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Lack of value pluralism in legislation hampers Living in Harmony with Waters

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Abstract

This paper presents the first cross-jurisdictional legal analysis that systematically maps how water plural values are encoded in water law and assesses their legal feasibility. We argue that these are necessary steps for determining whether a legal system has the foundations to support pluralistic water-governance paradigms capable of moving beyond the instrumental and technocratic approaches that have dominated to date and have proven inadequate to address global water challenges. Existing frameworks, including IWRM, have narrowed the value of water to exchange values and assumed that human interference with nature can be managed through incremental adjustments (for example, correcting externalities or deploying technological fixes), thereby constraining their capacity to deliver water sustainability. As an alternative, "Living in Harmony with Nature" has gained traction as a vision that foregrounds value pluralism; however, it can only shape freshwater outcomes if it is translated into binding legal frameworks. Using the IPBES Life Framework, we code value orientations in UK and Mexican water legislation and evaluate whether each is legible in law and actionable through minimum legal viability conditions—institutional mandates, procedural decision pathways, and enforceable substantive duties or standards. Beyond the case studies, the method is replicable across jurisdictions and transferable beyond water to other nature-related legislation, enabling systematic diagnosis of feasibility gaps in the legal enactment of plural values.

Introduction

Although explicitly designed to achieve sustainability, governance frameworks like the IWRM are criticised for their anthropocentric, instrumental and technocratic foundations. By narrowing the value of water exclusively to 'exchange values' (i.e. the values determined by individual preferences in the pursuit of utility maximisation – generally measured in monetary terms) [11] and assuming that human interference with nature can be managed via 'adjustments' to the current system (e.g., as externalities that can be corrected or through technological fixes), these frameworks have fundamentally compromised their ability to achieve water sustainability.[12,13] Water performs a range of irreplaceable functions (such as maintaining air and soil moisture, and supporting evaporation and transpiration flows) and holds diverse meanings shaped by emotional, spiritual, and cultural bonds (such as kinship with rivers) that cannot be reduced to a single economic or utilitarian metric.[3,5,12] When regulations (e.g. water legislation) overlook such plurality of values, like relational values, non-dichotomous conceptualisations of human-nature relationships, or nature's intrinsic worth independent of human uses (i.e. beyond ecosystem services), they fail to fully encompass the complexities of our interactions with water.[12,13] By focusing on a limited set of predominantly anthropocentric instrumental values and relying primarily on technical 'solutions', these water regulations clash with natural water laws and non-utilitarian perspectives, contributing to patterns of degradation and reinforcing societal stresses, including displacement, conflict over water resources, and the marginalisation of non-Western worldviews.[4,14]. This is further exacerbated in privatised water provision systems,[15] and by the ever-growing promotion of market-based instruments such as carbon and biodiversity markets, with the

associated risks of nature commodification (i.e. enhancement of inequalities, restriction of access, conservation motivation crowding-out, etc.).[16]

With SDG 6 unlikely to be fully met by 2030,[8,17] there are growing calls to move beyond the same anthropocentric and technocratic approaches that have consistently fallen short in delivering true water sustainability.[18] We need a different vision that effectively incorporates the diversity of water values into human-water regulations: one grounded in the principle of Living in Harmony with nature. This perspective, increasingly endorsed by international commitments and science-policy platforms, offers a more sustainable and inclusive path forward.[13,19–21] Living in Harmony with nature refers to a quality of life rooted in the interdependence between humans, other species, and ecosystems (while acknowledging that some degree of resource use is necessary). To make this vision effective, it must be reflected in the design of laws and policies. Legal frameworks embed specific values, which determine how water is accessed and allocated, and how we interact with freshwater systems.[22,23] They also set the formal conditions under which decisions must be made and justified (through mandates, procedures, and standards) and shape the downstream policies and planning instruments through which water-sustainability goals are pursued.[23] Legal frameworks act as 'gatekeepers' that influence which values of water are recognised and acted upon and which are not, often constraining the inclusion of broader intrinsic and relational dimensions, normalising choices that worsen ecological degradation and injustice.[14,18] Broadening the spectrum of values embedded in water legal frameworks (especially by integrating and balancing relational and intrinsic values alongside instrumental ones) is therefore critical.[13,21] A first step in this process should be to identify where and how existing legal frameworks prioritise certain values at the expense of other, so these normative imbalances can be corrected to support the vision of Living in Harmony with nature through water, nature's "bloodstream."

