Resolving the Paradigmatic Gap Between the Human Right to Water in a Transboundary Context, and the Transboundary Water Management Regime

Mariana Simón Cartaya†

† Public International Law Research Master (LL.M.), University of Amsterdam.

53 Cornell Int'l L.J. 531 (2020)

Introduction

A. Background

A search in databases chronicling transboundary freshwater conflicts worldwide will lead to such results as "Assyrian king dries up enemy's wells"; "Spain attempts to re-route Rhine River to harm Dutch"; "Ethiopia and Somali nomads fight for desert water "; and "[eleven] deaths attributed to ongoing conflict between herdsmen and farmers."[1] These results illustrate that just as freshwater is an essential source for animal and plant life, it has also always been a source of conflict. Due to both natural and man-made phenomena, water scarcity and desertification has plagued huge swathes of humanity and is credited with some of the bloodiest conflicts in recent history. The need to increasingly protect access to freshwater comes from a place of water scarcity in certain parts of the world. Freshwater scarcity is calculated on a population-water equation, and it can range from "water stress" to "water scarcity" to "absolute water scarcity."[2] According to the Food and Agriculture Organization (FAO) country-level analyses, twenty-two countries experience water stress greater than 70%, while fifteen countries withdraw more than 100% of their renewable freshwater resources.[3] It is important to note that there is not a generalized or global situation of water scarcity with the world average water stress percentage at 12.7%.[4] However, the problems surrounding water scarcity are not always related to hydrological levels, but also to water quality and availability.[5] Part of the issue is linked to poor management, in part due to the disconnect between global and local water priorities, which, due to a narrow interpretation of the human right to water, affects how the resource is allocated.[6] Further, in 2007 the World Bank expressed that the most water-scarce regions on the planet, the Middle East and North Africa, suffer from a scarcity of the physical resource, as well as a scarcity of organiza-

1. *Water Conflict Chronology*, PAC. INST., http://www.worldwater.org/conflict/map/ [https://perma.cc/25LG-JJG4] (last visited June 15, 2021).

2. *Water Scarcity*, U.N. DEP'T ECON. & SOC. AFFS. (Nov. 24, 2014), https://www.un.org/waterforlifedecade/scarcity.shtml [https://perma.cc/Q6XV-X72X].

3. *Sustainable Development Goals*, U.N. FOOD & AGRIC. ORG., http://www.fao.org/sustainable-development-goals/indicators/642/en/ [https://perma.cc/6CT4-KTD6] (last visited Oct. 20, 2020).

4. *Clean Water and Sanitation: Progress on Water Stress Levels*, U.N. FOOD & AGRIC. ORG., http://www.fao.org/3/CA1592EN/ca1592en.pdf [https://perma.cc/H5QL-PCQ6] (last visited Oct. 20, 2020).

5. *Id.*

6. *See generally* Barbara Van Koppen, *Water Allocation, Customary Practice and the Right to Water: Rethinking the Regulatory Model*, *in* THE HUMAN RIGHT TO WATER: THEORY, PRACTICE AND PROSPECTS (Malcolm Langford & Anna F.S. Russell eds., 2017).

tional capacity and of accountability for achieving sustainable outcomes.[7] This impliedly recognized that proper water management is key to addressing inequities of freshwater distribution, including across borders.[8]

Due to many factors, inequities in water access often lie across a state border, or miles upstream of a river.[9] Nevertheless, water allocation and management are largely done at the domestic level, with little external influence or concern for other states' interests.[10] However, much of the world's increasingly scarce and valuable freshwater is found in transboundary river basins or aquifer systems.[11] In such cases, when a freshwater resource is shared across national boundaries, it can become an international concern for states and individuals. The implication, therefore, is that whilst water management is often left to sovereign discretion, actions in one state can, and often will, affect freshwater availability in a co-riparian state.

