

An aerial photograph of a multi-lane highway bridge that curves through a dense, lush green forest. The bridge is supported by several concrete pillars. The forest is thick with various types of trees, and the lighting suggests a bright, sunny day. The highway has a few cars visible on it.

Digitaler Zwilling und die Nationale Wasserstrategie – damit es nachhaltig gut läuft

Berlin 23. November 2023 – 11. Deutsches Geoforum – Peter Rummel

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Think global – act local!

CO₂

H₂O

6 Commission priorities for 2019-24




The European Green Deal

Europe aims to be the first climate-neutral continent by becoming a modern, resource-efficient economy.



Posts by Bernardo



An aerial photograph of a large dam and reservoir. The reservoir is filled with greenish water and is bordered by a concrete dam. A spillway is visible on the right side of the dam, leading to a canal that flows through a lush green forest. In the foreground, there is a construction site with several pieces of heavy machinery, including a crane and trucks. The background shows a vast landscape with rolling hills and a blue sky with scattered white clouds.

**We provide innovative software to advance the world's infrastructure
– sustaining both the global economy and environment –
for improved quality of life**

Global Top 100 Software Company

Focused on Infrastructure Engineering



39
years in
operation



> 5,200
colleagues in
40 countries



> 1,400
colleagues with doctoral
and master's degrees



87%
colleagues recommend
as a place to work



~\$1.1B
annual revenue



> 194
countries where BSY
solutions are in use



\$664M
in R&D in past 3 years



290
patents granted or
pending



72%
Bentley Infrastructure
Top 500 Owners



93%
ENR Top 250
Engineering Firms



initial public
offering
September 2020



advancing
sustainable
infrastructure

Peter Rummel persönliches Mitglied im:



Mitglied im:



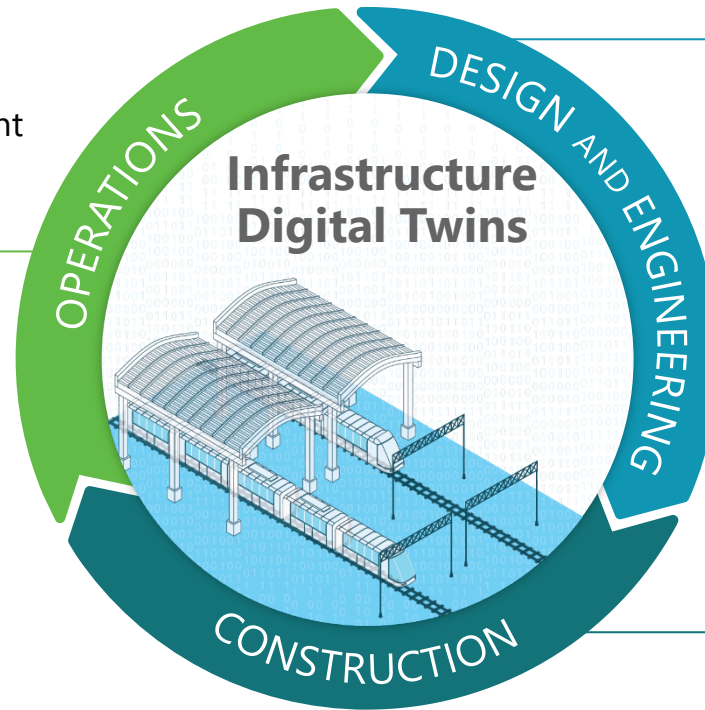
Member of
German Water
Partnership

Comprehensive, Innovative, Open

Infrastructure Engineering Software

- ▶ Civil engineering
- ▶ Structural engineering
- ▶ Geotechnical engineering

- ▶ Asset lifecycle information management
- ▶ Asset performance
- ▶ Asset reliability



- ▶ 4D construction sequencing
- ▶ Cost and perform
- ▶ Field and control



Infrastructure Digital Twins

Empowering Sustainable Development Goals



MOBILITY



ENVIRONMENT



GRIDS



Bewusstsein auf globaler Ebene



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Home » Publications » UN World Water Development Report 2023

