Water4All
Water security for the planet

European Partnership

WATER4ALL'S INTERNATIONAL COOPERATION STRATEGY

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TABLE OF CONTENTS

Water4All's International Cooperation Strategy

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FOREWORD

Water is a precious and finite resource that plays a crucial role in sustaining life, supporting ecosystems, and driving economic activities around the world. However, **water-related challenges** such as **water scarcity, pollution, and inadequate sanitation** persist and affect millions of people globally. Addressing these complex issues requires a **collaborative and multidisciplinary approach**. International scientific cooperation on water is a fundamental strategy to tackle these challenges effectively.

The importance of **international scientific cooperation** on water lies in its capacity to bring together researchers, scientists, and experts from different countries and disciplines to collectively work towards common goals. By pooling resources, knowledge, and expertise, scientific cooperation fosters a deeper understanding of water systems, facilitates the development of innovative solutions, and promotes **evidence-based policies for sustainable water management**.

Collaboration among scientists from diverse backgrounds enables a **holistic approach** to water-related research. Hydrologists, geologists, ecologists, engineers, and social scientists, among others, bring their unique perspectives to address the complexities of water-related issues. **Integrated water resource management**, for instance, benefits from the expertise of multiple disciplines to analyse the interconnections between water availability, ecosystem health, and human needs.

Water scarcity is a pressing concern in many regions, exacerbated by population growth, urbanization, and climate change. International scientific cooperation helps identify vulnerable areas, understand the drivers of water scarcity, and develop innovative strategies to alleviate its impact. By **sharing experiences and best practices**, countries can adopt successful water conservation and efficiency measures to optimise water use in agriculture, industry, and domestic settings.

Hydrological extreme events, like floods and droughts, threaten communities worldwide. Research can mitigate these challenges by enhancing **early warning systems, understanding climate change impacts, developing resilient infrastructure, and promoting sustainable water management**. Comprehensive studies on **floodplain dynamics, precipitation patterns, and groundwater recharge** are vital. Additionally, interdisciplinary research can explore socio-economic impacts, community resilience, and adaptive strategies. By **integrating cutting-edge technology**, such as remote sensing and machine learning, researchers can improve forecasting accuracy and inform policymakers for proactive disaster preparedness. **Collaborative efforts across disciplines and international borders** are essential for tackling the multifaceted issues posed by hydrological extremes.

Water pollution is a critical challenge as well that transcends national borders. International scientific cooperation aids in **tracking pollution sources, assessing water quality, and developing effective water treatment and remediation technologies**. Collaboration enables the **exchange of data and information on emerging pollutants**, such as microplastics and pharmaceutical residues, to understand their potential impacts on water ecosystems and human health. **Sanitation and access to clean drinking water** are essential for public health and well-being. International scientific cooperation can help identify and address gaps in sanitation infrastructure and promote sustainable sanitation practices in both urban and rural areas. By evaluating various sanitation technologies and practices, countries can implement solutions tailored to their specific needs and resources.

Depleting biodiversity in freshwater ecosystems threatens ecological balance and human livelihoods. Research can address this by studying **habitat degradation, pollution impacts, and invasive species**. Understanding biodiversity's role in ecosystem functions, such as **nutrient cycling and water purification**, is crucial. Conservation efforts should focus on **restoring degraded habitats, implementing sustainable fishing practices, and controlling pollution**. **Community engagement and education** are vital for fostering awareness and stewardship. By **integrating scientific knowledge with policy interventions**, research can safeguard freshwater biodiversity and ensure the sustainability of these critical ecosystems.

Transboundary water management is a crucial area where international scientific cooperation plays a vital role. Many rivers and aquifers cross multiple borders, making cooperation essential for **equitable and sustainable water sharing**. Collaborative efforts foster dialogue, data sharing, and the development of joint management strategies to avoid conflicts and promote the responsible use of shared water resources.

Monitoring and assessment of water resources are essential to gauge progress and make informed decisions. International scientific cooperation establishes **standardized indicators and methodologies for data collection and analysis**. Shared data on water availability, usage, and pollution contribute to comprehensive assessments, **informing policy formulation and decision-making** at the national and international levels.

Key focus areas for cooperation on water research include **Water Quality and Pollution** (addressing water pollution, contaminants, and their impacts on human health), **Climate Change Impacts** (understanding the effects of climate change on water availability, extreme weather events, and changing precipitation patterns), **Water-Energy-Food-Ecosystem Nexus** (the interlinkages between water, energy, food security and ecosystem sustainability for a non-consumptive resource management), **Transboundary Water Management** (managing shared rivers, lakes, and aquifers, as well as for resolving potential disputes), **Water Scarcity and Drought** (understanding the drivers of water scarcity and drought, identifying vulnerable regions, and developing adaptive measures to cope with water shortages).

By promoting knowledge exchange, innovative solutions, and evidence-based policies, international scientific cooperation on water enables countries to work together towards sustainable water management. **Transdisciplinary collaboration** among scientists from different disciplines enriches water research, leading to holistic approaches and integrated solutions. The ongoing efforts of international scientific cooperation, which the EU Partnership “Water4All – Water Security for the Planet” is willing to push, will be instrumental in ensuring a water-secure future for all and **supporting the achievement of the United Nations Sustainable Development Goal 6** on water.

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LIST OF ABBREVIATIONS

ANR	French National Research Agency
CSA	Coordination and Support Action
EU	European Union
IT	Information Technology
JPI	Joint Programming Initiative
KPIs	Key Performance Indicators
R&I	Research and Innovation
SMART	Specific, Measurable, Achievable, Relevant and Time-bound
SRIA	Strategic Research and Innovation Agenda
TAP	Thematic Annual Programming
UN SDGs	United Nations Sustainable Development Goals
VITO	Flemish Institute for Technological Research
Water JPI	Joint Programming Initiative on Water challenges for a changing world
Water4All	Horizon Europe Partnership on Water security for the planet

1. BACKGROUND

1.1. Introduction

Access to clean and safe water for different usages and needs is a challenge all over the world. Water scarcity and pollution are global issues affecting millions of people and ecosystems. Climate change exacerbates the impacts of water-related challenges, leading to more frequent and severe droughts, floods, shifts in precipitation patterns, and the emergence of pollutants and public health concerns. Furthermore, developed countries use big quantities of water resources originated elsewhere and a large share of their grey water footprint comes from imported products: they have moral responsibility to work towards sustainable water use on a global level. By collaborating across borders, countries can pool resources, share data and knowledge, exchange best practices and develop innovative solutions to address water challenges. Furthermore, achieving the United Nations Sustainable Development Goals (UN SDGs) related to water (SDG6, in particular) requires international cooperation to ensure the availability and sustainable management of water resources globally. **It is for these reasons that the Water4All Partnership dedicates a whole action pillar to international cooperation (Pillar E).**

The International Cooperation Strategy of the Water4All Partnership has been developed as part of the activities of Pillar E under Task E.1. on *Developing international cooperation Research and Innovation (R&I) agreements*, also developed as a guide to Task E.3 on *Developing innovative tools for international cooperation*. The objectives of Pillar E include:

- Raising the level of engagement of partnering countries as well as cooperation between EU and UN R&I initiatives;
- Reducing barriers to enable the participation of countries beyond the EU in Water4All activities;
- Connecting Water4All R&I activities to the objectives set out in international frameworks, in particular the UN Water;
- Disseminate Water4All R&I results beyond the EU.

