A Water Smart Society for a Successful post COVID19 recovery plan

Water Europe (WE) is the voice and promoter of water-related innovation and RTD in Europe. WE is a membership-based multi-stakeholder organisation representing over 200 members from academia, technology providers, water users, water service providers, civil society, and public authorities. WE activities and positions are guided by its Water Vision "The Value of Water: Towards a Future-Proof European Water-Smart Society[1]".

The COVID-19 is a wake-up call which stresses on how the European Union and its Member States are not well prepared for cross-boundary and cross-sectoral crises. Water has been identified as a key structural risk for our society for 9 years now with one of the 5 strongest severity of impact[2] as a potential source and multiplier of disasters for our economy[3], people[4] and our environment[5]. Particularly, this crisis clearly points out the importance of the water-health nexus[6].

WATER IS A KEY ENABLER TO FASTER THE POST COVID-19 RECOVERY

Water knows no borders and it is an asset for Europe. We can use water as the enabler to reboot and accelerate the recovery of our society thanks to its interactions with all the other sectors. As part of our natural and cultural heritage, water is not only a question of resource availability but also a matter of opportunities and resilience throughs its links with climate, infrastructure, digitalisation, biodiversity, food, tourism, transport, trade or energy[7]. Globally, more than 3 out of 4 jobs depend on the supply of sufficient water.

Moreover, investing in the water sector Europe contributes to creating sustainable growth and green jobs with a high return on investments in every sector of our society. According to the WHO, the economic benefits of investing in water and sanitation are considerable: they include an overall estimated gain of 1.5% of global GDP and approximately a 4€ return for every euro invested in water

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[1] A Water Smart society is a society in which the true value of water is recognised and realised, and all available water sources are managed in such a way that water scarcity, pollution of fresh water resources but also damages due to floods and droughts are avoided. Water and resource loops are largely closed to foster a circular economy resource efficiency while the water system is resilient against the impact of hydrological extremes. https://watereurope.eu/wp-content/uploads/2020/04/WE-Water-Vision-english_online.pdf
[2] https://www.weforum.org/press/2020/01/burning-planet-climate-fires-and-political-flame-wars-rage
[3] https://www.unwater.org/publications/world-water-development-report-2016/
[4] https://www.unwater.org/publications/world-water-development-report-2019/
[5] https://www.unwater.org/publications/world-water-development-report-2020/
[6] OMS, *Water, Sanitation, hygiene, and waste management for the covid-19 virus,* 19 March 2020
[7] https://ec.europa.eu/environment/blue2_study/pdf/BLUE2%20Task%20A2%20Final%20Report_CLEAN.pdf

and sanitation services and a number of other sectors. It makes Europe more attractive and more dynamic, stimulating local economic actors, particularly SMEs.

According to the American Society of Civil Engineers (ASCE, 2017), the aggregate employment impact per $1 million investment in water infrastructure is comparable to public investments in energy, health care, and transportation, and is greater than the impact generated by military spending and personal income tax cuts.

A WATER SMART SOCIETY FOR A STRONG POST-COVID-19 EUROPE

We need therefore a new paradigm towards a Water-Smart Society, from crisis management to risk management and prevention in Europe and beyond. It is the only sustainable way to reboot our economy quickly and build a resilient and united Europe.

The European Union has already several solutions that need simply to be up-scaled, but additional ones require new collective efforts in line with the key EU priorities - Green Deal and the Digitalisation of Europe - and its international obligations such as the SDGs and Paris Agreement**.** The European Union must also invest in research and innovation to support a smooth transition. 79% of citizens agree that tackling climate change will lead to innovation that will make European companies more competitive and 70% of citizens agree water-based activity can have positive effects for citizens[8].

Based on different discussions with our 200+ members and different external stakeholders, particularly the members of the EU Water Alliance, Water Europe hereby presents recommendations to contribute to the post-COVID-19 strategy:

1. **Achieve a Water-Smart Society to reboot and build a resilient Europe**

This signifies not only maintaining its high standards but to also better understand our water footprint and improve water efficiency by drastically increasing water re-use and recycling, reducing leakages, exploiting the value in water, investing in nature-based solutions whenever feasible and continuing to develop water infrastructures (Annex 1).

2. **Support digitalisation for a water-driven sustainable growth**

A truly inter-operable, intelligent and data-centric digital ecosystem will provide the framework for water-driven sustainable growth. It will contribute to reduce energy demands, enhance disaster management processes, improve analysis, modelling, and use of environmental data for addressing climate-related challenges. Standardisation and cybersecurity are also key to realise this recommendation (Annex 2).