Yet that is only a first step, because legal recognition of plural values is only part of the challenge. Even where plural values are acknowledged in law, they will hardly be enacted unless this is feasible within the legal institutional, procedural, and substantive architecture.[24,25] Legal recognition alone cannot deliver balance when some values are backed by mandates, decision procedures, and enforceable standards, while others remain largely unsupported (and are therefore easily overridden in practice). Institutions establish who is authorised and responsible for acting on specific water values; procedures determine when and how that value must be considered, evidenced, contested, and revised; and substantive rules translate it into enforceable rights, duties, limits, and standards.[24,26] Together, these elements set the minimum conditions for balance: plural values can be weighed only on comparable terms when each is anchored across all three layers (i.e. assigned to competent authorities, routed through decision processes, and expressed as binding benchmarks that guide permits, plans, enforcement priorities, and resource allocation). Where some values enjoy this full legal architecture, and others do not, "balance" becomes structurally impossible: the legally feasible values dominate by default, while the rest remain discretionary add-ons. In that scenario, the aspiration of Living in Harmony with Nature cannot be realised, because plural values remain superficially acknowledged yet legally non-operational.

This paper is the first to undertake a cross-jurisdictional legal analysis that systematically maps how plural values of water are encoded in water law (step1) and assesses their legal feasibility by tracing the institutional mandates, decision-making procedures, and enforceable substantive standards through which those values can (or cannot) shape governance in practice (step 2). Using Mexico and the United Kingdom as comparative case studies, it exposes axiological inconsistencies[27,28] (i.e. conflicts or imbalances between the values embedded and made feasible in legal frameworks) that undermine sustainable and harmonious coexistence with nature through water.

To do so, this research employs the IPBES Life Framework, which provides a structured lens for understanding how societies value and relate to nature, categorising human-nature interactions into four value types: living *from* nature, living *in* nature, living *with* nature, and living *as* nature.[29] These four value types reflect the instrumental, relational, and intrinsic aspects of human-nature relationships.[30] The usefulness of the IPBES Life Framework to this research lies in its suitability for systematically identifying which value types are emphasised, overlooked, or missing in water laws. Mexico and the provide a compelling contrast in how distinct Global South and North legal frameworks may reflect their embedded values. Mexico exemplifies the challenges typical of the Global South, grappling with water scarcity, groundwater depletion, corruption, and escalating conflicts over water rights, which are intensified by socioeconomic inequalities, cultural diversity (particularly regarding Indigenous Peoples), heightened climatic vulnerabilities amidst governance challenges.[31,32] Conversely, the UK exemplifies Global North water governance, as it is the birthplace of the modern utilitarian, economic, and even commodification approaches to water.[12] Although the UK frequently positions itself as an environmental policy leader, ongoing discussions reveal the shortcomings of its privatised water system, including regulatory failures, ecological degradation, and flaws regarding the transparency and accountability of water utilities.[17,33] The contrasting nature of these two cases serves to provide globally relevant insights into the necessary changes required to align water legal frameworks with the vision of Living in Harmony with Nature. Furthermore, our analytical procedure can be directly applied to any other legislation in any other country, serving as an internationally valid tool for analysis of the legal value-based potential for the effective enacting of Living in Harmony with Nature.

Results

Which value types are legible in law?