The contents of this strategy are **based upon the work carried out by the Water JPI**[1] (Water Joint Programming Initiative), which released its international cooperation strategy in June 2022, as a continuity of the actions already engaged between member states and beyond in the effort to build cooperation with third countries. The Water JPI's international cooperation strategy mainly builds upon a **mapping exercise, aimed at better understanding the R&I landscape in countries outside of Europe**, and the different exchanges held between the Water JPI Secretariat and Coordination team and programme owners from non-EU countries during international conferences and bilateral meetings between 2017 and 2022.

The **Water4All's international cooperation strategy provides the strategic orientations of the programme** for the next few years, as internal preparation for the annual workplans for the Partnership, both as regards to **geographical priority areas and collaboration modalities**. It is a **living document** that will be periodically updated every two years to better reflect collaboration opportunities and thematic priorities of potential partners outside of the EU. It firstly sets out the **specific objectives of Water4All** as regards to international cooperation as stated in the Grant Agreement of the Partnership for Pillar E. Secondly, it lists **thematic priorities of a number of non-EU countries**. Then, it describes envisaged **cooperation models** (e.g., joint

[1] The Water JPI is an inter-governmental initiative. Today, it brings together 20 partners from across Europe and South Africa. Its vision is "*Together for a water-secure world by jointly enabling smart water solutions for a changing world*". Since its launch in 2011, the Water JPI has, amongst other accomplishments, produced a strategic agenda that has been updated in 5-year cycles. It has also contributed to the alignment of national research and innovation agendas in the field of water, and it has supported more than 100 research and innovation projects in different domains, such as emerging pollutants, biodiversity and ecosystems, water technologies, integrated water management, and water and agriculture. Further information on the Water JPI can be found at: www.waterjpi.eu

transnational calls for proposals, capacity-building activities, identification of relevant demonstration sites for the testing of innovative solutions) and **possible barriers for cooperation**, as identified in the past by Water JPI members.

The strategy is a guiding document for Water4All partners but it shall also be a vehicle to externally showcase the scope and activities of the Partnership. Its contents **may also be of interest for the European Commission services** or other international initiatives funding research and innovation in the water sector (e.g., Belmont Forum, PRIMA - Partnership for Research & Innovation in the Mediterranean Area). In this sense, Water4All is open to hold further discussions with the European Commission and to communicate on collaboration achievements with the strategic areas identified in the Communication "Europe's strategy for international cooperation in a changing world"[2].

1.2. Added value of international cooperation in the Water4All Partnership

International cooperation is **essential for addressing global interconnected challenges.** It brings a number of benefits ranging from technological advancements, economic growth, environmental protection, and cultural exchange and understanding.

Europe holds some of the most advanced countries in water research and innovation. Cutting-edge research is done in water quality monitoring, river restoration, infrastructures for water retention, or water treatment technologies to cite just a few examples. Europe needs to maintain its strong position by ensuring the provision of innovative solutions that respond to emerging societal needs, especially in a context of global change. Knowledge and technology transfer outside Europe are a must and attracting talented young researchers from all over the world is the way forward to preserve the economic interest of the EU whilst responding to water challenges.

Furthermore, current grand water challenges are global. Tackling them calls for coordinated actions, the pooling of resources and the full use of best available knowledge and technology to counteract the effects of those challenges. Through diplomatic dialogues, alliances and treaties, countries can work together to prevent conflicts, resolve disputes peacefully, and deter aggression.

Through the development of international cooperation activities, Water4All must address current and global water challenges through the provision of knowledge and solutions and gain knowledge and solutions from strong international partners whilst contributing to the economic prosperity of Europe. To this end, Water4All has the ambition to:

- Support joint efforts in an equal footing basis that can lead to breakthroughs that benefit humanity as a whole.
- Reduce existing barriers for engaging countries beyond Europe in R&I programmes.
- Enhance the critical mass necessary to develop innovative solutions, finding the most effective and shared ones to deploy and scale innovation.
- Provide and enable the implementation of innovative solutions in response to global water-related issues.
- Connect end-users outside of Europe with innovative European water (technology) Smal and Medium-sized Enterprises.
- Contribute to progress on shared commitments at the global scale (e.g., UN SDGs).

Actions will build upon the work conducted by the Water JPI, which has implemented an international cooperation agenda. Amongst other achievements, Water JPI's efforts have translated into the integration of a number of countries in strategic joint activities (e.g., Canada, Egypt, Taiwan, Tunisia and South Africa). South Africa is a full member of the initiative since 2017 and it is also a member of the Water4All Partnership. The

[2] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0252

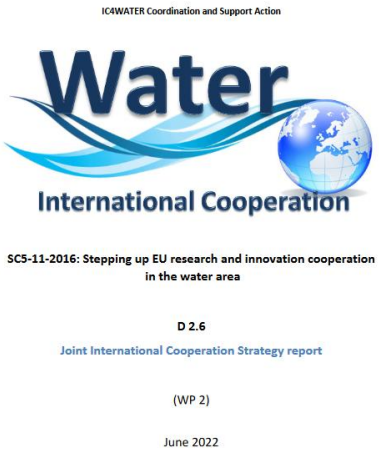
participation of the Water JPI as an observing partner in the Water4All Partnership will ensure the proper two-way communication on learning practices, key lessons and knowledge between both initiatives.

2. METHODOLOGY

Water challenges are global and as such the demand for innovative solutions is also at global level. **One of the main difficulties** encountered by partners in the development of this international cooperation strategy **concerns therefore the identification of geographical priority areas and countries**. Geographical priorities may evolve rapidly or they may strongly rely on subjective preferences. To overcome this difficulty, **partners have decided to align the Water4All's strategy with the international cooperation strategy of the European Commission**. Although Water4All will promote collaboration in those areas with high environmental and social needs, there is a need to develop criteria for the proactive identification of potential preferable international partners. These criteria must include the thematic priorities of the potential partner countries, but should also take into consideration such parameters as financial allocation for water research and development, potential for incorporation of a water4all partner, the level of research capacity and excellence, R&D cooperation as a market opener, etc...

