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The phenomenon of legal convergence and the progressive reimagining of international water law

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ABSTRACT

Certain institutions, mechanisms and processes preserve the coherence of international water law, despite its proliferation and the diversity of its sources, within a unitary system of international law. These include the universalist instincts of international courts, routine legal codification, the integrative role of general principles, and the universal character of increasingly relevant human rights norms. 'Convergence' unifies and enriches modern international water law some 60 years after first being codified, assisting it in addressing challenges posed by the looming global water crisis through the gradual interpenetration and cross-fertilization of previously somewhat compartmentalized areas of international law.

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Introduction

International water law is deservedly recognized as one of the most dynamic and progressive subfields of international law, thereby reflecting the unique and total dependence of both humanity and the natural environment upon water, as well as the constantly changing nature of the challenges facing transboundary water resources management. This body of specialized rules and principles has evolved in recent years to facilitate and address a range of pivotal developments including, for example, the emergence of human rights obligations related to water access, the growing role of water resources management in both climate change mitigation and adaptation, and growing awareness of the importance and fragility of freshwater ecosystems and of the essential ecosystem services provided thereby. It is beyond question that such progressive evolution of international water law is urgently required, especially when one considers that it takes place in the shadow of a looming global water crisis, which threatens unprecedented social, economic and environmental risks (Brown Weiss, 2013, pp. 1–9). For example, a recent World Meteorological Organization (WMO) report on global water resources highlights the very severe stress currently facing global water supplies, with five consecutive years of below-normal river flows and reservoir inflows seriously impacting communities, agriculture, and ecosystems (WMO, 2024 p. vi).

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While the progressive normative development of international water law in the face of such significant challenges is to be welcomed, it is useful to consider the specific legal mechanisms and processes by means of which such evolution occurs. The phenomenon of 'convergence' in international law, which facilitates 'the gradual interpenetration and cross-fertilization of previously compartmentalized areas of international law' (Cassese, 2001, p. 45), plays a particularly important role in this regard. In addition to addressing the threat of legal 'fragmentation' with a view to ensuring normative coherence and the requisite measure of systemic unity across the ever-expanding domain of inter-State legal relations, convergence also provides a series of routes by means of which the cosmopolitan values enshrined within the broad imperative of environmental and social sustainability can permeate every aspect of international water law (McIntyre, 2022). This latter role is critically important in facilitating international water law's adaptation and progressive evolution in the face of unprecedented environmental and social challenges and the ongoing crisis in multilateral engagement and cooperation (Faulkner, 2021). In this way, the various mechanisms and processes of convergence operate to facilitate the evolutionary development of international water law, even in the absence of formalized State consent, with a view to maximizing human benefits by addressing the mounting water scarcity, climate change and biodiversity crises and by promoting the progressive values currently enshrined in the sustainable development goals (SDGs).

One should of course expect that international law would generally reflect the predominant values of the international system of States that it has evolved to serve. Throughout the 20th century it has responded to the humanitarian crises and genocide produced by two world wars and, subsequently, to the geopolitical reality of a bipolar cold war and the spectre of nuclear annihilation. It has also been shaped by the need to respond to other developments and imperatives, such as decolonization and the related proliferation of economically less-developed nations, or the emergence of globalized trade.

Among international law's myriad functions, some commentators emphasize 'value-declaration', whereby it expresses shared understanding of the legitimate aspirations of international society to the broad and diverse community of States and 'induces convergence of behaviours of diverse international members, thereby contributing to the smooth management of international, transnational and inter-civilizational relations, and to the realization of common ideas and aspirations of international society' (Allott, 1999, pp. 31–32; Onuma, 2003, p. 134). It has long been recognized that seminal global treaties and declarative instruments of international environmental and human rights law, such as the 1966 International Covenant on Economic, Social and Cultural Rights or the 1992 Rio Declaration on Environment and Development, 'induce convergence, if not strict observance, of the behaviour of diverse members of international society over a period of time' (Onuma, 2003, pp. 134–135).

The key 21st-century value-set, routinely articulated in a vast range of conventional and declarative instruments, as well as other manifestations of State, judicial and institutional intergovernmental practice, which informs the elaboration, interpretation and application of rules across many subfields of international law, is that of environmental and social sustainability, and its constituent normative elements. Reflecting on changes to the international system resulting from the end of the cold war, and on 'misconceived invocations of "sovereignty" that have impeded the modernization and development of

international law', Louis Henkin presciently asks '[m]ight it be possible to fill the lacunae, undo the compromises, and clarify the ambiguities of the law of human rights; to bring necessary accommodation in the law of the seas; the world environment and other "commonage"?' (Henkin, 1995, p. 2).

The phenomenon of legal convergence helps to realize such aspirations today by facilitating just such modernization and accommodation. By deepening the adaptability and sophistication of international rules and principles, convergence can arrest the 'stagnation' of international law (Pauwelyn et al., 2012, p. 10) and enhance its resilience by ensuring the diversity of its sources. Nowhere is this more so than in the case of international water law, which benefits from exposure to a rich variety of increasingly dynamic and sophisticated legal subfields.

