Leading Utilities of the World - Berliner Wasserbetriebe

Global Water Summit 2019, Madrid

Dr. Gesche Grützmacher | CTO Berliner Wasserbetriebe, Berlin, Germany

What we do

Germany's largest integrated water supplier and wastewater treatment company

214 Mio. m³
Water sales
+ 1,5 %

265 Mio. m³
Wastewater treatment
+/-0 %

539 Mio. EUR
Investments
(self-financed)
+ 13,7 %

4.836
Employees
+ 1,8 %

31.12.2024, Berlin and Brandenburg,
Percentage change compared to 2023

Water of Berlin

Guarantee for our growing city and good living environment

221 km²
drinking water protection area

650
active wells

9
Waterworks

234
drinking fountains

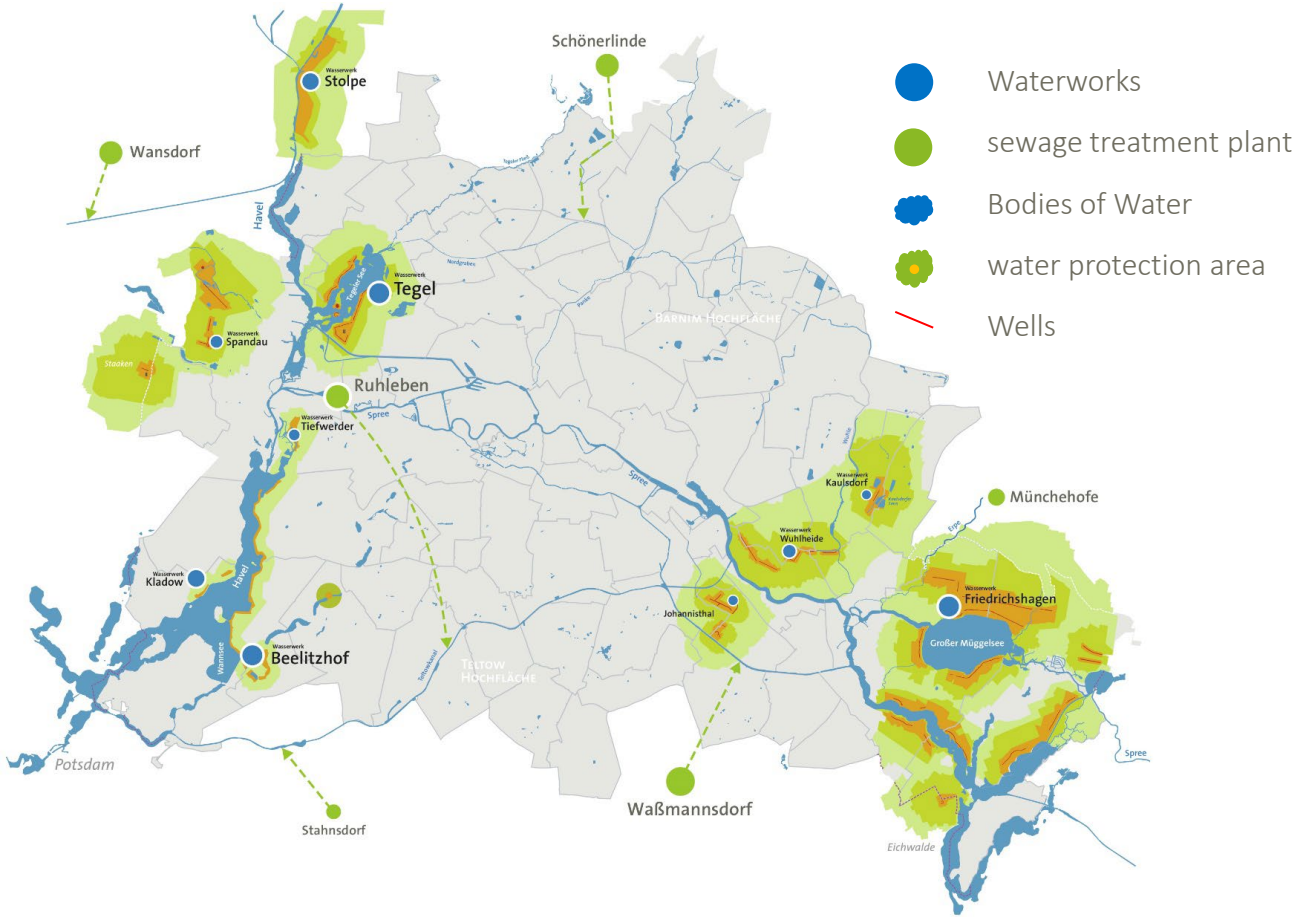
ca. 7.900 km
Drinking water pipe network