UN World Water Development Report 2023

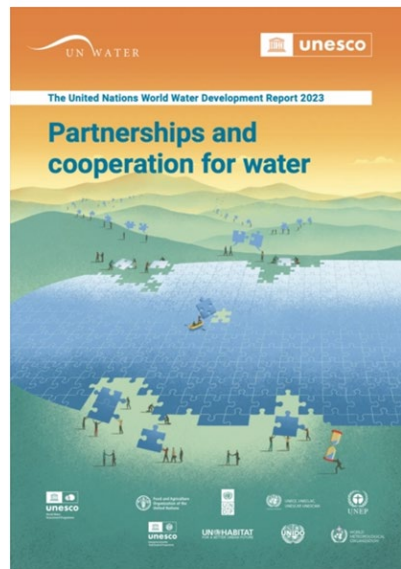
15 March 2023

UN World Water Development Report

Partnerships and cooperation for water

Safeguarding water, food and energy security through sustainable water management, providing water supply and sanitation services to all, supporting human health and livelihoods, mitigating the impacts of climate change and extreme events, and sustaining and restoring ecosystems and the valuable services they provide, are all pieces of a great and complex puzzle. Only through partnerships and cooperation can the pieces come together. And everyone has a role to play.

Sustainable Development Goal 6 (SDG 6) is to ensure availability and sustainable management of water and sanitation for all by 2030. At current rates, progress towards all the targets of SDG 6 is off-track and in some areas the rate of implementation needs to quadruple, or more.



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Summary of Proceedings - UN 2023 Water Conference

16 May 2023



The UN 2023 Water Conference saw the adoption of the Water Action Agenda, representing voluntary commitments of nations and stakeholders to accomplish the Sustainable Development Goals (SDGs) and their targets connected to water.

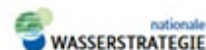
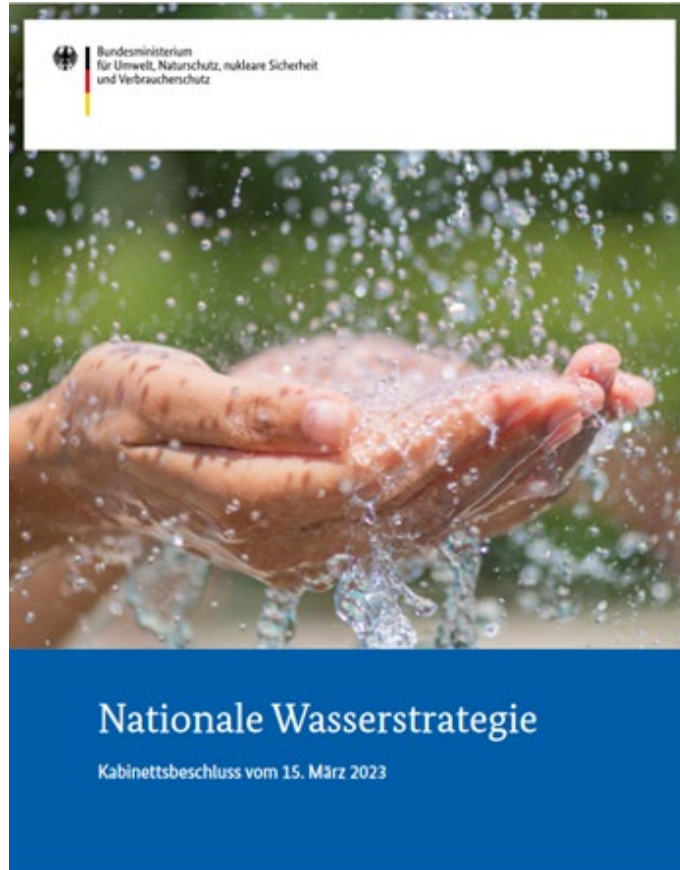
The Conference, formally referred to as the Midterm Comprehensive Review of the Implementation of the Objectives of the 2018-2028 International Decade for Action, convened from 22-24 March 2023 at UN Headquarters in New York.