The Water4All's international cooperation strategy is a living document that will be periodically reviewed by partners. **To support partners in the identification of emerging priority countries, and even guide the development of annual work plans, this document offers a description of the thematic priorities of more than 30 countries outside of Europe, as well as a list of the main barriers for collaboration** (chapters 4 and 6)**.** This information has been extracted from the Water JPI's international cooperation strategy – Annex I[3].

Brief reminder. *Annex I of the Water JPI's international cooperation strategy.*



Annex I lists for almost 40 countries all over the world: Water R&I priorities; cooperation barriers; previous participation in EU/ multilateral initiatives; Gross domestic product per capita; economic growth; investments in R&I; investments in water infrastructure; number of water-related publications; number of researchers; number of patents.

All this information was compiled through the mapping exercise carried out in 2017-2018 as part of the IC4WATER CSA[4] and during the meetings that the Water JPI's Secretariat and Coordination team held with programme owner organisations between 2017 and 2022. The minutes and the presentations shared during those meetings are available on the Water JPI's information platform, hosted by ANR.

[3] Water JPI's international cooperation strategy, June 2022 - http://www.waterjpi.eu/resources/document-library/water-jpi_international_cooperation_strategy_2022.pdf/view

[4] IC4WATER CSA: Horizon 2020 Coordination and Support Action (2017-2022) "Tackling Water Challenges in the International Context". Its aim was to support international cooperation activities on water by addressing challenges and EU policy priorities in the water sector within a global perspective. This action pooled resources of 19 partners, including 18 participating research programme owners/ managers from 17 European countries and the European Technology Platform, Water Europe. IC4WATER implemented a joint call for transnational collaborative research and innovation projects. Eight projects were funded on the topic "Water resource management in support of the United Nations Sustainable Development Goals". Some of the key meetings held with programme owner organisations as part of IC4WATER include a geographical workshop dedicated to the Danube, a side event at the Cairo Water Week Conference in 2021, and three strategic workshops looking at possible collaborations between the Water JPI and other European and international initiatives.

3. MEASURING SUCCESS IN INTERNATIONAL COOPERATION: KEY PERFORMANCE INDICATORS

The Water4All's monitoring template sets out the general, specific and operational objectives of the Partnership as well as a set of SMART (specific, measurable, achievable, relevant and time-bound) indicators (i.e., Key Performance Indicators, KPIs) to evaluate progress towards those objectives. The first version of the Water4All's monitoring template is available in the strategic research and innovation agenda (SRIA) of the Partnership (page 54)[5]. **The monitoring template offers a framework for measuring progress** in the short (operational objectives), medium (specific objectives) and long term (general objectives). As with other strategic documents of Water4All, the monitoring template is periodically updated to incorporate new KPIs or revise existing ones.

In the long-term, Water4All aims to **improve access to water for different usages, restore and protect ecosystems, and enhance populations' resilience to global changes and water-related hazards**. In a shorter term, Water4All has the objective to "**strengthen the water R&I collaboration at European and international levels**". This will require coordinated efforts from various stakeholders at the global, regional, national and local levels. The KPIs identified by the Consortium in the Water4All's monitoring template to evaluate progress towards that short-term objective are listed below:

- **Indicator 6**: Number of outputs targeting the water management and policy communities in Europe and abroad (dedicated seminars, deliverables, strategic papers guidelines, policy briefs, …).

- **Indicator 11:** Number of citizens association representatives or groups participating to strategic and operational activities of Water4All for an inclusive water governance (seminars, consultative workshops, thematic conferences, training events, funded projects, Water-Oriented Living Labs (WOLLs), educational programs).

- **Indicator 12:** Number, types and countries of newcomer organisations in funded projects.

- **Indicator 13:** Composition of the consortium: number of member organisations per type and per country and number of countries.

- **Indicator 14:** Number and type of joint actions (e.g., Joint Transnational Calls, Knowledge Hubs, Thematic Annual Programming actions) to strengthen collaboration, and dedicated funding at a national level.

- **Indicator 22:** Participation in international conferences: number of conferences organised by Water4All / in which Water4All is contributing; number of people attending Water4All side-events; number of conferences attended by Water4All funded projects.

Note that the monitoring template proposes other KPIs that have not been included in this report as they do not specifically relate to international cooperation.

By the time of writing this strategy, Water4All partners are working on the definition of a target for each one of these indicators. These targets will serve as a reference point to evaluate progress and identify areas that need improvement. Partners will also gather accurate and reliable data for all KPIs on a regular basis. Results

[5] Water4All Strategic Research and Innovation Agenda, September 2022 - https://www.water4all-partnership.eu/sites/www.water4all-partnership.eu/files/2023-02/Water4All_SRIA-2022-2025_A4_2311_bd.pdf

and progress will be communicated within and outside the Water4All Consortium to foster accountability and a shared understanding of progress in international communication.

The results of KPIs will be integrated in the Biennial Monitoring Reports of European Partnerships, whose development is led by the European Commission with the support of funded Partnerships.

4. THEMATIC PRIORITIES

The Water4All's strategic agenda is structured around **7 themes**, each of which is broken down into a number of sub-themes and specific topics for research and innovation.

Themes cover issues related to the **protection and restoration of ecosystems, circular economy, water technologies, integrated water management, water quality and quantity, governance and trans-national cooperation**.

The strategic agenda, for which a first version was released in September 2022, will guide activities of the Partnership by highlighting topics for which research and innovation are recommended in order to achieve the objectives set out by European policies and international policy frameworks.

An updated version of the agenda will be completed by the end of 2025.

This section lists the thematic priorities of the 37 countries considered in the Annex I of the Water JPI's international cooperation strategy. As pointed out earlier in the text, this information comes from the exchanges held with representatives of national funding agencies from those countries during international events or bilateral meetings between 2017 and 2022. The keywords mentioned during those exchanges have been associated to the themes/ sub-themes of the Water4All's strategic agenda. Since Water JPI is the only source for this theme priorities list, it should be emphasized, that besides the countries mentioned in relation to the different themes/sub-themes below, a number of other countries with a prioritised interest in the specific theme have not been included. For this reason, the list should not be seen as complete, but rather as an indication of the situation at the time of the survey. It needs to be revised and updated in the next future.

The key findings are provided below:

Theme I. Water for circular economy: smart water value.

Sub-theme I.I. Water supplies for socio-economic development and activities, such as agricultural, aquaculture, urban, industrial and energy uses.

Countries interested in research and innovation on this sub-theme: Algeria (with a focus on agriculture), Argentina (agriculture), Burkina Faso (agriculture), Cameroon (agriculture), Central Asian countries – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan (focus on agriculture, domestic use of water), China (aquaculture), Egypt, Ghana (agriculture), India (agriculture), Jordan (agriculture), Lebanon (agriculture), Morocco (agriculture), Taiwan (agriculture), Thailand (energy production), Tunisia, USA, Vietnam.

Sub-theme I.II. Circular economy.