The systematic mapping of how particular value orientations are embedded, prioritised, or omitted across the UK and Mexico's legislation (UK: Water Environment (Water Framework Directive) Regulations 2017, *WFD Regulations*; Environment Act 2021, *EA 2021*; Mexico: Ley de Aguas Nacionales, *LAN*; Ley General de Aguas, *LGA*) – step 1, shows that the coded provisions (i.e. legible in law) are concentrated in living *with* nature and living *from* nature value framings. Specifically, the main legal "vocabularies" of water governance in both systems are: (a) water as an ecological system requiring protection, monitoring, and restoration (living *with* nature), and (b) water as a resource to be allocated, serviced, and

managed for human use, including through economic tools (living *from* nature). By contrast, legal recognition of values tied to cultural meaning, amenity, dignity, and everyday lived relationships with water (living *in* nature) is more limited, and explicit recognition of water as a rights-bearing being or spiritually/ontologically kin to humans (living *as* nature) is absent from the UK and Mexican water legislation. See Figure 1 for illustrative examples and Annex 1 for the full detail of the analysis.

Which value types are actionable through minimum legal viability conditions?

Simply recognising plural values in legal provisions does not guarantee balance: they must also be legally feasible. Assessing the legal feasibility of plural values (step 2) requires categorising legal provisions according to whether they satisfy the essential criteria for a type of value that effectively informs decision-making: institutional (who has authority and accountability), procedural (the methods for decision-making, contesting, monitoring, revision, etc.), and substantive (the enforceable duties and standards that apply).

In the UK, living *with* nature, living *from* nature, and living *in* nature are all supported across institutional, procedural, and substantive functions (see Figure 2 for a summary and Annex 2 for full details of the analysis), though with different regulatory weight. Ecological obligations (for example, non-deterioration and good-status duties under the (legacy) WFD Regulations) are linked to monitoring and basin planning mandates, while allocation and efficiency logics are reinforced through economic analysis, pricing, and abstraction-related mechanisms. Living *in* nature is likewise legally viable, but it is articulated through a narrower set of provisions focused on enjoyment, amenity, public health, and protected-area designation, rather than through an equally extensive set of mechanisms for shaping routine regulatory trade-offs.

In Mexico, living *from* nature is strongly supported through institutional and substantive provisions, including allocation titles, cost-recovery structures in the LAN, and service-operator mandates in the LGA. However, the analysis exposes a procedural gap: within the coded articles, these logics are not matched by clearly specified decision pathways (such as planning cycles, permitting steps, registers, or reporting and review mechanisms) that would standardise their practical application, and therefore remain weakly operationalised . Living *with* nature is made legally viable across institutional, procedural, and substantive functions, appearing in ecological flow provisions, restoration and public-utility framing, precautionary principles, and nature-based solutions. Living *in* nature is also well developed at the level of substantive recognition, particularly through the human right to water and related standards of sufficiency, safety, and affordability, yet it remains only partially viable because these protections are not matched by an equally developed implementation architecture than living *with* nature. Taken together, the Mexican dataset shows that living *from*, in, and with nature are present, but their legal operability remains uneven across the IPBES value typology.

How can we transform the idea of Harmony with Nature from a governance claim into a legal achievement?

Taken together, the findings indicate that both jurisdictions contain strongly actionable legal architectures for some value orientations (especially living *with* and living *from* nature, through ecological status duties and allocation/service management), but weaker and less consistently routinised pathways for others (particularly the relational and cultural–experiential dimensions captured under living *in* nature), alongside the noticeable absence of living *as* nature in the legislation analysed. This uneven influence among plural values explains why promoting Living in Harmony with Nature as a policy goal is feasible, but its practical application remains challenging when legal feasibility is lacking. When different values are not equally recognised legally, they often become less influential in daily decisions regarding resource allocation, standards, enforcement, and investment priorities.[13,29]

The problem, then, is not only whether plural values are acknowledged but also whether they are made legally workable.[22,24] Legal frameworks oriented towards Living in Harmony with Nature will remain fragile where plural values lack operational pathways. Participation without enforceable standards risks becoming a mere procedural formality rather than a meaningful decision-making process. Rights that lack specific allocation rules and delivery methods often remain programmatic commitments rather than becoming operational entitlements. Standards created without clear responsibilities for monitoring and reporting are unlikely to function effectively as safeguards and may provide only limited environmental protection.