3. **Encourage an inclusive Water Smart Society for our citizens**

An increased involvement of all relevant stakeholders in the governance of our water system requires disclosure and consideration of water risk management and the development of citizens' water-related skills and knowledge, particularly for young professional. Additionally, Europe should improve

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[8] https://www.beuc.eu/publications/beuc-x-2020-012_beuc_position_on_european_green_deal.pdf

the transnational dimension and citizen's involvement in the investigation of innovative solutions through water-oriented Living-Labs and a greater spending regarding investment project preparation (Annex 3).

4. Reinforce European leadership to improve international solidarity

Europe is not an island and its resiliency has to be understood within the broader geo-political context. The necessity to build a Water Smart society is not limited to Europe and this objective must be extended to its neighbours, such as Africa, and beyond through strong collaboration to avoid repeating our past mistakes across the World. Europe needs a strong Water policy to disseminate its high standards and best practices, particularly with regards to environmental issues and human rights.

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With the contribution and endorsement of:

CDP Europe

CDP Europe is part of the global CDP non-profit network, that drives companies and governments to reduce their greenhouse gas emissions, safeguard water resources and protect forests. Over 2.100 European companies representing approximately 76% of the European market capitalization disclosed environmental data through CDP in 2019. This is in addition to over 215 European cities and regions who disclosed – making CDP's platform one of the richest sources of information globally on how companies and governments are driving environmental change.

NetwercH2O

The Network for Water in European Regions and Cities is an association of European municipal and regional governments whose objective is the promotion and development of sustainable practices related to the management of water. Founded by universities, research centres and various other bodies, NETWERC H2O is a channel of communication, a forum for the exchange and publicising of experiences as well as a platform for the creation of European and transatlantic projects.

European Youth Parliament for Water

Founded by Solidarity Water Europe in 1998, the European Youth Parliament for Water aims to promote youth involvement in the water sector, both by increasing their awareness of water resource management issues and by fostering understanding of citizenship and democracy. Solidarity Water Europe (SWE) is committed to ensure a universal access to safe drinking water and sanitation. SWE and EYPW are joining forces to give voice to a new generation of water leaders in Europe.

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ANNEX 1: Achieve A Water-Smart Society to Reboot and Build A Resilient Europe

Europe must achieve a Water Smart society to allocate the right quantity and quality of water for all our societal functions while reducing our pressure on fresh water sources. It means not only maintain its high standards but also better understand our water footprint and improve water efficiency by drastically increasing water re-use and recycling, reducing leakages, exploit the value in water, invest in nature-based solutions whenever feasible and continue to develop water infrastructure.

- **Support the water footprint tool.** The Water Footprint provides expert insights into water consumption at various levels: from individual consumer, to a commodity, a product, a business, a river basin, a country or a region. Methods already exist to calculate water efficiency through water footprint and hence impact rapidly the economic water productivity with a direct positive impact on equitable water distribution and identification of water stress along supply chains, particularly in agriculture, or in different zones as in Africa[9] and Europe[10].

- **Integrate water-efficiency as a key parameter for product design.** As BEUC stresses[11], consumer information alone cannot replace thorough change in the way products are made. A huge potential water saving is at the design stage, in the industrial process[12] or in the construction sector. Reconciling ambitions from circular economy and zero-pollution objectives will require a major innovation step, but once realized, they will greatly reinforce each other. For example, Fraunhofer already developed a technology to reduce water consumption for leather production[13].

- **Support water circular economy through reuse of water.** Water Europe welcomes the Water Reuse regulation in agriculture, but we need to go beyond by fully implementing water reuse in industrial processes as already support in the circular economy plan.

  - There is a huge untapped potential in water reuse in industries especially in the countries that suffers from water scarcity. The diversification of water sources is key to prevent crisis and offer alternatives in water services[14].

  - The full exploitation of the "value in water"[15] is also an opportunity to foster our European autonomy by extracting and valorizing substances such as nutriments, minerals, chemicals

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[9] https://www.researchgate.net/publication/305617585_Economic_Water_Productivity_of_Drum_Kit_Drip_Irrigation_Systems_for_Vegetable_Production

[10] https://www.sciencedirect.com/science/article/pii/S0048969718310295

[11] https://www.beuc.eu/publications/beuc-x-2020-012_beuc_position_on_european_green_deal.pdf

[12] https://www.cdp.net/en/articles/water/world-water-day-2020

[13] https://www.earto.eu/rto-innovation/fraunhofer-leather-tanning-gets-cleaner/

[14] https://www.unwater.org/publications/world-water-development-report-2017/

[15] Indicates the economic and societal value that can be accomplished by extracting and valorising substances such as nutrients, minerals, chemicals and metals, as well as energy, embedded in used water streams.

and metals, as well as energy, embedded in used water streams. Some key actors are already implementing technologies[16] [17].