Countries interested in research and innovation on this sub-theme: Algeria, Burkina Faso, Central Asia countries - Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Chili, China, Egypt, Ghana, Ivory Coast, Kenya, Lebanon, Morocco.

Sub-theme I.III. Empowering the public, water users and stakeholders in valuing water.

Countries interested in research and innovation on this sub-theme: *to be updated.*

Theme II. Water for ecosystems and biodiversity.

Sub-theme II.I. Functioning and biodiversity.

Countries interested in research and innovation on this sub-theme: Thailand.

Sub-theme II.II. Resilience, mitigation and adaptation of aquatic ecosystems and ecosystem services to global changes.

Countries interested in research and innovation on this sub-theme: Central Asian countries – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, USA.

Sub-theme II.III. Developing and applying ecological engineering and ecohydrology for ecosystems restoration.

Countries interested in research and innovation on this sub-theme: Canada, Central Asian countries – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Thailand, Tunisia, USA.

Sub-theme II.IV. Integrating ecosystem services into the management of water resources and aquatic ecosystems.

Countries interested in research and innovation on this sub-theme: USA.

Other countries having expressed interest in research and innovation on biodiversity and ecosystems but for which no further details are currently available on specific sub-themes to be addressed in priority: China, Iran, Taiwan.

Theme III. Water for the future: sustainable water management.

Sub-theme III.I. Integrated water resources management.

Countries interested in research and innovation on this sub-theme: Algeria, Central Asia countries – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Egypt, Jordan, Lebanon.

Sub-theme III.II. River basin management.

Countries interested in research and innovation on this sub-theme: *to be updated*.

Sub-theme III.III. Groundwater management.

Countries interested in research and innovation on this sub-theme: Burkina Faso, Central Asia countries – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Egypt, Ghana, Ivory Coast, Kenya, Jordan, Morocco, Senegal.

Sub-theme III.IV. Resilience, adaptation and mitigation to hydroclimatic extreme events.

Countries interested in research and innovation on this sub-theme: Argentina, Burkina Faso, Canada, Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan), China, India, Iran, Morocco, Senegal, Taiwan, Thailand, USA.

Sub-theme III.V. Tools for water management

Countries interested in research and innovation on this sub-theme: Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan), Jordan, USA.

Other countries having expressed interest in research and innovation on sustainable water management but for which no further details are currently available on specific sub-themes to be addressed in priority: Chili, India.

Theme IV. Water and health.

Sub-theme IV.I. Behaviour and effects of contaminants of emerging concern, litter, plastics, endocrine disruptors.

Countries interested in research and innovation on this sub-theme: *to be updated*.

Sub-theme IV.II. Water dimension of anti-microbial resistance.

Countries interested in research and innovation on this sub-theme: *to be updated*.

Sub-theme IV.III. Innovative water tools and technologies for water quality monitoring and water treatment, remediation and disinfection.

Countries interested in research and innovation on this sub-theme: Burkina Faso (focus on treatment topics), Central Asia countries – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan (focus on monitoring issues), India (treatment and monitoring), Morocco (treatment), Senegal (monitoring).

Sub-theme IV.IV. Risk assessment and threshold values for protection of human health and ecosystems.

Countries interested in research and innovation on this sub-theme: USA.

Other countries having expressed interest in research and innovation on water and health but for which no further details are currently available on specific sub-themes to be addressed in priority: Algeria, Argentina, Burkina Faso, Cameroon, Canada, Chili, Egypt, Ghana, Ivory Coast, Japan, Jordan, Lebanon, South Korea, Taiwan, Tunisia, Vietnam.

Theme V. Infrastructures for water.

Sub-theme V.I. Adaptation of existing water infrastructures to new challenges.

Countries interested in research and innovation on this sub-theme: Egypt.

Sub-theme V.II. Water infrastructures resilience.

Countries interested in research and innovation on this sub-theme: Canada, Egypt.

Sub-theme V.III. Water infrastructures security (including cyber and terrorism security).

Countries interested in research and innovation on this sub-theme: *to be updated*.

Theme VI. International cooperation.

Sub-theme VI.I. Water diplomacy.

Countries interested in research and innovation on this sub-theme: *to be updated*.

Sub-theme VI.II. Establishing tools for trans-boundary cooperation.

Countries interested in research and innovation on this sub-theme: Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan).

Sub-theme VI.III. Developing integrated, fair and adaptive water resource management systems.

Countries interested in research and innovation on this sub-theme: *to be updated*.

Theme VII. Water governance.

Sub-theme VII.I. Developing methods for more efficient citizen and wider stakeholder engagement.

Countries interested in research and innovation on this sub-theme: Canada.

Sub-theme VII.II. Strengthening policy integration, alignment, coherence and water policy coordination to exert a change in society.

Countries interested in research and innovation on this sub-theme: *to be updated*.

Sub-theme VII.III. Supporting the adoption of innovations.

Countries interested in research and innovation on this sub-theme: *to be updated*.

Other countries having expressed interest in research and innovation on water and governance but for which no further details are currently available on specific sub-themes to be addressed in priority: Burkina Faso, Canada, Ivory Coast, Morocco, Vietnam.

5. BIG TRANSBOUNDARY RIVER BASINS

The management of water resources in transboundary basins implies to address challenges such as population growth, climate change, and competing water uses in areas where adjoining Countries can have different political priorities and welfare levels and stories of long-standing contrasts. International organizations and treaties play a crucial role in facilitating dialogue, data sharing, and the development of joint strategies to ensure the sustainable management of these transboundary river basins.

In such important River Basins water research is essential for promoting sustainable and cooperative management of shared water resources, addressing environmental challenges, and preventing conflicts among riparian countries while fostering international cooperation and the development of effective policies and management practices. This can happen trough:

1. Understanding the hydrological cycle, water flow patterns, and ecological dynamics within the transboundary river basin.
2. Data collection and sharing on water availability, quality, and usage, vital for informed decision-making and collaborative management among riparian countries.
3. Unbiased and scientific basis for resolving disputes.
4. Climate change impact assessment including understanding changes in precipitation, temperature, and water availability, enabling countries to adapt their water management strategies accordingly.

5. Studying the ecosystem services provided by transboundary river basins, such as flood regulation, water purification, and habitat support, helps in recognizing the value of these services and incorporating them into management plans.
6. Developing efficient monitoring strategies of water quality as it is essential for identifying potential sources of pollution and ensuring that water resources remain safe for consumption and ecosystem health.
7. Infrastructure planning, such as dams, reservoirs, and irrigation systems, considering the needs and concerns of all riparian countries.
8. Capacity building and collaborative research efforts enhance the capacity of riparian countries to manage their shared water resources effectively. This includes training local professionals, sharing knowledge, and promoting technology transfer.
9. Research outcomes contribute to the formulation of policies and agreements related to transboundary water management ensuring that policies are based on scientific evidence and are equitable for all involved countries.

