



Socio-political
support

#1.

➤ Policy Brief

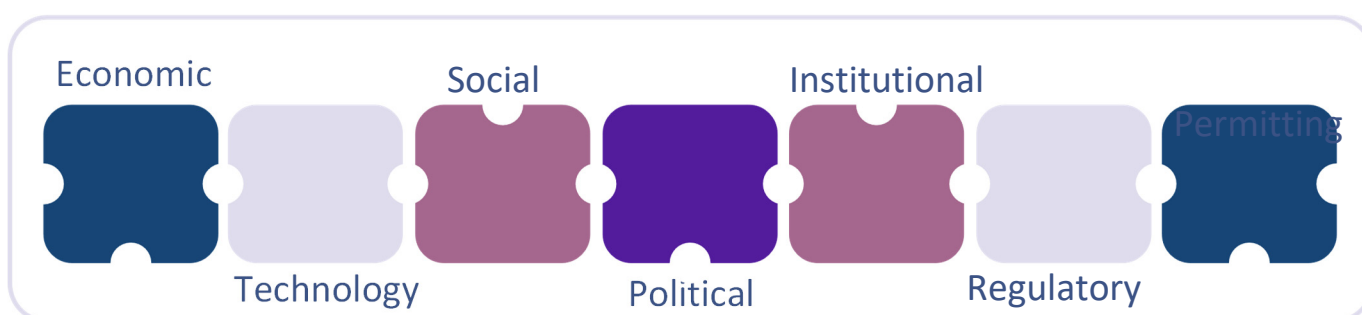
WATER STRESS IN EUROPE

Water stress arises when water availability, in terms of both quantity and quality, is insufficient to meet the demands of ecosystems, society, and the economy, encompassing drought, scarcity, and limited accessibility. Although historically considered only a regional issue in southern Europe, recent data indicate that droughts and **water scarcity** have become increasingly frequent and widespread across the continent, a result of climate change.

Water scarcity and droughts are becoming more prevalent and widespread, with a yearly average of 20% of the European territory and 30% of the total population being affected by these. Such natural hazards pose significant **challenges for effective water management**, and endanger the **continuous water sources for future generations**.

In response, **Alternative Water Resources (AWRs)** have emerged as a sustainable option. Water reuse offers economic, social, and environmental benefits, but challenges like high infrastructure and energy costs remain. AWRs help supplement water and protect ecosystems, while the EU constantly integrates these solutions to improve water-use efficiency.

TYPES OF BARRIERS TO IMPLEMENTING AWRs



METHODS USED BY AWARD

This policy brief is based on extensive research developed in the AWARD project including desk research, policy analysis, expert input, and insights from the AWARD Demo Case teams. It is drawn on data from Work packages 2 (policy framework analysis, Demo Cases workshop) and 3 (vulnerability diagnosis) and aims to identify effective policy measures for implementing AWR. **Regulatory, legislative, and financial frameworks** across several countries were developed in deliverable 2.1 “Alternative Water Resources’ (AWR) regulatory, policy framework and funding mechanisms” and used as main research methods document analysis, questionnaires, and interviews. **Vulnerability diagnosis** carried out in WP3 on six dimensions including financial capacity and social factors, used literature review and **stakeholder in-depth interviews**. During the 2025 AWARD General Assembly, a dedicated **workshop** gathered local perspectives and expert input to shape the brief’s recommendations for a supportive AWR regulatory framework.

The aim of this AWARD Policy Brief is to emphasize the importance of Alternative Water Resources (AWRs) in addressing water scarcity and climate challenges in Europe, while urging policymakers to strengthen and tailor the regulatory framework to unlock their full potential.

This document presents the highlights of the full version of the Policy Brief #1. A total of three Policy Briefs and a Handbook will be delivered over the course of the AWARD project with different focuses.