Thus far, transboundary water management has been squarely governed by interstate treaties, operating under the maxim of permanent sovereignty over natural resources. The key instruments to manage transboundary waters are the 1997 United Nations (U.N.) Watercourses Convention[12] and the U.N. Economic Commission of Europe (UNECE)Water Convention.[13] However, these are not clear regulatory and institutional frameworks to the degree of being able to regulate basin-specific conflicts. Simultaneously, in the last few decades, the human right to water has been increasingly acknowledged as an actionable and recognized international human right, underpinned by cosmopolitan notions of universality.[14] In particular, the potential extraterritorial applicability of the human right to water is relevant in the present context and will be addressed at length. These two paradigms interact in cases where unsustainable, irresponsible, and poor water management in an upstream riparian state can, for example, preclude the enjoyment of the human right to water of the citizens of a downstream co-riparian state. The interstate para-

7. JULIA BUCKNALL, ET AL., WORLD BANK, MENA DEVELOPMENT REPORT: MAKING THE MOST OF SCARCITY: ACCOUNTABILITY FOR BETTER WATER MANAGEMENT IN THE MIDDLE EAST AND NORTH AFRICA xiii (2007), http://documents.worldbank.org/curated/en/353971468280764676/pdf/411130was390400Englishoptmzd.pdf [https://perma.cc/FB7M-HGQ3].

8. *Id.* at xiii, xxi ("Some [sixty] percent of the region's water flows across international borders, further complicating the resource management challenge.").

9. RUTH VOLLMER ET AL., UNW-DPC, INSTITUTIONAL CAPACITY DEVELOPMENT IN TRANSBOUNDARY WATER MANAGEMENT 6 (2009), https://www.ais.unwater.org/ais/pluginfile.php/90/course/section/126/181792e.pdf [https://perma.cc/N4XB-GTCW].

10. *Summary Progress Update 2021: SDG 6– Water and Sanitation for All*, U.N. (Feb. 24, 2021), https://www.unwater.org/publications/summary-progress-update-2021-sdg-6-water-and-sanitation-for-all/ [https://perma.cc/8CAU-4CSF].

11. *See Water Scarcity*, *supra* note 2.

12. *See* G.A. Res. 51/229, annex, Convention on the Law of the Non-navigational Uses of International Watercourses (May 21, 1997).

13. *See generally* U.N. Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Mar. 17, 1992, 1936 U.N.T.S. 269 [hereinafter Water Convention].

14. *See Water Scarcity*, *supra* note 2.

digm, however, is not concerned with the notion of human rights in a second state, rather it is concerned with the freedom to freely exploit national resources.[15] This creates a situation wherein the two paradigms concerned with freshwater governance are at odds.

The clash between the two paradigms, and the need to address it has been recently examined in the literature and acknowledged in the Global High-Level Panel on Water and Peace's 2017 report.[16] The panel outlined that whilst the purpose of international water law and its principal conventions aim to take social and economic needs into account,[17] there are specific human rights concerns such as equitability of distribution to be addressed, inter alia, by international human rights bodies.[18] The novelty, in this case, pertains to the generally accepted domestic scope of human rights law, which is now being extended to transboundary waters due to the extraterritorial reach of potential violations. Addressing such violations and harm, however, is complicated by the tension between the two paradigms, which operate under differing rationalities despite pertaining to the same subject matter. The tensions present between the paradigms pertains in part to the fact that each is concerned with different "norm-addressees" and each places different importance on the territoriality attached with sovereignty.[19]

The paradigm interaction, including dealing with the above tensions is the focus of this Article, which will attempt to reconcile both paradigms in the context of shared waters to accomplish two objectives. The first normative aim of this Article is for the law on transboundary freshwater to accommodate the reality of transboundary violations of the human right to water. The second goal of this Article (and, ideally, future work) is for international water law and its notoriously disaggregated practice to become coherent. Particularly, the need for legal certainty is absent in the context of international watercourses due to the fragmented content of the law and its sparse use. Whilst there is a normative recognition that international water law in transboundary contexts should acknowledge its concurrent human-right-to-water paradigm, the aims of this Article are equally concerned with legal cohesion in the interests of certainty for both rights bearers and duty holders.

15. G.A. Res. 1803 (XVII) (Dec. 14, 1962).

16. *See generally* GENEVA WATER HUB, A MATTER OF SURVIVAL: REPORT OF THE GLOBAL HIGH-LEVEL PANEL ON WATER AND PEACE (Sept. 14, 2017), https://www.genevawaterhub.org/sites/default/files/atoms/files/a_matter_of_survival_www.pdf [https://perma.cc/CJ3G-NNBE].

17. *Clean Water and Sanitation: Progress on Water Stress Levels*, *supra* note 4.

18. GENEVA WATER HUB, *supra* note 16, at 37.

19. Catherine Brölmann, *Sustainable Development Goal 6 as a Game Changer for International Water Law*, ESIL REFLECTIONS, Aug. 2018, at 1, 4-6 (2018).

