PWT Wasser- und Abwassertechnik GmbH

Water and Waste water treatment solutions

Water
is our
Profession!

Milestones – Reliable Partnerships since 50 years

1989
Takeover of Salzgitter AG by Preussag AG

1990
Foundation of Preussag Noell Wassertechnik GmbH

1998
Fusion of water activities of the Preussag Group in Preussag Wassertechnik GmbH

2001
Name change to PWT Wasser- und Abwassertechnik GmbH

2004
Joining forces with Amiwater, a company of the Amiantit Group

PWT

Headquarter: Zwingenberg (near Frankfurt a. Main), Germany

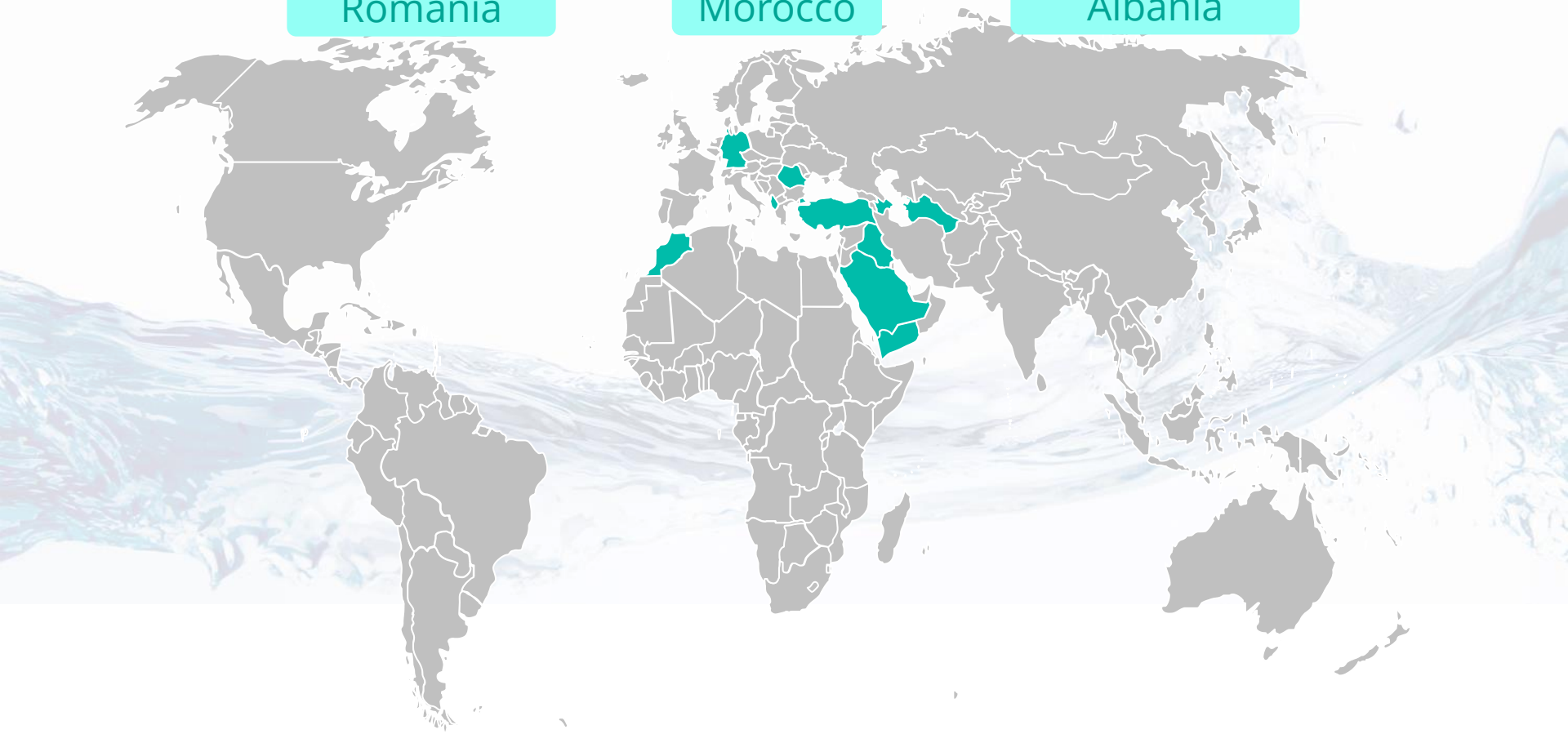
Staff: approx. 350 employees worldwide

Presence in 10 countries

Presence in 10 Countries

Germany | Saudi Arabia | Turkey | Turkmenistan | Yemen | Iraq | Azerbaijan

Romania | Morocco | Albania



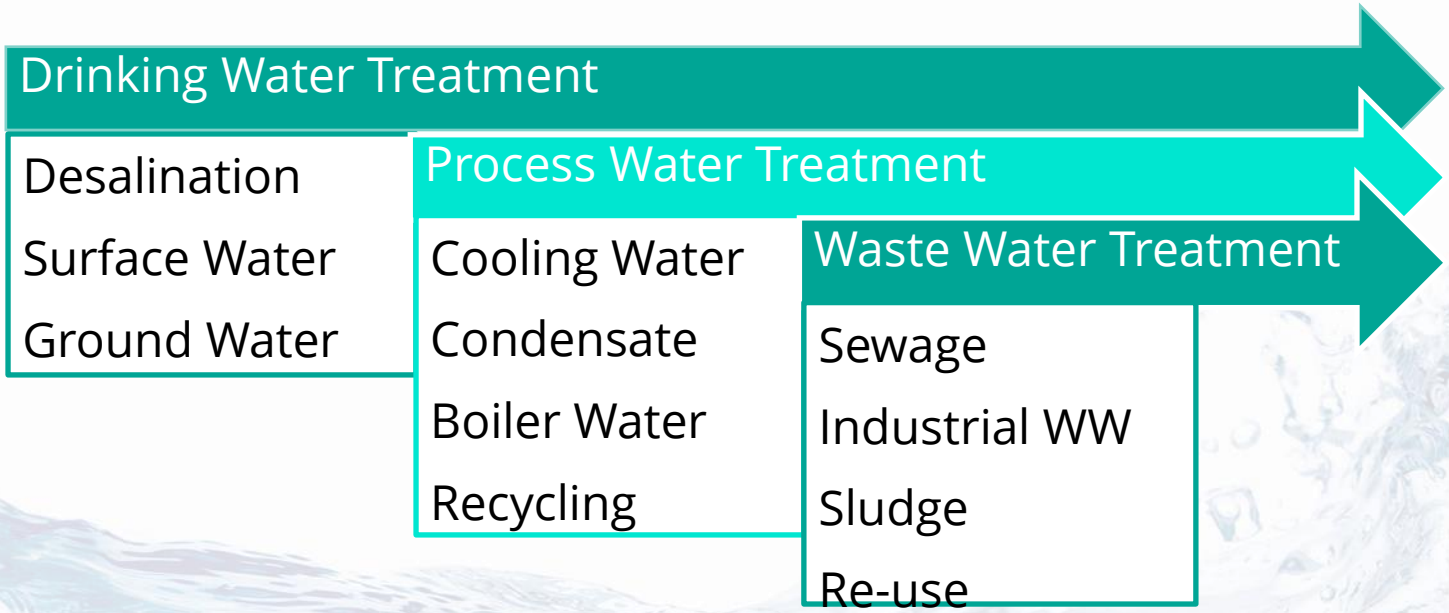
Our Success

- Over 50 years experience as EPC contractor in Water Technology

- More than 1 000 EPC contracts executed:
  - Drinking Water Treatment Plants with capacities up to 320,000 m³/d