Among the four value orientations, living *from* nature is the most easily understood legally because it aligns with familiar legal devices for governing water as an economic input, including entitlements, abstraction permits, concessions, contracts, tariffs, and cost-recovery duties.[34] When water uses and ecosystem functions are made clear as measurable benefits, it becomes easier to integrate them into administrative processes like pricing, budgeting, compliance incentives, and investment decisions appraisal.[34,35] This helps explain why instrumental values are often the most stable in routine regulatory decision-making. By contrast, living *in* nature is more commonly recognised in legal terms through procedural processes and rights-based approaches, including participation duties, access-to-information frameworks, and human-rights commitments related to dignity, wellbeing, and equitable access.[36] Yet relational and cultural–experiential values are harder to standardise, monetise, or translate into binding decision criteria.[37] As a result, they are often acknowledged in consultation, planning narratives, or recreation and amenity provisions, but less consistently embedded in the legal frameworks that shape routine regulatory trade-offs.[37]

Living *with* nature is more clearly reflected in legal terms through substantive ecological duties and enforceable standards, including non-deterioration rules, environmental quality thresholds, ecological-flow requirements, and related monitoring, reporting, and planning obligations.[38] These values become legally actionable when tied to measurable standards and compliance architectures that make them administratively trackable, although their practical effect remains vulnerable to exemptions, fragmented institutional responsibilities, and weak enforcement.[38,39]

Regarding living *as* nature, it is often more clearly understood in law through the rights-of-nature and legal personhood frameworks. These recognise rivers and ecosystems as entities with rights, represented through guardianship, standing, and mechanisms for remedies.[40,41] While these frameworks have the potential to shift the focus of governance from resource utilisation to ecological integrity, their legal impact differs significantly. When representation, enforceable duties, compliance indicators, and enforcement pathways are weak, these recognitions often remain symbolic or episodic rather than serving as consistent constraints on permitting, standards, or public investment.[42,43]

Across these strands of scholarship, the recurring diagnosis is an operationalisation gap: plural values may be recognised, but not all are supported by equally robust institutional mandates, procedural pathways, binding standards, monitoring duties, and enforceable remedies,[44] as demonstrated by our analysis of the UK and Mexican's legislations. For living *in* nature, the central deficit is often not recognition itself but the legal machinery required to ensure that relational and cultural–experiential values are weighed and justified in routine regulatory decisions.[45] For living *as* nature, the more fundamental limitation is the absence –as in our case studies– (or fragility) of legal feasibility itself, including clear representation and standing, defined duties and indicators, and enforcement capacity that converts "rights" into administrable obligations rather than leaving them symbolic or selectively enforced.[41,42] The broader implication is that plural value types are only legally feasible when each is backed by a comparable institutional, procedural, and substantive framework, otherwise, Living in Harmony with Nature remains easier to declare than to operationalise.[44] While this lack of value pluralism in legislation persists, Living in Harmony with waters will be irremediably hampered.

Methods

Conceptual frameworks

We use the IPBES Assessment of the Diverse Values and Valuation of Nature (also known as the IPBES Life Framework) as an internationally recognised science–policy framework that distinguishes four recurrent ways in which humans relate to nature: living *from*, *in*, *with*, and *as* nature.[29] Although the IPBES Life Framework is an evidence-based synthesis of more than 13,000 scientific publications, we know it is neither complete nor the only conceptualisation of human-nature relationships and values.[29] Nevertheless, given its broad appeal and the transparency and robustness with what it was constructed, we employ it as a reliable operational typology in our search of which water values are legible in law, i.e. explicitly recognised by legal framework texts (step 1). Accordingly, we employ the IPBES typology as follows:

- Living *from* nature: water valued primarily as an allocable resource and a service input for human consumption, production, and economic utility.
- Living *in* nature: water valued through lived experience, cultural meaning, identity, amenity, recreation, and dignity.

- Living *with* nature: water valued as ecological infrastructure requiring protection, non-deterioration, restoration, and intergenerational stewardship.
- Living *as* nature: water understood as a rights-holder/living entity or within kinship/cosmocentric ontologies (e.g., explicit rights of water/nature, legal personhood, sacred status).

