

Water Resilience – Position paper

The Consulting Engineering Perspective

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The European Federation of Engineering Consultancy Associations (EFCA) has member associations in 27 countries, representing more than 10,000 companies from the European engineering consultancy industry and related fields. Based in Brussels, EFCA is committed to facilitating constructive dialogue with European Institutions on issues impacting our industry; and engaging with international stakeholders on shared interests.

EFCA's position in brief

1. Europe needs an EU-wide, coordinated approach to water resilience, with stronger cross-border governance, clear political frameworks and governance structures, realistic legislative deadlines, and sector-specific drought and scarcity indicators.
2. Water planning must be integrated into the EU Industrial Strategy, applying “water-smart” criteria for planning and development, while avoiding the outsourcing of water-intensive industries.
3. Climate adaptation and nature-based solutions such as “sponge cities”, wetland and floodplain restoration and river reconnection should be urgently scaled up, with measurable objectives, supported by advanced engineering and relevant technical standards, digital tools, and efficiency measures in agriculture and industry.
4. Early warning systems using IoT, AI and real-time monitoring, with clear functions, should become standard to secure drinking water supplies, prevent leakages, and protect communities and ecosystems.
5. The “Water Efficiency First” could evolve to a “Water Positive” approach, tackling leaks in supply and sewer systems, prioritising agricultural efficiency while embedding sewer integrity and stormwater separation into EU policy.
6. Investments in water infrastructure must shift from reactive repair to proactive maintenance, supported by concrete technical implementation strategies and adequate governance mechanisms.
7. Fair and proportionate water pricing, reflecting environmental and scarcity costs, must go hand in hand with protecting vulnerable users, upholding water as a human right, applying the polluter-pays principle while being supported by reliable technical systems.
8. Digitalisation of water systems should be coupled with robust cyber- and physical security, transparent and accessible data, and EU-wide cooperation to safeguard resilience.
9. The rapid expansion of AI and data centres must be reconciled with sustainable water use, ensuring optimisation and reuse while avoiding financial support that deepens water stress, and paired with urgent upgrades to Europe’s ageing infrastructure.

Introduction

The European Federation of Engineering Consultancy Associations (EFCA) welcomes the European Water Resilience Strategy. Water is a fundamental resource, vital not only for humans and natural ecosystems, but also for economic productivity, energy systems, agriculture, and industrial innovation. Therefore, we strongly support prioritising water resilience as a key pillar of Europe's climate, environmental and industrial efforts.

However, Europe faces mounting water stress due to climate change, increasing droughts and floods, ageing infrastructure, pollution, and underinvestment. To effectively safeguard Europe's water resources, competitiveness and societal well-being, we call for an ambitious framework that fully leverages consulting engineers' expertise. This can be supported by EFCA's strong commitment to sustainable water management and the promotion of resilient infrastructure across Europe.

An EU-wide, cross-border approach

Water could benefit from European-level governance as, for example, many river basins and groundwater resources traverse borders. This means demanding stronger cooperation and harmonised planning. EFCA supports the Commission's proposed actions on structured dialogues with Member States on the water legislative acquis but recommends more realistic deadlines to implement existing and future legislation going forward. EFCA would like to see the focus being on cross-border drought risk management and water scarcity indicators, as also suggested in the Strategy. Such indicators should be sector-specific.

A call for clear political frameworks and governance structures

In addition, EFCA emphasises that clear political and governance frameworks are essential to ensure that technical measures to enhance water resilience can be effectively deployed, scaled, and governed. Robust governance structures should therefore define responsibilities, enable data access, and ensure investment security, so that the technical and engineering capabilities available in Europe can be fully utilised.

Water in the EU Industrial Strategy

Water security underpins the EU's industrial autonomy and strategic sectors (batteries, chips, hydrogen, data centres). We encourage integrating water planning explicitly in industrial spatial planning and applying "water-smart" criteria for the location of new facilities. Such "water-smart" criteria could include alignment with local water availability, minimising water consumption through efficiency and reuse, integrating nature-based solutions and avoiding/reducing pollution. Consulting engineers would also like to stress that moving water-intensive industries outside the EU does not enhance European competitiveness as it simply outsources the problems related to water. Furthermore, well-defined governance and legal frameworks at both EU and national levels can also facilitate targeted investments in infrastructure and the digitalisation of water supply and wastewater management.

Climate adaptation and nature-based solutions

Europe's coastal areas, rivers, floodplains, wetlands and groundwater are its natural water infrastructure. We need to urgently reinforce nature-based solutions. At the same time, neglect of water transportation systems, notably rivers, significantly reduces their resilience and multi-use potential (navigation, biodiversity, buffer against floods).