  - Waste Water Treatment Plants with capacities up to 725,000 m³/d
  - Desalination Plants with capacities up to 100,000 m³/d

- More than 25 on-going O&M Contracts in Drinking Water, Waste Water and

Range of Services



EPC

O & M

Design and Build (Turnkey Solutions)

Operation & Maintenance of the Plants

Consultancy and Supervision

EPC - Drinking Water Treatment I - Essential for Living

Drinking Water

Treatment Plant

AL SAMAWA, Iraq

220,000 m³/d

SWRO Desalination

Plant

AL JUBAIL, KSA

91,000 m³/d

EPC - Drinking Water Treatment II - Essential for Living

Drinking Water

Treatment Plant

HALLE-BEESEN, Germany

60,000 m³/d

SWRO Desalination

Plant

EKEREM, Turkmenistan

5,000 m³/d

EPC - Waste Water Treatment I – Clean Water saves the Future

Waste Water Treatment Plant

AMBARLI, Turkey

Average Dry Weather Flow: 400,000 m^3/d

Waste Water Treatment Plant

HALLE, Germany

Average Dry Weather Flow: 75,200 m^3/d

EPC - Waste Water Treatment II – Clean Water saves the Future

Waste Water Treatment Plant

BACAU, Romania

Average Dry Weather Flow:

77,800 m³/d

Waste Water Treatment Plant

ESKISEHIR, Turkey

Average Dry Weather Flow: 132,000 m³/d

EPC - Waste Water Treatment III – Clean Water saves the Future

Waste Water Treatment Plant

ORADEA, Romania

Average Dry Weather Flow: 103,700 m^3/d

Waste Water Treatment Plant

TIMISOARA, Romania

Hydraulic Flow: 10,800 m^3/h

EPC - Waste Water Treatment IV – Clean Water saves the Future

Waste Water Treatment Plant

Aves Energy, Oil and Food Industries Co.- Vegetable Oil Factory-

Mersin-Turkey

EPC - Process Water Treatment I– Effective Solutions for Industries

Flue Gas Washing Water Treatment Plant

Power Plant Maasvlakte 3, The Netherlands

Flue Gas Washing capacity: 30 m³/h (6-36 m³/h)

Cooling Tower / Flue Gas Washing

Power Plant Datteln, Germany

Cooling Tower: 1,000 m³/h

Flue Gas Washing capacity: 30 m³/h

EPC - Process Water Treatment II– Effective Solutions for Industries

Flue Gas Washing Water Treatment Plant

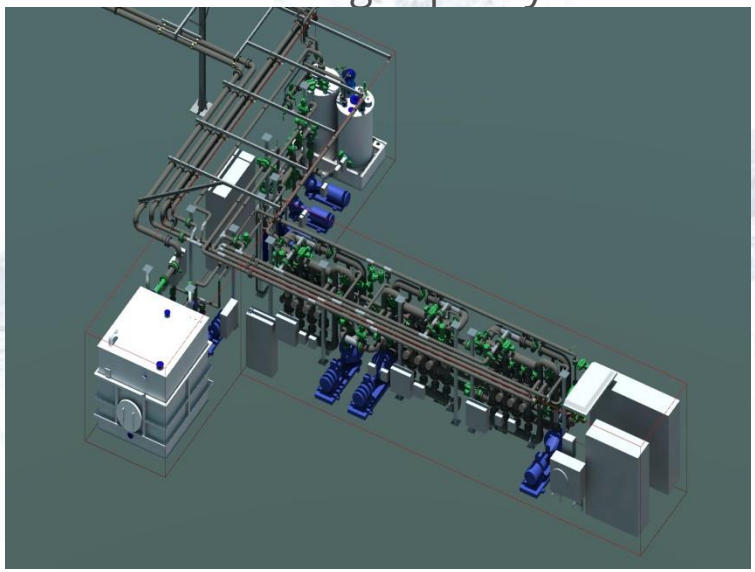
Power Plant Heyden, Germany

Flue Gas Washing capacity: 36 m³/h

Flue Gas Washing Water Treatment Plant

Power Plant Staudinger, Germany

Flue Gas Washing capacity: 15 m³/h



EPC - Process Water Treatment III – Effective Solutions for Industries

ABR Wietzendorf

Potato flour, Germany

Capacity: 2 x 70 m³/h

Rinse Water Treatment Plant

Mineral water factory, Germany

Capacity: 20 m³/h

Large Projects – Economical Solutions for Your Infrastructure

Infrastructure Development for Archabil Avenue in Ashgabat City

- Pump Station100,000 m³/d
- Drinking water reservoirs 30,000 m³
- Disinfection plant
- 86.4 km water/waste water lines DN 300-1400, PN 1-16
- 28.5 km natural gas pipes DN 150-DN 400
- 2,100 prefabricated concrete manholes DN 1500

