



Circular Economy Lab & Observatory

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WATER STATUS

2.a Water scarcity
Romania-2.1



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Introduction

The quality and quantity of freshwater in Europe have gotten worse over the past few decades due to increased pressure on the continent's water resources. Climate change and pre-existing water scarcity conditions, along with unsustainable water management practices like excessive consumption and water pollution, might have devastating effects on both environment and society.

Aquatic ecosystems are more stressed when drought and water resource management strategies are ineffective. In fact, poor water use planning causes significant overuse of rivers and reservoirs during dry spells, endangering the survival of the flora and fauna that are linked with them and reducing the amount of resources available for agricultural, municipal, and industrial applications.

The status of water bodies could be significantly impacted by the improper management of water scarcity and drought, which would compromise our ability to provide our people with high-quality water in sufficient quantities to maintain lives and livelihoods. The Water Framework Directive (WFD) encourages sustainable water usage in order to improve the protection of water bodies and the condition of aquatic ecosystems.

The WFD places freshwater ecosystem integrity at the centre of water management. Thus, within its context, measures to prevent and mitigate the effects of drought and water scarcity are totally appropriate. This policy summary is intended for the use of the relevant authorities in EU nations that are dealing with water scarcity issues as part of the WFD implementation.



<https://pixabay.com/photos/children-water-container-canister-4970919/>

Its goal is to present strategies and tactics, including potential responses to problems with water scarcity.



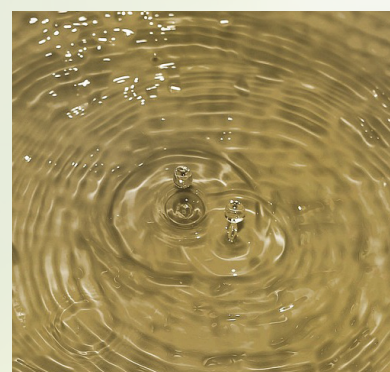
This document is based on a much more comprehensive technical document that was created by a working group composed of researchers from EC-funded projects dealing with water resources management in arid or semi-arid regions from both EU and non-EU countries (Mediterranean countries from the joint “WFD and Water Initiative” process) (the ARID cluster). What sort of issue do we have? First, it’s important to define the type of situation we’re in.

<https://pixabay.com/photos/tap-water-scarcity-spider-web-2809040/>

Problem’s description

Despite the fact that many terms relating to the problem are interrelated and frequently used interchangeably, it’s crucial to distinguish between imbalances and aridity. When water demands exceed the capacity of the natural system to supply them, imbalances occur.

Natural phenomena known as aridity often refers to poor water availability in an ecosystem as a result of low precipitation and/or high evaporation rates. Both aridity as a longterm average feature and a drought scenario that shows a departure from the average but is still within the ecosystem’s normal variability must be distinguished. Separating short-term water shortages brought on by extreme droughts from persistent imbalances between available water resources and demands is also required.



<https://pixabay.com/photos/water-drops-world-lack-of-water-2697750/>

Both phenomena call for various types of interventions, but water demand management interventions should be the bare minimum common denominator.

Moving from crisis to risk management in droughts by declaring a national or regional drought emergency program to mitigate drought effects, decision-makers typically respond to episodes of drought through a crisis-management approach, rather than developing comprehensive, long-term drought preparedness policies and plans of action that may significantly reduce the vulnerabilities to extreme weather events.

Risk management must evolve from drought planning. It necessitates the creation of thorough, long-term drought preparedness policies and plans of action based on the following tenets: improving drought resilience and lowering vulnerability; prevention to lessen the impacts of uncertainty and risk; reducing the hazard's negative effects; proactive managerial style; creating organized measures that involve changing institutional agreements, national laws, and infrastructures while also raising public awareness.

Prior to the commencement of a drought, a strategy for managing it should include enough capacity for contingency planning. It requires efficient networking and coordination between central, regional, and local authorities as well as robust information and early warning systems.