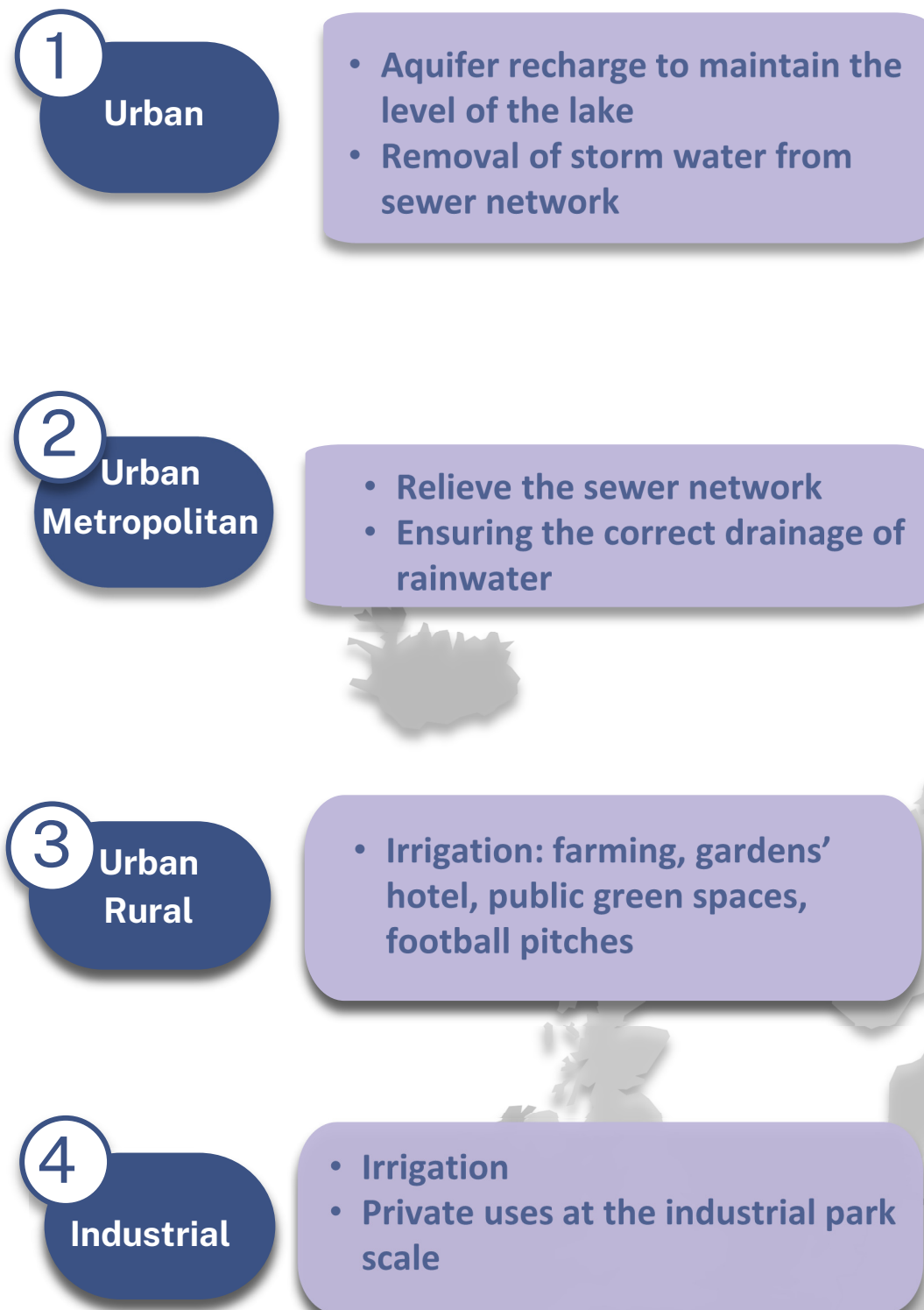
Box #1. Definitions

Alternative Water Resources

- **Aquifer recharge:** Storing surface water or treated wastewater in underground aquifers for later use during water scarcity, following local regulations.
- **Rain water collection:** Collecting and storing water from roofs or other easily accessed surfaces for later local use.
- **Storm water harvesting:** Capturing and storing excess runoff water from storms, melting snow other incidental sources, for preventing flooding and later use of non-potable water.
- **Water reuse:** Maximizing the use of water from alternative water sources by treating and reusing the wastewater mainly from various industrial processes, for the benefit of agriculture, industries and human use.

Scheduled Interventions

Vulnerabilities



- Limited integration of hydrogeological factors in urban management regulation
- Uncontrolled real estate development and poor urban governance
- Poor green space and environmental management
- Poor administrative coordination
- Limited implementation of EU norms
- Limited knowledge of AWR across the public authorities
- Limited local authority access to EU funds

- Limited debate on wastewater use and aquifer recharge
- Limited coordination between public institutions
- Strategic planning gaps
- Limited public engagement and funding

- Funding constraints for AWR infrastructure
- Challenges in financing large-scale projects
- Limited access to EU and international funds
- Barriers to small-scale and community initiatives
- Gaps in financial planning and cost recovery
- Low public engagement in water conservation
- Market hesitation in adopting water recycling technologies

