What Water Law gets Wrong When it Stands Alone

Ágota Szekeres
PhD Candidate at the Ferenc Deák Doctoral School of Faculty of Law of the University of Miskolc,
Researcher at the Central European Academy, ORCID ID: https://orcid.org/0009-0003-5074-0090.

Water law is often treated as a niche field. In legal education and scholarship, it is frequently subsumed under environmental law, public utilities regulation, or administrative law. Yet this narrow framing no longer reflects the reality of how water is governed, contested, and experienced. Today, water law sits at the intersection of law, economics, engineering, ecology, biochemistry, and social sciences. Without an interdisciplinary approach, water law risks becoming normatively elegant but practically irrelevant.

Interdisciplinarity in water law is not an academic fashion. **It is a structural necessity.**

Why water defies legal boxes?

One reason water law resists doctrinal confinement lies in the nature of water itself. Water is simultaneously a natural resource, a public service, a strategic infrastructure input, and a prerequisite for the enjoyment of fundamental rights. Legal systems, however, are built around categories. Environmental law protects ecosystems. Public law regulates services. Economic law structures markets. Human rights law safeguards individual entitlements. But water moves across all of these domains.

This becomes particularly visible when legal systems are confronted with crises. A drought is not only an environmental problem if it disrupts drinking water supply. A tariff increase is not merely an economic decision if it undermines affordability. A failure to invest in infrastructure is not just a governance issue if it results in unsafe water and public health risks. In such cases, strictly doctrinal legal reasoning reaches its limits. By categorising and compartmentalising water in this way, we ultimately defeat its very purpose. Any legal or policy decision that ignores its impact on water risks undermining its own effectiveness.

Decisions affecting water are never neutral.

This may sound like a strong claim, but it reflects a broader reality. If we consider the Sustainable Development Goals[1] and their underlying rationale, it becomes clear that water is a foundational element across nearly all of them. From health and food security to poverty reduction and even non-discrimination, access to water operates as a silent precondition. Treating water as a narrowly defined sectoral issue therefore weakens not only water governance itself, but the broader objectives of sustainable and equitable development.

[1] United Nations General Assembly, Transforming our world: the 2030 Agenda for Sustainable Development, UN Doc A/RES/70/1 (25 September 2015).

To develop a more honest argument, we can examine how technical capacity is often treated as marginal to legal analysis, as if it belonged to a separate, non-legal sphere. This assumption is deeply misleading. **In water law, legal obligations are only as meaningful as the technical capacity that allows them to be fulfilled.**

Standards on drinking water quality, continuity of service, leakage reduction, or wastewater treatment are routinely adopted without sufficient regard to the condition of the underlying infrastructure, much of which is decades old. Yet legal reasoning frequently abstracts from these material constraints. Lawyers are rarely trained to think in infrastructural terms, and as a result, water law risks producing norms that are formally impeccable but practically unattainable.

This gap matters. EU water legislation, including the Water Framework Directive, assumes a baseline level of system integrity and investment capacity across Member States.[2] In practice, compliance failures often stem not from legal nonchalance, but from structural constraints: fragmented networks, underfunded utilities, or inherited technical deficits. Law can mandate outcomes, but engineering realities shape what is feasible.

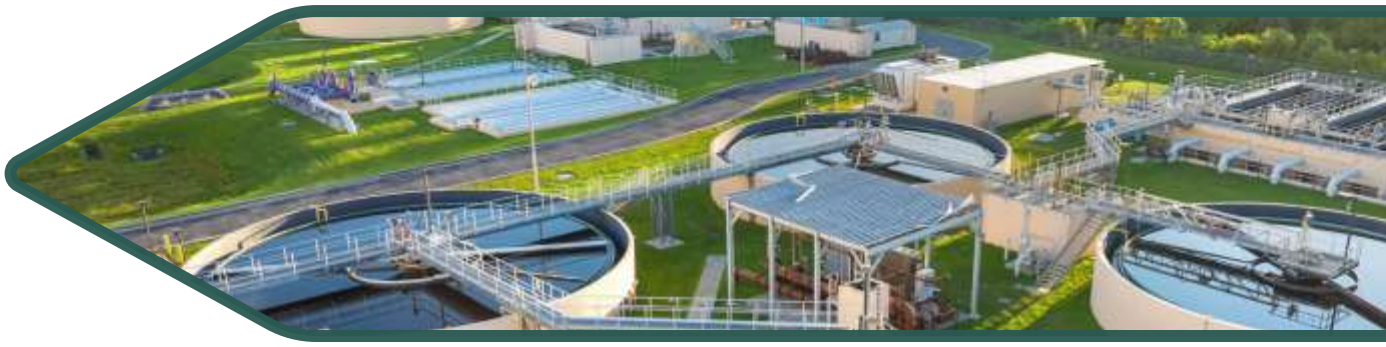
An interdisciplinary approach does not require lawyers to become engineers. It requires legal analysis to acknowledge that norms operate within physical systems. Empirical research from other resource governance contexts supports this insight. Studies on community-based water and fisheries management show that systems designed with meaningful local participation are more resilient, more adaptive, and more likely to achieve long-term sustainability than purely top-down regulatory models.[3] Even where formal legal authority remains with the state, co-management arrangements grounded in local expertise significantly improve ecological and social outcomes. Without this awareness, water law risks becoming aspirational rather than operational.

