feedback
- Develop individual potential

Social responsibility
- Provide support specifically for newcomers to the industry
- Create opportunities for young talent
- Support social projects

KonBioN research project

A driving force for more sustainability and reducing environmental impact in drinking water production

Source: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

More than 70% of Germany's drinking water is supplied from groundwater and spring water. Under agricultural land, however, groundwater reserves can often be highly contaminated – for example with nitrates originating from fertiliser. One tried-and-tested method for purifying this water is reverse osmosis (RO), which removes micro-pollutants as well as nitrate and softens the water.

RO plants generate highly contaminated wastewater, however, which is equivalent to roughly 20 % of the inflow and must not be returned to the groundwater. One forward-looking solution here is to combine RO with a denitrification stage for concentrate treatment – an approach that also fulfils the requirements of the German Drinking Water Ordinance (TrinkwV).

NERO: Nitrogen Elimination from Reverse Osmosis Concentrate

This is where WTE's patented biological NERO method comes in: it enables sustainable treatment of the generated concentrate and can play a crucial role in ensuring resource-efficient drinking water supply. The NERO method is currently undergoing testing in the KonBioN research project (concentrate treatment to increase water availability by means of biological nitrate removal), which was started in 2025 and is set to last two years.

Groundbreaking solution: the NERO method

The NERO method is based on a biological fixed-bed reactor: the contaminated water is fed through a sand bed with an active biofilm. Specific micro-organisms are able to reduce the nitrate despite the very low temperatures and the high water hardness, and the cleaned water then leaves the reactor. The sand is intermittently circulated and cleaned, and the rinsing water that is used is channelled away separately.

Testing under real conditions

The tests are being carried out in an existing RO plant in Groß-Umstadt, Hessen, at a small scale for demonstration purposes. A WTE NERO reactor is used that has already been in operation in the wastewater treatment plants in Obersiebenbrunn (Austria) und Hecklingen. As developer, operator and owner of the semi-industrial trial plant, WTE was responsible for the transport, set-up and commissioning.
WTE also carried out various measuring programmes to test the method under real-life conditions and optimise it. Trials were performed under various load scenarios to further validate the method's performance and robustness. Additional tests were also carried out to determine to what extent the purified water can be fed back into the groundwater.

3.5 m³	4.5 m³/h	approx. 95 %
reaction volume	max. concentrate through-put	nitrate removal

Prospects and further development

The demonstration phase of this project will continue until 2027. In this period, the system's load limits will be analysed systematically and the foundations will be established for industrial-scale application.
There has already been significant interest in the technology – both within the water management sector and in other fields. This is because KonBioN is an excellent example of combining technological skill, environmental responsibility and regional social engagement. The project shows how interdisciplinary collaboration can create concrete solutions for complex challenges in water treatment – with the clear goal of protecting natural resources and ensuring safe drinking water supply over the long term.

Joint research for a sustainable future

Together with strong partners – IWW (Institute for Water Research), the Technical University of Darmstadt and the city of Groß-Umstadt – WTE has submitted a research application for KonBioN, which has been recognised as being worthy of funding by DVGW (German Technical and Scientific Association for Gas and Water).

Focus area **economy**

Growth – New challenges in the future

The development of new technologies and the enhancement of existing methods form the basis of responsible growth for the WTE Group. This benefits our customers directly, as the work we do focuses on sustainable water management. Through the continuous digitalisation and automation of our processes, we are able to unlock new efficiency potential in water management – partly due to the use of artificial intelligence, which we develop ourselves.

Key topics:
– Digitalisation
– Innovations
– Ethics and integrity
– Customer focus
– Quality and reliability

Digitalisation

We set new standards in the systematic digitisation and automation of all relevant processes in plant design, construction and operation.

Over **250 installations**, **160 hosting customers** and **570 users**.

Digital operational management with WARIOS

Long before digitalisation became commonplace, we were already launching solutions for the paperless management of operations, maintenance, repair and overhaul of plants in water management. Our WARIOS software suite includes all these solutions in the form of four software products:

WARIOS|cmms
Design, implementation and documentation of maintenance, repair and overhaul measures

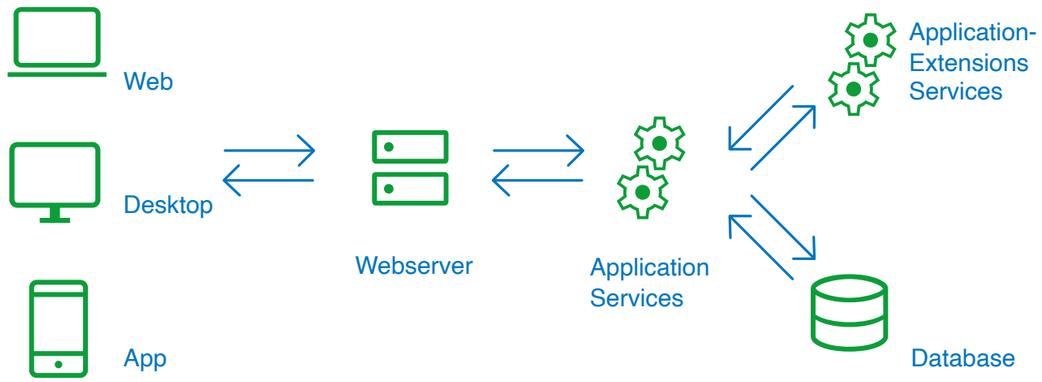
WARIOS|kanal
Inventory documentation, condition assessment and design and organisation for the operation of sewer networks

WARIOS|reports
Recording and evaluation of operating data and information relating to technical plants

GBM4
Organisation of data relating to surface area calculation and optimisation of administrative processes

Software tailored to your individual needs

Each product in the WARIOS software suite incorporates our client-server technology to ensure a high level of scalability, in terms of both the amount of data records to be processed and the number of users, regardless of their location. This provides our customers with a high degree of flexibility, enabling them to meet the requirements of their plants.



New interfaces and enhanced features

As part of the ongoing development of WARIOS|cmms, new interfaces have been implemented to improve data exchange between different systems and further optimise processes in plant operations. For example, a new interface enables direct communication between COMOS objects and the modules of the WARIOS|cmms maintenance management system. In addition to the synchronisation of units and their properties, service parameters can also be transferred. Data transfer takes place via COMOS's own REST API and enables the efficient integration of plant information into the maintenance and repair management system.
Furthermore, a SAP interface has been integrated, enabling object-oriented data exchange with the SAP modules for maintenance, materials management and document management. Via this interface, objects can be exported from WARIOS|cmms to SAP and imported from SAP into WARIOS|cmms. For system communication, SAP uses standardised interface technologies such as BAPI (Business Application Programming Interface) and RFC (Remote Function Call), which enable structured access to SAP business objects and functions.

Expanded functionality

In addition, the functionality of WARIOS|cmms has been expanded to include data science-based features. Server-based services analyse operational data and, through the automated configuration of existing control systems, can identify potential for optimisation in various areas of plant operation.

Successful WARIOS software suite projects

The first sewage sludge incineration plant to use our WARIOS software suite was the sewage sludge mono-incineration plant in Halle-Lochau. Since its commissioning in 2023, all aspects of the plant's operation have been continuously recorded and evaluated by our software solution in order to continuously optimise processes on site.
The WARIOS software suite also plays a major role in the largest plant project in our company's history to date: the modernisation and extension of the wastewater treatment plant Umm Al Hayman (Kuwait). Because of its enormous capacity of 1.7 million PE, it would be practically impossible to manage the plant's operations effectively over the long term without some form of digital framework.
Our in-house WARIOS software suite ensures that the wastewater treatment plant operates properly, from continuous operation to the maintenance and repair of tanks, pipelines, pumping stations and other plant components.

Find out more about the project:
wte.de/en/references

> "Our powerful digital solutions prove their practicality effectiveness in our operational management projects every day."

Jürgen Heinrichmeier,
WTE Betriebsgesellschaft mbH,
Head of Process Operation
Wastewater & Sludge

We are proud to present the following recent developments in digital operational management with our tried-and-tested WARIOS software suite, which undergoes continuous optimisation:

A new home in Berlin

With our new Berlin office, we now have a central location for working on WARIOS and managing the software solution. Five WARIOS specialists and five engineers currently enjoy the appealing location in the heart of Berlin with its good transport connections. The new site enables a new approach to acquiring customers and implementing their feedback, as we now have a sales representative in Berlin who is exclusively responsible for WARIOS. Being situated in the capital city makes it much easier for us to make contact with new customers – although we continue to collaborate with WTEB in Hecklingen and WTE in Essen, especially in the area of operational plant management.

New programmers join our team

Berlin also offers an enormous pool of qualified software developers, which we have already started benefiting from, with three developers added to the team for WARIOS in 2025. Their fresh expertise has brought plenty of innovation and improvement to existing applications. Examples of this include the inspection planning for sewage sludge incineration plants, more intuitive design for UIs and speedier implementation of customer requests.

The average age of staff at the WARIOS site in Berlin is 33.

Closer connections to process engineering

Thanks to the close collaboration between our teams in Development and in Engineering, our work on WARIOS is now even more practice-oriented. First-hand plant expertise is already being incorporated into the development of productive software for plant optimisation.
One example is our intelligent control of return activated sludge (RAS), which uses machine learning and is used at the Windeck-Rosbach Wastewater Treatment Plant.

More about RAS:
see pages 29/30.

On top of this, we are currently working on additional digital solutions for plant optimisation using machine learning, for example solutions that use temperature predictions to save energy.

In the spirit of our interdisciplinary work on WARIOS, we have now launched a newsletter to enable consistent communication between users and developers. The newsletter covers issues ranging from software updates and project news to giving and receiving feedback.
warios.de/newsletter/

In 2025, the wastewater treatment plant of Klaipeda, Lithuania, joined the users of our operational management and maintenance software WARIOS|cmms. The plant had already been provided with a demo version in 2022.

Continuous collaboration

In the field of digital operational management with WARIOS, WTEB collaborates with all active WTE projects, in particular with the large-scale projects in Munich and Kuwait.
For example, talks were held with representatives of the Münchner Stadtentwässerung, the municipal wastewater utility company in Munich, in preparation for the operational management of the sewage sludge incineration plant in Munich. The requirements identified in these talks have already been implemented by our developers. Regular meetings are also held to review the current status of the operational management and potential improvements.
In Kuwait, we have closely collaborated with the maintenance supervisors at the Umm Al Hayman Wastewater Treatment Plant for many years. This collaboration plays a major role in our further development of WARIOS|cmms and WARIOS|reports. It was, for example, the driving force behind the implementation of a warehouse management system in which the entire process from requesting and ordering materials to issuing and returning them is fully digitised.

Positive outlook for further use

The WTEB is currently in negotiations with the Berliner Wasserbetriebe regarding a maintenance contract for the Berlin-Waßmannsdorf Sewage Sludge Incineration Plant. The use of WARIOS|cmms in planned for this project. If the contract is awarded, the WTEB will be supporting another of Germany‘s largest municipal wastewater disposal companies in digital operational management, alongside Münchner Stadtentwässerung.

> „This unique combination of expertise opens up entirely new opportunities for enhancing WARIOS and making lasting optimisations in plant operations.“

Tom Siegel,
WTE Betriebsgesellschaft mbH,
Site Manager and Department Head at WARIOS

More about WARIOS:
warios.de/en

Object-oriented plant design

Future-proof plants call for intelligent digital design. This is why we use groundbreaking technologies for systematic digitisation of plant design – including the powerful software solution COMOS from Siemens and Autodesk Revit for building information modelling (BIM) as a foundation for efficient and future-proof plants.

COMOS

COMOS is an object-oriented engineering system for standardised design and the integrated management of plants across their entire life cycle. The platform interlinks all engineering data in a consistent digital model and creates transparency in every project phase:

- Design changes implemented in real time
- Multiple technical disciplines can work in parallel on a central data model
- Central database (‘single source of truth’) for all relevant plant data
- Efficient data transfer via a shared system architecture
- Foundation for creating a digital twin

Beyond COMOS, our design engineers use additional specialised software solutions:

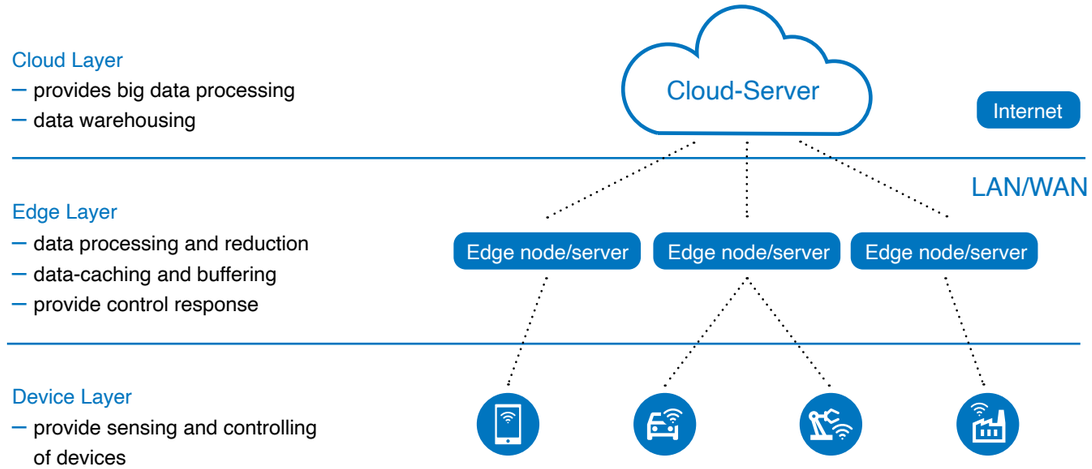
- Design software: Autodesk Revit, AutoCAD – precise 3D-modelling and detailed design
- Coordination software: Navisworks, Revizto – interdisciplinary checks for clashes and design discrepancies
- Visualisation software: Lumion – photorealistic depictions and VR visualisation

The combined use of these systems makes it possible to design even complex plants in detail and coordinate all the trades involved early on. The structured exchange of data – both internally and with external design engineers and suppliers – creates a robust foundation for efficient design processes and high-quality solutions even in early project phases.