To assess whether value types are not only recognised but also actionable in law, i.e. assigned to competent institutions, routed through decision procedures, and expressed through enforceable duties and standards. This legal feasibility analysis (step 2) distinguishes three functions of legal provisions: (i) Institutional norms (who has the mandate/power to act and how authority is allocated), (ii) Procedural norms (how decisions are made, reviewed, monitored, and contested), and (iii) Substantive norms (what rights, duties, standards, and prohibitions are legally enforceable).[24–26] This tripartite architecture is used as a minimum viability test: plural values can influence outcomes only when at least some combination of institutional authority, decision procedures, and enforceable standards exists to operationalise them.

Case studies and legal corpus

The study is a cross-jurisdictional qualitative legal analysis comparing Mexico and the UK as contrasting regulatory contexts (Global South/North; differing scarcity pressures, governance histories, and institutional designs). Our focus is on the key instruments that shape current water governance, establishing fundamental principles and decision frameworks. In Mexico, we analysed the Ley de Aguas Nacionales (LAN)[46] and the Ley General de Aguas (LGA)[47] as the only national-level water laws, shaping policies on water allocation, rights, service provision, and protection mandates. In the UK, we reviewed the Water Environment (Water Framework Directive) Regulations 2017 (WFD Regulations),[48] which implement the main ecological objectives of the EU Water Framework Directive, and the Environment Act 2021 (EA 2021).[49] The EA 2021 updates governance tools by defining legally binding targets, planning and review cycles, monitoring, transparency, and clarified regulatory powers, and includes a dedicated section on water. This instrument-level focus is designed to capture how plural values are embedded at the "architecture" layer of governance, rather than mapping every sectoral or local by-law.

Analytical procedure

We apply a structured interpretive analysis of legal texts using qualitative legal analysis, understood here as an in-depth interpretation of legal materials to identify the concepts, assumptions, and normative commitments they encode.[50] This approach allows for a systematic mapping of how particular value orientations are embedded, prioritised, or omitted in the water legal frameworks of the UK and Mexico, and how this encoding might lead to water value imbalances within governance structures. The approach aligns with socio-legal research, which treats law not only as a body of rules but also as a social institution through which particular values become authoritative in decision-making.[50] Importantly, the analysis is not intended to assess field-level compliance, measure enforcement results, or analyse the political economy behind implementation. Instead, it isolates a specific governance bottleneck:

whether plural water values can be made legible and legally actionable within binding legal architectures that structure and constrain policy decisions.

The analysis proceeds in four steps.

1. Provision identification and unit of analysis.- We treat each cited provision (article/section/regulation/schedule definition) as the unit of analysis. When a citation includes multiple linked clauses (for example, paired subsections or cross-references), the unit is maintained as listed to preserve legal meaning context.
2. Value-type coding (axiological mapping).- Each provision is coded to the dominant Life Framework type it most strongly operationalises in law (living *from/in/with/as nature*), based on its primary legal effect and the value logic embedded in its language (for example, allocation and pricing mechanisms; human-rights safeguards; ecological status duties; explicit recognition of rights-of-nature). Where provisions contain mixed features, we code to the most direct legal effect and noted mixed elements only where unavoidable.
3. Legal-feasibility coding. - Regardless of typology, each provision is coded by its primary legal role as institutional, procedural, or substantive, following established distinctions in public and environmental law.[24,26] Institutional coding captures mandates, competencies, and the distribution of authority; procedural coding captured planning cycles, monitoring, reporting, registers, participation, and review processes; and substantive coding captured enforceable duties, standards, prohibitions, and rights. This generates a type-by-feasibility matrix for each jurisdiction, enabling comparison of where values are merely recognised versus where they are operationalised through binding governance architecture.
4. Synthesis and interpretation (viability assessment and imbalance diagnosis).- We combine both coding layers to characterise the minimum legal conditions for each value type to shape governance: the presence (or absence) of assigned mandates, procedural pathways, and enforceable standards through which values can enter, structure, and be contested in binding decisions. We then use this synthesis to identify recurring imbalances, such as robust support for utilitarian allocation and service management contrasted with weaker routinisation of dignity-related, cultural, or community-oriented values.

