



Water Europe

The voice and promoter of water-related innovation and RTD in Europe

The Value of Water: paving the way towards a climate-resilient Water-Smart Society: Addressing the Zero Pollution challenge and global actions with Water-Oriented Living Labs



O caminho da
INOVAÇÃO
7ª EDIÇÃO

10 DE OUTUBRO
RESERVE A DATA



Who are WE?

- **Recognized voice and promoter of water-related innovation, research, and technology development in Europe**
- **Mission:**
 - Improve **coordination and collaboration** in the water ecosystem in the EU and beyond;
 - Enhance **performance and competitiveness** of the water ecosystem;
 - Contribute to solving **global water challenges** through RTD&I.
- **Water Europe Strategy:**
 - **Multi-stakeholder** association representing the entire range of actors in the innovative water ecosystem
 - **Value-based** organisation: Water Vision

Values & members



College A: Multinational corporations
 College B: Research & Technology developers
 College C: Utilities
 College D: Suppliers & SMEs
 College E: Large water users

College F: Public Authorities
 College G: Civil Society Organisations

WE organisational matrix



WATER EUROPE NEW MANIFESTO

WHY
WATER?

WHY WATER?
We all depend on water

2nd
most exploited resource
for our economy, society,
and environment

90%
of economy depends on
water availability

**Water
Europe**
Technology & Innovation

The infographic features an aerial view of three large, circular water treatment tanks situated in a lush green forest. The tanks are arranged vertically, with a smaller circular structure between the middle and bottom tanks. The text is overlaid on the image in white and blue boxes.

WATER EUROPE NEW MANIFESTO

WE ARE NOT
EQUAL



WATER EUROPE NEW MANIFESTO

WE WILL ALL
FACE WATER
SCARCITY



WATER EUROPE NEW MANIFESTO

WE WILL ALL
LOOSE

WHY WATER?

We will all loose

€5.6

trillion GDP of our
economies globally could
be eliminated due to
water risks

SDGs

All of them require water
security, sustainability, and
resilience to be achievable



Okay Houston.....we've had a problem here....

The climate crises is
the water crises....

..and the climate risks
are the water risks

Climate change are exacerbating both the severity and unpredictability of weather events.



Climate risks are crosscutting and affect water, health, livelihoods, food security, human security and economic growth



The impacts related to climate change and variability has increased in recent decades and are projected to increase with global warming.



Water is the first resource impacted by climate change, which is aggravating other environmental, economic and social problems that threaten the development of economies and people's livelihoods.



Climate-related water crises are ranked the highest among the top 10 global risks in terms of impact and likelihood.

Climate risks are the water risks



EXTREME WEATHER

100% increase in flood risk. | vs | **170%** increase in flood risk.

SPECIES

6% of insects, **8%** of plants and **4%** of vertebrates will be affected. | vs | **18%** of insects, **16%** of plants and **8%** of vertebrates will be affected.

WATER AVAILABILITY

350 million urban residents exposed to severe drought by 2100. | vs | **410 million** urban residents exposed to severe drought by 2100.

ARCTIC SEA ICE

Ice-free summers in the Arctic at least once **every 100 years.** | vs | Ice-free summers in the Arctic at least once **every 10 years.**

PEOPLE

9% of the world's population (700 million people) will be exposed to extreme heat waves at least once every 20 years. | vs | **28%** of the world's population (2 billion people) will be exposed to extreme heat waves at least once every 20 years.

SEA-LEVEL RISE

46 million people impacted by sea-level rise of 48cm by 2100. | vs | **49 million people** impacted by sea-level rise of 56cm by 2100.

OCEANS

Lower risks to marine biodiversity, ecosystems and their ecological functions and services at 1.5°C compared to 2°C.

COSTS

Lower economic growth at 2°C than at 1.5°C for many countries, particularly low-income countries.

FOOD



What is pollution?

Transport is responsible for around **45 %** of Europe's emissions of nitrogen oxides (NO_x) and a significant proportion of the total emissions of other key pollutants.

Road traffic is the most widespread source of environmental noise, with more than **100 million** people affected by harmful levels in Europe.

Energy production and distribution are the main source of sulphur oxides (SO_x) emissions and a major source of NO_x emissions.