On restoring the water cycle, there is the need to further deliver nature-based solutions, rehabilitate degraded ecosystems, and design “sponge landscapes” and cities. Projects that involve river restoration, floodplain reconnection, and green urban infrastructure however, demand sophisticated hydrological, ecological, and civil engineering disciplines, with consulting engineers playing an important role in aligning design solutions with broader sustainability and resilience goals. Adopting water reuse technologies, leakage detection systems, and efficient infrastructure through digital tools like smart metering and digital twins are also important, along with the deployment of water-efficient practices across agriculture and industrial clusters.

EFCA also supports strengthening technical standards for the built environment. New buildings should, where feasible, be equipped with rainwater retention systems such as cisterns and dual-pipe systems that enable the decentralised storage and reuse of rainwater. In addition, the use of treated greywater should be intensified to reduce drinking water consumption and enhance resource efficiency. To avoid impairing rainwater quality, construction materials with low pollutant release should be prioritised.

Early warning systems

As early warning systems are another critical component of water resilience that strengthen preparedness, EFCA recommends that the Commission supports such systems to reduce risks to communities and ecosystems, and support evidence-based decision-making in times of water stress. Consulting engineers can contribute to such systems' effective design and implementation. A successful example of this is the project completed by EFCA's 2025 Future Leaders Competition winner in the category of 'Digital and New Technologies'¹. The winner developed a system that makes use of IoT sensors, data collection, and AI to ensure the safety and continuity of drinking water supply. The solution detects and enables the rapid repair of installation leaks, helping secure critical water infrastructure.

Water efficiency

EFCA supports the Strategy's emphasis on reuse, suggesting that the “Water Efficiency First” approach could evolve towards a “Water Positive” approach, supporting projects that actively improve water ecosystems, returning more water in better condition than when it is taken, with consulting engineers contributing through the design of water-efficient systems and infrastructure improvements. Major water efficiency gains could lie in agriculture as well, as it is the largest water consumer with significant potential for efficiency improvements.

On leakages, leaky water supply (ranging from 8% to 57% across Member States) and leaking sewers (leading to overflows and contamination) also require priority attention. It is positive

¹ <https://youtu.be/Masg3l7oqmk?si=fqYF5cWt1yDlyX9D>

that Member States with water supply leakage levels exceeding the EU-wide threshold (which is to be set by 2028) will have to present, by 2030, national action plans to reduce leakages across their supply networks. The Commission should also include sewer integrity (e.g. through smart sewer network rehabilitation projects) and stormwater separation in its water-smart economy (and water efficiency) initiatives.

From a technical perspective, the implementation of digitalisation, monitoring, and infrastructure measures is a prerequisite for effectively managing economic factors such as demand behaviour, competing uses, and market mechanisms. These technical foundations enable the design and operation of economic frameworks, for example, water abstraction charges or incentive systems to promote efficiency, ensuring that steering mechanisms in the water sector are both technically sound and economically viable.

Investments and infrastructure

EFCA has been a proponent² of a dedicated Blue Transition Fund as was the European Parliament³ in the run-up to the publication of the European Water Resilience Strategy by the Commission.

Despite the Fund not having materialised, EFCA encourages proactive investment in water infrastructure to avoid costly repairs post-catastrophe. As water infrastructure has been neglected in some countries, maintenance of ageing and leaking water supply and wastewater infrastructure must be prioritised. While public-private partnerships are important, we stress the need for funding models to include SMEs, and high-quality public procurement (moving beyond lowest-cost).

Regional water management plans should also incorporate concrete technical implementation strategies, supported by adequate governance mechanisms that ensure continuity and scalability of investments. This alignment between governance and technical execution is vital to deliver sustainable and effective water resource management.

At the same time, EFCA strongly supports the creation of the EIB-backed Sustainable Water Advisory Facility and the Water Resilience Investment Accelerator. Such initiatives should include consulting engineers, who have the necessary expertise to point at and develop relevant project pipelines. EU structural funds must also be streamlined for smaller-scale water projects where engineering expertise can deliver high-impact results, especially in less developed regions.

Water and pricing

Proportionate pricing for water, reflecting environmental and scarcity costs, would drive efficiency more sustainably than subsidy schemes. Meanwhile, we endorse maintaining fairness for vulnerable groups and ensuring water remains a basic human right and putting emphasis on the polluter pays principle and equitable water pricing to fund maintenance and expansion of water services.

² https://www.efcanet.org/sites/default/files/2024-01/2024-01-18_Position%20Paper%20on%20Blue%20Deal_0.pdf

³ https://www.europarl.europa.eu/doceo/document/TA-10-2025-0091_EN.pdf

To ensure these pricing mechanisms are effective, they should be supported by reliable technical systems, facilitating the integration between technical and economic frameworks, enabling better understanding of consumption patterns, improving transparency, and allowing targeted incentive systems to promote water efficiency and resilience.