In examining the relatively poorly understood phenomenon of convergence in international law, and its progressive impact on the discrete specialist subfield of international water law, this article investigates how 21st-century environmental and social sustainability values permeate the entire system of international law to become the predominant values informing this subfield. By highlighting the critical role of convergence in facilitating the continuing progressive evolution of international water law, it aims to foster better understanding of the subtly interconnected and interactive dynamics of modern international norm-creation which creates space for the incremental promotion of sustainability values. International water law is an ideal case study for an examination of legal convergence. While it clearly exemplifies the urgent sustainability challenges facing international law, it also highlights the diverse processes and mechanisms facilitating coherence among a steadily growing number of expanding and diverging, yet interrelated, issue areas and subfields. Creating such awareness is clearly necessary, as certain commentators regard lack of awareness of parallel legal developments as a leading cause of fragmentation (ILC Study Group, 2006, p. 11).

Others blame excessive professional specialization emerging 'within some circles of specialized technical experts and diplomats, such as in the international protection of the environment', where 'rather narrowly specialized "experts" do not necessarily see the implications, connections and legal relationships between some newly established machineries and the norms of general international law which are still applicable' (Dupuy, 1999, p. 797). Whereas fragmentation is comparatively well studied, in terms of its origins in the 'changing structure of international law' (Craven, 2002, p. 1; Friedmann, 1964) and of its implications for normative (in)consistency and systemic (in)coherence, the various processes of convergence are less well understood (Andenas & Bjorge, 2015). Therefore, this article seeks to improve understanding of unifying interactivity in international law by outlining the processes and mechanisms of legal convergence and assessing the role of each in the transmission throughout international water law of the progressive societal values associated with environmental and social sustainability.

In exploring the various factors driving convergence in international law and identifying the diverse legal mechanisms and processes by means of which the forces of convergence can be applied, it is helpful to focus upon recent experience in the area of international water law. Despite its relative dynamism and growing specialization, this subfield does not appear to be retreating from the generalized parameters of international law into an autonomous and compartmentalized regime. This tendency towards unity is all the more remarkable when one considers humanity's unique and total dependence

upon water to a greater degree than any other natural resource and the challenges that any resulting recourse to exceptionalism might present for inter-State water cooperation.

Further, no two international watercourses are remotely similar – hydrologically, ecologically, climatically, demographically, historically, economically, socially, culturally, politically or in terms of formal legal arrangements – causing commentators to identify the use of international watercourses as an area of international legal activity particularly 'likely to be influenced by regional postures and implications' (Crawford, 2014, p. 328). The dynamism of modern international water law is demonstrated by its rapid evolution, since its first comprehensive modern codification by the International Law Association (ILA) in 1966 (ILA, 1966), to find expression in three globally relevant instruments (ILC, 2008; UN, 1997; UNECE, 1992) along with hundreds of bilateral and basin-level agreements (Oregon State University [OSU], 2024), and by its emergence as the most litigated element in recent inter-State environmental and natural resources disputes (ICJ, 1997, 2010, 2015, 2018, 2022; PCA, 2013).

In its frenetic development, international water law interacts intensively with other subfields of international law. While the distributive equity enshrined at the core of international water law (Goldie, 1985, pp. 665–699; Fuentes, 1997, pp. 337–412; McIntyre, 2013, pp. 112–129, 2015a, pp. 146–160) appears increasingly relevant to other normative fields such as climate change law (Brown Weiss, 1989; Cullet, 2003; Rajamani, 2006), in pronouncing on water resources disputes international courts and tribunals have readily borrowed and assimilated values from related complexes of primary substantive rules including, in particular, international environmental law and international human rights law. Through its dynamic and intensive interactions with other issue areas, international water law typifies the processes of 'interpenetration and cross-fertilisation' identified by Cassese (2001, p. 45), and evolving practice in the field would appear to exhibit each of the means (discussed in greater detail below) of addressing normative incompatibility suggested by Craven (2002, p. 3). Indeed, Cassese might almost have had international water law in mind when noting that the 'special bodies of law' that have emerged to address particular problems are at present 'gradually tending to influence one another, or States and international courts are coming to look upon them as part of a whole' (2001, p. 45).

In its recent expansive elaboration, international water law has also been subjected to the forces of divergence and fragmentation, most notably with the controversial adoption by the International Law Commission (ILC, 2008) of its Draft Articles on the Law of Transboundary Aquifers (2008), which purport to codify the rules applying to shared international groundwater resources. Many commentators regard the Draft Articles as heralding in certain key respects 'a markedly different approach to the utilization and environmental protection of transboundary water resources' (McCaffrey, 2009, pp. 272–393, 2011, pp. 566–572; McIntyre, 2011, pp. 1–18) to that set out in the 1997 United Nations (UN) Convention on the Law of the Non-navigational Uses of International Watercourses (UN Watercourses Convention), which was itself based on earlier meticulous ILC codification of international water law, albeit principally the law applicable to shared surface waters (ILC, 1994).

Over time, however, the practice of international water law appears to promote unity in the management of groundwater and surface water resources. This trend is illustrated by the 2017 decision of the Ministerial Forum of the Parties of the Orange-Senqu River

Commission (ORASECOM), a river basin organization (RBO) established between Botswana, Lesotho, Namibia and South Africa, to establish a Multi-Country Cooperation Mechanism for the Stampriet Transboundary Aquifer System (STAS MCCM), which lies within the Orange-Senqu basin. The STAS MCCM will facilitate joint management of the resources of the aquifer and coordination of the requirements applying to the management of surface waters and groundwater resources. For example, ORASECOM will now have responsibility for activities related to the STAS, which are incorporated into ORASECOM's 10-year Integrated Water Resources Management (IWRM) Plan running from 2015 to 2024.