The event brought together over 6,500 participants. By the close of the meeting, the Water Action Agenda had received approximately 700 commitments in the form of financial pledges, collaborative projects, and actions to protect the world's most precious and irreplaceable resource.

In accordance with General Assembly resolutions [75/212](#) and [73/226](#) the President of the General Assembly has prepared a summary of the UN 2023 Water Conference proceedings, that will feed into the [high-level political forum on sustainable development](#) (HLPF).

The summary aims to capture key messages outlined in the remarks and statements made by participating States and Observers, including intergovernmental organizations, UN system entities and stakeholders, during the six plenary meetings and five interactive dialogues of the Conference.

Nationale Wasserstrategie



Zentrale Ziele der Nationalen Wasserstrategie:

- Auch in 30 Jahren und darüber hinaus gibt es überall und jederzeit hochwertiges und bezahlbares Trinkwasser.
- Gewässer und unser Grundwasser werden sauber.
- Der naturnahe Wasserhaushalt wird gestärkt und wiederhergestellt.
- Die Abwasserentsorgung wird nach dem Verursacherprinzip organisiert.
- Wasserversorgungs-Infrastruktur und Wassernutzung werden an die Folgen der Klimakrise angepasst.



Maßnahmen

Auf dem Weg zu einer nachhaltigen Wasserwirtschaft

- Stärkung und Wiederherstellung des naturnahen Wasserhaushaltes
- ANK Aktionsprogramm Natürlicher Klimaschutz Laufzeit bis 2026 – 4 Milliarden Budget
- Planungshorizont bis 2050
- Mix aus Förderung, rechtlichen Regelungen, Wissensaufbau und Dialog
- Aktionsprogramm mit rund 80 Maßnahmen

Die 10 Schwerpunkte der Nationalen Wasserstrategie:

- 01 Den naturnahen Wasserhaushalt schützen, wiederherstellen und dauerhaft sichern – Wasserknappheit und Zielkonflikte vorbeugen [öffnen](#)
- 02 Gewässerträgliche und klimaangepasste Flächennutzung im ländlichen und urbanen Raum realisieren [öffnen](#)
- 03 Nachhaltige Gewässerbewirtschaftung weiterentwickeln - guten Zustand erreichen und sichern [öffnen](#)
- 04 Risiken durch Stoffeinträge begrenzen [öffnen](#)
- 05 Wasserinfrastrukturen klimaangepasst weiterentwickeln - vor Extremereignissen schützen und Versorgung gewährleisten [öffnen](#)
- 06 Wasser-, Energie- und Stoffkreisläufe verbinden [öffnen](#)
- 07 Leistungsfähige Verwaltungen stärken, Datenflüsse verbessern, Ordnungsrahmen optimieren und Finanzierung sichern [öffnen](#)
- 08 Meeresgebiete (Nord- und Ostsee) intensiver vor stofflichen Einträgen vom Land schützen [öffnen](#)
- 09 Bewusstsein für die Ressource Wasser stärken [öffnen](#)
- 10 Gemeinsam die globalen Wasserressourcen nachhaltig schützen [öffnen](#)

aktuelles
Europäisches Parlament

Schlagzeilen | **Presseraum** | Tagesordnung | FAQ | Pressemappe zur Europawahl

Presseraum / EU Nature restoration law: MEPs strike deal to restore 20% of EU's land and sea

EU Nature restoration law: MEPs strike deal to restore 20% of EU's land and sea

Pressemittteilung [ENR](#) [ENR](#) [ENR](#) 09-11-2023 - 22:59

- EU countries must restore at least 30% of habitat areas in poor condition by 2030, 60% by 2040, and 90% by 2050
- Targets to restore drained peatlands to reduce agricultural sector emissions and improve biodiversity
- Emergency brake included whereby provisions for agricultural ecosystems can be temporarily suspended under exceptional circumstances

The new law, agreed with member states, sets a target for the EU to restore at least 20% of the EU's land and sea areas by 2030 and all ecosystems in need of restoration by 2050.

Late on Thursday evening, negotiators from the Parliament and Council reached a provisional political agreement on the [EU nature restoration law](#).