Our other example would be the need for interdisciplinarity in water pricing. Tariffs are frequently presented as technical instruments designed to ensure cost recovery and financial sustainability. In reality, they are deeply normative choices with social consequences.

EU water law embeds economic concepts such as cost recovery and the polluter-pays principle. These ideas originate in economic theory, yet they are implemented through legal instruments. When applied without social calibration, they can conflict with affordability and equity, particularly in Central and Eastern Europe, where income levels, infrastructure conditions, and demographic trends differ significantly from Western European averages.

[2] Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy [2000] OJ L 327/1. See in particular Recitals 1, 18 and 19, and Articles 4 and 9, which presuppose functioning water infrastructure and sufficient investment capacity to achieve ecological objectives and cost recovery across Member States.

[3] See Carine Emer et al. (2026), Local knowledge enhances the sustainability of interconnected fisheries, Journal of Applied Ecology, showing that governance models built on partnerships between local communities, local experts, and public authorities achieve more resilient and sustainable outcomes than purely top-down approaches. DOI: 10.1111/1365-2664.70213



Understanding affordability therefore requires more than legal interpretation. It demands engagement with social policy, welfare economics, and empirical data. This is especially true in the context of the human right to water, which has gained increasing recognition at the international level and political visibility in Europe through initiatives such as Right2Water.[4] Translating that right into regulatory practice is not a purely legal exercise; it is an interdisciplinary one.

The final, and perhaps strongest, argument in favour of interdisciplinarity lies in the inherently future-oriented nature of water law. Water regulation is not only about managing present use; it is about safeguarding the conditions for future life itself. The central question is no longer whether water scarcity may occur, but when it will occur if current patterns of exploitation and pollution continue.

[4] European Citizens' Initiative "Right2Water", Commission Communication on the European Citizens' Initiative "Water and sanitation are a human right! Water is a public good, not a commodity!", COM(2014) 177 final.

Water can be abused in countless ways. Agricultural overuse, industrial discharge, the spread of antibiotic-resistant bacteria, armed conflict, emerging technologies such as artificial intelligence, and, above all, climate change all place unprecedented pressure on water systems. These threats do not arise within a single legal or scientific domain, nor can they be addressed through law alone.

Environmental objectives become largely symbolic if they are designed to protect yesterday's hydrological realities rather than tomorrow's risks. Climate change, in particular, exposes the fragility of legal frameworks built on assumptions of stability, predictability, and fixed standards. Interdisciplinary approaches, integrating environmental science, technology, economics, and social analysis, are therefore not optional. They are essential if water law is to remain capable of sustaining both ecosystems and human life in an increasingly uncertain future.

Droughts, floods, and changing precipitation patterns require adaptive governance. Environmental science plays a critical role here, not as a competing discipline, but as an essential input into legal design. Without integrating scientific knowledge about thresholds, cumulative impacts, and uncertainty, water law risks lagging behind the problems it seeks to address.

This is where interdisciplinarity becomes a tool of legal resilience. Law alone cannot model climate risk, but it can translate scientific insight into planning obligations, resilience duties, and governance frameworks capable of responding to long-term stress.

As governance goes, we often stop at the debates on water services in Europe around ownership: public versus private, municipal versus corporate. While ownership matters, interdisciplinary analysis reveals its limits. Across Europe, water services have moved in waves, from public provision to privatisation, and increasingly back towards remunicipalisation or recentralization. These cycles suggest that ownership alone does not guarantee resilience.

But as we can sense it, governance encompasses regulatory independence, enforceability of service standards, public participation, transparency, affordability mechanisms, and environmental safeguards. Understanding governance requires insights from political science, sociology, and public administration alongside legal analysis.

For water law scholars and practitioners, this means shifting the questions we ask. Not only what the law says, but how it functions. Not only who owns water services, but how they are governed. Not only whether rules exist, but whether they can withstand social, economic, and environmental stress.

In this sense, water law offers a broader lesson for legal scholarship. In fields where law regulates complex systems, natural, technical, and social, disciplinary isolation is no longer viable. Interdisciplinarity is not an optional enhancement. It is a condition for legal relevance.