B. Research Design

1. Research Question(s)

In light of the above, the main research question addressed in this Article is: How can the law governing transboundary water management accommodate and address the human right to water in cross-boundary violations? To answer this question, this Article seeks to resolve three sub-questions: (1) what are the differences between the human right to water and interstate transboundary water management paradigms?; (2) what effect do these differences have for the protection of human needs in a transboundary water context?; and (3) How can the two paradigms interact to best address human needs in transboundary situations?

2. Methodology and Approach

To address the research questions, this Article will, to a degree, consist of empirical research into the content and effect of the law governing transboundary freshwater. However, the aims of the research are overtly normative, particularly with regards to exposing and critiquing the gaps in the law which, at present, do not acknowledge human needs in transboundary settings. The normative goal is, therefore, to bridge such gaps, following the underlying theoretical desire for an international rule of law in light of its assumed positive attributes. Furthermore, by arguing that the requisite sacrifice of sovereignty to satisfy human needs is desirable, this Article follows a cosmopolitan line of reasoning.

To approach the research, this Article will first take an internal perspective on the interstate transboundary water management and human right to water paradigms, respectively. To shed light on the differences between the paradigms, this Article will look at the legislative and theoretical underpinnings of both paradigms in Parts I and II.

Part III will address the "on paper" tensions of each paradigm and what they entail vis-à-vis some of the prevalent conversations surrounding this topic. This discussion is important in order to identify how the paradigms square up in light of the normative aims of this Article, which ultimately revolve around the interests of a substantive international rule of law, as well as the values of cosmopolitanism espoused by human rights. In this same Part, the Article explores whether "regime harmonization" would be a feasible solution if both legal paradigms were reduced to their norms and merged—notwithstanding the theoretical hurdles. In solving this query, the Article answers the second sub-question.

Then, in Part IV, the Article takes a practical approach at resolving the tensions which arise when the two paradigms meet in the context of transboundary violations. The aim is to answer the third sub-question. To do this, the Article will discuss six international freshwater conflicts, each illustrating different scenarios. The practical aim of the illustration is to move beyond theory and understand how the law can accommodate for such interactions. In particular, the position taken in this Article is that

the extraterritorial application of the human right to water in transboundary violations can fill a legal and practical void.

Lastly, this Article will conclude by reflecting on the interaction between the paradigms, focusing on the lessons learned through the practical exercise.

3. Literature Review and Originality

This Article will rely on a vast array of secondary resources available on international water law and the human right to water. Special regard is to be given to Professor Takele Soboka Bulto's book, *The Extraterritorial Application of the Human Right to Water in Africa*,[20] which is by far the most narrowly acquainted piece of literature, due to his extensive treatment of the extraterritoriality of the human right to water. Further, Malcolm Langford and Anna Russell's collection[21] provides the most thorough and recent look at a wide range of issues surrounding the human right to water. In the realm of interstate water law, Professor Edith Brown Weiss' book, *International Law for a Water-Scarce World*,[22] thoroughly critiques current international water law, including "virtual water"—a challenge addressed in Part IV of this Article. Further, Laurence Boisson de Chazournes[23] provides a valuable contribution to alternate views of freshwater, namely the economization, environmentalization, and institutionalization of the law applicable to freshwater, as alternate perspectives to the humanization of the law applicable to freshwater. Finally, Nicolaas Schrijver's book on natural resource sovereignty[24] provides insight into the more challenging theoretical debates with regards to balancing the relevant rights and duties.

The above resources, many basin-specific research papers, as well as a brief study of hydrology, have all been invaluable and important contributions to the continuously relevant study of the management of shared freshwater. However, a specific application to the transboundary freshwater context, through the juxtaposition of the obligations from the interstate paradigm with the extraterritorial element of the human right to water, is not something broadly reflected in the literature. This Article, therefore, seeks to fill that gap in the literature.

I. The Transboundary Water Governance Paradigm

The first paradigm to address water scarcity and needs in a transboundary context is the existing interstate paradigm, wherein cooperation

20. *See generally* TAKELE SOBOKA BULTO, THE EXTRATERRITORIAL APPLICATION OF THE HUMAN RIGHT TO WATER IN AFRICA (2013).