Nature restoration targets

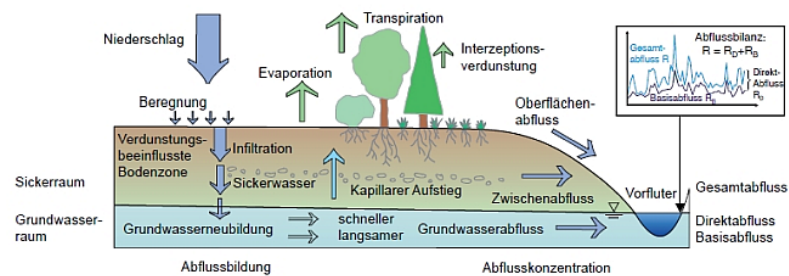
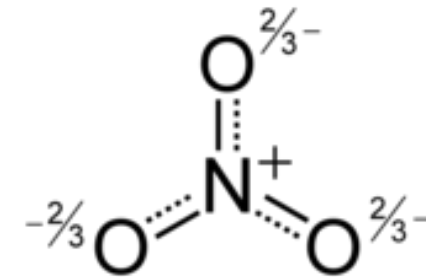
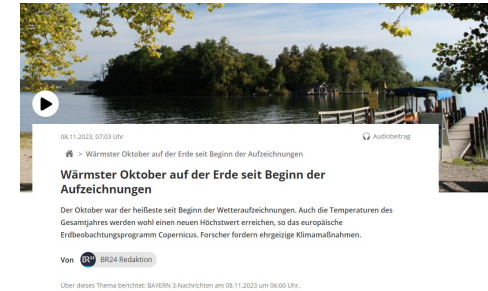
Co-legislators agreed on an EU target to restore at least 20% of land and 20% of sea areas by 2030 and all ecosystems in need of restoration by 2050. To reach these targets, EU countries must restore at least 30% of habitat types covered by the new law that are in poor condition to a good condition by 2030, increasing to 60% by 2040, and 90% by 2050.

Grundwasser - Bilanz



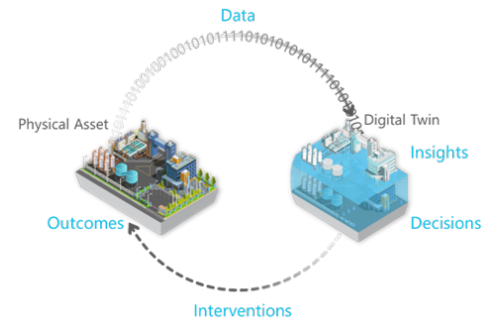
Vom Wasserverbrauch zum Wasserkreislauf

- Tiefengrundwasser – „eiserne Reserve“ für Trinkwasser
- Nachhaltigkeit durch Neubildung – kontrollierte dynamische Entnahme - Echtzeitdaten -
- Renaturierung der Umwelt zur Förderung der Versickerung – Abfluss entgegenwirken
- Geologische und Hydrogeologische Modelle zur Qualitätssicherung – 3D Modelle für Simulation
- Vernetzte Messungen und strategische Planung
- Prüfung von Bohrungen und Baumaßnahmen auf Auswirkungen auf das Grundwasser



<https://www.lfu.bayern.de/wasser/grundwasserneubildung/index.htm>

Trinkwasser



Höchste Qualität für alle Zwecke

- Versorgungssicherheit – Betrieb und Wartung bestehender Netze – 3D Leitungsmanagement
- Sensorik für mehr Sicherheit und Resilienz
KI / predictive maintenance
- Verbrauchssteuerung über progressive Preise und Mengenregulierung
- Swimming Pool, Autowäsche, Rasensprengen
- 120 Liter pro Kopf und Tag (Trink)Wasserverbrauch
- ...