This is not an isolated example of the incorporation of groundwater management within the activities of RBOs. In Southern Africa alone, similar initiatives have recently been adopted in the context of the Limpopo and Zambezi basins. In Europe, in the context of the second cycle of national reporting on SDG indicator 6.5.2, on 'progress on transboundary water cooperation', the riparian States on the Danube report that groundwater bodies of basin-wide importance are now incorporated into the river basin management plan of the International Commission for the Protection of the Danube River (ICPDR; UNECE and UNESCO, 2021, p. 36).

Forms of convergence in international law

In response to the more extensively documented phenomenon of fragmentation (ILC Study Group, 2006, p. 11; Ellis, 2010, pp. 57–73), routinely connected with the expansion and diversification of international law in recent decades, a counteracting process of convergence occurs whereby disparate specialized subfields inform and influence each other's development in a manner that promotes the unity and coherence of the international law system. Indeed, leading experts note that

> [f]ear of fragmentation as a threat to the unity and coherence of international law or its future as a legal system may explain why convergence and unity are becoming more dominating features of international law discourse than the claims to autonomy and specificity of different regimes and disciplines which previously dominated. (Andenas, 2015, p. 692)

The interrelationship between these ostensibly opposing tendencies towards diversity or universality appears complex, as reconciling the 'inherent dialectic' between fragmentation and convergence casts both phenomena as interdependent processes necessitated by an increasingly extensive, sophisticated and specialized legal system. Thus, as a system, international law 'must draw upon and recognise differences between regimes, actors, institutions and processes [whilst] difference and diversity must be disciplined, regularised, and contained within particular boundaries' (Craven, 2002, p. 10). Whereas fragmentation indicates the success of the international law system in addressing increasingly sophisticated inter-State interaction in an increasingly complex world, convergence restrains the international legal order's disintegration, preserving the requisite degree of systemic unity. Several distinct forms of legal convergence have been identified. However, as convergence is so closely associated with fragmentation, it can best be characterized hand-in-hand with an examination of the key forms of this corresponding phenomenon to which it seeks to respond.

First of all, substantive fragmentation (and convergence) simply refers to normative incompatibility between different subfields of international law such as, for example, between trade and environmental law. This is largely understood as a problem of 'judicial communication' and a less serious threat to the systemic integrity of international law, as it 'would be open to remedy – by, for example, developing rules of hierarchy (temporal, normative, or conceptual) or machinery for institutional dialogue' (Craven, 2002, p. 3). Substantive fragmentation (and convergence) arises where different subfields claim a measure of autonomy and risk forming self-contained fragmented regimes (Andenas, 2015, p. 694). On several occasions the International Court of Justice (ICJ) has found that 'an international instrument must be interpreted by reference to international law' (ICJ, 1998, p. 460), so that even binding conventional rules must be interpreted and applied having regard to a broader context of relevant international rules and principles, and thus 'fragmentation gives way to convergence' (Andenas, 2015, p. 695). Indeed, one leading commentator goes so far as to suggest that this 'spirit of systemic harmonization' marks 'the new posture of international courts and tribunals' (Peters, 2017, p. 671).

In the face of such 'substantive fragmentation' it is notable that many of the key imperatives emerging in international environmental law have become central features of international water law. For example, in the ground-breaking 2010 *Pulp Mills* case, the ICJ recognized the customary status and universal applicability of the requirement to conduct environmental impact assessment (EIA) of a major project potentially impacting a shared watercourse (ICJ, 2010, para. 204), and hence its critically important role in discharging the core procedural duty, contained in almost all watercourse agreements, to notify other watercourse States of such planned measures. Equally, obligations relating to the protection of aquatic ecosystems and, by implication, more specific obligations regarding the maintenance of minimum environmental flows (PCA, 2013, paras. 449–454) and of essential ecosystem services (ICJ, 2018, para. 42), have become ubiquitous in global and basin-level water instruments. Of course, the EIA and ecosystems obligations, which have become such centrally important features of international water law, are normatively informed by the rich corpus of existing multilateral environmental conventions, declarative instruments and related State practice. This has led commentators to note the continuing 'environmentalization of International Water Law' (Canelas de Castro, 2015, pp. 286–287).

Of course, other subfields also permeate the normative requirements of international water law including, most notably, the full range of values associated with international human rights law. Regarding this tendency towards the 'humanization' of international water law, Canelas de Castro notes, in addition to 'the adoption of a human right to water and sanitation, which corresponds to the satisfaction of the most basic human needs', the wide-ranging recognition of procedural rights of access to information, participation in decision-making and access to justice, exemplified by the 1998 Aarhus Convention, other United Nations Economic Commission for Europe (UNECE) practice and the 2018 Escazú Agreement (Canelas de Castro, 2015, p. 289).

Systemic fragmentation (and convergence) involves 'the fragmentation of the basic "systemic rules" – the "rules of the game" – that underpin the idea of international law as a unitary domain of action and thought' (Craven, 2002, p. 3). This presents a more serious challenge as it threatens the eventual disintegration of international law 'into a series of specialised, project-specific, regimes operating

with little or no consistency between them as regards the relevant actors, institutional priorities, modes of settlement or framing suppositions' (Abi-Saab, 1999, p. 926; Craven, 2002, p. 3). Crawford argues, however, that all normative fragmentation, even that of a systemic variety, may be addressed through certain institutional processes which facilitate the emergence of a normative preference, most notably including the work of the ILC and ICJ (Crawford, 2014, pp. 290–-291). Although convergence assists in addressing all varieties of fragmentation, it appears that 'it is in the potential inconsistencies developing as regards secondary, or "structural" rules, that one finds much of the debate over fragmentation located', including rules relating to 'the source of obligation, the identity of relevant actors, the method by which competing interests are to be weighed, or the basis for responsibility – that seems to call into question the integrity of the whole' (Craven, 2002, p. 9).