ca. 10.900 km
sewer network

6
sewage treatment plants

ca. 280.000
house connections

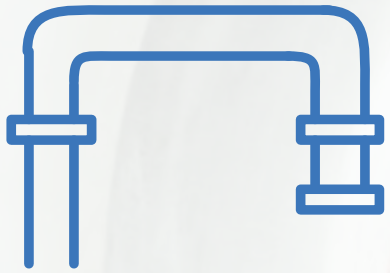
2.091
emergency hand pumps



Stand der Kennzahlen: 31.12.2024

Water of Berlin

Guarantee for our growing city and good living environment



ca. 7.900 km
Drinking water pipe network

ca. 10.900 km
Sewer network

Stand der Kennzahlen: 31.12.2024

Strategic Overview

Future Challenges

- ensuring top-level resilience (climate and security-related)
- historical investments > 500 Mio. EUR per year for renewal and expansion
- detailing the "Sponge City" concept and infrastructure adaptation
- handling PFAS and other organic trace-substances
- impact of the new EU UWWD, CSRD and NIS2

Sewer Asset management

Key questions

1. What is the condition of the pipes today - and in the future?
2. Where is the greatest risk of failure?
3. Priorities for inspection and rehabilitation?
4. What are the annual investments needs to maintain value?
5. How to faciliate inspection and daily maintenance?

Inspection of the sewer network

Drones instead and in addition to camera crawlers

- **The "DIANE" Project:** A research initiative focused on developing a prototype inspection drone specifically designed for the harsh conditions of sewer systems.
- Advantages are
  - Accessibility
  - Efficiency
  - Occupational Safety
- **Evaluation:** We are currently testing the technology to determine its feasibility for daily operational use.

AI based sewer asset management since 2019

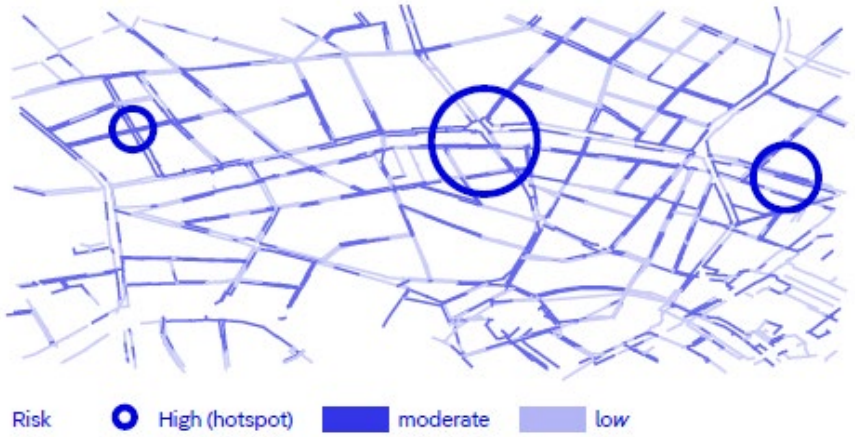
SEMAplus - an innovative, sustainable and cost-saving solution