Water & Wastewater FINALISTS



GEOINFO SERVICES
Achieving 24x7 Access To Clean Drinking Water For Emerging Economies

Location: Ayodhya, Uttar Pradesh, India
Project Playbook: OpenFlows
Image Credit: GeoInfo Services

[View Image](#)



L&T CONSTRUCTION
Rajghat Multi Village Rural Water Supply Scheme

Location: Ashok Nagar and Guna, Madhya Pradesh, India
Project Playbook: OpenFlows, OpenRoads, PLAXIS, STAAD
Image Credit: L&T Construction

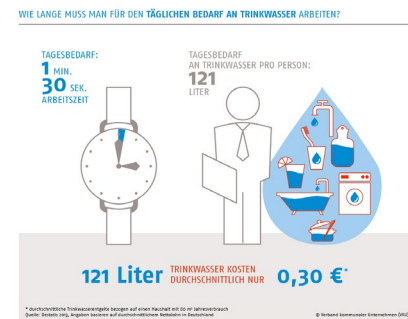
[View Image](#)



PROJECT CONTROLS CUBED LLC
EchoWater Project

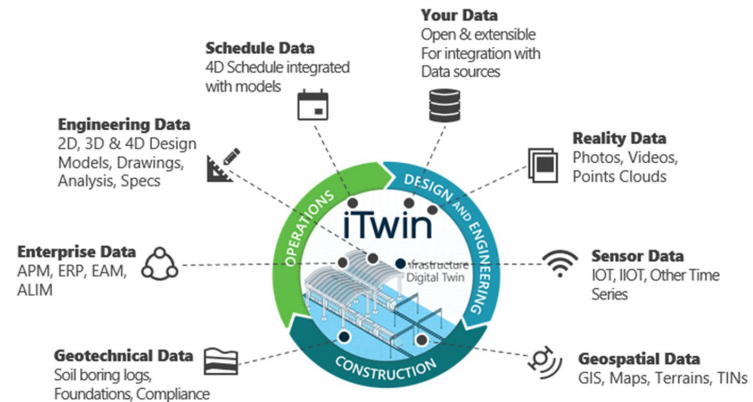
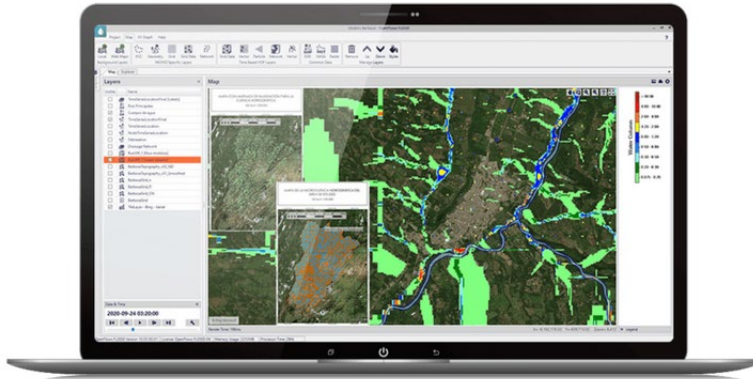
Location: Sacramento, California, United States
Project Playbook: iTwin, LumenRT, OpenRoads, SYNCHRO
Image Credit: Project Controls Cubed LLC

[View Image](#)



Quelle: Verband kommunaler Unternehmen

Regenwasser - Management



Regen – Fluch oder Segen (urbaner Kontext)

- Regen – zu viel und zu schade für die Kanalisation
- Schwammstadt – natürliche Rückhaltesysteme und Versickerungsmöglichkeiten und Bewuchs
- Intelligente Steuerung Baumbestand / Bewässerung
- Ortsnahe Versickerung / Entsiegelung / Flächenmanagement - Nutzungsprioritäten
- Wasserbilanz für Flächen, Infrastruktureinrichtungen und Gebäude – H2O Fußabdruck - Reportingpflicht
- Technische Wasserspeicher





SHANGHAI INVESTIGATION, DESIGN & RESEARCH INSTITUTE CO., LTD.

Digital Asset Management Of Hydropower Projects Based On Digital Twins

Location: Liangshan, Yibin, and Zhaotong, Sichuan and Yunnan, China

Project Playbook: iTwin, iTwin Capture, MicroStation, OpenBuildings, OpenPlant, OpenUtilities, ProjectWise, Raceway and Cable Management

Image Credit: Shanghai Investigation, Design & Research Institute Co., Ltd.