21. *See generally* THE HUMAN RIGHT TO WATER THEORY, PRACTICE AND PROSPECTS, *supra* note 6.

22. *See generally* EDITH BROWN WEISS, INTERNATIONAL LAW FOR A WATER-SCARCE WORLD (2013).

23. *See generally* LAURENCE BOISSON DE CHAZOURNES, FRESH WATER IN INTERNATIONAL LAW (2013).

24. *See generally* NICOLAAS J. SCHRIJVER, SOVEREIGNTY OVER NATURAL RESOURCES: BALANCING RIGHTS AND DUTIES (1997).

is encouraged, but permanent sovereignty over natural resources (PSNR) is the ultimate maxim. The theoretical origins and underpinnings of the interstate resource management paradigm are outlined below.

A. Theoretical Origins

Freshwater is an intrinsically valuable natural resource, which serves as both an economic good and an essential resource for human survival. This duality has implications for the ownership and the allocation of the resource. Due to its "common," transboundary presence and vague ownership status, it is the center of ownership conflicts. For this reason, and for resource quality preservation, there is a need to regulate the common good of water.[25] The avoidance of the "tragedy of the commons" is one of the basic justifications for dividing up natural resources by border allocation, regardless of the equitability, exploitation, or arbitrariness that it may eventually entail. It follows, therefore, that state control rightfully plays a central role in regulating natural resources. However, the role of the state is increasingly limited through interdependence, which is exalted in transboundary situations. Collective regulation of internal state behavior is, therefore, a logical response to interdependence.[26] Such collective regulation, however, can be at odds with elements of state sovereignty—a necessary condition for international peace and security which extends to include the territorial integrity of any state. And whilst sovereignty, in general, is not a disputed concept, permanent sovereignty over natural resources is necessarily challenged insofar as it presents a hurdle for the fulfillment of human needs.

In terms of the satisfaction of human interests in this realm, it is undoubtedly necessary to have a center of power with a certain degree of executive power and capacity for resource distribution. Nevertheless, in transboundary situations, where the control element is exerted by a coriparian state, or a home state is unwilling or unable to provide freshwater to their population, strict natural resource sovereignty may be prejudicial. Furthermore, PSNR is arguably only legitimized when citizens, accepting to be governed, benefit from "their" resources.[27] In this vein, an alternative trend consists of reworking natural resource sovereignty into "popular sovereignty over natural resources."[28] This "rethinking" of sovereignty from a constructivist perspective can be particularly important in the attempt to be more inclusive of third world or heterodox narratives that challenge state-centric governance. One can analogize the "social contract" theory to the "sovereignty as trusteeship" idea in order to preserve the integrity of the

25. Garrett Hardin, *The Tragedy of the Commons*, SCIENCE, Dec. 1968, at 1243, 1243.

26. Neil Englehart et al., *Introduction* to CONSTRUCTING HUMAN RIGHTS IN THE AGE OF GLOBALIZATION xiv–xv (Mahmood Monshipouri et al. eds., 2003).

27. Sangwani Patrick Ng'ambi, *Permanent Sovereignty over Natural Resources and the Sanctity of Contracts, from the Angle of Lucrum Cessans*, 12 LOY. U. CHI. INT'L L. REV. 153, 154 (2015).

28. *SeeGenerally* Petra Gümplová, *Popular Sovereignty over Natural Resources: A Critical Reappraisal of Leif Wenar's* Blood Oil *from the Perspective of International Law and Justice*, 7 GLOB. CONST. 173 (2018).

environment or balance between individual liberty and community interests out of concern for future resources.[29]

The idea of "popular sovereignty" was reinforced in U.N. General Assembly (UNGA) Resolution 1803, which surrounded debates on economic development and the right of self-determination in a postcolonial context.[30] The resolution calls for the exercise of sovereignty in the interest of the well-being of citizens, stating that the right to exercise such sovereignty over "natural resources must be furthered" by other states.[31] The language used in the resolution implies ownership of natural resources by both the state and its citizens, implying a duty to exercise for the benefit of citizens, supporting the custodianship argument. Dr. Temitope Tunbi Onifade agrees with this stance. However, Dr. Onifade comments that the rights contained in the resolution could only possibly be held by states by virtue of their sovereignty, and that it is the lack of state recognition of the citizens' entitlements which has resulted in "socio-political problems."[32] Dr. Onifade explains this problem in the context of the "peoples-based permanent sovereignty over natural resources" (PPSNR) doctrine and analyzes the limited application of the doctrine in domestic jurisdictions.[33] PPSNR can be traced back to common ownership and trusteeship arrangements during the enlightenment period of the seventeenth and eighteenth century. The doctrine was underscored by the need to regulate and simultaneously liberalize global commons such as the high seas and was justified by the right to self-determination.[34] Dr. Onifade's characterization of the inequity of natural resource distribution directly points at the state's role as a custodian, problematizing resource inequities as a matter of distributive justice, contrary to the economic development framework espoused by the UNGA.[35]