- Scientific and political controversies on AWRs and their potential benefits
- Territorial imbalances
- Governance and planning limitations



Box #2. Common Policy Challenges at National Level

- lack of a specific legislative framework or dedicated measures in the water framework for the water reuse/use of rainwater and stormwater, limiting its application;
- lack of financial incentives for most AWRs, often concerning rainwater/stormwater use and NbS;
- insufficient knowledge of the risks and benefits of treated wastewater;
- low acceptance of treated wastewater in the public sphere;
- lack of regulation and financing for small-scale reuse of water (e.g., from households);
- lack of regulation for high-quality treated wastewater used for irrigating crops such as lettuce;
- lack of regulation on emerging contaminants;
- lack of a comprehensive vision to use AWRs to reduce pressures on water bodies;
- lack of knowledge and capacity for technical requirements for alternative treatment solutions.

Enhance Governance and Institutional Coordination

- Establish [AWR coordination bodies at national or regional levels](#) to improve multi-level governance and encourage synchronized action.
- Develop an [EU-wide policy framework](#) while allowing flexibility for local implementation.
- Promote inter-ministerial and [cross-sectoral collaboration](#) for policy making to ensure the integration of sustainable water resource management principles in territorial planning, economic and social strategies as well as strategies for biodiversity conservation and enhancement.



Diversify Funding Mechanisms and Incentives

- Simplify [access to EU funding](#) (e.g., Horizon Europe, Green Deal) for AWR projects.
- Provide national and regional funding programs for [decentralized water reuse initiatives](#).
- Leverage public-private partnerships and green financing mechanisms (e.g., water bonds, tax incentives) to drive investment in sustainable water solutions.
- Enhancing funding for [AWR pilot projects](#) to accelerate the adoption of AWR solutions.
- Economic incentives to [up-scale](#) and make feasible the adoption of AWR systems.
- High water tariffs to strongly [discourage domestic exceedance](#) after a certain amount of water use.



Increase Public Engagement and Knowledge Sharing

- Strengthen communication efforts [to raise awareness of AWR benefits](#), particularly for treated wastewater reuse and groundwater conservation.
- Promote [best practice examples](#), practitioner handbooks, and guidance documents.
- Encourage [public participation](#) in local water initiatives and integrate [water education](#) into school curricula.



Stormwater and Rainwater Management



- Ensure that [water tariffs](#) account for stormwater management costs, covering both investment and operational expenses.
- Introduce a “[rainwater fee](#)” for [sealed surfaces](#) to incentivize rainwater collection and infiltration through Sustainable Urban Drainage Systems and Nature-Based Solutions.
- Development of a [clear set of preferences for stormwater use](#) (e.g. 1.collection and storage for reuse; 2.infiltration into the soil; 3.stormwater separate sewer; 4.combined sewer). Request Water Management Agencies to progressively retrofit urban drainage system according to those preferences.

Strengthen Legislative and Regulatory Frameworks for Water Reuse



- Establish clear water reuse legislation with [Environmental Quality Standards for rainwater and stormwater](#).
- Expand EU water legislation to include [a discharge hierarchy for urban stormwater](#), prioritizing infiltration and sustainable discharge options.
- Require [separate](#) potable and non-potable [water distribution systems](#) in new and [renovated buildings](#) to facilitate greywater and blackwater reuse.
- Develop technical standards on various AWRs and request mandatory implementation of some AWRs for new or restored buildings.

Integrate Water Reuse in Urban Planning



- Make [AWR integration mandatory in urban planning](#) and building codes.
- Incentivize rainwater harvesting, greywater reuse, and Nature-Based Solutions through [clear regulations](#) and [financial support](#).
- Ensure that [water reuse is included in climate change adaptation strategies](#) and urban development policies.

Box #3.

Policy Challenges at European Level

- lack of **legal framework on rain and stormwater use**;
- lack of a **unified regulatory framework for the reuse of urban runoff water**;
- lack of regulatory and **technical guidance**;
- lack of **quality limits for water used in groundwater recharge measures**;
- lack of knowledge and **regulation of Emerging Contaminants**;
- lack of **uniform standards for the quality of reused runoff water**;
- lack of **circular economy framework**;
- communication challenges and **limited public enthusiasm** for water reuse;
- lack of harmonized **standards for the use of AWRs** (e. g., greywater applications);
- lack of **clarity in the Urban Wastewater Treatment Directive (UWWTD)** regarding reuse of treated wastewater.