Digitisation through edge computing

Modern requirements call for modern solutions. That is why WTE continuously invests in further developing its digital assistance systems.

This requires ongoing coordination across multiple teams within the company: from international site-specific users and specialist engineers in the areas of operation, construction and design to our software and hardware specialists in data processing, evaluation and algorithm development. This enables us to continuously expand our digital solutions.
In implementation, the in-house capabilities even include edge IT integrated directly into the control cabinets of our plants. As a result, our assistance systems are created on the basis of bottom-up methods and are able to specifically solve the problems of our users on site. Our digital assistance systems not only optimise our plants and save material resources – they also take care of routine tasks so staff can focus on other things.



AI applications in critical infrastructure

To ensure that our assistance systems function reliably even when internet connections are disrupted, one of the key requirements in their design was to achieve largely local operation. Minimising data exchange with external servers is a key design principle when it comes to achieving the greatest possible independence from additional external service providers. We also believe it is important for data to remain local.
This does mean that forecasts may be limited in the event of a disruption, for example if data from weather reporting services cannot be updated. However, all our AI applications are designed to handle going offline in the event of a disruption. Plant operation will continue to function in all cases and control strategies will be applied that have been optimised by our specialists and are based solely on locally available operational data.

AI = artificial intelligence

In our use of AI, we respect the sovereignty of all data – above and beyond the requirements of the EU Artificial Intelligence Act.

Machine learning on our plant systems

Two examples of machine learning in the day-to-day operation of our wastewater treatment plants are outlined below:

Optimisation through employee workload reduction

It is not possible for any individual operator to carry out highly complex work at a computer 24 hours a day, 7 days a week, 365 days a year. Conventional process control systems take this into account by using setpoints.
One of these setpoints is the return sludge ratio, which can be used to alter the amount of micro-organisms in the wastewater treatment process. This parameter typically remains unchanged for days and weeks at a time. However, if heavy rainfall is expected following a prolonged dry period our return sludge control module comes into action. It forecasts the time and severity of the load peaks that will occur and automatically ensures that a greater

quantity of micro-organisms will be available where they are needed: in the purification tanks of the wastewater treatment plant. This can be done at any time of day, even on public holidays or during the holiday season.
At the Windeck-Rosbach Wastewater Treatment Plant, a machine learning assistant system forecasts the amount of wastewater that is expected in the coming hours. This enables the plant to be automatically prepared for peak loads caused by heavy rainfall, thereby improving the discharge quality when the plant is exposed to peak loads.

Optimisation through consolidation

In wastewater treatment, numerous measured values must be calculated in relation to one another and the results must to be taken into account at many different points in the process. This then, in turn, changes the initial conditions on which the original determination of the measured values was based. The result is a dynamic process that involves continuous adjustment. Determining the mass of micro-organisms, which is needed for the wastewater treatment process, is performed by our excess sludge removal module. It prepares the wastewater treatment plants for the requirements of tomorrow by taking the seasonal variations in wastewater temperature into account in its calculations. And the module not only performs forecasts and calculations independently – it also presents the intermediate steps for the operators clearly and transparently. In doing so, it strengthens user confidence in our technology.

WARIOS in action: Westerstede Wastewater Treatment Plant

Not far off from the North Sea coast, you can find the northernmost wastewater treatment plant under the operational management of WTEB: the Westerstede City Wastewater Treatment Plant. The challenges of taking over operations were all tackled successfully within the first year of operation, 2025. In time for the handover, WTEB employees equipped the plant with a local control room, enabling the various parts of the plant to be controlled centrally. The staff operate the main wastewater treatment plant reliably and the treatment results meet the relevant requirements without fail, despite the incoming load being close to maximum capacity.

> With WARIOS roughly 1,200 maintenance points are currently operated and controlled at the Westerstede Wastewater Treatment Plant in structured and efficient manner and in compliance with industrial standards.

At Westerstede, WTEB's digital maintenance solutions prove their worth in day-to-day operations. They contribute to achieving high operational safety, efficiency and transparency. The operation of the wastewater treatment plant is made easier thanks to the key functions and benefits that WARIOS offers:

- Centralised logging and structuring of all maintenance points
- Systematic design and monitoring of maintenance intervals, inspection deadlines and responsibilities
- Digital documentation and complete traceability of maintenance work
- Transparent evaluation of faults, non-conformities and action taken
- Optimisation of maintenance processes thanks to data analysis and future-focused AI methods (e.g. prioritisation, predictive maintenance, resource control)

New competence centre in Halle-Lochau

As part of a collaboration between WTE and WTEB, a new competence centre is being established in Halle-Lochau. From the future site, the sewage sludge incineration plants in Hanover, Berlin, Skopje and Munich will be operationally supported and supplied in close coordination with the headquarters in Essen.

A cross-functional competence team has already been established, bringing together experts from various departments with the task of analysing operational data from all plants. In this way, operational data is systematically evaluated to detect disruptions at an early stage and to derive further insights for optimising plant operations, which can then be shared with our customers' operating personnel.
Collaboration within the competence team is crucial to the success of our company, as it enhances efficiency, productivity, and response times in plant operations – particularly in a sector characterised by rapid change.
In this context, the importance of our WARIOS|cmms program continues to grow as a key tool for maintenance activities, having already proven its value in our plants over several decades.

Further developments related to the new competence centre:

- In the future, training courses can be conducted not only theoretically but also practically at the Halle-Lochau Sewage Sludge Incineration Plant.
- A network of selected specialist companies has been established, working in an interdisciplinary manner to optimise response times and the rectification of disruptions. This network includes carefully selected suppliers as well as certified analytical laboratories and materials experts.
- Careful planning of scheduled shutdowns and overhauls from the Halle-Lochau site is intended to ensure safe plant operation and to optimise deployment and response times.

New commissioning team for sewage sludge incineration plants

Hand in hand with WTEB, a new commissioning team has been assembled within WTE's business division. It consists of both junior staff and highly experienced commissioning engineers, boiler operators, plant operators, mechanics, electricians, and electrical technicians.

The commissioning team forms the core of the workforce responsible for supporting the plants during the warranty phase and for planning, organising, and carrying out maintenance measures — from inspection and maintenance to overhauls — both in the plants built by WTE and in those operated by our customers.

> „These two innovations will sustainably strengthen WTE in the operation and operational management of sewage sludge incineration plants in the long term."
>
> 
>
> Alfred Smyk,
> WTE Wassertechnik GmbH,
> Business Unit Operations,
> Operations Management

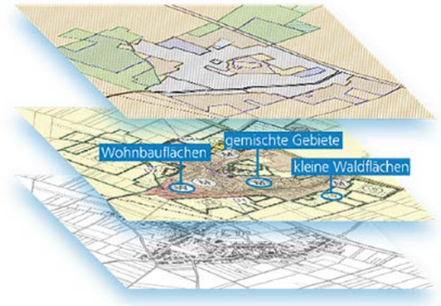
Targeted expansion of competencies
The WTE Group now has the technical and organisational expertise to take over the warranty management of the sewage sludge incineration plant in Hanover even after the completion of the construction phase. This expertise has been systematically built up and continuously developed over recent years, with a particular focus on structured service and maintenance management systems of complex thermal disposal plants.

In addition, a maintenance contract for Berliner Wasserbetriebe is currently in the tender phase. At the same time, WTE is conducting negotiations with Berliner Wasserbetriebe regarding a maintenance management contract for the Berlin-Waßmannsdorf Sewage Sludge Incineration Plant, structured as two consecutive two-year terms.

Reliable standards in construction design

The WTE Group supports towns and municipalities in collecting, processing and publishing all relevant construction and design data in compliance with the XPlanung standard. The aim is to create a legally compliant, uniform and sustainable data foundation for municipal planning and approval processes.

Integrating the XPlanung standard into existing administration and technical processes significantly helps to increase efficiency, data quality and transparency, and also forms the basis for more in-depth digitisation and automation projects.



XPlan-compliant data entry

Land Use Plan

ALKIS-Data

ALKIS = Official Real Estate Cadastre Information System

Standard for maximum compatibility
XPlanung is a standardised, XML-based data format that applies across Germany. It enables loss-less transfer of urban land-use plans, landscape plans and land development plans between different geographic information systems. The standard ensures that all information related to design is available in a uniform format that can be used across different systems.
Use of XPlanung/XPlanGML (Geography Markup Language) has been mandatory for all procedures and applications at national and federal state level since 2023. Municipalities are therefore faced with the challenge of transferring existing analogue and heterogeneous digital databases over to structured, valid and standard-compliant data records.

Relevant data – an overview
The WTE Group supports municipal partners in the preparation and digitisation of the following data records in particular:
- Land-use plans (FNP)
- Urban development plans (B plans)
- Property and land register information
- Information on technical and social infrastructure
- Regulations and planning-law provisions
- Environment-related information
- Information on involved stakeholders and responsible parties

Automation and digitisation taken one step further

Building on its extensive experience in optimising complex operation and administration processes as a basis, the WTE Group provides its customers with support beyond simple compliance with standards. The aim is to permanently simplify the collection, validation and further processing of design data.

Key information from documents, construction drawings and as-built plans is extracted in a structured way, assigned unique references and made usable across systems. Vectorial geodata is comprehensively checked for geometric accuracy, overlaps and inconsistencies. Furthermore, data-based generation of features is possible on the basis of existing geometries to allow design variants and feasibilities to be analysed early on.

Project development and insights

Project in Saxony-Anhalt

The project in Saxony-Anhalt initially focused on the structured digitisation of existing urban land-use plans and the transfer of heterogeneous databases to an XPlanung-compliant data model. In close collaboration with the various stakeholders involved, existing processes were analysed and then standardised step by step.

Results and added value:
- Development of a consistent data foundation that can be compared across Germany
- Significant improvement in data quality and traceability
- Simplified provision of design data for technical authorities and external stakeholders
- Reduced manual workload for follow-up processes and plan amendments

This project showed in particular that it is crucial for the data to undergo structuring and quality management early on in order to ensure their long-term usability.

Project in North Rhine-Westphalia (NRW)

The NRW project focused on integration into existing administration and technical systems, in addition to XPlanung-compliant data collection. The aim was to go beyond merely collecting design data in accordance with specifications but also to actively make this data usable for digital design, inspection and participation processes.
Results and added value:
- Successful integration of XPlanung data into existing system landscapes
- Accelerated coordination and approval processes
- Improved transparency for internal and external participants
- Foundation for more in-depth digitisation and smart city approaches

In particular, the project highlighted the potential of standardised data as a strategic resource for modern municipalities.

Future potential of XPlanung

Our experience from the projects showed that XPlanung-compliant data collection not only fulfils regulatory requirements but also plays a crucial role in future-proof urban development and digital administration processes.

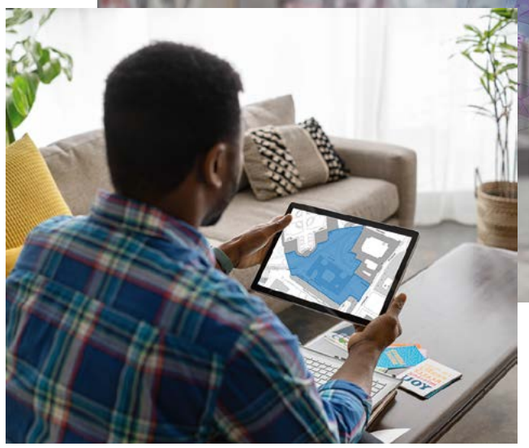
- Future-proof urban planning
  With uniform data models, complex scenarios can be simulated, ecological interactions can be taken into account and infrastructure can be designed to maximise resource efficiency.

- Smart city concepts
  Standardised design data form the foundation for integrated, data-based urban development and targeted revitalisation of individual urban districts.

- Further development and scaling
  XPlanung provides a robust framework for future technological extensions and potential application at international level.

> „Our support of XPlanung-compliant data collection in urban land-use planning has shown that standardised design data goes far beyond fulfilling official requirements. It creates measurable added value for the efficiency, transparency and future-proof nature of municipal processes.“

Eileen Stanik,
WTE Betriebsgesellschaft mbH,
Engineering Services



Innovations

By developing new process technologies and improving existing ones, we help to define the technical benchmarks in water management – while also contributing to a sustainable, closed-loop economy.

Our capacity for innovation is reflected not only in technological developments, however, but also in our modern collaborative ways of working. Through flexible project structures, close interdisciplinary collaboration and open dialogue, we create transparency, efficiency and design reliability for all parties involved. One example of this is our integrated project management (IPA): by involving all project partners early on, defining goals jointly and managing projects cooperatively, we promote innovation throughout the process – and not just in the product.

Utilisation and energy generation from wastewater

Umm Al Hayman Wastewater Treatment Plant (UAH), Kuwait

The Umm Al Hayman Wastewater Treatment Plant not only has the sole aim of purifying wastewater, but also to use the treated sewage effluent as a water resource. In addition to reusing the treated wastewater the biogas generated during sludge treatment is utilised for energy generation. The processed sewage sludge is also further reused as composting material. In this way, the plant contributes to harnessing water, energy, and raw materials as efficiently as possible within a circular system.