A defense of PSNR, however, is the special imperative that resource-wealthy states have to maintain sovereignty over their natural resources, to avoid disenfranchisement and exploitation, and to ensure self-governance.[36] This has led several previously colonized states to be some of the strongest defenders of the Westphalian system.[37] Solidifying or relaxing the concept of PSNR, therefore, presents difficult hurdles with regards to transboundary freshwater. On the one hand, permanent sovereignty must be upheld to ensure self-sufficiency and non-exploitation. On the other hand, however, if one were to talk about a water-scarce or arid state, whose

29. Terry W. Frazier, *Protecting Ecological Integrity Within the Balancing Function of Property Law*, 28 ENV'T L. 53, 55–56 (1998).

30. G.A. Res. 1803 (XVII), at 15 (Dec. 14, 1962).

31. *Id.* ¶ 5.

32. Temitope Tunbi Onifade, *Peoples-Based Permanent Sovereignty over Natural Resources: Toward Functional Distributive Justice?*, 16 HUM. RTS. REV. 343, 344 (2015).

33. *Id.* at 343.

34. *See id.* at 350.

35. *See id.* at 351.

36. *See* African Charter on Human and Peoples' Rights (Banjul Charter) art. 21.

37. *See* Christopher Clapham, *Sovereignty and the Third World State*, 47 POL. STUD. 522, 522 (1999).

citizens' right to water is prejudiced by their neighbors, the co-riparian's natural resource sovereignty should be challenged by the imperatives of human rights and freshwater's status as a public good.

Professor Schrijver discusses the need for regulation of the global commons, in particular, whilst balancing a state's rights and their duties towards their citizens.[38] With regards to natural resources, Schrijver claims that states have the right to freely dispose, explore, and exploit them; regain effective control and receive compensation for their damage; use them for national development; manage them pursuant to national environmental policy; regulate and expropriate foreign investment for their maintenance; and enjoy an equitable share in their benefits.[39] Consequently, Schrijver expresses optimism for an increase in bilateral treaties that seek equitable utilization of transboundary resources,[40] which is certainly an option for water flows, although this option has inherent flaws.

Moreover, Schrijver attributes the following duties with regards to natural resources: exercising permanent sovereignty for national development and the well-being of the people, respecting the rights and interests of indigenous peoples, cooperating with other states for international development, conserving and using natural resources sustainably, respecting international law, and treating foreign investors fairly.[41] He also includes the duty to equitably share transboundary natural resources, taking the de-territorialized stance that "boundaries of States do not exist for water"[42] and noting the tension between PSNR and transboundary obligations. He concludes that the state of the art at the time of writing did not yet imply a shift from territorial sovereignty to shared jurisdiction or common management, only an obligation to recognize the rights of other states and consult with them.[43] This stance is the only rational conclusion in the context in which he writes in, which is not solely related to freshwater, including resources like fish, oil, and gas that do not have an entailing human right. The final outlook on permanent sovereignty in an interdependent world is that permanent sovereignty has shifted from one centered on peoples' right to self-determination, to one centered on states' rights.[44]

The management of transboundary freshwater due to its de-territorialized nature and the competing interests vested within it, will continue to cause a divide in both theory and practice. However, the international community has come a long way in pushing towards regulating global commons based on principles of equitability as reflected in the content of the relevant law.

38. *See* SCHRIJVER, *supra* note 24, at 1.
39. *See id.* at 244–69.
40. *See id.* at 182–83.
41. *See id.* at 291–327.
42. *Id.* at 321.
43. *See id.*
44. *See id.* at 369.

B. Normative Content

The interstate paradigm dealing with freshwater is at its essence fragmented and occasionally vague as it draws from environmental law, with limited, specialized treaties. This precise quality is one of the reasons hindering the development of a comprehensive and invocable process to address water scarcity and human needs in transboundary settings.