Taking Craven's enumeration of relevant secondary systemic rules as a starting point, the evolution of international water law as a subfield appears to demonstrate the operation of convergence in respect of just such rules and thereby contributing to the systemic integrity of international law more generally. As regards 'the source of obligation', for example, foundational cases in the area have turned upon determination of the respective limits of States' rights and duties emanating from territorial sovereignty (Lac Lanoux Arbitration, 1957) or upon radical approaches to the general rules of treaty interpretation, including the contextually informed principle of 'contemporaneity' (*Gabčíkovo-Nagymaros*, ICJ, 1997, Separate Opinion of Judge Weeramantry, pp. 114–115) and pioneering application of the principle of 'systemic integration' (*Kishenganga*, PCA, 2013, paras. 451–452). Others have focused upon the role and character of intergovernmental institutions in the discharge of procedural obligations and elements of the due diligence conduct expected of riparian States (*Pulp Mills*, ICJ, 2010, paras. 87–93).

As regards 'the identity of relevant actors', international water law struggles within the traditional confines of international law to adapt to putative emerging customary requirements on facilitating the participation of relevant (non-State) stakeholders or the wider public (Bruch, 2015, pp. 21–72; Ebbesson, 2015, pp. 287–309; Razzaque, 2012, p. 140).

The 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes (UN Water Convention) is regarded as 'arguably leading the charge on producing instruments which strengthen joint institutions and stakeholder participation' (Moynihan, 2017, p. 200), even though Article 16 of the Convention only formally requires State parties to make information relating to the management of transboundary freshwater resources available to the public and says little about public participation. More generally, Andenas emphasizes the role of the ICJ in expanding the cast of relevant actors, noting that the Court has contributed to 'resolving pressing problems of human rights and environmental law [by] moving away from the strictly inter-state, non-hierarchical perspective of international law where state consent has put extreme restrictions on jurisdiction, obligations of states and the development of the law' (Andenas, 2015, p. 687). Possibly no other issue area in international law has been so concerned with elaborating 'the method by which competing interests are to be weighed', because such a process comprises the normative core of the principle of equitable and reasonable utilization, the overarching cardinal principle of international water law.

As regards the 'basis for responsibility', important recent case law regarding contested development impacting an international watercourse saw the ICJ extend the application of secondary rules on State responsibility to a new class of transboundary harm, i.e., the loss by one State of the beneficial enjoyment of ecosystem services due to ecological damage caused by another (*Certain Activities*, ICJ, 2018, para. 42). Thus, despite its specialized, context-specific character, international water law appears to apply to counteract threatened fragmentation of the 'systemic rules' of international law through resort to that system's universally applicable general rules and institutions. Indeed, it might be understood to address the unavoidable complexity of its subject matter by employing a sophisticated context sensitivity in the application of general rules (Craven, 2002, p. 2), typified by application of the overarching principle of equitable and reasonable utilization. At the same time, international water law is seen to contribute significantly to the continuing dynamic evolution and development of the broader fields of international environmental and natural resources law.

Institutional fragmentation (and convergence) arises due to 'institutional proliferation', which has seen a marked increase, not alone in the number of specialist international courts and tribunals, but also in the new enforcement mechanisms established under sectoral treaties to promote compliance with increasingly specialized regimes (Andenas, 2015, p. 695). Clearly, the accretion over time of the specialized practice and jurisprudence developed by such judicial and quasi-judicial actors raises the prospect of further legal fragmentation. Crawford regards the problem of institutional proliferation as primarily that of a lack of any centralized structure or of integration between judicial institutions, involving both a lack of horizontal integration, providing for an orderly division of labour among different specialized tribunals, and a lack of vertical integration, providing a formal hierarchy into which all international courts and tribunals might fit (2014, p. 283). However, despite the lack of any formal hierarchy between such international courts and tribunals, Andenas argues that 'the pronouncements of the ICJ, the only permanent tribunal of general jurisdiction, carry particular weight', and thereby provide 'a centre of gravity' which helps to ensure unity and coherence across all subfields of international law (2015, p. 696). He notes the tendency of the ICJ increasingly to refer to the findings of 'other types of international courts and tribunals, not least the human rights courts and bodies'. Andenas finds further support for this position, regarding the essential unity and systemic character of international law, in the work of the ILC on the formation of customary international law (Wood, 2003, 2014).

As regards institutional proliferation and the danger of fragmentation due to the overlapping jurisdictions of international courts and tribunals, Crawford once again identifies solutions among well-established principles of international law, including those of comity (mutual recognition of judicial decision), *lis alibi pendens* (dispute elsewhere pending) and *res judicata* (already decided by a court of competent jurisdiction) (2014, pp. 292–303). The doctrine of comity derives from the inherent power of international courts and tribunals to protect the integrity of the judicial process by opting to decline jurisdiction or stay proceedings in respect of matters more appropriately heard elsewhere. This doctrine allowed a UN Convention on the Law of the Sea (UNCLOS) Annexe VII tribunal to stay proceedings in the *MOX* case (ITLOS, 2003), where proceedings in respect of a dispute between Ireland and the United Kingdom had been commenced before a range of judicial fora, also including the International Tribunal for the

Law of the Sea (ITLOS), a Permanent Court of Arbitration (PCA) tribunal and the European Court of Justice. Crawford similarly argues that '[t]he concepts of *lis alibi pendens* and *res judicata*, flexibly applied, could provide a means to prevent duplication of proceedings' (2014, p. 302).