Technical Features for Sustainability

- The plant was designed and constructed in accordance with European and Kuwaiti technical standards.
- A data monitoring center automatically tracks and controls all processes.
- Energy consumption is minimised through hydraulically optimised plant design and energy-efficient aeration systems. Part of the energy demand is covered by combined heat and power plants (CHPs) that utilise the biogas generated from sludge digestion.
- Wastewater treatment is carried out primarily using biological processes, this largely avoids the need to use additional chemicals.

246 % Increase in wastewater pumping station capacity

An important component of the project is the modernised Egailah Wastewater Pumping Station. It collects wastewater from an extensive sewer network and transports it to the Umm Al Hayman Wastewater Treatment Plant. The pumping station, which is around 40 m deep, was comprehensively modernised, while continuous operation was maintained permanently. This made it possible to avoid costly new construction work while simultaneously reducing environmental risks.

In the near future, the wastewater will be pumped to the wastewater treatment plant through an approximately 42 km long pipeline system consisting of three parallel pressure pipelines. The modernisation has significantly increased the pumping station‘s flow rate – from 2.4 to 8.3 m^3 per second.

The current hydraulic capacity is equivalent to approximately 55 bathtub fillings per second.

The modernised system of the Egailah Pumping Station includes:

- 10 (8 operating + 2 reserve) lifting pumps
- 10 (8 operating + 2 reserve) transfer pumps
- An auxiliary pumping station with 6 (4 operating + 2 reserve) pumps

Several high-performance lifting and transfer pumps along with an additional auxiliary pumping station ensure that large volumes of wastewater are reliably transported over the long distance. Frequency converters automatically adjust the pump output to the current inflow, enabling energy-efficient operation.

Wastewater treatment and sewage sludge incineration plant Skopje

Skopje, the capital of North Macedonia, will require a new wastewater treatment plant in the near future to serve its steadily growing population. As the country seeks to join the EU, the plant needs to be set up in line with EU requirements as well as being highly efficient. The local client Vodovod i Kanalizacija Skopje (Skopje Water Supply and Wastewater Handling) has entrusted WTE with the implementation of this demanding project.

The major project in south-east Skopje was officially given the go-ahead in mid-2023. Construction has since commenced on a modern wastewater treatment plant with a connected mono-incineration plant for sewage sludge, covering an area of 13 hectares. The plant is designed for a total capacity of 650,000 people equivalent.

The design and construction phase is set to last three years, followed by two years of trial operation. During this period, the client's staff will be trained in operating the plant, so that they will be able to handle all processes independently.

Once completed, the plant will be one of Europe's most sustainable and technically advanced waste management facilities, setting a benchmark for responsible wastewater treatment and sewage sludge incineration in South-East Europe. To this end, the project is being implemented in full compliance with current European standards.

Environmental protection from the ground up

The Vardar River, which flows through the city of Skopje, has been heavily polluted for many years as the result of untreated wastewater entering from the urban area. Operation of the new wastewater treatment plant is intended to rectify this issue, as it will be capable of treating a good 90% of the municipal wastewater. Effective wastewater treatment will make a lasting improvement to the river's water quality and have a positive effect along the river's entire course.

> "The construction project in Skopje is a milestone for our company, particularly in terms of energy efficiency. The goals are ambitious, but realistic. We are therefore looking forward to seeing the project progress."

Dr.-Ing. Bojan Pelivano,
WTE Betriebsgesellschaft mbH,
Managing Director

Harmful gases that can form during the thermal treatment of sewage sludge are reliably neutralised in modern multi-stage flue gas cleaning systems, in compliance with the BAT standards of 2019. In this way, safe and environmentally friendly sewage sludge utilisation can be provided for the region – without impairing air quality.

BAT = best available techniques – term used in the European Industrial Emissions Directive to refer to the most advanced stage of development of activities and methods of operation relating to environmental protection

Neueste Entwicklungen und Ausblick

- Shortly after the building permit had been issued, concrete works began. All buildings are now under construction, with all activities specified precisely in the construction schedule.
- Installation of machinery in the wastewater treatment plant will begin in May 2026.
- The awarding of the contracts for machinery and electrical systems for the incineration plant is now 90% complete. Steel structure assembly for the incineration building is scheduled to begin in spring 2026.

Energy generation and nutrient recovery from wastewater

Over recent years, WTE has been able to show that using microbial fuel cells (MFCs) is a promising approach for generating energy and recovering nutrients in the course of wastewater treatment.

Microbial fuel cells – a specific type of bioelectrochemical system – are one of the latest developments in the water and energy sector and are considered a potentially relevant technological option with considerable technical and economic potential.

In addition to the expected nitrification process, we have identified a nitrogen elimination pathway that has not yet been explored: electrochemical ammonia stripping. This finding opens up new potential regarding the application and design of the technology, in particular for highly concentrated subflows such as sludge water.
Building on these findings, we have further intensified our research activities. The focus was on optimising membrane-less single-chamber MFCs with air cathode under conditions similar to those in real-life municipal wastewater treatment.

Increasing profitability with low-cost materials

Another key development goal was to improve profitability by using low-cost and widely available materials. In our Terracotta Study, we successfully used conventional terracotta pots as separators and combined them with carbon fleece electrodes.

The practical advantages of the enhanced reactor configuration include the following:

- Easier access to the cathodes
- Reduced scaling effects
- Minimisation of leaks
- Considerably lower material costs

Our results show that an impressive electrochemical performance can be achieved with these low-cost materials, which also form the basis for energy and nutrient recovery. Targeted nitrogen recovery is possible, for example as ammonium sulphate, which could potentially help to meet fertiliser demand.

Less oxygen, more power

We were able to show that external conditions have a significant influence on the efficiency of these systems, particularly the availability of dissolved oxygen as a terminal electron acceptor. We systematically varied the oxygen transfer rate – by using inexpensive terracotta separators of different thicknesses between anode and cathode, as well as by adjusting the concentration of oxygen in the air cathode chamber.
Our in-depth investigations clearly showed how sensitively the system responds to differences in operating conditions, and also how much potential it has for optimisation. If the chemical oxygen demand (COD) in the inflow drops below 300 mg/l, the electric power is reduced – an effect that provides important insight for targeted control in real-life operation.
By lowering the oxygen concentration in the air cathode to precisely 10 vol.%, however, we were able to significantly increase the performance of the cells, along with achieving higher current densities, stable voltage differences and operation in the optimal power range. The systems were especially efficient under these conditions and achieved higher power densities overall – in particular with improved oxygen transfer rates.

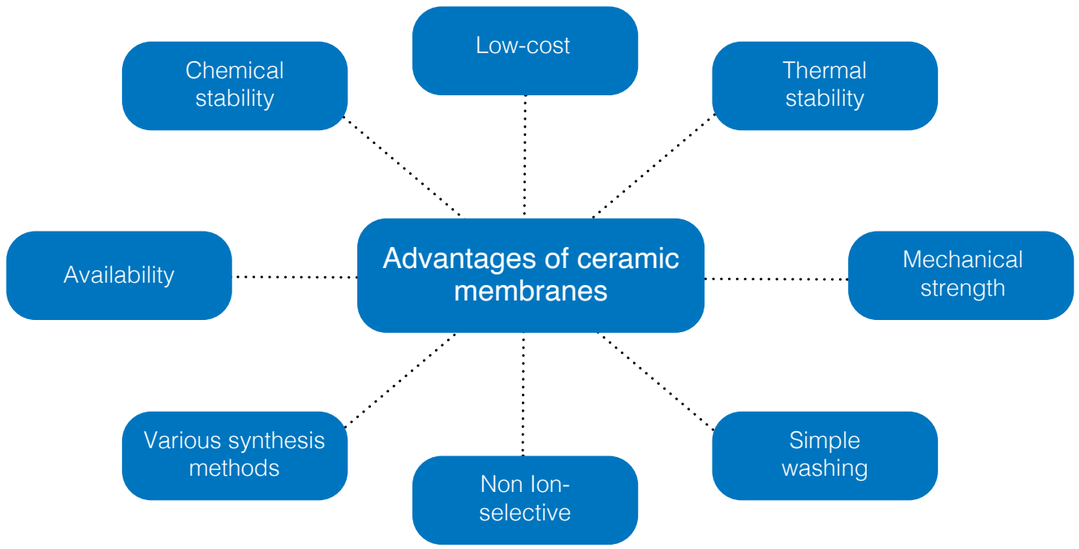
Smooth operation over the long term

The treatment of alkaline sludge water from digested sludge dewatering further confirmed the robustness of the concept. Regardless of the separator thickness, the system displayed stable and reproducible operating behaviour.

One particularly interesting finding was the system's long-term stability: over a period of more than 400 days, the cells operated reliably and required no maintenance. This emphasises the major potential of this technology for practical, economic use in municipal wastewater treatment.

Significant potential for energy efficiency and capacity increase

The pilot plant, which was developed at laboratory scale and tested with real wastewater, provided promising operational findings for upscaling. Integrating MFC technology into the sludge water flow would provide considerable potential: the energy consumption of a municipal wastewater treatment plant could be reduced by roughly one quarter and the load capacity of the activated sludge stage could be increased by up to 40% – with complete nitrogen elimination. Additional positive effects include a potential increase in biogas production and a reduction of direct and indirect greenhouse gas emissions.
Further research could focus on more extensive scaling of the system, its hydraulic integration into existing plant concepts and optimisation of the nitrogen recovery, which would establish bioelectric systems as an integral part of energy-efficient and resource-efficient wastewater treatment.



Sharing experience and expertise

Innovation comes from sharing expertise and experience. For this reason, WTE works in close collaboration with universities, associations, industrial partners and water sector networks. This allows us to combine years of practical experience with scientific expertise and develop solution strategies that are both scientifically sound and technically feasible. Our aim is not only to research new processes but also to implement them in practice – for safe and sustainable water and wastewater infrastructure, now and in the future.

- Universities and research organisations
- Associations
- Industry
- Water sector networks

Actively involved in specialist committees and conferences
WTE actively contributes its technical expertise to national and international networks.

In 2024, WTE was a sponsor and technical contributor at the IWA Leading Edge Conference on Water and Wastewater Technologies (LET) in Essen. In addition to giving a welcome speech, our experts set up two interactive workshops and presented the latest developments from practical applications. Our poster presentation on nitrate removal in drinking water treatment was awarded the conference's poster prize.

WTE also participated in the 2025 Aachen Conference on Water Technology, one of the largest German-language platforms for exchange between research and practice. We presented our in-house NERO method for biological denitrification, both in a specialist lecture and at our stand.

Another key aspect of our commitment to collaboration is our continuous committee work, in particular for the German Association for Water, Wastewater and Waste (DWA). Our involvement includes the further development of the DWA Set of Rules and collaboration on technical standards at national and international level.

> „By collaborating with research organisations and specialist associations, we promote innovation and sustainable solutions in water management."
>
> 
>
> Dr.-Ing. Leon Steuernagel,
> WTE Wassertechnik GmbH,
> Head of Business Division
> Tendering

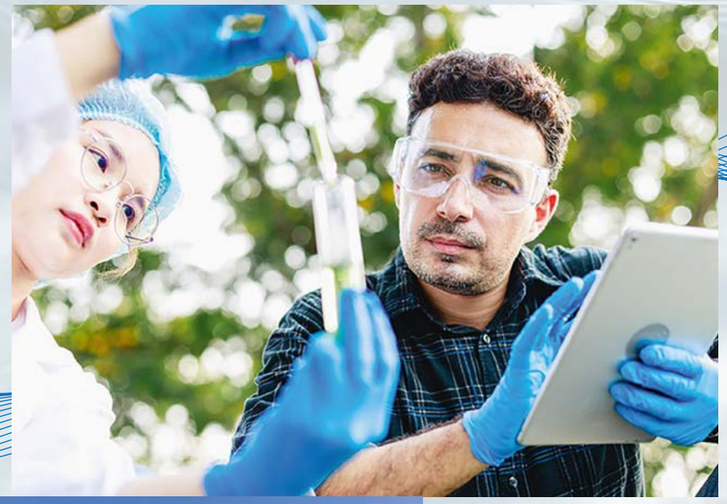
DWA = German Association for Water, Wastewater and Waste (Deutsche Vereinigung für Wasserwirtschaft, Abwasser und Abfall e. V.)
EWA = European Water Association e. V.
GWP = German Water Partnership e. V.
dex = German Experts Association for Environmental Technology and Infrastructure (Deutscher Expertenrat für Umwelttechnik und Infrastruktur e. V.)

iwa-let.org

More about NERO
see pages 20/21

Research with direct practical relevance
Our research projects are put together in close collaboration with universities, research organisations and small and medium-sized companies operating in the water sector. We also collaborate with municipalities, for example the city of Groß-Umstadt in the context of our KonBioN research project. The aim of this project is the practical (further) development of water and wastewater treatment processes and also of analytical measuring equipment and software for automating and controlling wastewater treatment plants.

We publish the latest findings of our research projects regularly in international peer-reviewed journals such as Water Research and Water Science & Technology. In this way, we help to promote the international exchange of knowledge and the continuous development of the sector.



IPA certification

The first successful collaboration between WTE and STRABAG involved organising and participating in a two-day certification workshop on integrated project management (IPA) – a procedure that is new in Germany. The workshop had a real impact: our working group – comprising WTE, STRABAG and the worldwide supplier of engineering and consultancy services WSP – is now certified as IPA-ready. As a result, we were able to take part in a call for tenders for a project in Switzerland that involves using this special method. Furthermore, the workshop gave us the perfect opportunity to develop and discover new ways to manage projects – and even tap into additional markets.