Operation & Maintenance I – Ensuring sustainability

Ground Water Treatment Plant

Düsseldorf F 1

Capacity: 80 m³/h

Pollutants: CKW, VC, iron, manganese

Main technology applied: precipitation, flocculation

Ground Water Treatment Plant

Düsseldorf F 2

Capacity: 320 m³/h

Pollutants: CKW, VC, iron, manganese

Main technology applied: precipitation, flocculation

Operation & Maintenance II – Ensuring sustainability

Ground Water Treatment Plant

Düsseldorf Eller

Capacity water treatment: 75 m³/h
Capacity waste air purification: 3,500 m³/h

Pollutants: CKW, VC, iron, manganese

Main technology applied: precipitation, flocculation

Ground Water Treatment Plant

Hessisch Lichtenau-Hirschhagen

Capacity: 60 m³/h

Pollutants: TNT

Main technology applied: precipitation, flocculation

Operation & Maintenance III – Ensuring sustainability

Ground Water Treatment Plant

Wedel

Capacity: 2 x 15 m³/h

Pollutants: iron, manganese, chlorinated hydrocarbon, PAK, BTEX

Main technology applied: precipitation,

Ground Water Treatment Plant

Lampertheim

Capacity: 32,5 m³/h

Pollutants: arsenic, AOX

Main technology applied: precipitation, flocculation

Operation & Maintenance IV – Ensuring sustainability

Waste Water Treatment Plant

CEYHAN, Turkey

Capacity: 34,900 m³/d

Waste Water Treatment Plant

SAMSUN, Turkey

Capacity: 120,000 m³/d

Operation & Maintenance V – Ensuring sustainability

Waste Water Treatment Plant

Körfez/İzmit, Turkey

Capacity: 62,100 m³/d

Waste Water Treatment Plant

Yeniköy/İzmit, Turkey

Capacity: 55,000 m³/d

Operation & Maintenance VI – Ensuring sustainability

Land fill Leachate Treatment Plant (RO process)

Gaziantep, Turkey

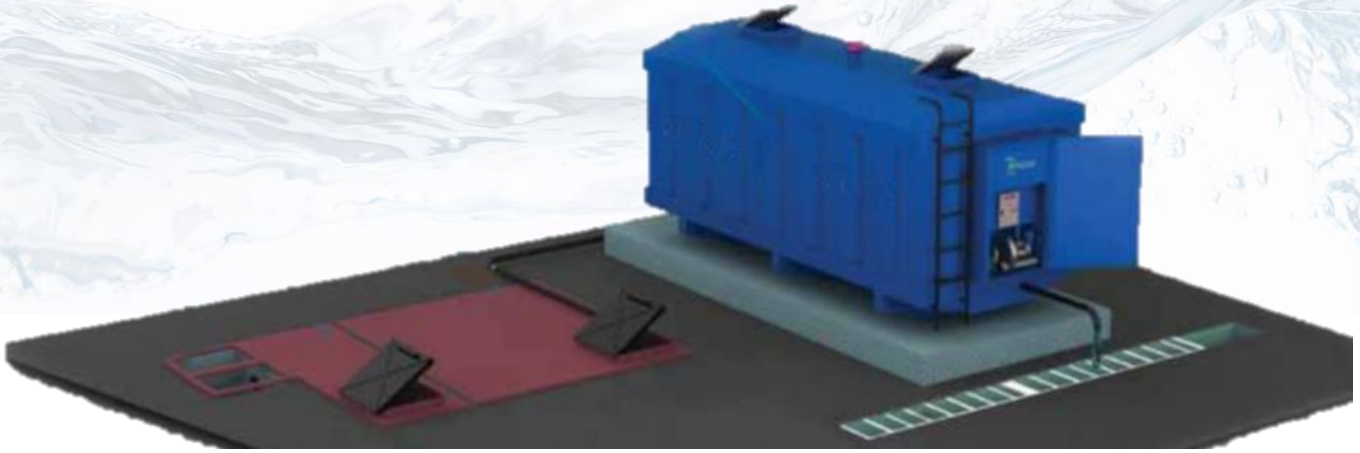
Capacity: 312 m³/d

CONTAINERIZED TREATMENT PLANTS - I

Containerized plants (waste water & water treatment plants) are pre-manufactured packages to treat wastewater in small communities or on individual properties.

Package plants are a great way to achieve treatment in an easy, economical, reliable and sustainable manner.

Compact and packaged treatment plants are applicable in a variety of settings ranging from small households to smaller villages and industries.



CONTAINERIZED TREATMENT PLANTS - II

Packaged treatment plants provide the following advantages :

- Quick and easy installation
- Low investment and operational costs
- Less legal documents and permits due to minimal civil works
- High treatment efficiency
- Trouble-free operation

ADVANTAGES - I

Quick and Easy Installation

Rapid installation and setup of the system as it is delivered with all equipment preinstalled. Simple to connect the system to the electricity supply and to connect the inlets and outlets.

Minimum Space Requirement

There are minimal requirements for scheduling and construction, since no infrastructure is needed, only a solid base to place the container evenly.

Low Investment and Operational Costs

Investment and operation cost are significantly lower for containerized plant comparing to central treatment plants

ADVANTAGES - II

Ability to Increase Capacity in Modules

The capacity of the system can be extended with additional modules or the existing capacity can be adjusted depending on loads.

ADVANTAGES - III

Odour and Noise Free

Packaged systems are generally enclosed boxes. No odor problems or noise, so it can be installed very close to populated areas and/or housing

Easy Operation and Maintenance

The operation of the containerized system is completely automatic and requires only a minimum of operational input.

High Treatment Efficiency

The solutions are modular, fully automatic, plug & play and can be manufactured in accordance to specific requirements or regulations.