KWB Kompetenzzentrum Wasser Berlin

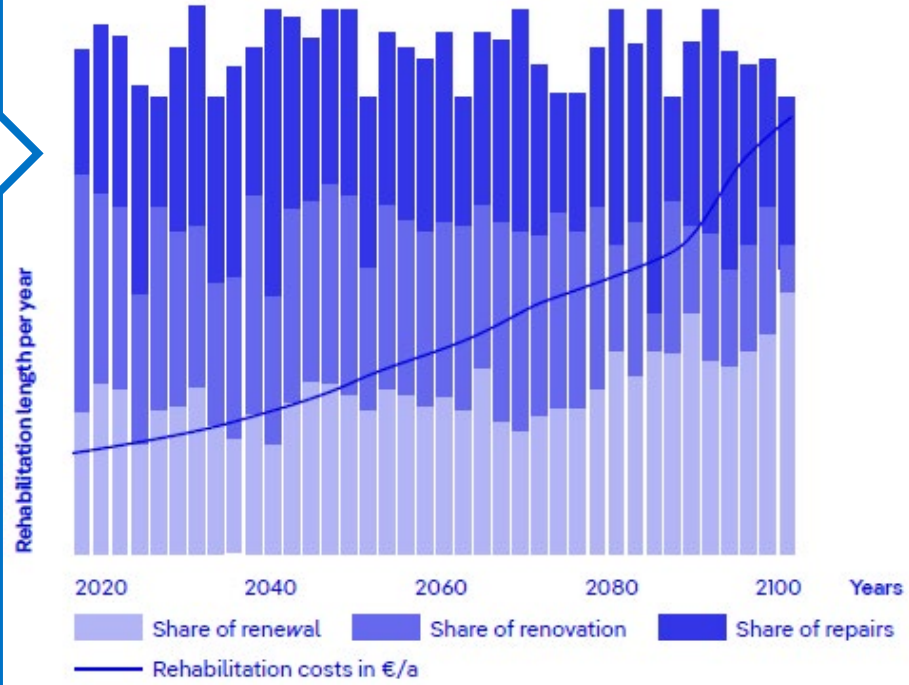
SEMAplus Simulators

The **SEMAplus Pipe Simulator** determines the current condition of each sewer pipe and helps localise urgent rehabilitation needs.

Hotspots for inspections basend on the forecasted rehabilitation requirements



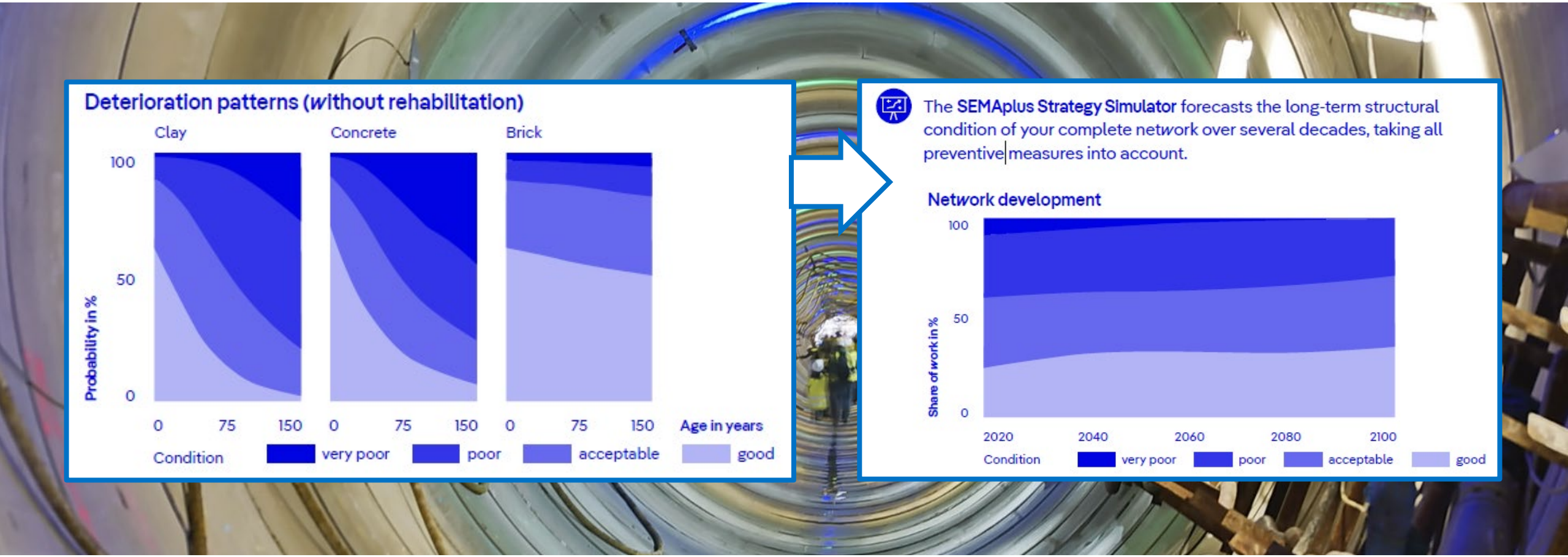
Rehabilitation requirements



AI based sewer asset management since 2019

SEMAplus - an innovative, sustainable and cost-saving solution

KWB Kompetenzzentrum Wasser Berlin



Magnetic field analysis

Testing non-destructive inspection systems

How does it work

- Magnetic field analysis is used to check the condition of the pipeline (defects), pipe geometry and coating.
- Condition assessment of the pipe wall is based on the analysis of anomalies in the magnetic vortex field.

Field tests

- Testing on real infrastructure - transport and raw water pipelines

Magnetic field analysis

Testing non-destructive inspection systems

While BWB results show promising trends, the precision of the EMPIT method remains inconsistent across the sector.