Successful together

Integrated project management is a method for implementing construction projects based on cooperation and collaboration. All parties involved (client, general contractor, planners, etc.) work together in accordance with the best for project principle. Key features include a culture based on solution-oriented discussion and addressing mistakes without judgement, as well as working relationships built on mutual respect and joint decision-making.
All parties bear the costs and risks jointly, on the basis of a multi-party agreement, and even the project earnings are shared equally between all companies. The team members for the project are chosen jointly by all partners. An external/neutral IPA technical advisor is often also provided.

”

We started out as a small engineering office and are now a global player. Our team culture is still largely shaped by our beginnings, however. We know, value and support one another – with the shared goal of managing projects in the best possible way. Our culture of togetherness also extends to our dealings with our partners and customers.“

Dr.-Ing. Bojan Pelivano,
WTE Betriebsgesellschaft mbH,
Managing Director

Internationally, this model has been in use for over 20 years, while in Germany IPA has been applied in the management of construction projects for roughly two years and is becoming increasingly widespread. The method is used most often in more complex public-sector projects. It differs from conventional project management in many ways and therefore presents all project partners with new challenges.

New opportunities and alliances

The workshop was conducted by qualified IPA experts at the WTE headquarters in Essen. One of the key points of the workshop was an assessment centre process spanning several hours. A standard case from construction practice was simulated in detail with all the typical challenges.
The eight participants from WTE, STRABAG and WSP had exactly one hour to familiarise themselves with the fictitious project, form a team and come up with an adequate solution. They then presented their solution to the training team and took part in various role plays, with the trainers taking on different roles and testing the IPA teams and their solutions in realistic scenarios.
As part of the certificate ceremony at the end of the workshop, the participants were praised for their good structuring skills and balanced teamwork.

”

The values of cooperation and collaboration align perfectly with our corporate culture. IPA projects give us the opportunity to develop these values to an even greater extent. As a result, I am delighted to have received the certificate.“

Katarzyna Pater,
WTE Betriebsgesellschaft mbH,
Head of Legal Department,
International Operations Management

Ethics and integrity

Our aim is to act ethically and proactively in accordance with our Code of Conduct. We are committed to avoiding any breaches of laws and guidelines at all times.

Business Compliance

Compliance is a high priority in the STRABAG Group, to which WTE belongs. As a globally operating company, STRABAG is aware of its special responsibility towards business partners, customers and clients as well as towards its employees. Therefore, STRABAG is characterised by consistently responsible, objective, and ethically impeccable conduct.

To ensure compliance across the group, STRABAG has implemented an effective business compliance management system that is continuously being further developed. Its purpose is to prevent legal violations as well as the material and immaterial damage that may result from them—and to safeguard STRABAG's strong reputation as a business partner, contractor, and employer.

ISO Certification for Business Compliance

As the first Austrian globally operating group, STRABAG obtained comprehensive certification in accordance with ISO 37001 (Anti-Corruption Management Systems) and ISO 37301 (Compliance Management System). The certification applies to all fully consolidated companies within the Group.

Code of Conduct

The conduct of all employees within the STRABAG Group is fundamentally guided by the company's core values. In addition, a Code of Conduct has been developed as the central document of corporate ethics. It summarises the key principles of integrity in order to maintain and further strengthen the trust of stakeholders. These principles serve as ethical guidance and support for decision-making for all employees. Business partners of the STRABAG Group are also expected to commit to these values and principles.

Supplier Code of Conduct

STRABAG is committed to the ten principles of the United Nations Global Compact. Compliance with these fundamental principles in the areas of human rights, labor conditions, environmental protection, and anti-corruption is also expected from its suppliers and subcontractors. Business partners not only contribute to the economic success of the STRABAG Group, but their actions and behaviour also significantly influence the company's reputation among its stakeholders. This basic framework of ethical conduct is summarised in STRABAG's Supplier Code of Conduct.

Employees Awareness

Compliance violations by individuals can jeopardise the entire corporation and destroy the successful work of 86,000 people. Therefore, beyond the Code of Conduct, STRABAG places strong emphasis on comprehensive awareness-building among the entire management and all employees. Relevant measures include mandatory business compliance training and e-learning programs, as well as creative and awareness-raising campaigns.

Whistleblower Platform

STRABAG has established an anonymous whistleblower platform. Reports of (suspected) violations of business compliance, human rights, anti-discrimination policies, working conditions, environmental and occupational safety, and data protection by STRABAG and/or its employees can and should be submitted via this platform. Through the initiative of whistleblowers, STRABAG can follow up on grievances, initiate investigations, and take appropriate measures.

For more about the project:
see pages 36/37.

equator-principles.com

Sustainable financing

All project partners that were involved in the construction of the Umm Al Hayman Wastewater Treatment Plant committed to observing the ‘Equator Principles’.

Standards for people and the environment
The Equator Principles are an internationally recognised set of rules adopted by banks and export-credit insurers. They define strict environmental protection and social standards for the implementation of projects. In Kuwait, these standards were implemented from the outset during the construction phase. Compliance with these specifications is regularly checked by an external advisor reporting directly to the participating banks.

For the implementation of the project in Umm Al Hayman, all Group-wide standards on human rights, ethics and integrity also applied.

Sustainable procurement and the German Supply Chain Act

As a general contractor, we make a significant contribution to reliable waste disposal and environmental protection when we construct our plants. Successful project execution relies on the quality of our entire supply chain. Accordingly, we develop and realise groundbreaking environmental solutions and use resources as efficiently as possible on behalf of our customers – together with our suppliers.

We believe the procurement should be based on a cooperative approach, fair business practices and open dialogue. To achieve this, we act in accordance with the following principles:

- Profitability
- Free and fair competition
- Equal treatment of all bidders
- Confidentiality in business dealings
- Transparency and documentation of results
- Protection of environment, conservation of resources
- Social responsibility
- Respect for human rights and work safety
- Sustainability across the supply chain

Centralised procurement, common goals
The operative and strategic procurement of materials, works and services for all WTE Group projects is managed centrally by WTE Wassertechnik GmbH. This means that communication channels can be pooled together and decision-making processes can be sped up. At the same time, we ensure that all our projects are bound by the same standards for responsible, economic and sustainable procurement – for example using energy-efficient technology and durable components.

Our requirements for our suppliers
The supplier companies that work with us also play a role in the sustainable and energy-efficient set-up and long-term operation of our plants. Accordingly, we give preference to companies that use resources efficiently in the production and transport of their products, that promote recycling and that display high levels of innovation, particularly when it comes to tackling new environmental challenges. Other important criteria include qualified processes and technologies, as well as transparency and stability across the entire supply chain, starting with the sub-suppliers.

Being integrated into the STRABAG Group has taken the supply chain standards of the WTE Group to a new level. With the Group-wide system for compliance with the German Supply Chain Act (LkSG), we guarantee not only clean water but also clean production pathways.

”

A key element in our sustainable procurement is our long-term partnerships with suppliers that share our standards for environmental sustainability and durability.“

Daniel Wessels,
WTE Wassertechnik GmbH,
Head of Procurement

Customer orientation

Our strong Customer orientation enables us to realise plants that perfectly meet individual requirements and local conditions. This allows us to support our customers to achieve their sustainability goals.

Custom solutions

Modernisation and extension of the Stupe Wastewater Treatment Plant in Split, Croatia

The assignment is part of a project for improving the water-related and municipal infrastructure of the Split-Solin agglomeration. It is one of the largest wastewater treatment contracts to be awarded in Croatia in recent years. Once it is complete, the central wastewater treatment plant will purify the wastewater from the Split, Solin, Podstrana, Klis and Dugopolje catchment area as well as sewage sludge coming from the Divulje and Čiovo wastewater treatment plants. Treating these large volumes of water in accordance with high quality standards will allow us to improve the ecological condition of the Adriatic Sea in the area of the group of Croatian islands.

275,000 PE
for wastewater treatment

400,000 PE
for sludge treatment

> 60,000,000 l
wastewater treated per day (depending on season)

Long-term operation of the Zell am See Wastewater Treatment Plant, Austria

Under an operational management agreement, WTE is responsible for the entire operation of the Zell am See Wastewater Treatment Plant – including its own SBR plant for the pretreatment of industrial wastewater. This 25-year operational management contract covers not only technical responsibility but also compliance with all regulatory requirements and continuous optimisation of plant operation. This means that we play an active role in the sustainable water management of a region that is important for tourism and ecology.

77,000 PE
for wastewater treatment

16,450 m³
dry weather flow per day

> 16,000,000 l
wastewater treated per day

SBR technology for efficient wastewater treatment

In the **sequencing batch reactor** (SBR) industrial wastewater is treated in one single reactor in a series of consecutive steps: filling, aeration, settling, clear water decanting and sludge return. This is an efficient method for the targeted pretreatment of heavily polluted wastewater before it is fed to the main treatment plant.

Find out more about our projects:
wte.de/en/references

Quality and reliability

Our aim is to ensure the highest possible level of reliability and planability for our customers.

Our plants are designed to maximise service life, operational reliability (plant availability) and minimise maintenance requirements. We are not tied to any particular manufacturer or partner – WTE operates and plans with complete independence. This gives us a free hand in selecting technical components and allows us to decide for ourselves which ones are best suited to our clients' projects.

Quality assurance concept

For WTE, quality is much more than a downstream test criterion. It is the fundamental guiding principle behind everything we do. We strive to ensure that every plant that we are entrusted with can be commissioned on time, within the set budget and in full compliance with all legal and technical requirements.
To ensure that this promise we make to our customers is upheld, worldwide and without exception, the work we do is based on a fully certified quality management system. An integral part of this system is our established quality assurance concept, which serves as a structured framework for action that helps us to minimise risks effectively and to ensure full implementation of the strictest performance standards.

The WTE quality assurance concept is based on **four central pillars**:

1. Strategic supplier management

An important factor in the premium quality of our plants is the reliability and performance of our suppliers. For this reason, we see proactive and systematic supplier management not as an administrative task, but instead as a strategic instrument in our quality assurance. It forms the foundation for procuring high-quality components on schedule and ensuring that our own high standards are followed across the entire value chain.
Our collaboration with suppliers is monitored by factory checks and the involvement of independent inspection bodies such as TÜV Audits are carried out to continuously improve our supplier relationships and exchange information with strategic suppliers.

2. Thorough document control

From the initial project idea to final acceptance, we ensure complete transparency and traceability. This includes the systematic review and assessment of all project documents, the process-oriented compiling of checklists, the preparation of preliminary documentation during trial operation and the final validation and approval of the overall documentation status.

3. Multi-stage quality control plan

Our quality specifications are operationalised by means of a binding control plan. We define minimum requirements and critical procedures, obtain component-specific inspection test plans (ITPs) from suppliers and check the suitability and conformity of all components – using the services of accredited inspection bodies as necessary.

4. Quality integrated into every project life cycle

The quality of our services is largely determined by the precision and reliability of our project management. For this reason, we use a standardised flow management system that serves as an comprehensive framework, structuring and integrating all project phases – from the bid process and the execution process through to the operation process.
– Standardised milestones and clear responsibilities
– Binding decision-making supported by checklists
– Comprehensive documentation and continuous improvement
This systematic approach ensures that quality and safety standards are not only defined but also consistently applied and monitored across the entire course of the project.

This conceptual framework has proved its worth over a number of years in major national and international projects. Predictive quality assurance at power plant level enables plants to be commissioned without any significant delays.

Dynamic development in a continuous cycle
Quality at WTE is in a process of **continuous evolution:** we constantly scrutinise our existing quality assurance measures and systems and improve on them. This dynamic further development is supported by the systematic evaluation of our project experience and regular audits.
This cyclical process of evaluation and optimisation allows us to constantly set **new internal standards**, making our workflows more robust and efficient.
This provides a highly flexible but extremely stable foundation for management. It ensures that our solutions can handle not only the project requirements of today but also the more complex requirements of tomorrow and allows us to keep setting new standards in our industry.

"The outstanding quality of our services forms the basis for lasting trust and appreciation on the part of our international customers."

Osman Göcer,
WTE Wassertechnik GmbH,
Responsible for Quality and Health and Safety Management

Maintenance and repair with WARIOS|cmms

Maintenance and repair is essential for ensuring that a plant operates as intended over the long term. With WARIOS|cmms, we have developed an in-house computerised maintenance management system that combines all maintenance and repair processes in one software solution, down to the finest detail. It supports the professional maintenance of various types of plants and therefore helps to sustainably increase their longevity.

Complete history of all work performed and key plant data
All information is easily accessible at any time, serving as a valuable basis for future decisions.

Simple design and assignment of tasks to optimise workflows
The software provides a clear overview of maintenance requirements and promotes the efficient use of resources.

Plant knowledge pooled and made available to all authorised parties
This not only enables the sharing of experience across the entire team and promotes communication between team members but also makes things easier for new colleagues. It also means that valuable expertise can be retained across generations.

Digital processing of all tasks and reduction of tedious paper documentation
This allows everyone involved to focus on the key aspects of their work.

Digital logging of all relevant information
Our software provides a clear overview of the state of the plants. When plant components need maintenance, this can be recognised early on, optimising component service life.

Intuitive app for mobile processing of tasks
This allows the team to work flexibly – even in areas with no internet access. This reduces response time and improves efficiency.

Additional key features of WARIOS|cmms
- Automatic creation of maintenance assignments thanks to coupling with SCADA systems
- Management and allocation of assignments in accordance with available resources
- Integration of geo-information systems
- Access to manufacturer documentation
- Statistical evaluation at detail level
- Interfaces with ERP and plant engineering systems

WARIOS|cmms can be used to plan the design, organisation and implementation of maintenance work from a central location – even across multiple plants and with the incorporation of third parties, such as subcontractors. From the long-term scheduling of intervals and the precise planning of resources to the exact documentation and billing of work performed by individual service teams, our system covers all the essential requirements of reliable and efficient maintenance and repair management.