Talsperren - Fernleitungen

Große Projekte – große Wirkung ?

- Digitaler Zwilling bei Großprojekten – Zeit bis zur Inbetriebnahme – Kosten – Umweltbilanz (neu)
- Digitaler Zwilling Bestand – Nutzungsanpassung – Lebenszyklusmanagement - Sicherheitskonzepte
- Erwartete Leistungsfähigkeit – Nutzungsoptionen Vergleich zu anderen Maßnahmen
- Zentrale versus dezentrale Ansätze
- Fernleitungen – (Beispiel Bodensee) Konzept – Trasse – Bauweise – Resilienz
-



Name der Talsperre	Fließgewässer (eingestaut/ eingeleitet/ eingepumpt)	Länder	Bauzeit	In Betrieb	Alter	Kronen- höhe m. b. Größe	Kronen- länge m	Stausee- fläche (Vollstau)	Stausee- volumen Mio. m ³ (Vollstau)	Nutzungstyp (alphabetisch sortiert)
Bleilochstalsperre	Saale	TH	1926–1932	1992	91	65	205	9,2	215	BWV, HWS
Rurtalsperre	Rur	NW	1934–1959	1959	64	77,2	480	7,83	202,614	BWV, E, HWS, NEG, NWA, TWV (nur Obersee)
Ederstalsperre	Eder	HE	1908–1914	1914	109	48	400	11,8	199,3	E, HWS, NEG, NWA
Hohenwarte-talsperre	Saale	TH	1936–1942	1942	81	75	412	7,3	182	BWV, (E), HWS
Bisseggtalsperre	Blige	NW	1957–1965	1965	58	52	640	8,76	171,7	E, HWS, NEG
Forggensee (Speicher Bauhauptamt)	Lech	BY	1950–1954	1954	69	41	320	15,2	168	E, HWS, NEG, NWA
Brombachsee (Großer)	Brombach (zudem Altmühlüberleiter), Gelsbach	BY	1983–1999	1999	24	37,3	1.700	8,7	136,6	E, HWS, NEG, NWA
Möhnetalsperre	Möhne	NW	1908–1913	1913	110	40,3	650	10,37	134,5	E, HWS, NEG, NWA
Syvensteinspeicher	Saar	BY	1954–1959	1959	64	44	180	3,9	124	E, HWS, NEG

Infrastruktur pur!

The screenshot shows the Bentley website's navigation bar with links for Software, Industries, Engineering Services, Digital Twins, Support, Company, and Shop. Below the navigation is a breadcrumb trail: Home / The Year in Infrastructure / Highlight Videos. The main content area features a large banner for the '2023 GOING DIGITAL AWARDS IN INFRASTRUCTURE' with a background image of the Marina Bay Sands hotel. The title 'Highlight Videos' is prominently displayed, followed by the text 'Catch Up on the Year in Infrastructure 2023 Videos from Inspiring Keynotes and Industry Breakout Sessions Today!'. A secondary navigation bar includes links for About, Speakers, Winners, Press, Awards, Categories, and Videos. Below this is a section titled 'Watch Keynote and Industry Videos' with five icons representing different categories: Keynote Videos, Construction Videos, Energy Videos, Transportation Videos, and Water & Utility Videos.

<https://www.bentley.com/events/going-digital-awards/highlight-videos/#keynote>

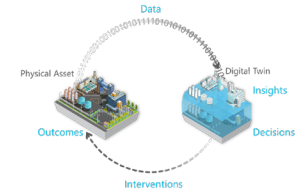


The page is titled 'Water And Utilities Videos' and features an 'INDUSTRY BREAKOUT SESSION SUMMARY'. A paragraph of text describes the session's focus on digital advancements in water infrastructure. Below the text are six video thumbnails arranged in a 2x3 grid. The thumbnails are labeled: 'OVERALL SUMMARY' (2-3 Min), 'CHAPTER ONE' (Every Human Endeavour is Dependent Upon Sustainable and Resilient Water Management), 'CHAPTER TWO' (Panel Discussion: Connected Water Infrastructure for Sustainable, Resilient, and Agile Communities - Intro), 'CHAPTER THREE' (Panel Discussion), 'CHAPTER FOUR' (Infrastructure intelligence is accelerating. Thousands of water professionals that use our technology every day each have their own stories. Based on their own local needs and priorities and strategies.), and 'FULL RECORDING' (50+ Minutes).