Methodological fragmentation (and convergence) occurs where different subfields of international law develop different methods for recognizing and applying rules, including for the interpretation of treaties and/or the recognition of customary rules. Andenas points out that some judicial or quasi-judicial bodies, and especially those established under specialized treaties, have a tendency to regard the treaty they are charged with interpreting 'as being special in some way' (2015, p. 697). However, his reassessment of commonly cited case law of the European Court of Human Rights suggests that the Court has in fact employed an interpretive method and approach based firmly upon the 1969 Vienna Convention on the Law of Treaties, including Article 5, which requires that a court should, where appropriate, take account of 'any relevant rules of the organization'. Andenas suggests, therefore, that the Court took account of the special nature of the European Convention on Human Rights in accordance with the universally applicable rules of international law (2015, pp. 697–698).

As regards 'methodological fragmentation' in the formation of customary rules, Andenas alludes to the problems that arise in seeking to base human rights law, which creates rights for individuals, upon the customary practice of States that 'derives from the *de facto* adjustment of conflicting claims and interests of the subjects of international law', which have not traditionally included individuals (2015, p. 700). However, he also notes that it is becoming increasing clear that 'states can no longer be regarded as the only subjects of international law' and that a broader range of interactions might now be understood to contribute to and provide evidence of the formation of customary rules across the spectrum of different specialist subfields (Andenas, 2015, pp. 700–701; Greenwood, 2013, p. 255; Wood, 2003, 2014). As noted above, international water law is at the forefront of the trend towards recognizing the agency of non-State actors, particularly by means of human rights-related values and requirements regarding access to information, public participation and access to justice. It follows that different authority may be accorded to different evidential materials depending on the subfield in question, but that the fundamental and universal rules relating to custom continue to apply. Andenas concludes, therefore, that practice on the formation of custom appears to be 'trending towards convergence rather than to Thirlway's fragmentation' and, regarding methodological fragmentation more generally, that '[t]he tools needed to secure that coherence and integration of the diverse international law of today are all to hand' (Andenas, 2015, pp. 701–702; Thirlway, 1972, p. 7, 2014, Chapter 2).

Axiological convergence refers to a form of convergence driven by certain superior values which transcend normative conflicts by assisting in the determination of a coherent understanding of potentially conflicting norms. Such 'axiological unity' depends upon 'the existence of overriding principles that act as a systemic glue or as a bridge between individual norms' and functions by informing 'the interpretation and application of individual rights and obligations' (Prost, 2006, p. 10). In international law, such peremptory values capable of driving convergence would clearly be expected to include any *jus cogens* and *erga omnes* obligations, but might also include human rights values to the extent that 'they are constitutive of a truly universal value

system' (Prost, 2006, p. 11; Meron, 2006; Conçado Trinidade, 2005, 2007, pp. 1–16). It seems that certain 'rules of hierarchy', which are 'normative' in character rather than 'temporal' or 'conceptual' (Craven, 2002, p. 3), are emerging in the subfield of international water law, under which human rights values take priority, followed increasingly closely by ecological values and requirements. Leading commentators also argue that 'the duty to cooperate in the peaceful management of shared international water resources is emerging as an obligation *erga omnes* imposable on all States' (Wouters & Tarlock, 2013, p. 51).

The human rights values correspond with international water law's traditional emphasis on providing for vital human needs and are increasingly augmented and normatively informed by the active global discourse on the human rights of access to adequate water and sanitation (UN Committee on Economic, Social and Cultural Rights (CESCR), 2003; McIntyre, 2015b, pp. 345–366, McIntyre, 2019b, pp. 147–173) and by the elaborate implementation framework developed for realization of SDG 6, especially Targets 6.1 and 6.2 (McIntyre, 2018, pp. 173–201, 2023, pp. 441–508). In turn, the ecological values correspond with increasingly universal recognition of the imperative of protecting water-related ecosystems and maintaining the ecosystem services and the full range of human benefits provided thereby (McIntyre, 2004, pp. 1–14, 2014, pp. 89–95, McIntyre, 2019a, pp. 126–146). In this regard, 'machinery for institutional dialogue', which typifies the phenomenon of 'regime interaction' described in a little more detail below, plays an increasingly important role in ensuring the legal permeation and cross-fertilization which is so essential for convergence. For example, the Conferences of the Parties and Secretariats of the Convention on Biological Diversity (CBD) and the Ramsar Convention on Wetlands continue to collaborate on the elaboration of detailed technical guidance to assist the integration into international water law instruments and practice of ecosystems obligations arising under each of these flagship global environmental conventions (Brels et al., 2008; Ramsar, 2012; Ramsar COP Resolution IX.3, 2005).