Codified water law has been traced back to the Code of Hammurabi (17238 BCE), which included provisions for communal management and liability, and has evolved to the competing riparian approach and the priority approach to water rights.[45] However, the origins of international water law were first found in customary international law from the late eighteenth century, stemming from freedom of navigation and evolving into allocation regimes at the advent of the industrial revolution.[46] The three main principles of customary international water law today are the principle of limited territorial sovereignty over national waters, the no-harm principle stemming from the Roman maxim *sic utero tuo ut alineium non laedes*, and the obligation to settle disputes peacefully.[47]

One of the principal tenets of the transboundary water paradigm, as in environmental law, is the obligation not to cause significant transboundary harm, which the International Court of Justice (ICJ) helped develop throughout the twentieth century.[48] The early caselaw on the no-harm rule mostly evolved by the *Trail Smelter Arbitration*[49] and *Corfu Channel*[50] cases. Before *Trail Smelter*, the only case cited regarding transboundary harm was a Swiss case from 1878 regarding cross-canton hazards.[51] In the following years, soft law began to emerge and was inspired by the no-harm principle. The effect of these cases was to present a shift from strict territorial integrity to environmental protection.[52] In addition to the no-harm principle, the ICJ also pronounced their opinion on shared resources in the *Fisheries Jurisdiction Case*,[53] which regarded the Icelandic fisheries jurisdiction partially on the basis that the Icelandic population was dependent on those resources for their economic development and livelihood. The court stated that it was pleased with the prospect of increased regulation of maritime resources and that a shift to a recognition of the duty to have due regard for other states' rights "and the needs of conservation for the benefit

45. Joseph W. Dellapenna & Joyeeta Gupta, *The Evolution of Water Law Through 4,000 Years* 9 (Vill. Univ. Sch. L., Working Paper No. 2013-3041, 2013).

46. *See* Anthony Scott, *The Evolution of Water Rights*, 35 NAT. RES. J. 821, 826–27 (1995).

47. Dellapenna & Gupta, *supra* note 45, at 13.

48. *See* Marte Jervan, *The Prohibition of Transboundary Environmental Harm: An Analysis of the Contribution of the International Court of Justice to the Development of the No-Harm Rule* 1 (PluriCourts Rsch. Paper No. 14-17, 2014).

49. *See* Trail Smelter (U.S. v. Can.), 3 R.I.A.A. 1905, 1920 (Perm. Ct. Arb. 1941).

50. *See generally* Corfu Channel (U.K. v. Alb.), Judgment, 1949 I.C.J. 4 (Apr. 9).

51. *See* Russell A Miller, *Trail Smelter Arbitration*, OXFORD PUB. INT'L L. (2007), https://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e1612 [https://perma.cc/ER99-SMPM].

52. *See* BULTO, *supra* note 20, at 26.

53. *See* Fisheries Jurisdiction (U.K. v. Ice.), Judgment, 1974 I.C.J. 3, ¶ 48 (July 25).

of all."[54] Whilst the court did not pronounce on the development of the law, it did express that shared resources and common property fell outside the exclusive control of one state.[55] Today, the no-harm rule and the idea of limited territorial sovereignty are codified in the treaties and conventions set out below.

The International Law Association's (ILA) Helsinki Rules on the Uses of the Waters of International Rivers[56] set out the general rules on the international law applicable to the use of waters of international rivers and drainage basins, including groundwater if flowing to a common terminus. They state that "[e]ach basin State is entitled, within its territory, to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin."[57] The commentary rejects the unlimited sovereignty position, and that a state would not have a right to demand continued flows. The conditioning of equitable sharing is elaborated in Article V of the Helsinki Rules to include "beneficial use" by the parties, as well as several factors such as the contribution of each state to the shared resource,[58] the historical use,[59] the availability of other sources,[60] the economic and social needs of each state,[61] and the population dependent on the waters of the basin in each state.[62] However, the language is state-centric, and there are no clear guidelines for co-management of the basin, rather there are only broad principles to be considered. The rules stipulate for a system wherein violations of the pollution provisions would result in accountability, and the obligation to cease the wrongful conduct and compensate for any injury.[63] Whilst the Helsinki Rules arguably codified custom and defined best practices, they bear the burden of being soft law and have been criticized for creating too informal and imprecise of a system, lacking enforcement mechanisms.[64]