The availability of sufficient and suitable water resources plays has an important role in peacebuilding and water diplomacy is important for peaceful management of transboundary water resources. Data and technical solutions are important, but we should not forget the societal actions and needs. [6]

The list of the major transboundary river basins in which Water4All plans to be active depends on the consideration of the following criteria to be followed:

1. the transboundary river must be one the largest river basin in the world (e.g., Nile, Amazonas, Mekong);
2. the cooperation between the neighbouring nations is not sufficient or does not exist (e.g., the same as above);
3. the transboundary river basin must lay in an area (or involve countries) considered highly ranked for geopolitical reasons by the EU (e.g., Danube);
4. the river basin must not include areas under war or dangerous situation for security of researchers and operators;
5. scientific cooperation can be enhanced in order to favor knowledge acquisition and understanding of problems from different point of views.

The current situation of international governance in some of these transboundary river basins, as the Danube, the Mekong, the Nile, the Amazonas, can be here summarized:

a) Danube River Basin:
   - Countries Involved: The Danube River flows through or along the borders of 19 countries in Central and South-eastern Europe.
   - Governance Mechanism: The International Commission for the Protection of the Danube River (ICPDR) is responsible for managing the Danube River Basin. It facilitates cooperation on water quality, flood risk management, and sustainable water use among the riparian countries.

b) Mekong River Basin:
   - Countries Involved: China, Myanmar, Laos, Thailand, Cambodia, and Vietnam.

[6] One way to prevent or resolve conflicts is through conflict analysis model: https://helda.helsinki.fi/server/api/core/bitstreams/73ae02a3-fdae-4143-9d60-d36f5902398e/content

- Governance Mechanism: The Mekong River Commission (MRC) is the primary intergovernmental organization responsible for the sustainable management of the Mekong River. It promotes cooperation on water resources, navigation, flood management, and environmental protection.

c) Nile River Basin:
- Countries Involved: Egypt, Sudan, South Sudan, Ethiopia, Uganda, Congo, Kenya, Rwanda, Burundi, and Tanzania.
- Governance Mechanism: the Nile River Basin is lacking a comprehensive legal framework. However, in recent years, the Grand Ethiopian Renaissance Dam (GERD) has brought attention to the need for improved cooperation.

d) Amazonas River Basin:
- Countries Involved: Brazil, Peru, Colombia, Venezuela, Ecuador, Bolivia, and Guyana.
- Governance Mechanism: The Amazon Cooperation Treaty Organization (ACTO) is an international organization that promotes the sustainable development of the Amazon Basin. While ACTO exists, cooperation on environmental and development issues in the Amazon is challenging due to the vast size of the basin and the sovereignty concerns of the riparian countries.

The selection and the prioritizing of the transboundary river basins to be targeted by Water4All will be done after an in-dept examination of the geopolitical situation in each basin and of the possibilities to have a fruitful cooperation with the involved countries

Water4All intends however to start from the Danube River Basin for the reasons here described.

Water4All has already launched contacts with the Danubius-IP[7] CSA and plans to deepen the contribution to the Danube Region Strategy and to study how to interact with the Danube river basin lighthouse[8] in the EU Mission "Restore our Ocean and Waters". This implies that Water4All will try in a priority way its best to involve Eastern European countries not already members of the Partnership. Linked to this strategy, Water4All will explore possible interactions with the EU Policies in the Black Sea, as it "is regarded as a 'strategic bridge' an economic, geo-political and trade corridor of strategic importance, connecting to the Mediterranean Sea via the Marmara and Aegean Seas, and Europe with Asia to the Caspian Sea, Central Asia and the Middle East and with south-east Asia and China"[9].

6. COOPERATION MODALITIES AND POSSIBLE BARRIERS FOR COOPERATION

Water4All will foster **collaboration with non-EU countries through different instruments**. The launch of joint transnational calls for research and innovation projects is of paramount importance as it is a clear indication of the long-term engagement of participating countries in the activities of Water4All as well as the thematic alignment with the strategic agenda of the programme. However, the Partnership will promote collaboration through other instruments. This chapter describes possible instruments to develop/ strengthen cooperation as well as possible barriers identified in the past by the Water JPI.

[7] DANUBIUS Implementation Phase Project - DANUBIUS-IP - https://cordis.europa.eu/project/id/101079778
[8] EcoDaLLi, Horizon Europe CSA working on the implementation of the Lighthouse in the Danube river basin to protect and restore marine and freshwaters ecosystems and biodiversity - https://ecodalli.eu/
[9] https://maritime-spatial-planning.ec.europa.eu/sea-basins/black-sea

6.1. Cooperation instruments

- **Competitive joint calls for transnational collaborative water R&I projects**. These calls are expected to promote multi-disciplinary work and support the development and deployment of innovative technological solutions and services for the implementation of EU water policy and international frameworks, exploring possibilities in different settings and under different conditions. Water4All foresees the launch of six transnational joint calls (the possibilities to launch a demonstration call on one of the themes of the strategic agenda will be explored by partners). The contents of the Water4All's strategic agenda will be instrumental in the development of the call text.
  Their implementation is managed by Water4All's Pillar B.

- **Knowledge hubs**. "Knowledge Hubs are physical and virtual spaces for students and staff to co-create knowledge and solutions across disciplines with external stakeholders and find new ways of working together" [10] These are thematic networks made up of selected experts in a defined scientific area. Knowledge hubs aim to facilitate networking between scientific experts. Activities within knowledge hubs should result in improved communication with different types of stakeholders, the establishment of a critical mass of research and technological excellence, and the integration and sharing of knowledge, infrastructures, data, modelling tools, and innovative solutions. Based upon the experience of the Water JPI, possible outputs of knowledge hubs include peer-reviewed publications, foresight exercises, policy briefs, joint scientific publications, joint topic synthesis, or the harmonisation of protocols.
  Knowledge hubs can be implemented following a joint call published for research and innovation projects (e.g., Water4All's 2023 joint transnational call) although dedicated specific calls can also be foreseen.
  Their implementation is managed by Water4All's Pillars B and C.

- **Thematic Annual Programming (TAP) actions**. A TAP is a network of projects evaluated and funded at the national level. Its aims are very similar to those of knowledge hubs, that is to say: Networking of scientific experts, enhancement of the critical mass, improved communication with stakeholders, and the integration and sharing of knowledge, infrastructure, data and modelling tools. TAP actions were conceived to enable the alignment of national R&I agendas as its launch requires that all funded projects at the national level relate to the same topic.
  The selection of national projects is made according to one of the following modalities: 1) Inclusion of the topic selected for the TAP in the national calls of participating funding organisations; or, 2) participating national research funding agencies identify projects awarded from their most recent national calls or running national projects.
  Their implementation is managed by Water4All's Pillar B.