Beyond the fragmentation and convergence associated with the normative substance of rules and the formal functioning of institutions, Prost identifies the contribution to convergence of what he terms the 'cultural unity' of the community of international lawyers. Such cultural unity is supported by a number of elements, including 'a shared intellectual sensibility' providing the basis for 'a common mind-set or a core of shared assumptions that generates a form of moral unity among the members of a professional group, despite the diversity of their social practices' (Prost, 2006, p. 7; Dupuy, 2002, p. 93). He argues that such moral unity 'refers to a mobilizing ideal, a common cause or a grand project to which all advocates of international law – whether professors, philosophers, diplomats or barristers – subscribe to some extent, regardless of their national origins and political linkages' (Prost, 2006, p. 7). International water law's central and overriding concern with equitable sharing, sustainable utilization, universal access and welfare optimization, all of which cohere closely with environmental and social sustainability and the core values of general international law, might be understood as just such a 'grand project', thereby testifying to the '"corporate self-consciousness" or "esprit de corps" . . . a set of collective visions or world-views that characterizes a social field as an intellectual space' (Prost, 2006, p. 7).

Various 'grammatical conventions' provide another key element supporting the cultural unity of the international legal system. According to Prost, these comprise 'a common legal vocabulary, common concepts (or conceptual oppositions), common symbolic generalizations, common metaphors and analogies, and maybe even a certain "style", that structure international law as a discursive field' (Prost, 2006, p. 8; Koskenniemi, 2005, pp. 563–573). To illustrate the importance of 'certain chains of argumentation and evidence', Prost points out that, despite much disagreement and uncertainty regarding 'what the "sources" of international law are, inquiries into their scope and meaning typically take Article 38 of the ICJ Statute as their starting point', thus creating 'a "common atmosphere" – within which meaningful investigation and discussion can occur' (Prost, 2006, p. 9; Korhonen, 2000, pp. 49–50).

International water law enjoys just such a universal and uncontested starting point, i.e., that of seeking to reconcile, on the basis of a distributive conception of equity, the legitimate interests of watercourse States, based on territorial sovereignty, in the beneficial sustainable use of shared waters and related ecosystem services. Despite inevitable disagreement on what this means when applied to concrete factual situations, the universally accepted principle of equitable and reasonable utilization serves to create a 'common atmosphere' within which interests, needs, concerns and vulnerabilities may be articulated and considered. Prost might have had this principle in mind when noting that

> Cultural unity, in the end, is just that: the discursive closure and the relative autonomy of international law and a generative language, i.e. a symbolic medium of communication and knowledge, a collective system of cogitation, classification and production of legal arguments, socially structured and structuring. (Prost, 2006, p. 9)

For the purposes of legal convergence, it is significant that the principle of equitable and reasonable utilization is based squarely upon the notions of territorial sovereignty, equity and the sovereign equality of States, each founding canons of the general international legal system.

Processes and mechanisms of convergence

This function of international law, of inducing convergence among the international community of States and other key actors towards shared contemporary or aspirational values and goals, occurs by means of a variety of processes and mechanisms, both planned, formalized and deliberative as well as reactive, informal and *ad hoc*, with the latter often proving more useful, especially where the short-term self-interest of States or other actors prevents consent to the adoption of formal instruments or measures embodying progressive environmental and social sustainability values. It seems somewhat ironic that, although the universally accepted, overarching and system-wide objective of sustainable development is inherently integrative in nature, in that it seeks to ensure the integration and balancing of competing economic, social and environmental values, such an objective relies to a large degree upon various informal and *ad hoc* processes and mechanisms of convergence to ensure its own effective integration across all relevant issue areas.

Certain processes and mechanisms of legal convergence are readily apparent. For example, although fragmentation is commonly associated with the recent proliferation of international courts and tribunals, the ICJ and certain other international tribunals nevertheless act as key agents for maintaining unity in the international legal order, through such means as evolutionary teleological treaty interpretation or expansion of their advisory functions. The ICJ is not alone as regards its unifying instincts. The May 2024 Advisory Opinion handed down by the ITLOS, upon a request submitted by the Commission of Small Island States on Climate Change and International Law, seeks to align State obligations arising in international marine, climate and environmental law (ITLOS, 2024). The Advisory Opinion on the Climate Emergency and Human Rights, handed down by the Inter-American Court of Human Rights (IACtHR), similarly seeks to reconcile the climate-related, environmental and human rights obligations of States (IACtHR, 2025). The more recent Advisory Opinion on climate change issued by the ICJ is likely to have even more far-reaching implications for the integration of State obligations across a number of interrelated subfields of international environmental and natural resources law, including diverse aspects of international water law (ICJ, 2025).

Various forms of so-called 'judicial communication' processes constitute another driver of legal convergence, allowing structured interaction among disparate judicial actors (Crawford & Nevill, 2012, pp. 235–260), and tending 'predominantly towards integration rather than disintegration' (Murray & O'Donoghue, 2017, pp. 225–252; Peters, 2017, p. 696). For example, the World Trade Organization (WTO) Dispute Settlement Body consciously 'imports' norms from other subfields, notably including international environmental law (US–Shrimp, WTO-DSB 1998, paras. 127–131). The unifying instincts of the ICJ (*Pulp Mills*, 2010) and those of other international tribunals, such as the PCA (*Kishenganga*, PCA, 2013) have contributed very significantly to shaping modern international water law and, in particular, to mainstreaming sustainability values within the fabric of this dynamic corpus of rules.

Similarly, as a key institution within the United Nations system the ILC is charged with 'the progressive development of international law and its codification' (UN Charter, Art. 13) and with 'fostering more precise formulation and systematisation of rules of international law' (ILC Statute, Art. 15). Such systematization 'is expressive of the idea that international law itself – its structures and processes – are open to evolutionary and progressive perfection' (Craven, 2002, p. 8). Experts also stress the significance of interaction between the ICJ and ILC in the formation of coherent customary rules (Andenas, 2015, p. 689), an interaction repeatedly recognized by the ILC Special Rapporteur on the topic of customary international law (Wood, 2015). The ILC has dedicated very considerable time and effort to the codification of international water law, including seminal draft articles on the law of international watercourses (ILC, 1994) and transboundary aquifers (ILC, 2008), thereby playing an absolutely key role in efforts to shape a coherent body of international rules and principles.