SCADA = Supervisory Control and Data Acquisition, here control centre for sewage treatment operations

ERP = Enterprise Resource Planning

"WARIOSIcmms is an all-in-one solution that combines all sub-areas of maintenance and servicing activities in a single software solution – from design through execution to documentation."

Alexander Staedtke,
WTE Wassertechnik GmbH,
Head of IT Department

Integrated Management System

The WTE Group's international environmental project business requires decisions with far-reaching impact to be made on a daily basis – from Group level right down to the individual systems. To make the individual projects manageable and enable targeted decisions, we have established a group-wide integrated management system (IMS) as a standard. This standardised system provides employees and customers with reliability in their work together.

The IMS helps us to streamline our workflows precisely and to achieve maximum efficiency even in international projects. As a result, we are able to complete projects more quickly, with consistently high quality – which directly benefits our customers and project partners.

Integrated approach
We have all of our processes certified, from acquisition and quotations to design, construction and operation.

Transparency meets efficiency
The entire management system is designed to be well-organised, with clear, streamlined workflows. Information, communication and documentation play an essential role in all processes.

International applicability
Selected subsidiaries and branches are integrated into the WTE Group's IMS. The concept acts as an international standard that enables us to work successfully with each other and with our customers.

System in development
Our IMS is not a complete, finished project. It is modified and updated regularly. This ensures that the defined specifications for processes and standards are consistently up to date and relevant.

Independent assessment of our management system

To ensure that we are living up to our commitment to high standards at all times, we have our systems audited and assessed on a regular basis. Internal and external audits are performed to verify our compliance with international quality, environment and energy management standards and our observance of relevant occupational health and safety regulations.

Thanks to these independent audits, our partners can be sure that we provide all services in accordance with recognised national and international standards. Our services are always in line with the industry's best practices and the local legal regulations – for successful projects the world over.

Successful external audits confirm our management skills

External confirmation of our high company standards is a recurring theme in 2025 and 2026. In 2025, WTE was successfully recertified by DEKRA in accordance with ISO 9001 (quality), ISO 14001 (environment), ISO 50001 (energy) and ISO 45001 (occupational health and safety) – once again without a single non-conformity.
Building on this success, WTE underwent an additional demanding external audit in February 2026 with its Achilles inspection. This audit is specifically aimed at qualification and approval for projects in the demanding UK market. The independent audit included a detailed on-site assessment of our construction site for the Munich sewage sludge incineration plant project. This practical inspection not only confirmed our process reliability but also certified our management approval for UK projects – and we yet again achieved outstanding results with not a single non-conformity.
Both independent inspections offer compelling proof that our management systems are not only defined but also that we put them into practice consistently in our day-to-day work. This confirmation from DEKRA and Achilles underscores our professional positioning and our compliance with the highest international standards with regard to quality, environment, energy, occupational health and safety and the specific supplier requirements of the UK market.

Using environmental and energy management systems

Selected sites are certified in accordance with an environmental and energy management system. Our objective is to steadily increase the environmental and energy performance of these sites by continuously improving workflows and processes.

The following sites have been certified in accordance with our environmental management system (ENV) / energy management system (EN):

Sites	ENV	EN
WTE Essen	X	X
WTEB Hecklingen	X	X
Drinking water and wastewater disposal plant Windeck	X	X
Wastewater treatment plant Anthoupolis with membrane technology	X	
WTEB operational site Halle-Lochau	X	
WTEB operational site Walkenried		X
WAMS Buckow		X

Climate protection and energy self-sufficiency – hand in hand

With its professional wastewater treatment on site and the provision of top quality drinking water, the WTE Group is actively putting environmental protection into practice. We design our plants with the aim of achieving the highest possible level of energy self-sufficiency by using renewable energy sources.

As a result, our environmental and energy management are directly interconnected and supplement each other – preventing resource waste and lowering ongoing costs in plant operation. This means that our company environmental management and energy management benefit both our customers and the climate.

"The certifications create transparency in the workflows and highlight opportunities for optimisation. Continuous optimisation of our plants' efficiency is something we take very seriously – perfectly in line with our commitment to continuous improvement."

Nina Hustadt,
WTE Wassertechnik GmbH,
Responsible for Environmental and Energy Management

Partnerships

Our work with municipalities and with STRABAG SE, to which WTE belongs, gives us insight into the current requirements in water management as well as valuable expertise – both of which are important tools when it comes to achieving our focused sustainability goals.

TEAMCONCEPT® partnering model

For successful collaboration in construction projects, WTE uses STRABAG SE's established partnering model TEAMCONCEPT®, which takes into account the advantages for all parties involved in the project. Participants are integrated into project workflows as early on as possible, to create time, cost and quality advantages and exploit optimisation potential as effectively as possible.

By involving all project participants at an early stage, the partnering model not only saves time and money but also supports sustainable solutions across the entire life cycle of the plant.

TEAMCONCEPT® is based on two phases of cooperative construction:

1 Preconstruction-Phase

Agreement on objectives and values regarding:
- Team culture
- Cooperation mechanisms

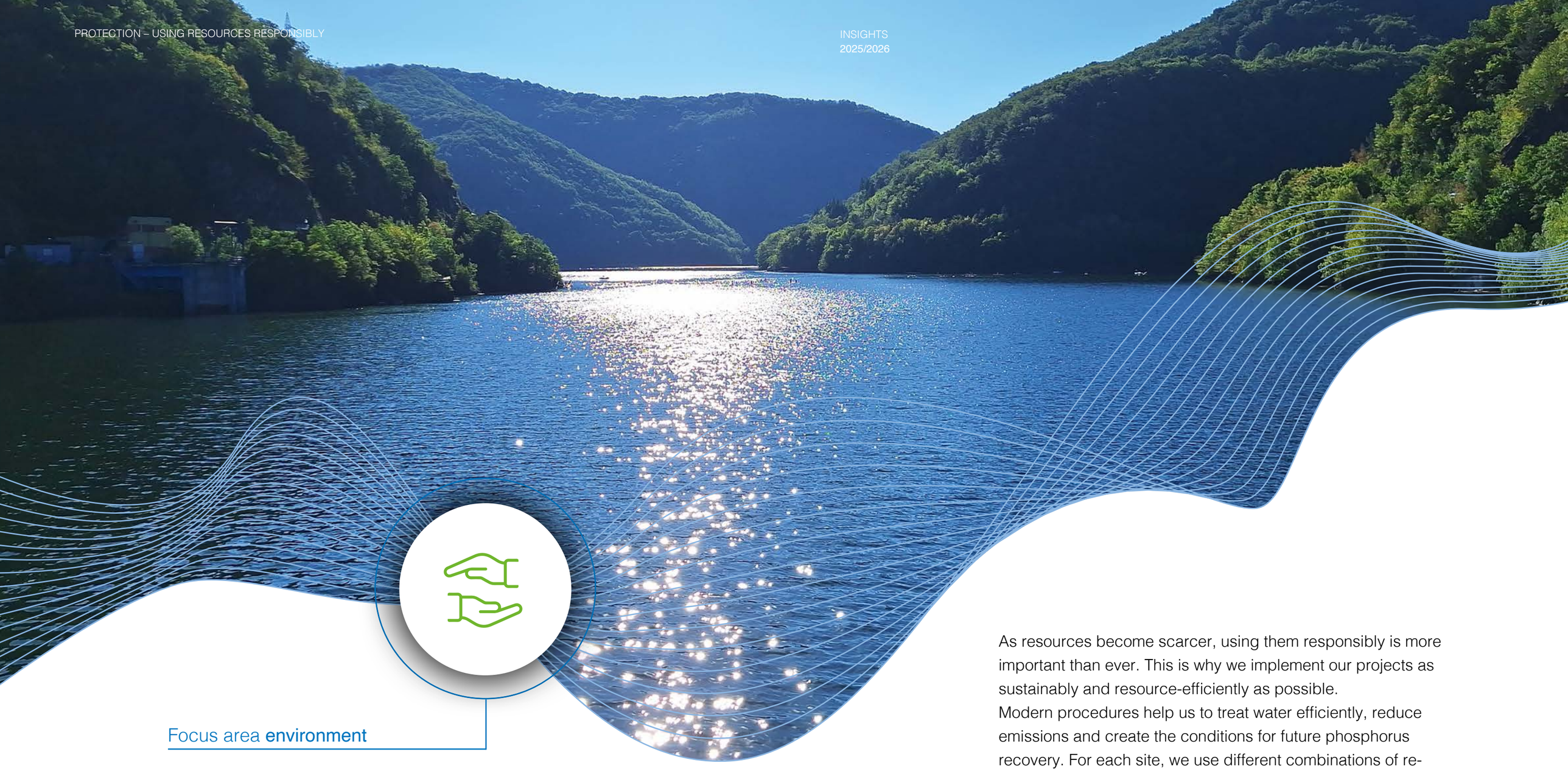
Conceptual design → Conclusion/ preliminary → Cost estimation and optimisation → Definition of the scope of work → Agreed final offer

optional: Termination of contract

2 Construction-Phase

Continuation of objectives and values

Conclusion/ Construction → Construction design → Construction works → Completion and handover → Final meeting



Focus area **environment**

Protection –
Using resources responsibly

As resources become scarcer, using them responsibly is more important than ever. This is why we implement our projects as sustainably and resource-efficiently as possible.
Modern procedures help us to treat water efficiently, reduce emissions and create the conditions for future phosphorus recovery. For each site, we use different combinations of renewable energy sources to maximise energy self-sufficiency. We also apply targeted optimisations to improve the carbon footprint of our plants – benefiting both our customers and the environment.

Key topics:
– Resources and resource cycle
– Energy efficiency
– Climate-relevant emissions
– Operating materials

Resource and material cycle

We design our plants with the goal of using wastewater and sewage sludge as sources of energy, raw materials, and water, and returning these resources back into the circular system.

Sustainable closed-loop systems

For many years, the WTE Group has actively promoted the idea of using the resources available on our planet as effectively and as sustainably as possible. This covers both conscientious use and the professional treatment and recovery of valuable resources.

We design our plants with the aim of recovering substances from the wastewater and sewage sludge that can then be returned to nature. In doing so, we are playing our part in creating a genuine resource cycle.

Umm Al Hayman, Kuwait
Our newly constructed plant in Umm Al Hayman has laid the foundation for reusing multiple resources in the region after treatment:

– **Purified wastewater:**
Because of its quality, the treated wastewater (treated sewage effluent – TSE) is ideally suited for the irrigation of gardens, nurseries and public parks, on golf courses, for agriculture and for use in industrial processes. The wastewater treated in the plant (currently generated by 1.7 million people) is stored in specially designed main and auxiliary reservoirs. These reservoirs have a total capacity of roughly 320,000 m³.

A monitoring centre with laboratory, located at the main reservoir, secures the safety and purity of the water. The process water can be supplied to end customers by means of a newly constructed pipeline network covering a total length of approximately 450 km – closing the water cycle.

– **Biogas**
The gas obtained as a by-product of the fermentation process is used in high-efficiency combined heat and power (CHPs) plants. This makes it possible to cover the majority of the electrical and thermal energy that the plant needs for operation.

> „Creating and preserving a true water cycle is of fundamental importance for us and the entire ecosystem. We are proud that so many of our plants are setting new standards in this field."
>
> 
>
> Torsten Hentschel,
> WTE Wassertechnik GmbH,
> Head of Process Engineering

– **Sludge**
At the local plant, sludge is treated for re-use. The plant uses established procedures like microflotation followed by digestion. The treated sludge is then composted.

After this treatment, which is almost fully automated, the composted sludge can be used as class A fertiliser in agriculture. Instead of generating waste, the plant thus produces valuable resources that can be returned to the resource cycle thanks to WTE.

39	> 50.00 m³	Approx. 120,000 t	70,000 t
strategic and secondary reservoirs	digestion tower volume	wet sludge processed per year	fertiliser produced per year

In Umm Al Hayman, both the water channel and the sludge channel are designed to produce usable resources at the end of the treatment process. In future projects, we plan to build on what we have learnt from this project.

Recognised achievements
Our Umm Al Hayman project has gained international recognition and has received numerous awards. A selection of these awards is presented below:

– **Global Water Summit**
The project came second in the category Wastewater Project of the Year. This award recognises pioneering achievements in water, wastewater, technology and desalination and highlights initiatives that drive our industry forward and help to create a sustainable future in the water sector. The Global Water Summit brings together important players in the water sector to discuss future developments and projects.

– **Asian Water Awards**
At the prestigious Asian Water Awards in Singapore, WTE's project took first place in two categories: Water Company Excellence Award – Kuwait and Sustainable Water Infrastructure Award – Kuwait. These awards acknowledge that in Umm Al Hayman has set new standards in sustainability, water recycling and environmental protection. Particular praise was given to the concept of closing the water cycle, which is especially important in a country with low rainfall like Kuwait.

– **MEED Projects Awards**
At an official award ceremony in Dubai, Umm Al Hayman was named Water Treatment Project of the Year. The project also received the coveted MEED Project Award of the Year. These awards acknowledge outstanding engineering and construction achievements in the Middle East and North Africa region that meet the highest standards in technology, design and project implementation and set new benchmarks for the sector as a whole.

Umm Al Hayman is now one of the largest projects in the world for treating wastewater and supplying the sectors of agriculture and industry with process water that has been treated to the highest standards.

Use of flue gas waste heat in Berlin-Waßmannsdorf

We are currently setting up a new sewage sludge utilisation plant at the site of the wastewater treatment plant Waßmannsdorf for Berliner Wasserbetriebe (BWB). Once it is in operation, the site will be able to utilise all of the district's sewage sludge independently. At present, large residual amounts of sludge still have to be incinerated externally due to insufficient local incineration capacity.