The thumbnail shows a man speaking at a podium. Text on the thumbnail includes 'PETER RUMMEL: NATIONALE WASSERSTRATEGIE - LÄUFT... INTERGEO TV' and a duration of '14:50'.

https://www.youtube.com/watch?v=03t49iRIYcg&list=PL0eAVG85v04_W-QBkuxaalarUxdwu9ZKp&index=4

Daten und Wasser fließen lassen



Next-Generation Infrastructure: Advancing the digitalisation of EU water and wastewater management



The protection of water resources is one of the cornerstones of the EU's environmental policy. In December 2019, a [fitness check](#) conducted by the European Commission concluded that there is still room for improvement across Member States when it comes to investments in infrastructure and uptake of digitalisation in this field. In October 2022, the European Commission also put forward a long-awaited proposal to revise the rules on treating urban wastewater and achieve a pollution-free environment by 2050.

In light of the EU's forthcoming 2040 climate target, the ongoing implementation of National Recovery and Resilience Plans, and ahead of next year's European elections, this event will facilitate a discussion on the future of EU water policy and the way forward for digitalising water and wastewater management.

[Introductory remarks](#): [Beatrice Covassi](#), Member of the European Parliament and Co-Chair of the Sustainable, Long-term Investments & Competitive European Industry Intergroup

[Panel discussion](#) (moderated by [Derk Krol](#), Executive Director, Water Europe):

- [Michel Spoor](#), Deputy Head of Unit, Marine Environment & Clean Water Services, European Commission
- [Penelope Welles](#), Member of the European Parliament and Chairwoman of the MEP Water Group
- [Rodrigo Fernandes](#), Director for Empowering Sustainable Development Goals, Bentley Systems
- [Jacob Vind](#), Global Water Industry Expert, Danfoss

Sehr geehrter Herr Rummel,

wir freuen uns, dass Ihnen der vorgeschlagene Termin passt. Meine Kollegin wird Ihnen einen Termin mit Link zur Verfügung stellen.

Ich kann Ihnen versichern, dass wir mit Hochdruck an der Umsetzung der Nationalen Wasserstrategie arbeiten. Dabei ist dem BMUV die Wichtigkeit einer guten Datenbasis für die Gesamtumsetzung der Nationalen Wasserstrategie sehr bewusst. Wir räumen deshalb den Themen rund um Daten und Datenmanagement eine hohe Priorität ein und werden weiterhin engagiert mit den Ländern zusammenarbeiten um hier Verbesserungen zu erzielen.

Näheres besprechen wir gerne beim gemeinsamen Austausch im Dezember.

Herzliche Grüße aus Bonn,

BIM World MUNICH 2023



Transparente Maßnahmen und messbarer Erfolg

- Transparenz was wurde gemacht - was hat es gebracht
- Quantifizieren der Ziele und Zwischenschritte
- Datengrundlage für Monitoring, Analyse und Simulation schaffen (historisch / Echtzeit)
- Wasserbilanz für Deutschland und in den Teilsystemen
- Digitaler Zwilling Konzept auf Grundwasser und Regen adaptieren
- H2O = kann von CO2 lernen
- Virtuellen Wasserverbrauch beachten / ESG Ansatz

Wasser – bleiben wir im Gespräch!

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Change Agent | Digital Expert |
Transformation Leader | Optimist | Innovator

An aerial photograph of a multi-lane highway bridge that curves through a dense, lush green forest. The bridge is supported by several concrete pillars. The forest is thick with various types of trees, and the lighting suggests a bright, sunny day. The highway has a few cars visible on it.

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