◆ **Reduce leakages.** Member States should go for water leakage reduction targets and requirements for water utilities to publicly disclose information on water leakage rates and energy performance Their reductions are key to reduce pressure on nature, make our economy efficient and increase our competitiveness. Estimates by the OECD highlight that about €253 bn in investments are necessary by 2030 in the European water sector to comply with existing legislation[18] whilst at the same time water affordability for households need to be protected.

Therefore, the cost cannot be supported only by the utilities and will require additional financial support. COVID 19 support scheme could kick start the economy, secure long-term compliance with EU drinking water legislation and contribute to the circular economy strategy and ultimately the SDG6 implementation.

◆ **Monitor emerging pollutants.** By monitoring through digital tools emerging pollution such as micro-plastics and pharmaceuticals, Europe contributes to improving our environment and health but also open up new business opportunities through the exploitation of the value in water.

◆ **Encourage nature-based solutions**. Nature-based solutions are an opportunity to integrate economic recovery with management of water risks, as well as with biodiversity goals, climate action, food security and many other ongoing challenges, and ensure policy coherence. Using nature-based solutions whenever feasible increase resilience, lower carbon impact of water services and create additional green jobs.

  • **Contribute to sustainable tourism and jobs** cannot be developed without integrating nature-based solutions in order to reduce the impact of touristic hotspots.
  • **Reduce impact from transport on inland water.** Nature-based solutions are key to maintain the right quantity and quality of water to reduce damages in wetlands and rivers as much as possible.
  • **Have cross-sectoral benefits.** the Swiss example stresses that the CBA benefits/costs ratio for rivers restoration can even with conservative approach be positive, particularly if we consider the indirect impacts on biodiversity or people and additional benefits in a long-term approach[19].

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[16] https://docs.google.com/viewerng/viewer?url=www.scottishwater.co.uk/-/media/ScottishWater/Document-Hub/Key-Publications/Energy-and-Sustainability/Scottish-Water-Energy-Programme.pdf
[17] https://6fefcbb86e61af1b2fc4-c70d8ead6ced550b4d987d7c03fcdd1d.ssl.cf3.rackcdn.com/comfy/cms/files/files/000/003/141/original/Doubling_Down_CDP_Report_embargo25.02_draft.pdf#page5
[18] https://ec.europa.eu/environment/water/water-urbanwaste/pdf/UWWTD%20Evaluation%20SWD%20448-701%20web.pdf
[19] https://www.sciencedirect.com/science/article/pii/S030147971831363X

- **Contribute to new sustainable technologies.** There are already innovative solutions based on nature which strongly support European leadership for blue growth, material, building renovation and so on and just need to be generalised[20].
- **Support new and sustainable business models.** For example, sustainable businesses in peatlands are growing and can provide energy, food, medicines and protect against water scarcity[21].

For example, it is critical to know though that not only investments in water and sanitation services have a multiplier effect. The potential monetary benefits of early flood warnings are estimated at around 400 Euro for every 1 Euro invested[22].

However, all challenges cannot be met by nature-based solutions only. Hybrid solutions and treatment through grey-green solutions are required to provide the water we need and to sustainably manage our resources, particularly in the case of the extension to disinfection of discharges. Despite the well advance situation on filtration and disinfection of wastewater, additional research and innovation need to be supported by HorizonEurope[23].

◖ **Additional efforts are needed to develop water infrastructure in Europe.** Wastewater and drinking water infrastructures remain a key dossier in Europe, particularly in some member states such as Romania in which WASH services do not fit European standards[24]. Additionally, 23 million people or 4.5% of the total EU population is currently not connected to Public Water Supply systems (Eurostat data), a significant part of which is EU territories that will be particularly affected by the economic crisis and less protected in such occasions.

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[20] https://ceebios.com/telechargements-references/
[21] https://www.wetlands.org/news/paludiculture-because-the-sad-story-in-peatlands-does-not-want-to-be-repeated/
[22] Pappenberg et al., 2015
[23] OMS, *Water, Sanitation, hygiene, and waste management for the covid-19 virus,* 19 March 2020
[24] http://www.worldwaterforum8.org/pt-br/file/2774/download?token=t6ZxCELq

ANNEX 2: Support digitalisation for a water-driven sustainable growth

The COVID19 crisis demonstrates the importance of the digitalisation to maintain monitor services while preserving the safety of the infrastructure, operator as well as the citizens and sustain cash flow of the companies through planned and automated financial transaction and billing.