The thermal sewage sludge utilisation plant Berlin-Waßmannsdorf is also designed to be energy self-sufficient: the flue gases generated in the incineration of sewage sludge form the basis for the plant's integrated water-steam cycle and the energy conversion processes that are coupled to it:

© Berliner Wasserbetriebe

> "With these and numerous other measures, we enable our municipal clients to protect the environment over the long term."

Jörg Köring,
WTE Wassertechnik GmbH,
Head of Business Division
Technology / Design

- Optimised drying of the sewage sludge
- More efficient use of the energy potential
- Electricity generation via turbine systems
- Coverage of most of the plant's energy requirements
- Use of surplus energy for plant operation
- Heat supply to the local district heating network

Once work has been completed, Berlin will have a large-scale, future-proof plant for disposing of sewage sludge that is largely energy self-sufficient and that makes a significant contribution to the local district heating supply.

Sustainability concept for flue gas cleaning

For the Berlin-Waßmannsdorf Sewage Sludge Incineration Plant, modern concepts are used for efficient flue gas cleaning:

- Multi-stage flue gas cleaning systems ensure compliance with all legal emission prevention requirements.
- The waste heat generated by incineration is used to produce electricity.

Recent milestones

- **Topping-out ceremony**
  With the shell structure and roof construction nearly complete, WTE thanked the entire construction site team with a topping-out ceremony. The traditional topping-out wreath was placed in front of the centrifuge and delivery building at a height of 30 metres.
- **Chimney installation**
  The chimney was delivered in two parts and mounted in a matter of hours. With a height of 42 m, it towers over all the other buildings on the premises and shapes the overall appearance of the plant as a new defining feature.
- **Successful boiler pressure test**
  As part of this important safety-related inspection, the plant's boiler was subjected to pressure levels of 174 bar – 2.5 times its operating pressure.

Irrigation water for agriculture in Cyprus

On the island of Cyprus, six wastewater treatment plants are currently in operation in which the WTE Group has played, or continues to play, a leading role. We provided the design, construction and/or operational management for the various plants.
For example, WTE is currently operating the Anthoupolis and New Nicosia plants. For both plants, the operational management contracts have been extended 10 or 15 years beyond the originally planned period, underpinning the client's confidence in the quality of our work. In addition to the general objective of designing plants that are powerful and efficient, these projects focused on responsible use of water, which is an important resource on the island.

> „We are using German wastewater technology and long-term operational management to support the development of infrastructure on Cyprus for a resource-efficient emerging economy."

Stefan Geurts,
WTE Wassertechnik GmbH,
Head of Tendering Department,
Wastewater/Water

Sites	Plant capacity (PE)	Wastewater treated per day (m³)
Anthoupolis	100,000	13,000
Famagusta	31,465	4,100
Larnaca	100,000	18,000
Limassol-Moni	272,000	40,000
Morphou	10,750	1,347
New Nicosia	269,115	30,000

The plants are designed to not only use the latest wastewater purification processes but also to be expanded repeatedly in the future with little effort. This ensures that it will be possible to treat larger amounts of wastewater in the long term to the highest standards in future in the individual regions.

Solution for local water shortages
After treatment, the purified wastewater undergoes extensive quality controls and is then fed into reservoirs from where it can be used directly in agricultural irrigation. The treated water from the two Anthoupolis and New Nicosia plants alone is enough to irrigate more than 1,000 hectares of land.
The daily treatment of several million litres of water helps to make efficient use of Cyprus's scarce water resources and prevent excessive sourcing from the groundwater – an important contribution to local water protection. At the same time, the plants generate several thousand tonnes of dry matter every year that is used as a natural fertiliser in agriculture.

More than 30 billion litres of wastewater treated per year

Professional utilisation of sewage sludge

Germany's Sewage Sludge and Fertiliser Ordinance was amended in 2017, introducing stricter limits for nitrogen and heavy metals. Since then, restrictions have applied for the agricultural use of sewage sludge, which has increased the importance of productive alternative utilisation.

High rates for energy recovery
At the Halle-Lochau Sewage Sludge Incineration Plant, which was completed in 2022, roughly 33,000 tonnes of dewatered sewage sludge (25% DM) can be used for energy recovery per year, along with 2,750 tonnes of externally dried sewage sludge (90 % DM). All procedures at the plant comply with the latest technical standards and strict profitability requirements.
The sludge treatment and flue gas cleaning processes also generate an ammonia sulphate solution that can be used as a nitrogen fertiliser in concentrated form.

DM = dry matter

Potential recovery of phosphorus from sewage sludge

Following the amendment of Germany's Sewage Sludge Ordinance in 2017, recovering phosphorus from sewage sludge will become mandatory for wastewater treatment plants in Germany with more than 100,000 people equivalent in 2029, and for smaller plants by 2032 at the latest. The aim of phosphorus recycling is to keep this essential raw material in the resource cycle. We have already started to plan and build plants that include mono-incineration as the basis for phosphorus recovery, so they will be able to fulfil this important task in future.

Future crucial procedures already integrated into planning
A key requirement for the subsequent recycling of phosphorus is proper incineration of the municipal sewage sludge. Currently, sewage sludge is dried on site and then incinerated at various plant sites in Germany, such as Berlin-Waßmannsdorf and Halle-Lochau, and in Lithuania (Utena). The ash with phosphorus content that this generates is stored separately – making it possible for the phosphorus to be recovered at a later stage.

With our sewage sludge incineration projects, we are also able to permanently lower levels of microplastics and micropollutants. This can help to reduce the amounts that accumulate in human bodies.

> "With our sewage sludge incineration projects, we achieve permanent reductions in microplastics and micropollutants, which helps to reduce the amounts that accumulate in human bodies."

Fabian Lappé,
WTE Wassertechnik GmbH,
Head of Business Division
Technology / Design

Removing pollutants

Thermal utilisation, or mono-incineration, is an established method for the safe disposal of the sewage sludge that is generated during wastewater treatment. It helps to permanently remove pollutants from the water cycle: Organic pollutants are thermally degraded, while inorganic substances are concentrated in the ash and thus permanently removed from the cycle.

Pollutants in sewage sludge:
- Heavy metals (lead, cadmium, mercury, arsenic)
- Pharmaceutical residues
- Dioxins
- Polychlorinated biphenyls (PCB)
- Perfluorinated surfactants (PFS)
- Germs/pathogens
- Plastic residues/microplastics

In thermal utilisation, very high temperatures are reached at which the majority of the pollutants are oxidised. The volatile incineration products that are produced then undergo flue gas cleaning in order to remove them from the cycle permanently. Individual residual materials in the sewage sludge ash can be separated from phosphorus and other valuable raw materials at the end of the process.

With this procedure, WTE ensures that pollutants are removed from the water cycle as effectively as possible, while conserving valuable resources.

Membrane technology for safe process water

Modern technologies and procedures can be used to continuously improve the treatment performance of wastewater treatment plants. Technical solutions that are capable of removing extremely small particles, micro-organisms and pollutants from the water cycle are in higher demand than ever before – for the protection of people, animals and the environment.

Our wastewater treatment plants in Cyprus are particularly good examples of the value these advanced technologies provide – Anthoupolis, Larnaca and New Nicosia (Mia Milia) are home to some of the largest membrane bioreactors (MBRs) in Europe.

These powerful membrane filtration systems meet the highest technical requirements and can purify both municipal and industrial wastewater with great efficiency. Modern ultrafiltration membranes are used to remove organic and inorganic particles – including bacteria and viruses – from the wastewater with outstanding reliability. The procedure ensures consistently high water quality combined with low maintenance requirements.

Advantages of membrane technology::
- High level of automation
- Easy handling and maintenance
- Low space requirements
- High operational safety
- High system availability
- Short start-up and shut-down cycles

The treated, germ-free water meets international standards for purity and hygiene and can be re-used as process water – in particular for the safe and resource-efficient irrigation in agriculture.

> "Our membrane technologies close up water cycles and enable water to be safely re-used in agriculture."

Dr. Ekaterina Vasyukova,
WTE Wassertechnik GmbH,
Head of Research &
Development Department

Additional purification stages

The requirements that apply for wastewater treatment plants can vary considerably depending on the specific location. In some regions, for example, the water may be heavily contaminated with parasites. We tackle such challenges at an early stage, by incorporating suitable technical solutions into the design of our plants

Local challenges – tailored solutions
One example of this is our design of the plant in Tubli (Bahrain), which is equipped with an extensive wastewater treatment system that provides not only nitrogen and phosphorus elimination but also two filter stages, two-stage ozonisation and downstream chlorine treatment of the wastewater.

Parasitic worms (helminths) are prevalent in the region, and there is a risk that their eggs may be present in the wastewater. The eggs of these parasites are extremely resilient and even using ozone or chlorine cannot eradicate them entirely. To mitigate this risk as effectively as possible, WTE set up an additional thermal treatment step for the filtrate rinsing water, an extended technology stage that was not part of the original design.

This thorough purification and disinfection prevents the treated wastewater from being contaminated with the harmful parasites, securing human health and safety.

> „This is a good example of how efficient technical measures can be used to enable wastewater treatment to provide lasting benefits for human health.“

Torsten Hentschel,
WTE Wassertechnik GmbH,
Head of Process Engineering

Find out more about the project:
wte.de/en/references

Supply reliability

In many regions of the world, a reliable supply of clean drinking water cannot be taken for granted. WTE supports cities and municipalities in keeping this central pillar of public services secured. Examples of this include our work in Romania.

In the districts of Cluj and Sălaj, we successfully realised and completed the following projects in 2025:

- The main goal of the Cluj CL1 and CL2 projects was to establish a modern drinking water transport distribution network of roughly 165 km in length, covering both regions and ensuring a reliable water supply for households and businesses. In addition to the distribution infrastructure, we also set up a pump station, a reservoir with chlorination plant and the required technical structures.
- This was complemented by modernisation of the Gilău Drinking Water Treatment Plant in the Cluj region. To avoid jeopardising supply reliability, the conversion and modernisation work were performed during ongoing operations.
  The work included building a new sludge line and a modern laboratory, integrating a small hydropower plant and replacing the transformer station. Through highly detailed design, the inclusion of schedule management based on the plant's operational safety, and professional execution, we were able to maintain supply while expanding the plant capacity without any major changes to operational procedures.
  As a result of the extensive optimisation measures, an average of 9,540 m³ water is now treated per hour to high quality standards and made available as drinking water.

With all works completed, WTE received Taking Over Certificates for all projects by the end of the fourth quarter. We have thus achieved an important milestone for the regions: Now that the projects have been completed successfully, the supply of drinking water to the population of Cluj and Sălaj has been significantly improved and secured for the long term.

> „Access to clean water is a human right. For this reason, we appreciate the opportunity to work with dedicated partners to develop practical solutions that ensure a reliable water supply for people living in the region.“

Johannes Egbert,
WTE Wassertechnik GmbH,
Head of Networks

Taking Over Certificates (TOCs) are issued by the customer when the project is handed over. This marks the beginning of the guarantee period.

44 months
Conversion during ongoing operations

228,960 m³
drinking water treated per day

165 km
length of distribution network

Energy and emission management

WTE designs water and wastewater treatment plants with an increasing focus on energy optimisation and independent energy generation. Photovoltaic systems, combined heat and power plant (CHP) and the use of biogas generated during sludge digestion to generate power and heat reduce external energy requirements and the related CO2 emissions. Energy-efficient equipment is used as early as in the design and construction phase and regional supply chains are preferred in order to lower transport-related emissions.

In line with our goal of achieving climate-neutrality across the entire value chain by 2040, we implement targeted decarbonisation measures. These measures include the electrification of the vehicle fleet and construction machines, the use of renewable energy sources for construction power, the expansion of photovoltaics at our sites and pilot projects with alternative drive systems – such as hydrogen-powered wheel loaders – to reduce diesel emissions.

Energy Generation in Wastewater Treatment

Wastewater Treatment and Sewage Sludge Incineration in Skopje, North Macedonia.
In Skopje, WTE will build a new wastewater treatment plant designed for 650,000 population equivalent, featuring advanced sludge treatment – including a “Green Power Plant”.

The original design did not include a concept for generating energy in excess of the facility’s own needs. However, due to the potential for cost-effectiveness and climate protection, our client decided to proceed with a corresponding expansion.

Solar Energy: The Core of the Green Energy Concept
Solar power plants with a total capacity of 2 MWp are being installed to cover the facility’s own electricity needs. With an average annual output of 3,168,000 kWh, they are expected to contribute to the wastewater treatment plant’s energy budget — regardless of its operating load.

In addition, the gas produced during wastewater treatment is used to power highly efficient combined heat and power (CHP) plants. These cover most of the facility’s electrical and thermal energy needs. An additional steam turbine integrated into the system provides further energy for the plant’s processes. Combined with photovoltaic power, the plant produces more energy overall than it consumes. The local energy supplier has already contractually guaranteed the feed-in of surplus energy into the public grid.

Generation of 150% of its own energy needs

Wastewater Treatment Plant, Umm Al Hayman, Kuwait
Energy consumption has been minimised through the use of low-energy aeration systems and the hydraulically optimised design of the entire plant. The gas produced as a by-product of the digestion process is used in highly efficient combined heat and power plants to meet the majority of the electrical and thermal energy requirements for the plant’s operation.

Learn more about the projects:
wte.de/en/references

Autothermal sewage sludge incineration

All sewage sludge incineration plants designed and implemented by us use autothermal procedures. This means that no additional fuel is needed to thermally utilise the dewatered sewage sludge in normal operation. The energy contained in the sludge is fully utilised for the incineration process. Some plants are even capable of being operated in a fully energy self-sufficient manner.