Unsustainable farming practices lead to pollution of soil, water, air and food, overexploitation of natural resources, and biodiversity loss and ecosystem degradation.

The agricultural sector is responsible for more than **90 %** of Europe's ammonia emissions and almost 20 % of emissions of non-methane volatile organic compounds (NMVOCs), such as benzene and ethanol.

Domestic heating is an important source of dust pollution. Commercial, institutional and residential buildings account for **53 %** of fine particulate matter (PM_{2.5}) emissions. Households are also a source of pollution discharges to water.

Waste production and poor waste management contribute to air pollution and affect ecosystems. Dump sites, illegal disposal and littering create further risks, including soil pollution and marine litter.

Water Pollution



European
Environment
Agency

Progress has been made in reducing water pollution from industry, transport, and homes, leading to a decrease in pollution-related deaths in Europe. There have also been improvements in bathing and drinking water quality and efforts to combat antimicrobial resistance.

However, challenges remain in preventing excess nutrients and persistent chemicals and emerging contaminants from harming freshwater and marine ecosystems. **Additionally, efforts to reduce waste have shown limited results, and Europe's current production and consumption systems hinder the transition to a more sustainable and circular economy.**



Water Scarcity

- Most of southern and western Europe is affected **by substantial anomalies** of soil moisture and river flow due to an exceptionally dry and warm winter.
- The snow water equivalent in the Alps is far below the historical average and is even lower than that for the 2021-2022 winter. This will lead to **severe reduction of snowmelt contribution to river flows in the perialpine region during spring and the early summer 2023.**
- Impacts of the emerging drought are already visible in France, Spain, and northern Italy and raise concerns on water supply for human use, agriculture, and energy production.
- Seasonal forecasts show a warmer than average spring over Europe, while precipitation forecasts are characterized by higher spatial variability and uncertainty. Close monitoring and proper water use plans are required to deal with a season that currently has a high risk of being critical for water resources.



Drought in Europe March 2023

GDO Analytical Report



Water is a very complex resource



It is a....

- **local** resource
- **finite** resource
- **shared** resource

Our current inability to adequately determine **the sustainable use of water at a particular location** is the greatest obstacle to progress in water management and its stewardship....LL can be the key solution!

Most of the time we have no idea what we are aiming for. “**We have no clear sustainability end point**”

WE DO HAVE

Key opportunities

Securing long term **resilience**, stability and sustainability of **water for a Water-Smart Society**

Smart investment and governance models as well as harvesting the **value of/in water**.

A holistic water strategy, centred on the connectivity between water management, water stewardship and innovation using **strong digital transformation**