Digitalisation and (cyber)security

As digitalisation advances, protection from cybersecurity risks is vital to avoid negative impacts on public health and economic activity. Consequently, digitalisation of water infrastructure must be accompanied by robust cybersecurity and resilience measures. This should be coupled with physical security of water utilities, both within the EU and within countries that are to join it in the future, also in the spirit of a cross-border and coordinated approach to water resilience. Transparency and data accessibility are also key to effective water management. For example, smart metering, as suggested in the Strategy, should be implemented to detect overuse early.

Water and AI/data centres

EFCA welcomes that the European Commission is aiming at tripling the EU's data centre capacity over the next years as a way to boost the bloc's technological sovereignty. At the same time, one needs to acknowledge and act upon the risks that such expansion will put on water resources. Although we understand why *"offering possible financial support in line with applicable State aid rules to data centres...and tackling obstacles and difficulties...in accessing water"*⁴ is necessary, this should not be done in a way that further exacerbates problems that water resources and infrastructure already face.

There is necessity to enhance water resource management (e.g. optimising water consumption) in data centres but in harmony with urgent maintenance and repair of ageing, leaking water supply infrastructure and blocked and hazardous wastewater infrastructure.

Conclusion

Water resilience must be a shared European responsibility that brings together policymakers at EU and Member States, actors at local and regional levels, citizens, and engineers as well. EFCA believes that consulting engineers are essential players and contributors in delivering the expertise, innovation and consequently infrastructure needed to build a water-smart Europe. Through technical leadership and constructive policy engagement, EFCA is ready to help the EU achieve its goals for sustainable, climate-adapted, and efficient water systems.

⁴ [https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=PI_COM:Ares\(2025\)2878100](https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=PI_COM:Ares(2025)2878100)

Annex - Recommendations

An EU-wide, cross-border and coordinated approach	• Strengthen EU-level governance for water as a cross-border resource. • Harmonise planning and indicators for drought risk management and water scarcity, tailored by sector. • Set realistic deadlines for implementing water legislation.
A call for clear political frameworks and governance structures	• Clear political and governance frameworks are essential to ensure that technical measures which can enhance water resilience. • Robust governance structures should define responsibilities, enable data access, and ensure investment security.
Water in the EU Industrial Strategy	• Integrate “water-smart” criteria in industrial spatial planning (alignment with local water availability, efficiency, reuse, pollution prevention). • Avoid offshoring water-intensive industries outside the EU, problems are not solved but exported. • Ensure maintenance and upgrading of water infrastructure as part of industrial autonomy.
Climate adaptation and nature-based solutions	• Prioritise nature-based solutions (sponge cities, wetland and floodplain restoration, rewetting peatlands, river connectivity), with measurable objectives. • Combine with systematic maintenance and smart renewal of ageing infrastructure. • Adopt integrated rather than sporadic interventions to strengthen resilience. • Support digital tools (smart metering, digital twins) for water reuse, leakage detection, and efficiency. • Strengthen technical standards for the built environment to support the decentralised storage and reuse of rainwater. • Intensify the use of treated greywater to reduce drinking water consumption and enhance resource efficiency.
Early warning systems	• Invest in interoperable early warning systems, with clear functions, for floods and droughts. • Ensure cross-border coordination and digital integration. • Promote consulting engineers’ role in designing resilient monitoring systems.
Water efficiency	• Advance from “Water Efficiency First” to “Water Positive” (returning more water in better condition than taken). • Focus on efficiency gains in agriculture. • Tackle leakage in both water supply and sewers, and include stormwater separation in EU initiatives. • Support technical measures (e.g. digitalisation, monitoring) to effectively manage economic factors that lead to efficiency and economic viability.
Investment and infrastructure	• Establish a dedicated Blue Transition Fund. • Prioritise investments for wetland restoration with objectives by catchment area.

	• Prioritise proactive investment and maintenance to avoid costly post-disaster repairs. • Ensure funding models include SMEs and support high-quality public procurement beyond lowest-cost criteria. • Streamline EU funds for small-scale, high-impact projects in less developed regions. • Incorporate concrete technical implementation strategies in regional water management plans, supported by adequate governance mechanisms to ensure continuity and scalability of investments.
Water and pricing	• Apply proportionate pricing that reflects environmental and scarcity costs while protecting vulnerable groups and ensuring water remains a basic human right. • Implement the polluter pays principle to finance sustainable water services. • Promote the use of reliable technical systems, facilitating the integration between technical and economic frameworks to enhance water efficiency and resilience.
Digitalisation and (cyber)security	• Combine digitalisation of water infrastructure with robust cybersecurity and physical protection measures. • Enhance transparency and data accessibility through smart metering, water balancing, and sector-specific indicators.
Water and AI/data centres	• Ensure water use in data centres is optimised and balanced against urgent repair/maintenance needs of ageing infrastructure. • Avoid financial support measures that exacerbate existing water stress. • Promote consulting engineers' expertise in sustainable water management for digital infrastructure expansion.