Energy put to optimal use
Incineration temperatures of roughly 850 to 950 °C ensure safe and low-emission burn-out. The thermal energy this releases is recovered in a waste heat boiler to generate steam, which is then used by a steam turbine to produce electricity. A portion of the heat obtained is deliberately fed back into the process – in particular to dry the sewage sludge. In this way, the energy potential is exploited optimally and stable autothermal operation is ensured.

Surplus heat can be used either within the sewage sludge incineration plant or in the associated treatment plant – for example to heat digestion towers. Optionally, it can be fed into a public heat network. In plants with digestion towers, the biogas generated in the towers can be used for start-up operation.

”
Our plants achieve high levels of energy efficiency and provably comply with all emission limits.“

Fabian Lappé,
WTE Wassertechnik GmbH,
Head of Business Division
Technology / Design

After the incineration process, the remaining ash and residues corresponds to only about 10% of the original sludge mass.

Interlinking material/energy flows

The operation of sewage sludge incineration plants is based on various processes which, when combined, can increase plant efficiency. In the design, construction and operation of our plants, we consistently consider potential ways to interlink material and energy flows.

Wastewater treatment and sewage sludge incineration plant Skopje, North Macedonia
The future wastewater treatment and sewage sludge incineration plant will use an optimised primary treatment concept, aimed at both reducing the oxygen demand of the biological activated sludge basins and increasing the biogas yield and the subsequent generation of electricity. The thermal energy generated by the incineration is used in addition to the electrical energy created by a back pressure steam turbine for further procedures in the plant, for example preheating and drying the sludge. This makes it possible to significantly reduce the amount of chemicals required, and no fossil fuels are needed for drying.

Sewage sludge incineration plant Gut Großlappen Munich, Germany
Various interconnections of thermal energy flows are also planned for the plant in Munich in order to boost efficiency – starting with the partial drying of the sludge, which generates exhaust vapour.

A photovoltaic plant is also planned on the unused roof surfaces of the sewage sludge incineration plant to supplement electricity generation.

Find out more about the projects:
wte.de/en/references

Sustainable solutions for harnessing energy

A sustainable and economic supply of energy is a key requirement in modern wastewater treatment plants and sewage sludge incineration plants. Steam turbines are used to convert the heat generated in thermal treatment into electric power. In wastewater treatment plants, the sewage gas generated in the digestion process is used in combined heat and power (CHPs) plants for the cogeneration of electric power and heat. In addition, we assess the feasibility of other options for each specific project, for example heat pumps that utilise low-temperature heat, photovoltaic plants for renewable energy generation or feeding surplus heat into a district heating network.

We work in close collaboration with our customers to develop a tailored energy concept, and always consider the potential for energy recovery. The solutions that are ultimately implemented depend on the site-specific conditions and the economic and strategic goals of the plant owner. Our aim is to present all technically and ecologically viable options transparently and, once the customer has made their choice, to implement the desired options systematically.

Intelligently combining appropriate technologies makes it possible to reduce external electricity consumption and CO_2 emissions, increase energy self-sufficiency and permanently lower operating costs.

Certification of selected plants

Energy management allows us to track the specific energy consumption of our plants and to take measures to reduce it.

For example, we have been able to lower the specific energy consumption at the wastewater treatment plants at the Windeck branch and at the Walkenried Wastewater Treatment Plant – by making targeted investments and process optimisations.

”

We invest based on both economic and energy considerations. This enables profitable and sustainable operation of our plants

Nina Hustadt,
WTE Wassertechnik GmbH,
Responsible for Environmental and Energy Management

Climate-related emissions (decarbonisation)

By 2040 we aim to be climate-neutral across our entire supply chain. To achieve this goal, we are implementing a diverse range of measures. In particular, we are reducing the use of fossil fuels and replacing them with climate-friendly carbon-neutral alternatives.

Group-wide environmental guidelines

With the environmental guidelines, internal codes of conduct have been adopted for all WTE and WTEB sites in order to raise awareness among employees of the impact each individual has on the group's role in protecting the environment. WTE's public IMS Policy provides the framework for environmental goals and measures and commits it to complying with binding obligations.

IMS = integrated management system

Furthermore, an environment key indicator system has been set up for all WTE and WTEB sites to calculate the carbon footprints of the companies.

Integrated approaches to climate protection

Reducing climate-related emissions – in each individual plant and at corporate level – is one of WTE's core goals. To make lasting improvements to our carbon footprint, we take an integrated approach, implementing multiple complementary measures.

Design

Right from the plant design stage, we opt for the procedures, construction methods and materials with the least impact on climate. A particular focus is on reducing the proportion of construction materials with a poor carbon footprint. And wherever possible, we use more sustainable and environmentally friendly alternatives.

In a project in Skopje, the digestion towers of the wastewater treatment plant were made from steel, as an alternative to a classic concrete structure. This made it possible to significantly reduce the plant's carbon footprint.

Operation

Plant operation also offers considerable potential for lowering CO^2 emissions. This can be realised through the following measures:

- Selection of appropriate process stages
- Modernisation of process technologies
- Reduced use of fossil fuels (oil, coal, natural gas)
- Transition to renewable energy

Find out more about the projects:
wte.de/en/references

For the start-up burners in our plants in Skopje and Munich, we avoid the use of natural gas. In place of this fossil fuel, we use biogas from the sewage sludge digestion process, which is integrated into the plant's energy mixture in Skopje and one of the main reasons the plant is able to operate in an energy self-sufficient manner. Biogas is also successfully used to generate electricity at other sites in combined heat and power plants (CHPs).

Supporting measures

In addition to our activities in plant construction and operation, we implement a large number of smaller measures as part of our strategy to reduce emissions. These measures are always put into practice in in line with conditions on site.

Examples:

- Remote work options
- Job bike and public transport ticket schemes
- Support of electromobility (charging stations)
- Investment in electric vehicles

Operating materials

In our work procedures, we are constantly reducing our use of chemicals

Reducing chemical use

Both wastewater treatment and sewage sludge utilisation often involve the use of chemicals. One of WTE's goals is to reduce the use of chemicals in these processes to the necessary minimum.

We are currently implementing this goal successfully in multiple plants:
- Kočani Wastewater Treatment Plant (biological waste air treatment)
- Skopje Wastewater Treatment and Sewage Sludge Incineration Plant (biological waste air treatment and sludge pre-heating)
- Sewage sludge incineration plant in Munich (sludge pre-heating)

We use modern biofilters in sewage sludge treatment, for example, rather than chemical scrubbers to prevent the plant's waste air from constituting an odour nuisance for the surrounding area. Energy recovered from the process is used to pre-heat the sludge, to improve the dewatering performance. This allows us to reduce our use of chemicals and fossil fuels.

Focus area **Social affairs**

Social affairs – our focus on health, safety and development

Our employees make an important contribution to society. We value their commitment, and aim to support it. For this reason, we implement targeted health protection measures that go beyond the specified legal requirements. At the same time, we support the satisfaction and personal development of our employees – both within and outside the company. In this way, we create an integrative work environment based on respect, where experienced employees and new recruits alike can feel they are in good hands and are able to develop their potential.

Key topics:
– Employee health and safety
– Employee support and development
– Working conditions and corporate culture
– Social responsibility

Employee health and safety

Our aim is to provide safe working conditions at all workstations. By implementing appropriate health and safety measures, we aim to prevent accidents and injuries.

Safe working conditions

We are committed to ensuring the highest safety standards for all our employees – regardless of whether they work at a desk, at the plant or on our international construction sites. As the specific requirements differ considerably across the various areas of activity, our approach is based on a dynamic, context-specific risk evaluation.

This evaluation is the result of regular, cross-department risk assessments, which systematically include each project and the local conditions. We use the results of this analysis to create a tailored catalogue of measures, which covers the following key elements:

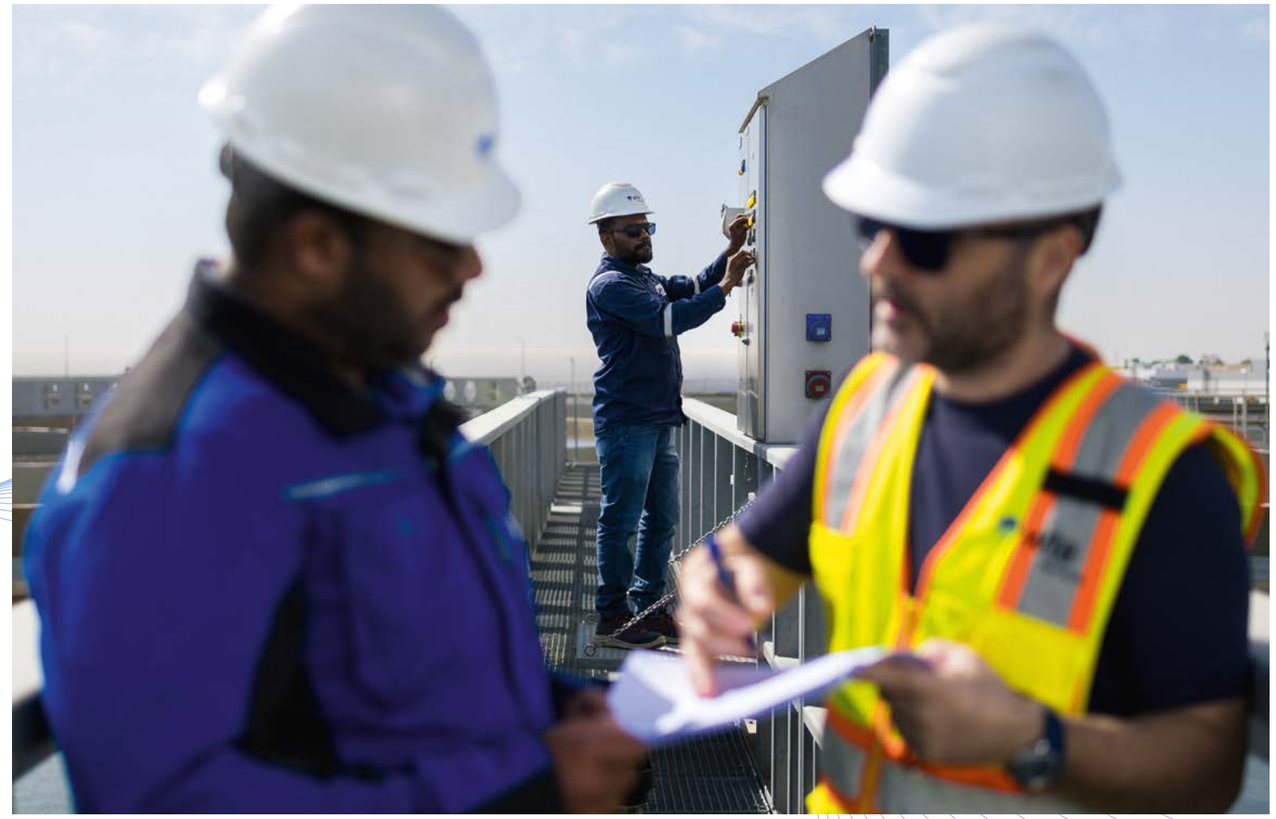
- Preventive checks: regular tours of workplaces and construction sites and compilation of binding instructions
- Systematic evaluation: Analysis of accidents and their causes, and continuous evaluation of occupational health and safety reports to compile preventive measures
- Continuous qualification: Internal safety training, extensive induction for new employees and regular company doctor check-ups

We always provide the right work materials and personal protective equipment, whatever the task. On top of this, we make a point of actively making all participants aware of any potential risks – and we actively involve our suppliers and subcontractors in this process.
This structured approach allows us to identify, communicate and rectify risks early on. As a result, safety at WTE is a joint effort, which helps us to systematically work towards our goal of eliminating 100% of accidents and establishing a sustainable culture of prevention.

Safety awards in Umm Al Hayman
At the Umm Al Hayman Wastewater Treatment Plant, a total of 30 employees received safety awards from the WTE Health, Safety and Environment (HSE) team. With this initiative, we promote a strong culture of safety and honour dedicated employees from various teams who are committed to high health and safety standards and consistently make safety part of their daily work.

> „We not only fulfil all legal and regulatory health and safety requirements, we also take additional measures to actively promote the well-being and safety of our employees.“

Osman Göcer,
WTE Wassertechnik GmbH,
Responsible for Quality and Health and Safety Management



Occupational health care

With occupational health care, WTE not only fulfills its legal obligation under the Occupational Health Care Ordinance (ArbMedVV) – it also invests in the well-being and performance of its employees and thus ultimately in a successful future together.

Our occupational health care includes, among other things, regular vaccination campaigns for all employees, special preventive examinations for those who work at display workstations and targeted occupational medical examinations for those who travel.
For us, a modern occupational health assessment is a dialogue on equal terms.

1 I Inventory
The employee talks to the occupational physician about work, daily work habits and the first signs of stress.

2 I Broadening the Perspective
It is often the small adjustments that make a big difference: the correct height of the desk chair, the perfect distance to the screen, the one hour of screen break that you should allow yourself – or the recommendation for eyeglasses, that is specifically optimised for screen distance.

3 I Prevention
A pulling sensation in the back does not have to turn into a prolapsed disc. Occasional headaches do not have to turn into migraines. Prevention helps to set precisely this course at an early stage.

A win-win situation
Everyone benefits from conscientious, professionally conducted occupational health care: Employees stay healthy and productive and can also enjoy their free time without pain; the company benefits from motivated, focused employees, little absence due to illness and a working atmosphere that is characterised by appreciation – because our commitment to our employees goes far beyond maintaining their ability to work.