Living labs as the form of collective **water governance**



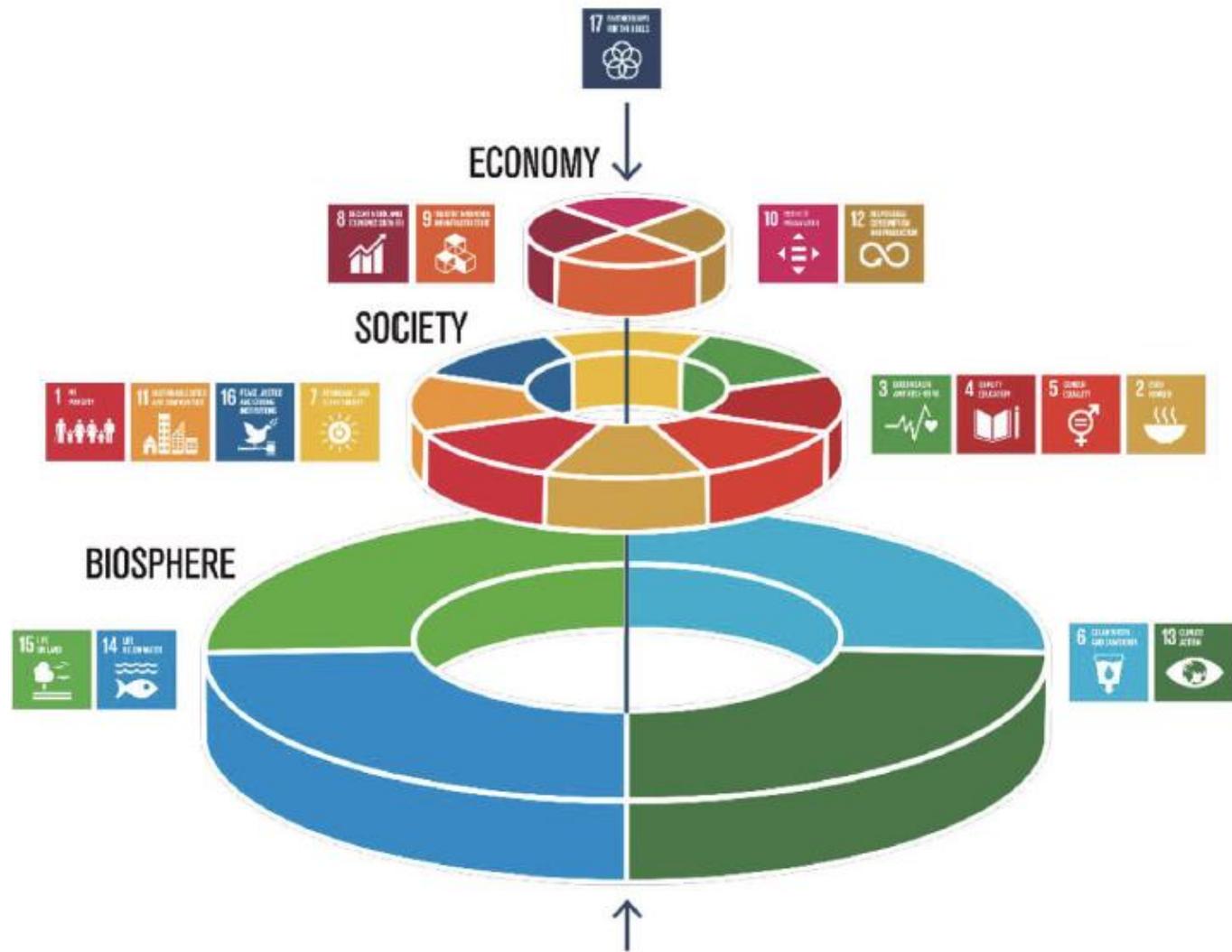
The relationship of SDG 6 with other SDGs



We need PARTNERSHIPS to achieve a Water-Smart Society

All current engagement mechanisms are necessary, as global societal challenges cannot be addressed individually by each country or sector.

This is consistent with the main theme and targets of SDG 17 related to resource mobilization, in particular the effectiveness of inclusive governance and complementarity of funding mechanisms is a strong added value in tackling global water challenges.



Vision for a Water-Smart Society

Water-Smart Society

A society in which :

- the **value of water** is recognised and realised to ensure water security, sustainability, and resilience.
- all available water sources are managed so that **water scarcity and pollution** are avoided.
- water and resource loops are largely closed to foster a **circular economy and optimal resource efficiency**.
- the water system is resilient against the **impact of climate and demographic change**.
- all relevant stakeholders are engaged in guaranteeing sustainable **water governance**.



Water-Smart Society

- 3 key objectives -

Water Security

Safeguarding the sustainable access to sufficient quantities of affordable and fit-for-purpose water, in order to preserve the health of the population and ecosystems, foster the socio-economic development of society, and ensure their protection against water-related disasters, such as those resulting from climate change.

Water Sustainability

Ensuring water infrastructure, management and use that are economically and environmentally sustainable, in a way that meets current ecological, social and economic needs, without compromising the ability to meet these needs in the future.

Water Resilience

Achieving long-term resilience, so that natural and anthropogenic water systems can withstand unexpected disruptive events, averting serious consequences, such as droughts and floods, while guaranteeing the reliability of the water system.