A complicated phenomenon, drought has a social, economic, and environmental component. A proactive approach to drought is comparable to strategic planning of water resource management for drought prevention and mitigation from the perspective of water resources. The following sorts of measures that are best planned in advance are included in such planning: a) Long-term measures designed to lessen the drought sensitivity of water supply systems.

They must take a number of suitable structural and institutional steps to increase each system's reliability so that it can meet demand in the future even in the face of drought.



Alternative measures include water conservation and demand reduction management, which includes effective use and resource protection, educational initiatives, public awareness and information campaigns, and research b) Rapid responses to an imminent and specific drought occurrence within an established infrastructure and management policy framework. This course of action includes a backup plan. When a drought scenario develops, the goal is to minimize the negative effects on the economy, social life, and environment.

<https://pixabay.com/photos/dried-out-lake-dry-dryness-drought-3568265/>

The following are the fundamental elements of short-term actions: continuous monitoring and data collection systems (Drought Management Plan, Drought Monitoring and Systems for forecasting, impact assessment, and response, as well as the necessary: Organizational structure; National legal system; Infrastructures and measures), long-term inequalities: the importance of water.

The implementation of a new strategy for managing water resources should be led by EU institutions, member states, and stakeholders. This vision may be summed up by thinking of fresh water as a precious resource that should be properly managed in the long run by adhering to the following conditions: a healthy freshwater ecosystem satisfies fundamental socioeconomic and environmental requirements, putting the environmental use at the top of the list of uses is consequently required.

At local, national, and international levels, participation, partnership, and active cooperation must be encouraged for sustainable water management. Knowledge is a crucial component of managing water resources sustainably. The management of water resources must be practical and result in accurate assessments of the water requirements of aquatic ecosystems and human activities that rely on water.



Authorities should apply a combination of both supply-side and demand-side actions for all users in a cogent river basin management program, if needed (in the event of overexploitation of the resources). The improvement of the supply-demand balance should be the primary goal of water managers.

Therefore, it is important to provide them with the tools (human resources, financing) they need to deal with this emerging because of their immediate consequences and significant influence on the largest water consumers.

For demand-side interventions: it will be necessary to take into account changes in water usage that are encouraged by subsidies, particularly through the CAP, and the national options for their implementation (partial decoupling of payments and Rural Development Programs); a decrease in distribution network leaks.

Enhancing irrigation techniques to reduce water consumption by enhancing agricultural management, optimizing irrigation and soil water use, and establishing new practical research programs (e.g., crop rotation, genetic variety); where appropriate, encouraging improved waste water reuse.



Possible solutions

Possible solutions can be the following: Efficient use of water resources, including improved natural storage and the utilization of modern technology and evolving agricultural and industrial operations. Analysis of the benefit of setting water quotas and upstream banks.

Establishing a modified tax and price policy framework to promote investments or the growth of demand approach management, and to create financial tools to internalize external costs and foresee returns from water savings.

Creation of awareness and education initiatives for supply-side interventions: protection of natural catchments, aquifers, and restoration while maintaining their functionality; enhancing the effective utilization of current water infrastructures Aquifers are refilled by water; creating a requirement for any project involving the construction of new water resources to consider the costs, needs, advantages, and alternative solutions as well as their effects on the economy, the environment, and society; a review of the proposed measures' efficacy and efficiency.

SCARCITY & DROUGHT ISSUES INCLUDED IN WFD IMPLEMENTATION

The suggestions outlined in this document must openly and unambiguously relate to the WFD's implementation. Although the WFD is not specifically intended to address quantitative issues, its aims in terms of the environment include ensuring a balance between groundwater abstraction and recharge (art. 4.1(b)), as well as promoting sustainable water use and helping to mitigate the effects of drought (ii).



Water quantity can also have a significant impact on water quality, which in turn affects good ecological and chemical state. In this way, the directive can be used as a tool to manage drought and water scarcity. An overview of the programs of measures to accomplish environmental goals must be included in River Basin Management Plans (RBMP) (Article 4) and may be augmented by the creation of more thorough management strategies and programs for concerns pertaining to specific facets of water management.