Certified systems for occupational health and safety

Our strong sense of responsibility for our employees is structurally implemented in a globally applicable management system certified to ISO 45001 for health and safety at work. This international standard forms the overarching framework within which we define and implement our specific objectives. The dynamic key component of this framework is the PDCA cycle (Plan, Do, Check, Act), which provides a structured process for continuous improvement:

– Plan: Establish systematic foundations in line with the standard
This phase involves defining goals and processes based on the standard. The foundation for this are the regular **risk assessments**, which we use to compile specific **preventive measures** and plans for **crisis management on construction sites**. New or updated legal **directives** are promptly integrated into this system.

– Do: Put measures and standard specifications into practice
This phase involves concrete implementation, including mandatory **internal training**. The training gives employees the necessary awareness and ensures that they are all familiar with and apply the agreed processes and latest requirements. As a result, health and safety become an integral part of everyone's day-to-day work.

– Check: Assess effectiveness objectively
The effectiveness of all measures is reviewed systematically – through audits, analysis of key figures and measuring **employee satisfaction**. This meets the standard's requirement of measuring performance and provides an empirical basis for improvement.

– Act: optimise continuously
In this phase, insight gained from experience is evaluated in order to adjust the system and optimise it. Successful practices are standardised, and non-conformities lead to corrective measures. This step closes the cycle and the new insights are incorporated directly into the next design phase.

By integrating the standard's requirements into the dynamic PDCA cycle, we achieve more than just formal certification: we establish a proactive learning system that creates a positive and healthy working environment based on empirical evidence and improves it continuously. Systematic communication and training on all specifications constantly reinforce the importance of health and safety across the entire WTE Group.

Workplace health management

Our employees' health is important to us – and it is crucial for WTE's long-term success. To keep our employees healthy, we have set up a workplace health management (WHM) system, firmly anchored in our corporate strategy, as a joint task shared across WTE.

Our integrated WHM combines the following elements to form an inclusive overall concept, designed to accompany our employees over the long term:
- Workplace health promotion (WHP)
- Workplace integration management (WIM)
- Regular surveys and evaluations
- Voluntary healthcare and prevention offers

The individual measures, campaigns and initiatives build on each other and are based both on the needs of our employees and the requirements of the company. They are regularly reviewed and adjusted as needed, so that they can continue to have a lasting impact on day-to-day work.

Active health promotion
By providing voluntary prevention services, funded by WTE, including screening for cardiovascular disease, colon cancer and skin cancer, vaccinations and regular physical check-ups, we promote early detection and encourage employees to take a proactive approach to their health. We also offer measures to promote physical activity and health, such as the Office Fitness programme, stress management courses, Pilates and meditation sessions and nutrition workshops, helping to ensure a healthy work-life balance. Joint activities like the annual company run also foster team spirit, motivation and a sense of community. With this integrated WHM approach, WTE creates strong conditions for well-being, performance and long-term employee retention – thereby directly safeguarding the company's future.

"With WIM, a structured process has been set up that provides employees on sick leave with a space for dialogue, enables tailored solutions and supports sustainable return to daily work."

Mareike Fleiter,
WTE Wassertechnik GmbH,
Head of Workplace Health Management

"WTE invests significantly in the health of its employees – as they are our most important asset. Our low sickness rates and high satisfaction levels reflect the positive impact of our measures."

Carolin Korfmann,
WTE Wassertechnik GmbH,
Workplace Health Management

Healthy refreshments from the region

A balanced diet plays an important role in well-being, performance and health. For this reason, we provide our employees with lunches freshly prepared by a regional supplier at our work café at our head office from Monday to Thursday.

The wide range of dishes are based on seasonal ingredients sourced from the region – naturally without flavour enhancers or preservatives.
To support mindful and healthy eating in day-to-day work, we subsidise these meals, making healthy food available to all employees at appealing prices.

Support and development of our employees

We continuously support the **personal development** of our employees and provide them with a wide range of **training opportunities tailored to their needs**.

Support and development measures

Regular development/target agreement talks
We regularly hold one-on-one reviews with our employees to plan their ongoing personal development and set joint goals for the coming business year. These talks are held at least once a year, but the agreements made can be adjusted as needed in additional meetings.

Additional feedback meetings
Our employees' concerns are important to us. For this reason, they are able to arrange feedback meetings at any time. This allows them to give feedback and also to receive it. In this way, we promote direct and open communication between employees, supervisors and management.

Training
Our employees are entitled to take part in various types of training to advance their professional development. This training is provided either in-house or in collaboration with external partners.

Personalised local training
For international projects in particular, we offer special training for local employees. By integrating this training early on, in the construction phase, the trained specialists are then able to share what they have learnt and provide professional support for plant operation. In this way, we bolster on-site know-how and secure jobs at the site.

Training volume 2025
WTE Wassertechnik (Essen site): >2,000 hours
WTE Betriebsgesellschaft: ~1,000 hours

Support of academic qualifications (master's/doctorate)
Our employees are always welcome to pursue academic qualifications, including doctorates. For example, we support them by allowing them time to do their academic work. We have already supported many employees in the company group in this way, predominantly in technical and commercial subjects.

English courses
As a company with international operations, we value sound and practical English skills in our employees. For this reason, we provide in-house English courses for various skill levels, allowing our employees to refresh or improve their language abilities.

Working conditions and corporate culture

We want to strengthen employee satisfaction in the long term. Through appropriate measures, we aim to achieve and maintain a consistently low employee turnover rate of a maximum of 5 % per year.

Flexible working hour models

For many years, we have offered variable working hour models that give our employees plenty of freedom in how they organise their daily work.

In the WTE Group, the following working hour models are available::
- Flexitime
- Part time
- Mobile work

Wherever feasible, we allow our employees to choose the model that best suits their needs.

Workplace social benefits

To promote employee satisfaction, we provide a wide range of voluntary company benefits, which employees can make use of according to their needs and interests.

Company benefits offered by the WTE Group at the Essen site:

Day-care collaboration
In collaboration with the day-care provider Kinderhut, we offer our employees access to professional childcare services for their young children.

Gym discounts
Our employees receive discounted gym memberships thanks to our collaboration with FitX.

Public transport tickets
For commuters using public transport, we cover the costs for the Deutschlandticket. For car drivers, free parking is provided on site.

Company bicycles
Our employees can also lease bikes through the company.

Free fruit
Fresh fruit is available free of charge, as is a kitchenette and Seeberger coffee in the Workcafé.

Onboarding process with mentor system

At the WTE Group we maintain cohesion, a sense of community and a successful culture of collaboration. This includes our clearly structured onboarding process that introduces new employees to our company step by step during their first days and weeks.

Getting started right away
The onboarding process includes an intensive and informative first working day, aimed at introducing new employees to the world of WTE: New employees are personally welcomed by a member of the HR department on their first morning. In an introduction session lasting one to two hours, they receive important information on the company, its corporate culture and a structured overview of where everything is located. The intranet and key HR tools such as the time recording system are presented and any questions are answered. This is followed by a tour of the building, with an introduction in the various departments. Finally, the employees are taken to their mentor or supervisor.

A fast-track tour of WTE
Since 2025, new employees rotate through all departments within their first eight weeks at WTE – from accounting to process engineering. In one- to two-hour sessions, the new recruits are introduced to the respective team members and their work areas.

Optional intranet interview

Another recent addition is the introduction of new employees in our intranet. New team members can choose to introduce themselves through an interview featuring work-related and personal questions and answers. This promotes quick integration and helps build connections, as it often reveals shared experiences, interests and hobbies.

Mentors play a key role

In our mentoring system, every new employee is assigned a mentor as a point of contact for professional and personal questions. The mentors provide new employees with support and guidance as they gradually become familiar with day-to-day work at the WTE Group. This is how we ensure that all employees are given the best prospects for success when they start work with us.
Mentors perform the following tasks:

- Technical and organisational support of new employees throughout their entire induction period
- Presentation of new employees to the teams/specialist departments
- Integration of new employees into their specific teams
- Tours of the premises and surrounding area
- Introduction to working methods, processes and workflows

The mentors use practical checklists to keep track of the topics that need to be covered in the first weeks of work. Induction plans are also currently being prepared.

Feedback system during induction

As expectations can change over time and we want to accommodate this early on in our onboarding process, we regularly seek feedback from our new employees during their first weeks at our company. We then use this feedback to update our onboarding process as needed and continuously refine it.

> „To ensure that satisfaction remains high, we aim to involve our new employees in an appreciative and inclusive way from the outset. We use various measures to do this: from the welcome email before their first day at work, their introduction on the intranet and rotations through the various specialist departments.“

Markus Pollmann,
WTE Wassertechnik GmbH,
Head of Human Resources Department

Content employees for low turnover

Our employees are a key factor in the success of the WTE Group. To ensure that employee satisfaction remains high, we deploy a variety of supportive measures, for example:

- Flexible working hour models (see page 90)
- Regular employee events, summer parties / participation in sports events
- Various company benefits and offers
- Benefits including company pension and contributions to capital formation
- Structured, guided onboarding processes (see pages 91/92)

By using measures such as the above, we have been able to further strengthen the satisfaction of our employees and cohesion in the team. At the WTE head office in Essen, the turnover rate has remained permanently below 7% since 2021. In the 2024/2025 business year, it was only 5.68% – a rate which comes extremely close to our goal of permanently reducing turnover to 5% or less per year.

Diversity

We promote an inclusive workplace culture and set an example with our diverse and accepting corporate culture.

As a company with international operations, our corporate culture is open and inclusive and we offer all employees equal opportunities – regardless of the background, age or gender.

We bring people together from a wide range of nations and cultures – and this is something we take pride in. Our workforce ranges from students on work placements to long-standing employees who have contributed to our company's success for many decades.

At the WTE Group, everyone should have the opportunity to grow and develop with our company. We work closely with our employees to remove any potential barriers. This ranges from wheelchair access to the structures within our company group.

We are committed to accommodating individual needs as effectively as possible – in order to promote a healthy and inclusive work culture where every employee is a vital part of a diverse community.

Corporate social responsibility

We fulfil our social responsibility by supporting young talents.

Regulars' table of the young DWA

The Ruhrgebiet regulars' table of the young DWA (YDWA) took part in a professional tour of the Emscher Treatment Plant in 2025. The event gave junior specialist and managerial staff from water management a valuable opportunity to exchange practice-oriented knowledge, develop their technical skills and to network within the sector. The combination of technical introduction, plant tour and discussion of current challenges in sewage sludge treatment reflects the YDWA's strong commitment to continuous learning.

Experiencing sustainable water management first hand
The Emscher Wastewater Treatment Plant is operated by the Emschergenossenschaft and Lippeverband (EGLV) and is one of the largest wastewater treatment plants in Germany. It treats wastewater from the cities of Bottrop, Gladbeck, Recklinghausen, Gelsenkirchen and Essen and is a key component in wastewater disposal in the northern Ruhr area with a design capacity of roughly 1.34 million PE.
The plant's technological highlights include:

- Modern membrane filter presses for sewage sludge dewatering (solid content up to 26%)
- Solar drying plant with throughput of up to 220,000 tonnes dewatered sewage sludge per year
- Automatic turning robot for uniform mixing and aeration of the material
- Two fluidised bed furnaces for thermal utilisation of the dried sewage sludge – for safe disposal but also to significantly reduce the mass and volume and utilising the sewage sludge for energy recovery

As part of their visit, the junior staff were able to experience the connection between technical power, resource efficiency and sustainability in modern large-scale wastewater treatment plants first hand – an important contribution to the technical qualification and strengthening of the network of young talent in the DWA.

Hiring trainees

Qualified and conscientious training of young workers is key part of our corporate responsibility. This includes providing clear structures and appropriate tasks, along with the targeted promotion of professional and personal development.

With our ongoing training of industrial and office clerks, we are actively addressing the shortage of skilled workers. Thanks to our forward-looking personnel planning, we also ensure that we will be able to maintain our current trainee hiring rate of 100% in the future.

Our aim is to offer all trainees employment prospects within the WTE Group once they have completed their training. We also provide all junior staff with additional qualification and further training options beyond their initial training.

Crisis management

In a world increasingly characterised by geopolitical tension, natural disasters and unforeseeable events, corporate social responsibility is truly being put to the test. And especially when employees are working in crisis areas, every minute counts. WTE recognised early on that professional crisis management needs to be hands-on – which is why it set up an effective management tool which has gone on to be used successfully on numerous occasions worldwide.

Preparation that saves lives

WTE's crisis management is based on a holistic approach: It combines technical procedures with a strong focus on people. This includes clear communication chains, a crisis team that is available around the clock and close collaboration with external safety partners. Regular training and simulated emergency situations ensure that all participants respond calmly and decisively in real emergencies.

Proven in practice

Recent events have shown that this system is truly effective in real-life applications. During the evacuation of employees and their families from conflict regions – most recently in the Middle East – WTE's crisis team worked around the clock. In very little time, routes were planned, transport was organised and safe exit via third countries was coordinated. The in-house tool helped to pool all relevant information, set priorities and make decisions transparently. Close coordination with authorities and local partners made it possible to return those affected to their home countries quickly and in an organised manner.

Responsibility beyond business

For WTE, social responsibility means supporting our employees even in challenging situations – and thus the people behind every one of our projects. This commitment creates trust, strengthens loyalty and shows that sustainable business practices always put people first.

Our crisis management tool is continuously being developed. Experience from current deployments is used directly to optimise the tool. This means we remain able to act no matter what happens – and can fulfil our responsibility to employees, partners and society.

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We have prepared this sustainability report with the greatest possible care and have reviewed the data. Nevertheless, rounding, typesetting or printing errors cannot be ruled out. This sustainability report also contains forward-looking estimates and statements that we have made on the basis of all information available to us up to the editorial deadline. These forward-looking statements are usually described as “expect”, “estimate”, “plan”, “calculate”, etc. We would like to point out that the actual circumstances, and thus also the actual results, may differ from the expectations presented in this report due to various factors.

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