Water-Smart Society

- 5 innovation areas -

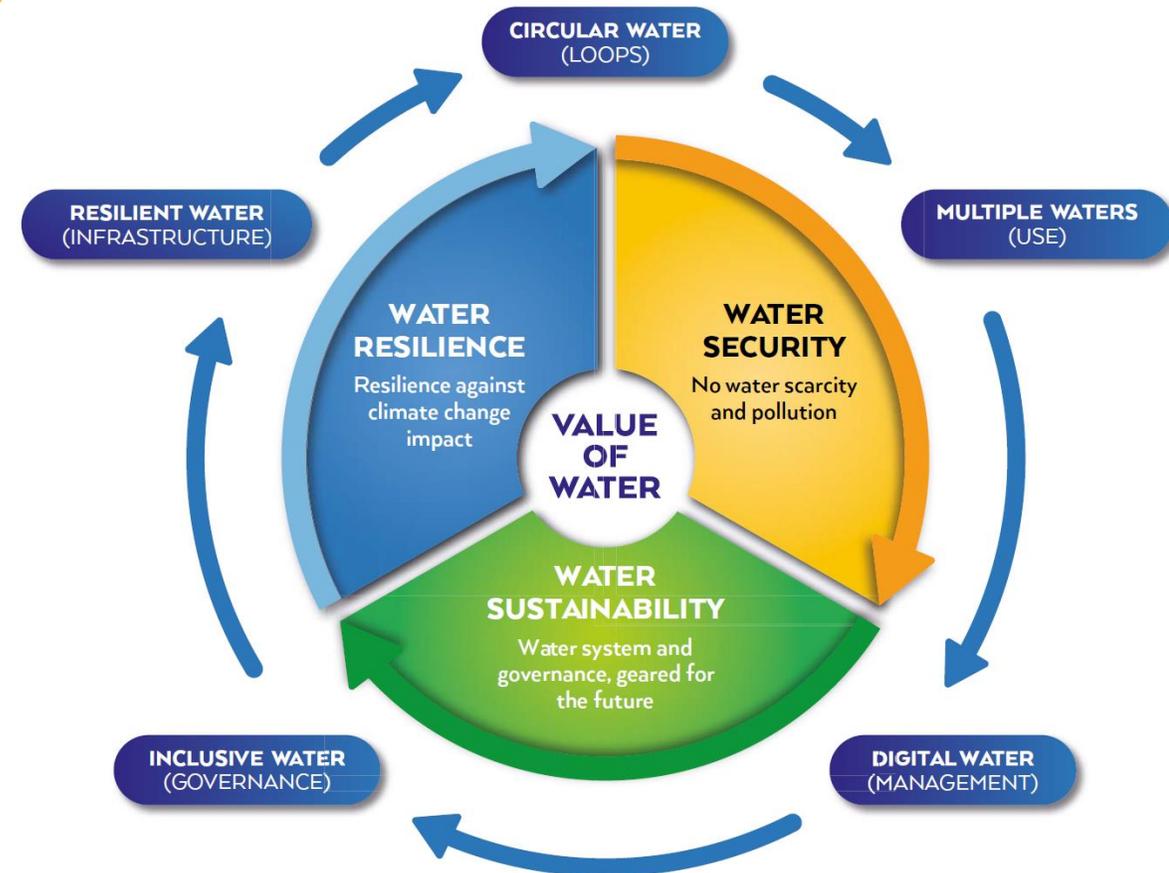
1. Circular Water: circular water system that minimise water losses, captures and exploits the value in water, and fosters a resilient and water-secure system.

2. Multiple Waters: incorporates a wide range of water sources and qualities (fresh groundwater and surface water, rainwater, brackish water, brine, grey water, black water, recycled water) into a water-secure, resilient and sustainable water system.

3. Digital Water: exploits the benefits of the extreme interconnectivity of people, devices and processes, and create capillary networks capable of monitoring the water system, starting at its multiple sources through to the individual end-user, thus generating continuous flows of valuable data for innovative decision-support systems at different governance levels.

4. Inclusive Water: establishes a water system whose governance balances the interests of all stakeholders in its design, management and maintenance.

5. Resilient Water: creates a resilient and reliable hybrid grey and green water system, designed to withstand severe external and internal shocks – such as climate-change induced floods and droughts – without compromising essential functions.



Source: Water Europe

Water-Oriented Living Labs for a **Water-Smart Society**



Water-Oriented Living Labs have been defined by Water Europe as follows:

- 💧 **real-life** demonstration and implementation instruments
- 💧 **bring together** public and private institutions, government, civil society, and academia
- 💧 **jointly build structured grounds** to develop, validate, and scale-up innovations
- 💧 embrace new **technologies, governance, business models, innovative policies**



The United Nations World Water Development Report 2023

Partnerships and cooperation for water

Water Europe's **Vision** and its approach were recognised in the [UN Water Report 2023](#) on partnership and cooperation, particularly the **Water-Oriented Living Labs** (page 122).