A truly inter-operable, intelligent and data-centric digital ecosystem will provide the framework for a water-driven sustainable growth. It will contribute to reduce energy demands, enhance disaster management processes, improve analysis, modelling, and use of environmental data for addressing climate-related challenges. Standardisation and cybersecurity are also key to realise this recommendation. Digitalisation is more than an underused enabler to maximize the benefits of the Water Smart society; it's a key component to generate large amounts of valuable data (big data) for innovative decision support and governance systems.

- ♦ **Support digitalisation to reduce energy demands and CO2 emissions.** The deployment of integrated solutions and technologies to create tomorrow's European resilient and smart cities reduces pressure on municipal budgets and on resources, while mitigating and adapting to climate change. The return on investment is a reduction of operational expenses for municipalities as water treatment and sanitation account in average for between 30-50% of municipal energy bills.

- ♦ **Ensure sustainable and efficient water management through "Digital water"[25],** with positive impact on quality, quantity, pollution and the environment, particularly through the development and deployment of intelligent equipment and sensors, smart networks and advanced data analytics. According to the OECD €245 billion additional investments are needed in water supply and sanitation until 2027 for assets and digitalisation of the water sector.

- ♦ **Meet high standards to foster the resilience of water-related infrastructure.** Europe has an ambitious water legislation which encompasses environmental imperatives and represents a unique regulatory driver for innovation. Europe must strive to reach the set goals in all areas by improving knowledge and most of all by implementing and disseminating the outcomes of research through standardisation.

- ♦ **Intensify in the dialogue with all stakeholder including end users to achieve the digitalisation of Europe, by eliminating fears and unknowns about digital solutions**. This objective can be paired with the need to invest in youth professional to get the right technical skills and go several step further in research and innovation in "digital water"[26].

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[25] Concept underpinning the Water Europe vision, based on the predicted development of a world where all people, "things" and processes are connected through the "Internet of Everything", leading to capillary networks and sensors, meters and monitoring of the water system all the way along to the individual user, as such generating large amounts of valuable data (big data) for innovative Decision Support and Governance systems.

[26] https://watereurope.eu/wp-content/uploads/2019/07/Water-Europe-Vision_English.pdf

- **Digitalization can be an instrument to get better insight in the interdependencies, unravel complex systems**, and therefore faster support to implementation of directives and optimize governance of water in Europe. It is particularly a need to improve water security.

- **Cybersecurity also needs to be addressed in Europe to protect our infrastructure from cyberterrorism**. In the context of terrorism and its will to have a strong industrial strategy, Europe must increase cybersecurity to avoid unwilling access, change or destruction of sensitive information and uncontrolled action in normal business processes.

ANNEX 3: Encourage an inclusive Water-Smart Society for our citizens

An increased involvement of all relevant stakeholders in the governance of our water system is required, in order to make sure all users will have access to sufficient water of good quality, resilience against climate change events is managed adequately and the water infrastructure remains financially viable towards the future. The Water Framework Directive is a good tool to achieve the Water-Smart Society, but it goes also beyond this scope. Europe needs to:

- **Encourage disclosure and consideration of water risk management in our business**. Private companies receiving public money during the Covid-19 crisis should spend this money in line with the Green Deal and the UN Sustainable Development Goals. Policymakers should advise companies on the monitoring and measuring of private spending after the crisis, making sure that companies who have received public funding during the crisis will finance projects which bring social benefits, such as water security projects, biodiversity and restoration projects.

- **Engage citizens and invest in citizens' water-related skills and young professionals.** Europe should increase awareness of citizens by investing in their water-related skills and encourage their participation in the preparation and implementation of policies, particularly for long-term plans. It can create new perspectives, trust in their institutions and new business opportunities and jobs, particularly for young people. The sector has difficulties recruiting people.
    - Communication is a key element, especially in a period of crisis, to remind the safety of tap water and reduce plastic-related consumption[27].
    - Digitalisation is also a key allies to educate people on water-related challenges, particularly for developing countries[28].

- **Encourage and rethink support for water-related projects not only in line with HorizonEurope and its missions but in the whole calls from the EU.**

    - **Greater spending on investment project preparation** (through a Project Preparation Facility) that would enable the design of more resilient water projects, incorporating green and grey measures. The complexity of this project with cross-boundary scales needs additional effort to design. A close coordination with the European Investment Bank could encourage these projects and reinforce citizens' participation. One challenge with the current NCFF stands is that its TA is downstream of the EIB project signature.