Fully Automatic (PLC Controlled) Operation

Fully automated system simplifies control requirements and offers an operator friendly process control

Odor and Toxic Gas Problem in Wastewater Treatment Plants

- Biological decomposition of organic compounds in wastewater releases toxic and malodorous gases
- These gases are perceived by humans as smells similar to rotten eggs, garlic and faeces
- These gases cause discomfort and complaints in surrounding settlements and recreation areas
- Abov ons, they behave flamm v deadly prop oncentrations.

Odor Sources
Screens
Inlet Chambers
Equalization basins
Sludge Thickening
Sludge Dewatering
Sludge Storage

Toxic Gases
H_2S
NH_3
CH_4
SO_2
Trihalometans
Mercaptans

Solutions – Covering the Odor Sources

Basins

Channels and equipments

Tanks

Covers are produced from GRP material, which stands out with its corrosion resistance, strong mechanical properties and lightness. The polluted air collected from here is transmitted to the fully automatic odor/gas removal system with GRP pipes.

The air suction rate can be adjusted locally by valves, depending on the treatment requirements

GRP covers are manufactured in a moduler method, thus ease of assembly is provided. They can be easily disassembled during the maintenance and repair processes of the facility.

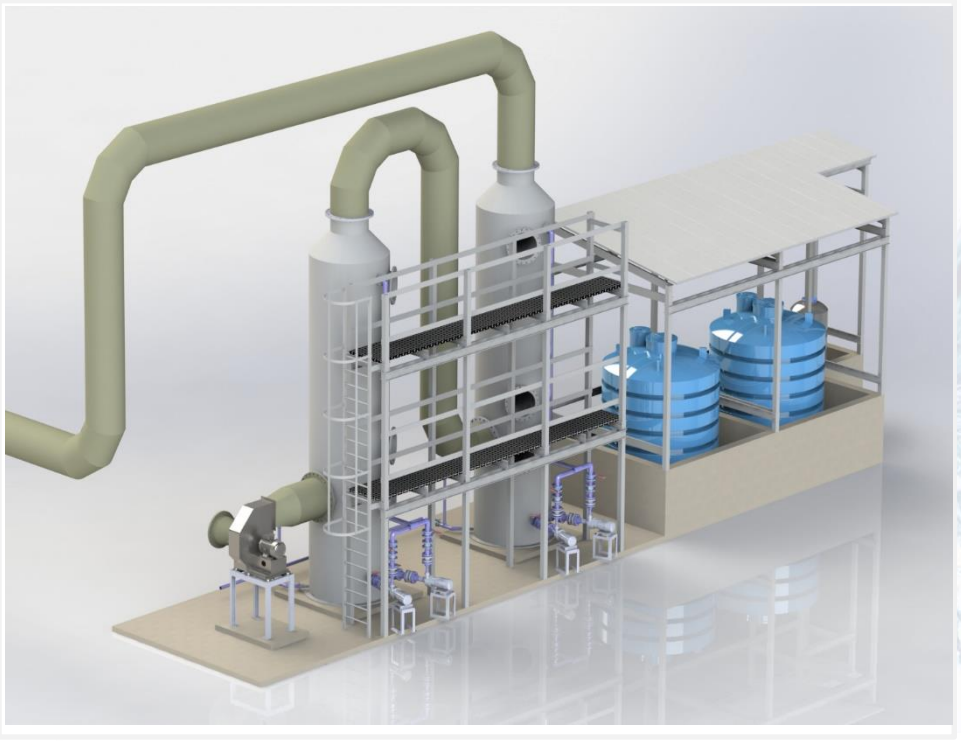
Solutions – Treatment of Odor and Off-gases

The gas pollutant is collected throughout the facility and transmitted to the scrubber equipment by the suction fan and pipeline

In scrubbers, the pollutants are transferred from the gas phase to the liquid phase and by the absorption method.

Gas treatment and odor removal system is a chemical wet absorption system known as Scrubber.

The absorption efficiency is increased by adding alkaline and acidic chemicals to the washing liquid.



Efficiency

Odor removal systems are specially designed for pollution concentration and site-specific conditions.

Concentrations of treated gas

H_2S, CH_4 ppm	< 1
NH_3 ppm	< 5
Odor Unit OU	< 1000

Advantages

- Fully Automatic Operation
- Low energy and long term use
- High treatment efficiency

PRAMOS – Plant Remote Asset Management Operating System

PRAMOS

Mobile Operations Management

Information System:

- for the entire plant life cycle
- for more efficient O&M
- supports all processes
- integrates all resources and disciplines

Contact

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