The above procedure can be replicated in any piece of legislation in any country, serving as a tool of international validity to identify plural values for nature (i.e. beyond just water) and the feasibility of their legal enactment.

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Figures



Figure 1

Examples of representative provisions illustrating our analysis of how plural values are identified in the water legislation through our analysis. Full provisions classified across living with, in, from and as nature are listed in Annex 1.

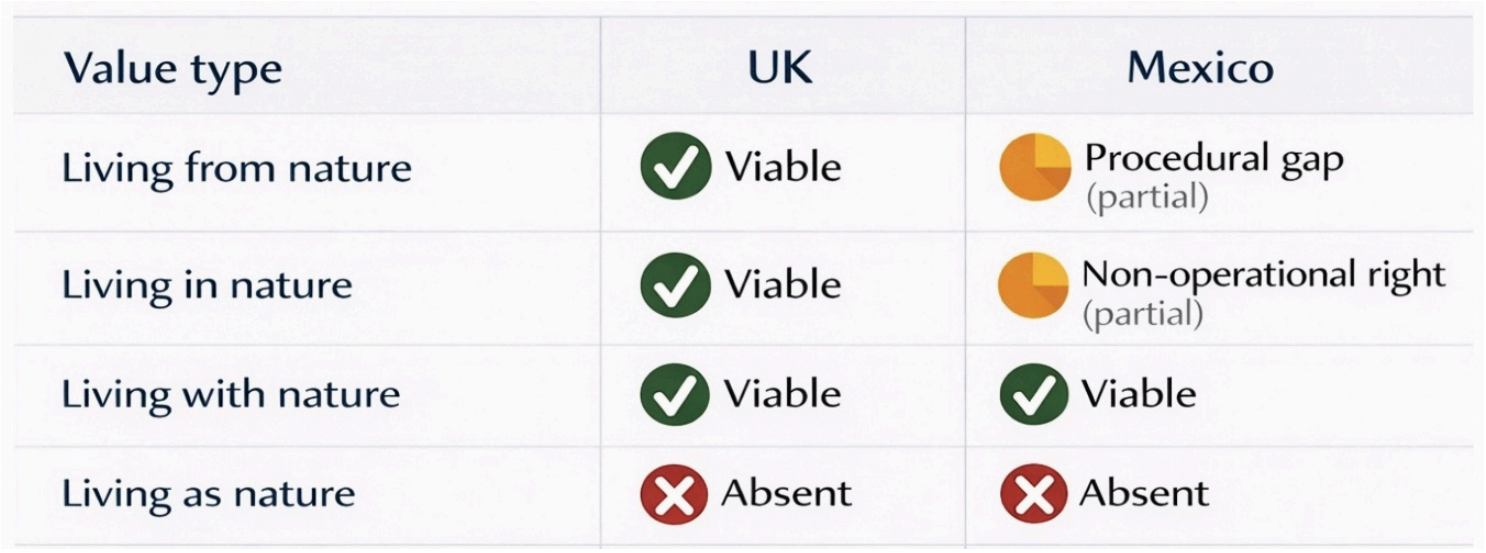


Figure 2

A value type is considered viable when it collectively establishes (i) institutional authority, (ii) procedural decision pathways, and (iii) substantive enforceable duties or standards, even if these are unevenly incorporated into the law (e.g., six institutional provisions, one procedural, and one substantive provision). A value type is partial if it falls into one of these categories: 1) Procedural gap (participation, transparency, or consultation mechanisms exist but are not linked to enforceable standards or decision rules that influence outcomes); 2) Non-operational right (a right or entitlement is recognised legally, but clear allocation rules, implementation duties, or delivery mechanisms are not sufficiently detailed); 3) Unenforced standard (a substantive standard or goal is defined, but monitoring, reporting, compliance, or enforcement responsibilities are weak or missing). Value types that lack institutional, procedural, and substantive support are classified as absent. Complete categorisation details are provided in Annex 2.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- Annex2.docx
- Annex1.docx