Non-judicial 'regime interaction' among treaty bodies and other specialist intergovernmental organizations also plays a role in convergence through carefully structured information exchange and identification of shared values, goals and principles (Young, 2012, pp. 85–110). Such interaction may be supported by various forms of 'integration rules' (Petersmann, 2008/9, pp. 209–247), promoting coordinated development of related subfields (Dunoff, 2012, pp. 136–174). The

WTO Committee on Trade and Environment (CTE), for example, is mandated to 'coordinate policies in the field of trade and environment'. Similar cooperative arrangements exist between the CBD Secretariat and World Intellectual Property Organization on access to genetic resources, and between the Food and Agriculture Organization of the United Nations and the Convention on International Trade in Endangered Species Secretariat on the listing of endangered marine species. Such influential international bodies as the Secretariats of the Ramsar Convention on Wetlands and of the CBD have engaged in concerted efforts to coordinate their activities regarding the protection of freshwater ecosystems, thus promoting normative coherence within international water law and between this and related subfields. Other mechanisms of regime interaction can be found to operate effectively in international water law, including the granting of 'observer' status to interested intergovernmental and non-governmental organizations under basin agreements, such as the 1998 Convention on the Protection of the Rhine.

General rules of treaty interpretation may apply to resolve rule conflicts, including, for example, the *lex specialis* principle (a rule governing a specific subject matter takes precedence over a law governing only general matters) or *lex posterior* principle (a rule arising after a conflicting legal rule prevails over the earlier rule), although using such interpretive rules has traditionally proven difficult between treaty regimes that have developed entirely independently of each other. One such rule with obvious potential to facilitate effective 'interpenetration and cross-fertilization' between different norm complexes is the so-called principle of 'systemic integration', set out under Article 31(3)(c) of the Vienna Convention on the Law of Treaties and progressively applied between the subfields of international environmental and water law (*Kishenganga*, PCA, 2013). This principle builds upon interpretive maxims traditionally applied by international courts to facilitate coherent or 'harmonious' reasoning, such as that of *ut re magis valeat quam pereat*, requiring that a rule should be so construed as to make it effective and operative.

At the same time, fragmentation may lead to questions of hierarchy among conflicting norms or procedures, allowing decision-makers to identify which should take priority. Applicable legal texts may assist by distinguishing 'fundamental' norms from others (Wouters & Tarlock, 2013, pp. 56–57), or by including 'savings' clauses, giving express preference to other instruments or to customary rules. Recent recognition of certain norms as enjoying *jus cogens* and *erga omnes* status may assist regarding peremptory and universally applicable obligations, possibly including some associated with sustainability values and water resources management (Wouter & Tarlock, 2013, pp. 56–57).

The universal character and indivisibility of human rights values can also contribute to the tendency towards convergence in international law. Consider, for example, how any purported reservations to a treaty which might permit, in certain extreme cases, violation of an immediately effective and non-derogable human rights-based obligation might come to be severed from that treaty and rendered inoperable against any objecting State (Crawford, 2014, p. 339). In recent years, human rights courts eagerly seek to align the normative implications for States of the progressively developing rules of international human rights and environmental law. In its 2018 Advisory Opinion, the Inter-American Court of Human Rights (IACtHR, 2017) appears consciously to seek to align the

requirements of the rapidly developing subfields of international human rights and environmental law. Similarly, the UN Human Rights Council (HRC) reiterates that

> environmental degradation, climate change and unsustainable development constitute some of the most pressing and serious threats to the ability of present and future generations to enjoy the right to life . . . the obligation of States parties [to the International Covenant on Civil and Political Rights] to respect and ensure the right to life should also inform their relevant obligations under international environmental law. (UNHRC, 2019, para. 62)

The UN Committee on Economic, Social and Cultural Rights (CESCE) has made perfectly clear the significance of the emerging human right to water for the continuing evolution and lawful application of international water law and environmental law (UN Committee on Economic, Social and Cultural Rights (CESCR), 2003). Ultimately, the pervasive relevance of human rights across all issue areas of international law, and the existence of comprehensive institutional and procedural frameworks for human rights monitoring, reporting and dispute-resolution, creates a tendency towards 'human rights mainstreaming' (O'Donoghue, 2014, p. 96; Peters, 2017, p. 689), exerting a unifying influence by means of 'both formal revisions of special norms so as to accommodate human rights concerns, and novel interpretations' (Pulkowski, 2014, pp. 238–271).

General principles of international law can also play a unifying role, by helping 'to solve the systemic tensions in the international legal system, building bridges to other sectoral regimes with which they intersect' (Fajardo, 2018, p. 38). Franck (1988, p. 741) notes that a rule's legitimacy will be augmented when linked with a 'network of other rules by an underlying general principle'. This is especially so in the case of international water law which, in addition to the influence of foundational principles of general international law, such as territorial sovereignty and integrity, sovereign equality, equity, solidarity and prevention of significant transboundary harm, boasts an extensive suite of firmly established specialist environmental principles, such as common but differentiated responsibility, intergenerational equity, environmental integration, precaution, polluter pays and the overarching notion of sustainable development. These principles simultaneously act as 'drivers of the so-called "expansion of international law"' (ILC Study Group, 2006) while also promoting its unity and coherence, as all sectoral conventional and customary rules can be interpreted in the light of these major principles (Le Club des Juristes, 2015, p. 103). The role of general principles in promoting legal convergence corresponds with the notion of 'axiological unity', by providing a 'systemic glue' or a 'bridge between individual norms' (Prost, 2006, pp. 10–11).