- **Capacity building.** This will be achieved through the following instruments:
  - **Mobility schemes**. Mobility schemes aim to facilitate joint learning between staff in water institutions. It will foster knowledge exchange and mutual learning of best practices between vising and host institutions therefore contributing to building both individual and institutional skills and capacity. Water4All will develop an Information Technology (IT) tool that will be embedded in the Water4All's website. This IT tool will enable the matchmaking between the mobility requesting and providing institutions. The implementation of mobility schemes is managed by Water4All's Pillar C.

[10] https://www.circle-u.eu/about/platforms/knowledge-hubs

- **PhD schemes and post-graduate programmes.** The PhD scheme places more emphasis on the triple helix (research, innovation, education) through multidisciplinary and cross-sectorial collaboration to enable disruptive innovations and generate breakthrough solutions. Future actions will aim at opening up the programme to MSc students. Partners from Pillar C are mainly in charge of these programmes.

- **Vocational training and skills development**, looking at increasing know-how of water practitioners and policy makers for well-informed decision making.

- **Early career research programme**. This instrument targets researchers holding a PhD since less than 10 years ago to provide skill development. This instrument will be first implemented by the Water4All Partnership in the context of the second joint transnational call launched in September 2023. This programme may also be linked to future mobility schemes. The management of the early career research programme falls under the remit of Pillars B and C.

- **Networking of existing Centres of Excellence in collaboration with other international initiatives**. Water4All already started discussion with the World Bank about the best way to open to scientists working in African Centers of excellence the ways to cooperate with European Universities and Research Institutes.

- **Participation in joint events, conferences, workshops, brokerage events, roadshows and networking events**. Events provide excellent opportunities for engaging with stakeholders (research organizations, NGOs, International Organisations, donors), for raising public awareness of running activities, and for promoting results and key lessons. They also offer opportunities for bridge-building occasions with other European and international water R&I initiatives.

The adoption of the most appropriate financial tools to be adopted for launching scientific cooperation in relation to the income level of each country is the trickiest question.

Low-income countries (e.g., several countries in Africa and Asia) are considered by the EU as associated countries; the EU R&I Framework Programmes allow for the participation of legal entities from associated countries under equivalent conditions to those of legal entities from EU Member States.

Countries transitioning from low- to middle-income status cannot be funded by the EU. Scientific cooperation with these countries must be based on the obtainment of mutually beneficial cooperation originating from the agreement on specific joint research programs in which each counterpart (the EU and the foreign country) contributes financially. This has been applied to water-policy support and R&I funding in which the EU has developed bilateral programmes for water with for example India and China, in which these countries directly support research and innovation contributors in their respective countries.

Water4All can launch with these countries **calls for proposals in which** participating countries draw up a Memorandum of Understanding with a dedicated budget to fund the research groups of their country. Both low-income countries and transitioning countries can be targeted by Water4All, upon bi-/multi-lateral agreements, using the above-mentioned **capacity building instruments**.

6.2. Cooperation barriers

Water4All is aware that several barriers exist preventing or reducing possible cooperation:

- Insufficient alignment between national water research and innovation priorities and the priorities identified in the strategic agenda.
- Insufficient knowledge on funding instruments and/ or limited administrative capacity.
- Administrative burden and framework conditions.
- Effort and economic costs linked to the launch of joint activities.
- Lack of a national vision regarding water research and innovation.
- Lack of established networks for joint research in several third countries.
- Ethical issues including respect for fundamental issues and mutual reciprocity.
- Bilateral diplomatic issues.
- No clear understanding of knowledge transfer opportunities brought by the existing programme, e.g. Horizon Europe.

The strategy to overcome some of such barriers will be defined in further version of the document.

7. CONCLUSIONS AND NEXT STEPS

Water challenges are global. Different threats affect countries all over the world and coordinated actions are needed to tackle them effectively. Through its multidisciplinary and holistic approach, the solutions to be proposed by Water4All and the new knowledge to be generated by the programme can be applied in a wide variety of countries. However, financial and human resources are limited, which calls for strategic decisions as to the geographical areas with which collaboration will be encouraged.

The internal discussions held within the consortium have clearly unveiled the **difficulties to prioritise between countries and regions in the world.** Partners agree on the fact that such a prioritisation should not only be driven by economic aspects. On the contrary, numerous countries do not have the financial means to participate in Water4All's joint transnational calls but their participation could be promoted through some of the other instruments conceived by the Partnership such as knowledge hubs or training programmes.

This strategy offers a better understanding of the thematic priorities of more than 30 countries beyond Europe. It is a first version that will be updated periodically by Water4All partners and it will be instrumental in the elaboration of annual work programmes. **The document also offers a description of the main cooperation instruments to be implemented**.

As of May 2024, and following discussions in Pillar E, it has been decided to establish **four categories of priority countries** with which cooperation will be either initiated or strengthened in the future:

Category I. Member countries of the Water4All Partnership with whom collaboration needs to be further strengthened. E.g., Brazil and South Africa

Category II. European countries outside of the Water4All Consortium. As shown in the figure 1, no members from the north **Balkans** region are partnering in Water4All. First efforts should be directed at integrating these countries. The Balkans region constitute one of the priorities of the European Commission as regards the EU neighbourhood policy.

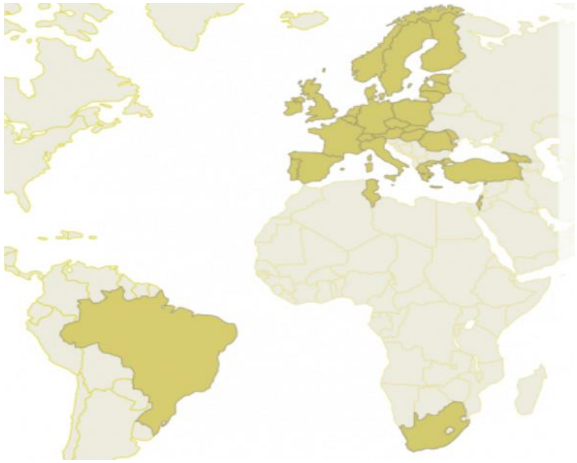


Figure I. Water4All member countries, May 2024.

Category III. Other countries.

Work will also focus on a few countries (some of them are already mentioned in the Water4All's SRIA) and with which discussions and contacts started prior to the official launch of the programme:

- **China**: Advanced contacts have already been put in place at a high political Ministerial (Ministry of Water Research and Ministry of Science and Technology) level, before and during the 10th World Water Forum 2024 in Bali to explore possible ways for cooperation within Water4All; these dialogues are based on the long-term activity of the China-EU Water Platform, a multi-governmental initiative launched more than 10 years ago on scientific and policy cooperation on water, in which several Water4All Partners are already involved;
- **India**: Some Water4All partners have multiple research projects on water with Indian research institutes and are involved in the India-EU Water Partnership. This is a multi-governmental initiative on scientific and policy cooperation on water. High level discussions have already taken place with Indian Ministry-level delegations and with the EU Permanent Delegation in Delhi.
- **Other sub-Saharan Countries**: existing contacts with the World Bank and with some Water4All members are already in place to discuss about possible cooperation in capacity building activities with several African Countries regarding eventual common PhD/Postdoc programs and networking and supporting existing (and new) Water Excellence Centers.
- **USA and Canada**: Alignment with EU thematic priorities, high research capacity and excellence, strong potential partners.
- **South East Asian countries**: Thailand, Singapore, Malaysia, Indonesia, Vietnam, Philippines.
- **Australia**: Alignment with EU thematic priorities, high research capacity and excellence, strong potential partners.