    - **Invest in Water oriented Living Labs** to create a Water Smart Society. It is a powerful tool to increase the impact of your actions in supporting regions and authorities and engage

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[27] In Belgium, tapwater consumption has slightly dropped last month: https://www.vmm.be/nieuwsbrief/april-2020/drinkwaterverbruik-vlaanderen-blijft-stabiel

[28] https://www.wsscc.org/2020/04/02/a-robot-will-teach-handwashing-skills-to-students-in-india/

dialogue with citizens. In the water sector, many local, cross-boundary and cross-sectoral living labs are already set up with potential innovative solutions which can be scaled up[29]. It's also an opportunity to encourage water projects that the EIB and the European Union can invest to accelerate our transition and prevent additional costs from unwilled crisis.

These two options are key to reduce the *Death Valley* of European projects and help European R&D&I projects to reach the market and hence create positive impact.

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[29] https://watereurope.eu/wp-content/uploads/2019/07/Atlas-of-the-EU-Water-Oriented-Living-Labs.pdf

ANNEX 4: Reinforce European Leadership to Improve International Cooperation

"80% of wastewater flows back into the ecosystem without being treated or reused, contributing to a situation where around 1.8 billion people use a source of drinking water contaminated with faeces"[30]. Water for hygiene is the first preventing way to protect against diseases, particularly the COVID-19, which are still major global plagues. In line with the SDGs defined in the 2030 Agenda for sustainable Development and Paris agreement, Europe needs to reinforce its leadership and international cooperation, particularly with Africa to develop international emergency plans and disseminate technical tools, including the digitalisation, to prevent this type of crisis.

♦ **Foster collaboration with key regions for the Union**, particularly Africa. It is also the interest of Europe to encourage exchange of best practices and support authorities in their projects, particularly to develop WASH services, restore wetlands, mitigate extreme events to secure stability in these regions and Europe business relations with these regions (for goods that Europe cannot produce on its territories). The cholera outbreak in Haiti in 2010 demonstrates the importance of water treatment plants when tackling sanitation-based crises [31].

A systemic cooperation through Peer-to-peer capacity building partnerships (such as Water Operator Partnerships – WOPs or Afrialliance project) are recognised as effective instruments to improve water management in a sustainable manner, monitor and prevent crises.

♦ **Develop a strong European Water diplomacy.** Europe must be ambitious to demonstrate is added value. Imposing of EU standards is one key option, but the European Union needs also to go further. We welcome the European communication on the Global EU response to COVID-19[32]. Water-related topics, particularly WASH, are key tools to tackle sanitarian crises.

  • **Impose the same environmental protection for production sites outside the EU**. Europe must reinforce its industrial strategy quickly and strongly to protect jobs and European industrial leaders on the global market. Citizens demand more local production and secured supply chain. This measure provides a direct impact on GDP and reduce the imported (virtual) water footprint of Europe. It is also a source of better competitiveness for Europe (reduction of the competitive gap) and additional sustainable jobs for our economy. Europe has different options to export its standards:
    o Transposition of water-related standards in the EU legislation on consumer goods or sanitary rules might be an option.

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[30] https://www.unwater.org/water-facts/quality-and-wastewater/
[31] https://www.cdc.gov/cholera/haiti/index.html
[32] Joint Communication to The European Parliament, The Council, The European Economic and Social Committee And The Committee Of The Regions, Communication on the Global EU response to COVID-19

- o The European soft power is the second option as the Swiss example clearly demonstrates it, but it remains too weak to support our industry [33] .
- o A third technical solution might also be found in the specific framework already applied in the RUP[34] to support local employment and production instead of promoting importations. A close work must be done between the Member States and Europe to find the best technical reply to protect our industry and jobs.

- **Support Gender equality, inclusiveness and human rights.** As part of the SDGs and its ambition of gender equality, by developing a water diplomacy, particularly for WASH service, Europe encourages women equality, autonomy and contribute to making sure that we leave no one behind.

Additionally, In Europe for example, the London network of public fountains contribute to protect vulnerable people, encourage tap water consumption and hence reduce plastic consumption. However, this network is currently shut due to COVID-19. This is a challenging area by impacting access to water for vulnerable population[35].

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[33] http://www.geni-alp.org/ouvrage/principes/121-des-cadres-re%CC%81glementaires-et-le%CC%81gislatifs-tre%CC%80s-diffe%CC%81rents
[34] Ultra-peripheric regions of Europe (French, Portuguese and Spanish overseas regions)
[35] https://www.london.gov.uk/what-we-do/environment/waste-and-recycling/single-use-plastic-bottles/drinking-fountains-london