Water4All: the EU funded Partnership demonstrating Water Innovation through WOLLs



WATER4ALL
PARTNERSHIP

Water4All: Water security for the Planet



ENoLL Living Labs Open Days
21 September 2022

European Partnership

www.water4all-partnership.eu



Co-funded by
the European Union



Water4All in a nutshell

- **Systemic transformations across the water research and innovation pipeline**
- **Ensuring water security for all in the long term**
- **79 partners**
- **23 EU MS + 8 non-EU countries**
- **From 2022 to 2029 and beyond. Launch: 1st June 2022**
- **Contribution to the twin Green and Digital transformation**
- **450 MEUR Budget**



Water4All member countries

E. Internationalisation

Developing international cooperation agreements
Engaging with UN Water and other international stakeholders
Developing innovative tools for cooperation

B. Research and innovation Development

Joint transnational calls
Thematic annual programming
Young researchers calls
Demo/transfer calls

A. Joint vision & SRIA

SRIA Development

D. Demonstrating Solution efficiency

Water Oriented Living Labs
Network of LLs/demos and roadmap for demonstration implementation
Support to development of new LLs
Market uptake support
Liaising with investors

C. Science – Policy - End-users interface

Knowledge hubs, policy WGs
Support to start-ups creation
PhD scheme; mobility scheme
Vocational training
Capacity building on systemic thinking
Link to research infrastructures
Toolbox for managing water data

Pillar D. Demonstrating Solution efficiency

- Water-Oriented Living Labs (WOLLS)
- Network of WOLLS and roadmap for demonstration implementation
- Support to development of new WOLLS
- Market uptake support
- Liaising with investors

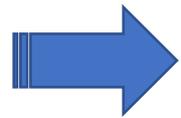


Water-Oriented Living Labs (WoLLs)

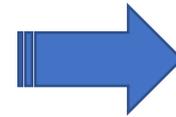
HEU Water4All Partnership



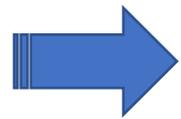
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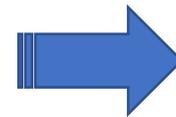
Engaging with existing operating WoLLs and Demos



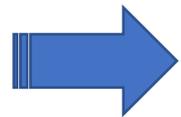
co-development of **practical, cost-efficient and affordable solutions** for replication in different contexts



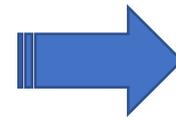
Establishment of new WoLLs and Demo



Enabling **new environments** for facilitating replication.



Engaging with the development/**Investment** programmes



Connecting support and funding from a **combination** of research and innovation programmes

WATER EUROPE LEADS THE PILLAR D: DEMONSTRATION OF INNOVATION AND SCALE UP THROUGH WOLLS

The journey of WOLLS 2019 - 2022

2019

2022



ATLAS
OF THE
EU
WATER
ORIENTED
LIVING LABS



WATER-ORIENTED
LIVING LABS



DEFINITIONS,
PRACTICES AND
ASSESSMENT METHODS

NOTEBOOK
SERIES#1



WATER-ORIENTED
LIVING LABS



HOW TO ASSESS
AND EVOLVE
WATER-ORIENTED LIVING LABS
A MANUAL WITH A VISION

NOTEBOOK
SERIES#2

Current and next steps on WOLLS towards 2024

2022-2023

**ASSESSMENT
&
MAPPING OF
WOLLS**

15 eligible so far



2024

**WOLLS ATLAS
&
WOLLS
NETWORK**

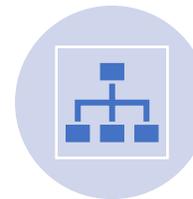
HOW WOLLs CAN SUPPORT THE GREEN AND DIGITAL TRANSITION



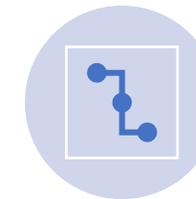
A Water-Smart Society



**STAKEHOLDERS
ENGAGEMENT**



CO-CREATION



**INNOVATION
REPLICABILITY,
TRANSFERABILITY,
SCALABILITY**



**BOTTOM-UP
INNOVATION**



**EXCHANGE OF
KNOWLEDGE**



ADAPTIVE INNOVATION



**GOVERNANCE AND
BUSINESS MODELS**

The support of EU funded R&I projects on climate and WOLLs



TransformAr

TransformAr aims to demonstrate solutions and pathways, deemed essential for climate and social resilience to achieve rapid and far-reaching transformational adaptation



ARSINOE aims at creating climate resilient-regions through systemic solutions and innovations and by bringing together the Systems Innovation Approach (SIA) and the Climate Innovation Window (CIW) to build an ecosystem for climate change adaptation solutions.