Category IV. Other regions identified as priority areas for the European Commission - e.g., **Africa and Central Asia**.

The contents of this strategy will be reviewed by Water4All partners. This will allow the identification of new geographical priority areas (if appropriate) and the monitoring of progress in international cooperation activities. The following paragraphs describe some of the actions to be undertaken.

Specific targets for the KPIs listed in Chapter 3 will be included as soon as they become available.

Water4All's Pillar A is currently carrying out a **mapping exercise** that intends to provide a more **detailed view of the European and international R&I landscape**. Amongst other issues, and in collaboration with the Pillar E – Task Force on Documents, the mapping will include an analysis of Water4All's partners' **thematic priorities** as regards to research and innovation. This information will be collected through a survey that has already been sent to all members during the last quarter of 2023. A preliminary analysis of responses should be available from the second quarter of 2024. Results will feed the information now provided in Chapter 4. The personal expertise and the information collected by Water4All partners on the occasion of bilateral exchanges with international partners will also be duly integrated.

A second version of the document will also include a cross analysis of countries *vs* cooperation instruments (described in Chapter 6). Indeed, Water4All partners recognise the incapacity of some countries to contribute to joint transnational calls; other cooperation modalities may be, however, envisaged by the consortium. This information will be mainly collected through the mapping conducted by Pillars A and E.

The next version will also include a detailed list of strategic events of potential interest for Water4All and foreseen meetings with strategic partners till the end of the Water4All's second phase (June 2026).

Finally, partners will also explore the possibility to identify geographical priority areas by looking at river basins and not only at national borders. Potential synergies with international organisations such as World Bank, United Nations Educational, Scientific and Cultural Organization (UNESCO) or Global Water Partnership (GWP) should be better identified.

Annex I - Contribution on EU water diplomacy and potential countries interested on the theme

Context

The Council of Foreign Affairs of the EU adopted Conclusions on Water Diplomacy on 19 November 2018[11] which recognized the potential of water scarcity to affect peace and security and announced the EU intention to enhance its diplomatic engagement on water. Through its water diplomacy, the EU aims at supporting peace, sustainable development, respect to human rights and a rules-based multilateral system.

The Council Conclusions of 2018 updated the previous ones of 2013[12] and developed a new approach to water in a post-2015 world, which reflects increasing new challenges such as climate change and links water to security. The Council recalled that water is a prerequisite for human survival and dignity and a fundamental basis for the resilience of both societies and the environment.

The Council reaffirmed the EU's commitment to the human right to safe drinking water and sanitation, as components of the right to an adequate standard of living and confirmed the importance of water and sanitation in the programming of future financial and technical cooperation with partner countries.

In much of the **Middle East and North Africa,** also bordering the **Mediterranean area**, the combination of recurrent droughts cycles, physical water scarcity and poor water quality, armed conflict, forced displacement, poor water governance and weak institutional performance is contributing to a growing water crisis. Such area is experiencing rapid demographic increases and is constantly facing water scarcity challenges - which are becoming more susceptible as a result to climate change. In most instances, as highlighted under the Union for the Mediterranean (UfM)'s water agenda[13], water finance is a major challenge that needs to be addressed within these countries to support capital water projects. In other cases, such as the Lake Chad basin or the Aral Sea, water sources have been dramatically shrinking and are expected to come under even more pressure due to unsustainable use or climate change impacts. **Construction of large dams in international rivers such as the Nile or Mekong can contribute to tensions among riparian States and the wider affected areas. The EU is ready to support efforts to address these challenges, at the request of all the parties.**

Enhancing EU diplomatic engagement on transboundary water cooperation and promoting the sustainable management and use of water is essential to foster peace and stability. The Council underlined the EU's commitment to **promoting transboundary and integrated water management as well as effective water governance, giving priority to regional and integrated actions**.

The EU welcomed the constructive dialogue on water and energy issues in **Central Asia**, which has already led to initial agreements, as well as the EU-Central Asia Platform for Environment and Water Cooperation.

The Partnership Instrument is supporting water platforms in **India and China** as a central pillar of EU's policy dialogue with these countries.

Potential countries interested in water diplomacy

The above strategic areas expressed by the EU as priorities might also cross with the interest already shown by countries who have contributed to the process for the UN Water Conference held in March 2023 such as **Tajikistan** who hosted a preparatory international conference and **Senegal** who hosted the World Water Forum.

[11]Council of the European Union, 'Council Conclusions on Water Diplomacy', Brussels 19 November 2018 https://www.consilium.europa.eu/en/press/press-releases/2018/11/19/water-diplomacy-council-adopts-conclusions/

[12] Council of the European Union, 'Council Conclusions on EU water diplomacy', Brussels 22 July 2013 https://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/EN/foraff/138253.pdf

[13] UfM Water Policy Framework for Actions 2030, Water Agenda Booklet, Water Division 2020 https://ufmsecretariat.org/wp-content/uploads/2019/04/UfM-Water-Policy-Framework-for-Actions_baja-calidad.pdf

Furthermore, several Member States and other stakeholders engaged during the UN 2023 Water Conference in New York. This could be a basis for reflections to merge with EU priority areas.

Snapshot of Commitments from the UN 2023 Water Conference in New York[14]

Member States

• The US announced a commitment of up to $49 billion in investments to support climate resilient water and sanitation infrastructure and services.
• Japan will proactively contribute to the solution of water-related social issues faced by the Asia-Pacific region by developing "quality Infrastructure", providing financial assistance worth approximately 500 billion yen ($3.65 billion) over the next five years.
• Vietnam pledged to develop policies for major river basins management by 2025 and to ensure all households would have access to clean running water by 2030.
• Switzerland submitted 5 commitments to contribute to the UN's work, including in the areas of the Water Convention and transboundary cooperation. Switzerland is the cochair of the Interactive Dialogue on Water for Cooperation.
• The Niger Basin Authority (NBA) and the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) made a joint commitment of $21.2 million in funding for a project that strengthens the Niger Basin Authority (NBA) and its member countries.
• The Government of Mozambique committed to taking all necessary steps to accelerate achievement of the UN SDG 6 by 2030 with investments of $9.5 billion.
• With the Continental Africa Investment Programme (AIP), the African Union Commission aims to close Africa's water investments gap by mobilising at least US$30 billion/year by 2030 through a range of initiatives, including the International High-Level Panel on Water Investments for Africa.
• By 2030, the EU aims to support the access of 70 million individuals to an improved drinking water source and/or sanitation facility. The EU will also support Member States with €20 million funding to accelerate the deployment of wastewater surveillance for COVID-19.
• More than 50 leading global companies unite to make collective commitment to SDG 6.