A definitive evaluation of its reliability and economic viability for asset management is pending the validation of data against scheduled construction works.

Semi-autonomous inspection system

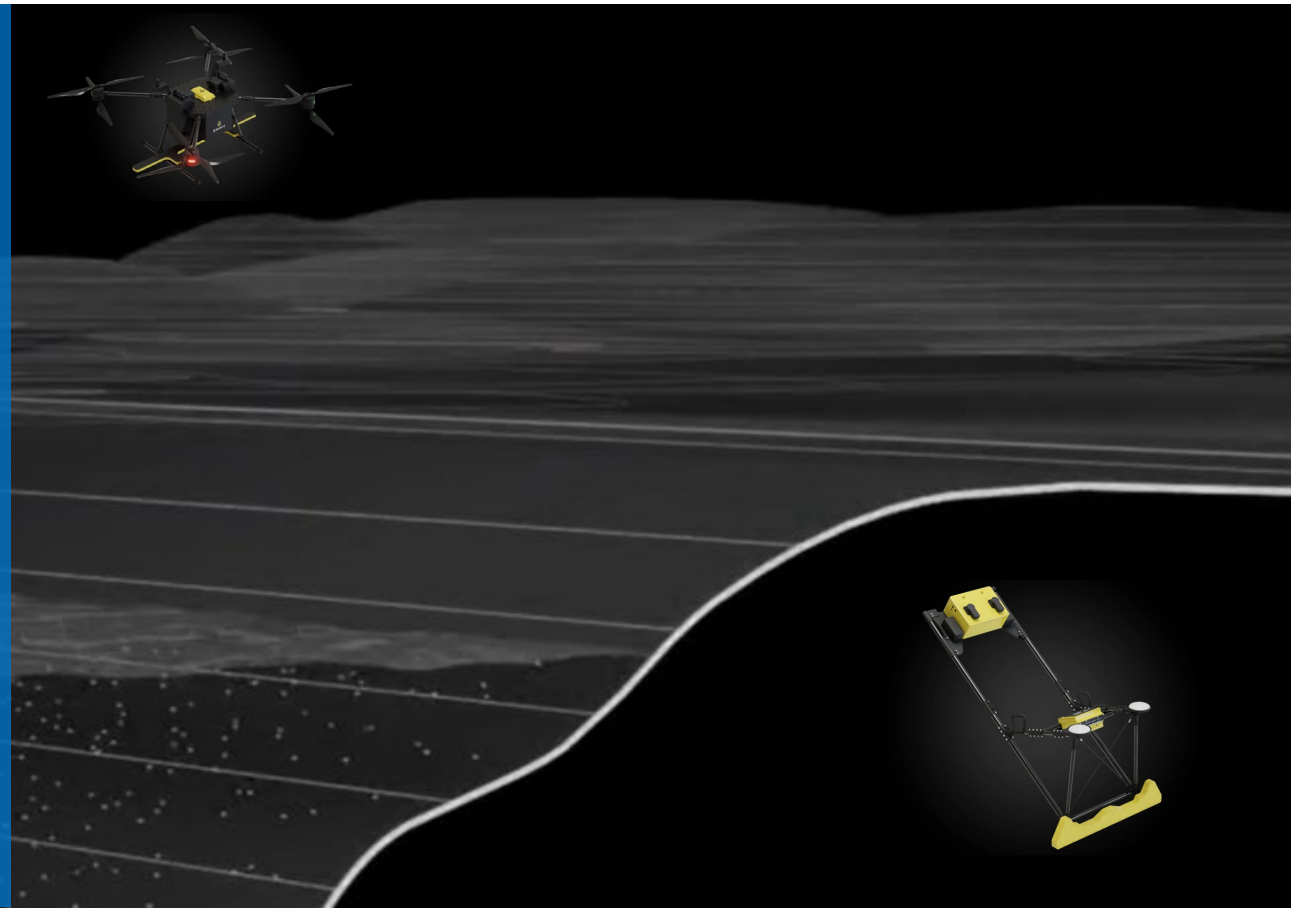
TAUWIS

Project goal:

- Development and real-world testing of an innovative underwater inspection system for metallic materials by EMPIT.
- Use in various application areas, focus on pipelines laid in bodies of water (inland and sea waters).

Technical equipment:

- Use of modified Current Magnetomery Inspection (CMI) sensors, sonar, and optical sensors.



Ganz klar für Berlin.