No single legal principle or objective is more inherently integrative, or more pervasive and influential, than that of sustainable development, which is now substantively elaborated by the entire complex of goals, targets and indicators set out under the 2030 Agenda for Sustainable Development and amplified by the associated monitoring and reporting processes adopted by almost the entire international community of States. The SDGs are informed and guided by corresponding norms of international law, especially rules of international environmental and human rights law. Many of the individual goals and targets elaborated under the SDGs correspond directly with key environmental, social and economic values established or emerging under international law. Conversely, however, the concerted practice of States in implementing the SDGs will inevitably inform the normative content and continuing development of rules across a range of

issue areas of international law. This fact is apparent from the founding UN General Assembly Declaration for the SDGs, which announces that all UN Member States 'affirm our commitment to international law and emphasize that the Agenda is to be implemented in a manner that is consistent with the rights and obligations of states under international law' (UNGA, 2015, pp. 4–5). The normative framework established by the SDGs encourages and facilitates States in prioritizing and promoting specific sustainability policies and objectives (Langford, 2016, p. 175). Nowhere is this complex two-way interaction between the SDGs and international law more apparent and intense than in the targets envisaged under SDG 6, which seeks to achieve clean water and sanitation for all while promoting institutional cooperation on transboundary waters and the protection of freshwater ecosystems (McIntyre, 2018, pp. 173–201, 2023a, pp. 441–508).

Recent proliferation of 'transnational' environmental and social governance frameworks, encompassing an increasingly sophisticated and extensive corpus of globally applicable rules, safeguards and standards, often developed by coalitions of non-State actors and supported by broad constituencies of business sectors, civil society actors, State agencies and intergovernmental bodies, also plays a role in promoting legal convergence. Formal international regulatory frameworks for environmental and social sustainability frequently prove inadequate due to the transnational character of an increasing proportion of economic activity, and due to their own inherent lack of responsiveness, flexibility and accessibility (Blanco & Razzaque, 2011, p. 33; Twining, 2009; Walker, 2014, pp. 3–6). In response, a wide range of novel types of non-State-sanctioned rules and standards has emerged to provide a broadly applicable and progressive normative framework for environmental and social governance.

Such rules and standards, which are often based upon existing, if routinely underapplied, international legal norms, address activities ranging from the provision of development project finance to sustainability certification for internationally traded commodities, products and services, and play an increasingly significant role in the transmission of core environmental and social sustainability values across a wide range of international regulatory activity. Indeed, the widespread, often global, acceptance in practice of such transnational rules and standards increasingly informs the substantive elaboration of formal international law regimes, as such 'global governance institutions provide a supplemental set of policymaking laboratories' (Esty, 2006, pp. 1501–1502). Once again, this is readily apparent in the field of international water resources management, where transnational investment and the involvement of complex multiparty consortia in major water-related infrastructure projects has proliferated and where myriad governance standards have emerged to address the environmental and social impacts of water-related projects and activities (McIntyre, 2023b, pp. 1–13).

Conclusion

Of course, particular mechanisms of convergence arise, and apply in quite particular ways, in response to each species of legal fragmentation, which include, *inter alia*, 'substantive' fragmentation, where different substantive legal subfields risk forming self-contained regimes of specialist rules, 'systemic' fragmentation, involving divergence of the secondary rules underpinning the unity of the international law system, along with 'institutional' proliferation and related 'methodological'

fragmentation. In turn, some forms of convergence are centrally concerned with the prioritization and transmission of overarching values. The phenomenon of 'axiological' convergence promotes certain superior values which transcend normative conflicts by assisting in the (super)determination of a coherent understanding of potentially conflicting norms. It depends upon 'the existence of overriding principles that act as a systemic glue or as a bridge between individual norms' and functions by informing 'the interpretation and application of individual rights and obligations' (Prost, 2006, p. 10). Similarly, 'cultural' unity among the community of international lawyers contributes to convergence as it 'refers to a mobilizing ideal, a common cause or a grand project to which all advocates of international law ... subscribe to some extent, regardless of their national origins and political linkages' (Prost, 2006, p. 7). International water law's central and overriding concern with equity, sustainability and universal welfare optimization, all of which cohere closely with the core values of general international law, comprises just such a 'grand project'.

It is quite clear that, beyond addressing concerns regarding the problem of fragmentation of international law, the phenomenon of convergence also facilitates international law's progressive evolution, especially as regards the incremental incorporation of values associated with environmental and social sustainability. Nowhere is this more evident, nor more critically important, than in the subfield of international water law. As the specialist legal framework which has developed in order to support effective and equitable transboundary water resources cooperation, it will find itself having to face up to the unprecedented challenges posed by seemingly insatiable global water demand, the accelerating impacts of climate change and the impending collapse of essential aquatic ecosystems. In rising to this herculean challenge, international water law will need to align with a wide range of related issue areas in order to ensure that the international law system can identify, adopt and apply optimal solutions in a coordinated and efficient manner.

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