Multilateral Banks

• The Asian Development Bank commits to investing $11 billion dollars in the water sector in the Asia-Pacific Region and $100 billion to the water sector globally by 2030.

Private Sector

• Starbucks, Ecolab, Gap Inc., Reckitt and DuPont joined forces with US Government to invest nearly $140 million in Water Access Fund with the goal of reaching 5 million people with access to water, sanitation and hygiene.
• DANONE is launching a water acceleration blending fund to give daily safe water access to 30 million people in need.
• Xylem and 16 other companies commit $11 billion dollars in Research and Development.
• World Benchmarking Alliance has pledged to assess 1,000 global companies across 22 industries on their impact towards achieving water-related goals every two years to helps close the corporate accountability gap.

NGOs

• World Vision committed to raising and investing $2 billion by 2030 to extend the impact of transformative water, sanitation, and hygiene (WASH) services work across 50 countries in six regions.

[14] Closing press release UN 2023 Water Conference NYC - Historic UN conference marks watershed moment to tackle global water crisis and ensure water-secure future.

Annex II - Action plan for the development of the Water4All's international cooperation strategy

As agreed by partners during the Pillar E meeting on the 15th November 2023 in Paris, an action plan should be drafted to guide the development process of the Water4All's international cooperation strategy. This document contains the first draft the action plan. The action plan will also be useful in the identification of additional activities as part of the second and third phases of Water4All. It may also contribute to the identification of expertise gaps that should be covered through the inclusion of new partners.

Developing Water4All's international cooperation strategy involves the careful planning and consideration of various factors such as partners' expertise, activities planned within Pillar E and other Pillars, and budget.

➢ Specific actions

Action I. Definition of Water4All's goals as regards international cooperation. During the meeting in November, participants were asked to point out Water4All's key goals in international cooperation. All the input provided by meeting participants has been compiled by Katrien van Hooydonk (VITO) and Ana Mendes (University of Evora). To sum up, and according to the input provided by meeting participants, international cooperation in Water4All should (i) enhance scientific evidence on water processes; (ii) address existing and emerging challenges; (iii) expand market opportunities of European businesses; and, (iv) contribute to capacity building in less advanced regions.

Action II. Development of a stakeholder mapping. The objective of this action is to have a good understanding of relevant international stakeholders with which international cooperation will be pursued in Water4All. The following types of stakeholders will be considered: Government entities, non-governmental organisations, research performing organisations, associations, and international bodies.

Action III. Identification of thematic areas of interest for the stakeholders mapped out in Action II).

Action IV. Research and analysis of the international context. This action will involve (i) the gathering of information on relevant international treaties and agreements related to water resources; (ii) the analysis of the geopolitical and economic trends that may impact cooperation efforts, and, (iii) the collection of information on existing cooperation agreements. At the time of writing this document, a questionnaire aiming at the collection of information on cooperation agreements has been developed by Pillar E members.

Action V. Establishment of clear and efficient communication channels with stakeholders for the regular update of Water4All's objectives, progress achieved and expected activities. Success stories and lessons learnt will also be communicated both to Water4All's consortium partners and external partners.

Action VI. Mapping out potential funding sources for international cooperation, other than Water4All/ Horizon Europe e.g. donor agencies, international organisations, private sector entities. A good understanding of these funding sources could prove useful in enhancing collaboration with countries/ stakeholders not able to benefit from Horizon Europe funds.

Action VII. Risk assessment and contingency plan. This action will look at exploring possible risks in the achievement of Water4All's goals as regards international cooperation as well as at the identification of contingency measures to overcome those risks.

Action VIII. Setting-out an evaluation framework to track progress towards Water4All's goals in international cooperation (defined within Action I).

Action IX. Integration of partners and stakeholders' feedback for the periodic update and refinement of the Water4All's international cooperation strategy.

➢ State of the art of these actions

This section sums up the progress made so far for each of the actions listed above.

PROPOSED ACTION	PROGRESS SO FAR
Action I. Definition of goals.	Input provided by partners during the meeting on the 15th November 2023 but some consensus still missing.
Action II. Stakeholder mapping.	Not planned in the first grant agreement. The mapping exercise carried out by Pillar A could help gather some information.
Action III. Identification of thematic areas.	Some information is available in the Water JPI's international cooperation strategy but some update is highly recommended.
Action IV. Research and analysis of the international context.	Good progress in the collection of information on existing cooperation agreements. A dedicated questionnaire has been developed. No specific activities have been yet planned regarding the collection of information on treaties and the geopolitical/ economic trends that may impact cooperation efforts.
Action V. Establishment of communication channels.	The Water4All's communication team (as part of Pillar A) has developed a plan for communication, dissemination and exploitation of the results, identifying tools for each communication channel. Pillar E keeps a detailed record of upcoming international events.
Action VI. Mapping out funding sources.	Not planned in the first phase of the grant agreement.
Action VII. Risk assessment and contingency plan.	Not carried out yet.
Action VIII. Setting out an evaluation framework.	Not carried out yet although the overall Water4All's monitoring framework may provide a few elements of interest. This point should be discussed with the Water4All's Partnership Coordination Team.
Action IX. Integration of feedback.	Not carried out yet.

➢ Recommendations

Based upon the progress reported in the Table above, the following recommendations could be considered in future steps:

Recommendation I. Conduct a stakeholder mapping in order to identify relevant stakeholders outside of Europe. This activity could be carried out in coordination with Pillar A – mapping exercise (Task A.2.1).

Recommendation II. The thematic priorities listed in the Water JPI's international cooperation strategy might be outdated. It is then recommended to identify the thematic priorities of the stakeholders from the different countries/ river basins mapped out previously. This activity should also be done in coordination with Pillar A.

Recommendation III. Set up a working group that gathers information on the international context i.e. water related treaties and agreements, geopolitical and economic trends.

Recommendation IV. Set up a second working group in charge of collecting information on funding sources beyond Europe.

Recommendation V. Discuss with Sylvain Pasquier (Water4All Partnership Coordination Team, ANR) about indicators integrated in the Water4All's monitoring framework that could be of interest to track progress in international cooperation.

Recommendation VI. Advance on the development of communication tools e.g. dedicated pages on the Water4All's website, brochures on international cooperation, active participation in social networks.

Recommendation VII. In collaboration with all partners, identify expertise gaps that should be covered in later stages of the programme.

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