IMPETUS focuses on increasing our resilience. Working with local citizens, policy-makers and businesses in our demonstration sites around Europe, our teams are analysing solutions, boosting knowledge, and creating packages of adaptation measures that other communities can use as a pathway towards a climate-neutral and sustainable future.

WATER EUROPE clustering actions for A Water-Smart Society

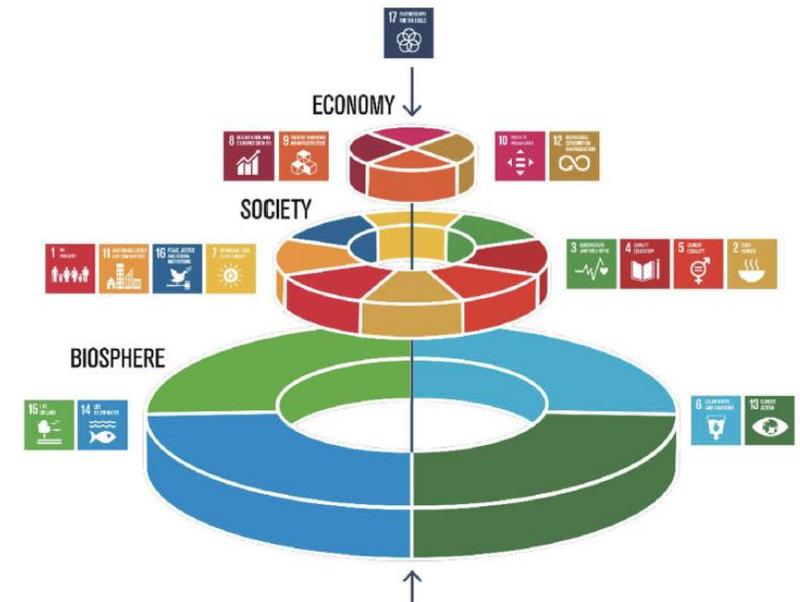


Through our work, we want to accelerate the transition to a zero-pollution future for water



We need PARTNERSHIPS to achieve a climate resilient Water-Smart Society!

- The **participation of the economic sector** must be encouraged and increased
- Conscious **stakeholder participation** is imperative for sustainable development : water management should be based on a participatory approach.
- Promote **knowledge hubs and Water-Oriented Living Labs**, where researchers and innovators from enterprises, and the social and natural sciences work together in real-life environments with relevant end-users, taking knowledge and innovation from theory to practice and demonstrating the scalability and replicability of the solutions.
- Moreover, **Water-Oriented Living Labs**, where innovation can be deployed with the necessary investments, allow for targeted interventions with a cross-sector nexus approach.
- The complementarity of funding mechanisms is a strong added value in tackling global water challenges.



WATER KNOWLEDGE EUROPE 2023

WATER KNOWLEDGE EUROPE

Networking and Brokerage Event

Horizon Europe Work Programme 2024 Calls for Proposals

 17-19 October 2023

 BluePoint, Brussels



[REGISTER HERE](#)

On October 18-19, in Brussels, we will guide you through the new calls of the [#HorizonEurope](#) Work Programme 2024 and let you meet your future partner at our networking dinner.

5 Reasons to Join WKE2023:

- Discover the opportunities presented by the Work Programme 2024 of Horizon Europe;
- Gain invaluable guidance for crafting winning project proposals;
- Engage and network during the B2B meetings with potential partners and coordinators;
- Have your say for the development of the next Work Programme of Horizon Europe;
- Discover the Action Plan of the ZeroPollution4Water Cluster.

Thank You

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[Water Europe](#)

[in](#)