

EURO-INBO 2025 – Session 3 Report

Adapting to Climate Change: How to Better Manage and Prevent Droughts?



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Inviting authorities:



In partnership with:



Thematic context

Climate change impacts the water cycle in a complex way, with particularly marked consequences for drought periods, with, as with floods, an increase in their frequency and intensity (duration of heat stress episodes, altered precipitation patterns). These events are made even worse by factors such as deforestation, which disrupt evapotranspiration and impact the atmospheric moisture cycle. In 2022, at the end of July, 36% of Europe was hit by a severe drought, and in 2023, 41% of Southern Europe was affected by at least one "major heat stress".

The European Union has progressively developed a policy response to face drought more effectively:

- In 2007 with its communication "Facing the challenge of water resources scarcity and droughts" (revised in 2012 as part of the master plan -or blueprint- framework for safeguarding European waters)
- With three guidance documents for EU Member States: 1. In 2015, on the development of a quantitative hydrological report (available resources and water demand) at basin scale, to help achieve the objectives of the Water Framework Directive (WFD) and to guarantee the

sustainable quantitative management of water resources; 2. In 2015, on a common definition and calculation method for ecological flow, to guarantee its integration into the second cycle of river management plans (2016-2021); 3. In 2024, on river basin management in a climate change context.

- The climate change adaptation strategy (2021) has been incorporated into the 2022-2024 work program of the common implementation strategy for the WFD, with an ad-hoc working group on water scarcity and droughts.

Member States and their basin organizations can rely on this policy framework to plan, finance and implement ambitious drought management plans. It is particularly effective to apply at basin scale a set of measures combining the control and the reduction of demand (which must remain a priority), safeguarding the water availability through storage (including a better soil management), and strengthening drought monitoring and forecasting tools.

SESSION 3 - ADAPTING TO CLIMATE CHANGE: HOW TO BETTER MANAGE AND PREVENT DROUGHTS?



Ms. Elodie Galko
Director General, Adour-Garonne
Water Agency (AEAG), France



Ms. Marina Colaizzi
Secretary General, Eastern Alps
District Basin Authority, Italy



Mr. Manuel Sapiano
Chief Executive officer,
The Energy and Water Agency (EWA),
Malta



Mr. Christian Lecusson
President of FENARIVE,
Vice-Chairman of the Seine-
Normandy Basin Committee, France



Mr. Mariusz Adynkiewicz
Head of Regional Research
Department, Institute of Meteorology
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Mr. Ramiro Martinez
Coordinator of the
Mediterranean Network
of Basin Organizations (MENBO)



Ms. Maria Babukchieva
Ministry of Environment
and Water, Bulgaria

Session Report

The session highlighted the growing scale of droughts affecting the whole of Europe – from north to south and east to west – as well as other regions of the world. Climate change is increasing the frequency and severity of these phenomena, while human pressures on aquatic ecosystems are further exacerbating the vulnerability of territories. In this context, river basins are becoming priority areas for adaptation.

Mr. Stefano Mariani (ISPRA, Italy) recalled that extreme droughts are becoming the norm, leading to profound imbalances between water availability and demand. He stressed that adaptation requires concerted strategies at several levels and that unified indicators on water scarcity only make sense at the basin level and at an appropriate time scale

(monthly or seasonal). In this regard, the transformation of the ad hoc drought group of the Water Framework Directive (WFD) into a permanent working group reflects growing institutional recognition of drought risk in Europe.

In the Adour-Garonne basin (France), Ms Élodie Galko (AEAG) highlighted the high climate sensitivity of the area, with flow losses of 10% per decade since the 1970s and forecasts of up to 50% in summer by 2050. She called for immediate action at the sub-basin level, drawing on local knowledge, the reuse of treated wastewater, nature-based solutions (hedges, soil cover, wetlands) and infrastructure combining storage and renewable energy. More than €300 million is being invested annually to support these transformations. She also called for greater consistency

between the WFD and the Common Agricultural Policy (CAP), in particular by integrating quantitative water management.

Ms Marina Colaizzi (Eastern Alps Basin Authority, Italy) detailed the challenges in a heavily exploited area (irrigation, hydropower, drinking water) that is vulnerable to seasonal droughts. The basin, which is poorly interconnected and suffers from data fragmentation, relies on hydrological models developed with the Politecnico di Milano to guide short- and long-term measures. The PRISMA platform, pilot projects on artificial recharge and a permanent observatory support this approach. The aim is to combine urgency and resilience through regulatory tools, infrastructure (reservoirs, networks) and enhanced inter-institutional coordination.

Mr Manuel Sapiano (Energy and Water Agency of Malta, a structurally arid country) highlighted the excessive focus of European policies on demand management, without taking into account the physical limits of resources. He advocated an integrated approach through the Water-Energy-Food-Ecosystems Nexus (WEFE) to strengthen long-term resilience by mobilising River Basin Management Plans as instruments for governance and convergence of the Sustainable Development Goals.

Mr Christian Lecussan (FENARIVE/Seine-Normandie) warned of the limitations of a fragmented regulatory system, which hinders the recognition of sectoral progress. Although industry has reduced its withdrawals and discharges, it faces technical and economic constraints. He emphasised the need for participatory governance, knowledge sharing and a coherent framework between European directives. He called for a circular economy focused

on reuse and efficiency.

In Poland, Dr Mariusz Adynkiewicz-Piragas (Meteorological and Hydrological Institute) showed that transboundary basins with Germany are facing increasing stress, marked by rising temperatures and low flow events. He highlighted nature-based solutions as a multifunctional response: rain gardens, permeable soils, wetland restoration, but also community awareness, vulnerability mapping and participatory planning.

Ms Maria Babukchieva (Ministry of Environment, Bulgaria) presented a strategy based on monitoring drought indices (SPI, SRI, SMI), identifying critical points, prioritising uses and improving governance. The increasing scarcity of water threatens all uses, particularly in mountain areas, and requires inter-agency coordination and alignment with European policies.

Finally, Mr Ramiro Martínez (Mediterranean Network of Basin Organisations, MENBO) pointed out that droughts in the Mediterranean require an overhaul of the European legal framework, which is still too focused on ecological status at the expense of quantitative management. He cited the special drought plans in Spain as an example of good practice. MENBO promotes improved monitoring, reuse, sustainable desalination and increased regional cooperation.

In conclusion, Mr Éric Mino (International Office for Water) summarised the main lessons learned: the whole of Europe is now affected by water scarcity, even if some regions such as Malta and Spain have more experience in this area. There is no single solution: a combination of measures is essential, combining efficiency, alternative resources, nature-based solutions and the Nexus approach. Shared knowledge, cross-sectoral

governance and a stronger regulatory framework are the pillars of successful adaptation. Coordination remains a major challenge, both within countries and across transboundary basins, as illustrated by the cases of Italy, Malta and the Danube basin.