References

- Cipolletta, G., Gozde Ozbayram, E., Eusebi, A. L., Akyol, C., Malamis, S., Mino, E., Fatone, F. (2021). Policy and legislative barriers to close water-related loops in innovative small water and wastewater systems in Europe: a critical analysis. *Journal of Cleaner Production*. Volume 288, 15 March 2021, 125604.
- CIS (2016). Common Implementation Strategy for the Water Framework Directive and the Floods Directive. Guidelines on Integrating Water Reuse into Water Planning and Management in the context of the WFD.
- EEA (2018). 'Use of freshwater resources (CSI 018/WAT 001)'. European Environment Agency (<https://www.eea.europa.eu/data-and-maps/indicators/use-of-freshwater-resources-3/assessment-4>). Accessed March 2025.
- EEA (2021). Water resources across Europe — confronting water stress: an updated assessment. EEA Report No 21/2021. Publications Office of the European Union, Luxembourg. ISSN 1977-8449, <https://doi.org/10.2800/320975>.
- EC (2007). Addressing the challenge of water scarcity and droughts in the European Union. COM(2007)414.
- EC (2016). EU-level instruments on water reuse. Final report to support the Commission's Impact Assessment.
- European Commission (2022). Commission Notice. Guidelines to support the application of Regulation 2020/741 on minimum requirements for water reuse (2022/C 298/01).
- Foster, S., Gogu, C. R. (2022). Groundwater Assessment and Management for sustainable water-supply and coordinated subsurface drainage: A Guidebook for Water Utilities & Municipal Authorities, IWA Publishing, ISBN: 9781789063103, EISBN: 9781789063110, ePub: 9781789063127, doi.org/10.2166/9781789063110
- Interwies, E. Görlitz, S. et al. (2024): Alternative Water Resources' regulatory, policy framework and funding mechanisms, Deliverable D2.1, EU Horizon AWARD Project, Grant agreement N° 101136987
- OECD (2015). Principles on Water Governance Welcomed by Ministers at the OECD Ministerial Council Meeting on 4 June 2015. Directorate for Public Governance and Territorial Development, Organization for Economic Cooperation and Development: Paris, France, 2015.
- Procházková, M., Touš, M., Horňák, D., Miklas, V., Vondra, M., Máša, V. (2023). Industrial wastewater in the context of European Union water reuse legislation and goals. *Journal of Cleaner Production*, Volume 426, 2023, 139037, ISSN 0959-6526, <https://doi.org/10.1016/j.jclepro.2023.139037>.
- Ricart S (2019). Challenges on European Irrigation Governance: From Alternative Water Resources to Key Stakeholders' Involvement, University of Alicante, Research Article, Volume 3 Issue 2, https://rua.ua.es/dspace/bitstream/10045/90948/1/2019_Ricart_JEcol&NatResour.pdf

AWARD PROJECT

About AWARD

AWARD is funded by the European Commission through EU Horizon, and coordinated by the International Office for Water, running from 2024 to 2027. AWARD acknowledges the urgency of addressing water scarcity and the impacts of climate change while recognizing the need for an integrated approach that engages society, science, and policy in the development of knowledge and strategic water planning.



AWARD's overarching objective is to generate evidence-based knowledge and lessons learned on how to effectively integrate affordable, acceptable, and reliable AWR solutions into strategic water supply planning and implementation while accounting for the effects of global change.

This will contribute to recommendations for the broader implementation of AWRs, considering the four dimensions of social innovation: technology, capacity development, governance & policy, and economic assessment.

AWARD activities

- Socio-political support for AWR adoption,
- A regulatory and patrimonial framework for AWR assessment,
- A digital ecosystem for AWR planning,
- Implementation and evaluation of AWRs in the Demo Cases,
- Maximizing impact through knowledge dissemination and stakeholder engagement.

Policy Brief Realisation

- Authors: Ciprian NANU (BDG), Raluca MIHAI (BDG), Claudia PETRESCU (BDG), Florentina NANU (BDG)
- Contributors: Eduard Interwies (InterSus), Stefan Görlitz (InterSus), Sergio Santorio Aldariz (Cetaqua), Giulio Conte (IRIDRA), Brais García Fernández (Cetaqua), Francesca Framba (CMM), Santiago Gómez-Cuervo (AIMEN), Ioannis Mantziaras (NTUA), Eleni Nyktari (NTUA)
- Graphic design: OiEau Team
- Date: April 2025



@AWARD_HEU



www.awardproject.eu



contact@awardproject.eu