<https://pixabay.com/photos/water-level-advertisement-water-4880061/>

In this situation, some of the above-mentioned measures could be described and operationalized using RBMPs. The recommendations are as follows: when creating the WFD POM and related RBMPs, “measures” (basic/supplementary) that will help accomplish WFD objectives through controlling water quantity (e.g., water shortage) should be taken into consideration (art. 11, art. 13); to augment the WFD RBMP as and when necessary, a specific “drought management subplan” could be utilized (art. 13.5).

In several EU nations, drought plans are already created as part of their “security of supply” procedures¹. WFD (art. 14) mandates that public participation be established around problems relating to water scarcity management and the relationship between quantitative and qualitative water management features should be taken into account through an integrated approach when designing plans and programs in order to make coherence and create synergies where possible, according to relevant RBMPs (art. 11 and 13).

For the concerned countries, the interaction between quantitative and qualitative water management issues may result in particular and supplemental (technical and economical) restrictions.



These extra restrictions should be considered when establishing the environmental objectives in the RBMPs and when defending any potential exemptions. Regarding exceptions, the Directive (Art. 4.6) introduces “prolonged droughts” as natural causes or force majeure events that temporarily worsen the situation of water bodies.

Therefore, it will be necessary to define precise criteria of what constitutes “prolonged droughts” in the context of the WFD’s commitments. However, these strategies frequently aren’t centred on catchments or particular rivers. In fact, this calls into question whether the WFD, with its focus on river basinspecific planning, is an effective tool for drought preparation.

The adoption of relevant indicators that take into consideration particular climatic and hydrogeological circumstances will allow for the declaration of the circumstances under which extraordinary circumstances are or may be considered.

Contingency drought plans should be established when a specialized Drought Management Subplan supplements the RBMP in order to establish objective thresholds supporting the adoption of particular measures associated with an indicators system.



The process could be structured as follows:

- 1.** Determine the indicators and thresholds that will establish the starting point, the ending point, and severity levels of the exceptional circumstances. In addition, thresholds of pre-alert and alert levels should also be defined.
- 2.** Set up the measures to take during the pre-alert and alert phases in order to prevent deterioration of water status.
- 3.** All the reasonable measures have to be taken in case of prolonged drought in order to avoid further deterioration of water status.
- 4.** All practicable measures have to be taken to restore the body of water to its prior status once the event has finished and as soon as reasonably possible.
- 5.** Create a summary of the results and the actions done, and then update and adjust the current drought management plan.

FURTHER DEVELOPMENT NEEDED

There is a need for a deeper analysis of some of the measures mentioned above before they can be implemented in a RBMP / Drought Management Plan. There is also a need for further development of coordination at EU level and development of knowledge on specific issues, among which: research and development to obtain operational, region specific thresholds and indicators; coordination of activities among researchers, experts and agencies; evaluation – on a scientific basis – of the climate change effects on drought events, especially in the context of the planning exercise.



<https://unsplash.com/photos/rXl2B5uX7QM>



Conclusions

The conclusions are the following: Techniques for determining if the suggested measures are effective. Alternative solutions and water saving technologies should be promoted and further explored. A common way forward should be agreed upon in order to enable implementation, improve, and promote coordination and information exchanges.

<https://pixabay.com/photos/dryness-climate-nature-landscape-5209952/>

Exploration of opportunities and obstacles with CAP and the national choices for its implementation. Communication about the socio-economic benefits of achieving the WFD “good status”, also for regions and/or countries already affected by drought and water scarcity.

Build a Common long-term strategy to prepare for extreme events within water policies, including public awareness, educational programs, and research. It could be reached by reinforcing coordination at EU level to seek a transnational and interdisciplinary approach to drought research, monitoring, forecasting and joint mitigation strategies. To survive, adapt to climate change, and fulfil the requirements of a growing population, groundwater must be explored, protected, and used responsibly.



<https://pixabay.com/photos/ore-mountains-artificial-lake-water-5482684/>



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GROUP

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