Following the Helsinki Rules, the Declaration of the United Nations Conference on the Human Environment[65] (Stockholm Declaration) was the first internationalized action to regulate state behavior concerning the environment. The Stockholm Declaration uses the language of intergenerational concerns, specifically mentioning water and paying heed to non-renewable resources to "ensure that benefits . . . are shared by all man-

54. *Id.* ¶ 64.
55. *See* BULTO, *supra* note 20, at 262.
56. *See generally* INT'L L. ASS'N, REPORT OF THE FIFTY-SECOND CONFERENCE: HELSINKI RULES ON THE USES OF THE WATERS OF INTERNATIONAL RIVERS (1966).
57. *Id.* art. IV.
58. *Id.* art. V(2)(b).
59. *Id.* art. V(2)(d).
60. *Id.* art. V(2)(h).
61. *Id.* art. V(2)(e).
62. *Id.* art. V(2)(f).
63. *Id.* art. XI.
64. *See* Joseph W. Dellapenna, *The Berlin Rules on Water Resources: A New Paradigm for International Water Law*, WORLD ENV'T & WATER RES. CONG., May 2006, at 1, 4.
65. U.N. Conference on the Human Environment, *Stockholm Declaration of the United Nations Conference on the Human* Environment, U.N. Doc. A/CONF.48/14/Rev.1, at 3 (June 16, 1972).

kind."[66] Further, most pertinently to transboundary obligations, the declaration states in Principle 21 that "States have . . . the *sovereign right to exploit their own resources* . . ., and the *responsibility to ensure that activities within their jurisdiction or control* do not cause damage to the environment of other States or areas *beyond the limits of national jurisdiction*."[67] The prohibition of transboundary harm was, at the time, controversial as it had not been solidified as a general principle of international law. Importantly, it provides for an obligation concerning liability and compensation for transboundary harm and the ambition that the law in this field ought to be further developed for scenarios of cross-jurisdictional damage.[68] The obligation to cooperate on transboundary resources and the no-harm principle was later supported by the UNGA in 1984.[69]

The Stockholm Declaration was followed twenty years later by the Rio Declaration on Environment and Development.[70] The Rio Declaration states out that the precautionary approach[71] and the "polluter pays" principle[72] apply, and that the right to development should be interpreted through an intergenerational lens[73] with human beings at the center of the concerns by virtue of their "entitle[ment] to a healthy and productive life."[74] The declaration reiterates states' sovereign rights to exploit their own resources, as well as the responsibility to not cause damage to the environment of other states beyond their jurisdiction.[75] This declaration, therefore, somewhat picks up where the Stockholm Declaration left off, adding the obligation to prevent the "relocation and transfer to other states" activities and substances that can either harm the environment or human health.[76] Furthermore, states are tasked with giving timely notification of activities that could have adverse transboundary environmental effect—a consultation that should take place early on and in good faith.[77] Lastly, the declaration states that "[t]he environment and natural resources of people under oppression, domination and occupation shall be protected."[78] Neither of the environmental declarations are legally binding instruments, but rather they confirm international legal rules on environmental law, as well as bringing forward the development of the norms therein, such as environmental rights, common but differentiated responsi-

66. *Id.* at Principle 5.
67. *Id.* at Principle 21 (emphasis added).
68. *See id.* at Principle 22.
69. *See generally* G.A. Res. 39/163, Charter of Economic Rights and Duties of States (Dec. 17, 1984).
70. U.N. Conference on Environment and Development, *Rio Declaration on Environment and Development*, U.N. Doc. A/CONF.151/26/Rev.1 (Vol. 1), annex I (Aug. 12, 1992).
71. *See id.* at Principle 15.
72. *Id.* at Principle 16.
73. *See id.* at Principle 3.
74. *Id.* at Principle 1.
75. *See id.* at Principle 2.
76. *Id.* at Principle 14.
77. *Id.* at Principle 19.
78. *Id.* at Principle 23.

bilities, and liability for environmental harm.[79] They are, therefore, not invocable instruments, but rather reflect the policy priorities of the international community, and are guidelines for state interests in transboundary resource management.

The first convention that specifically deals with transboundary watercourses is the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention).[80] That convention defines transboundary watercourses as "any surface or ground waters which mark, cross or are located on boundaries between two or more States."[81] This definition is inclusive of river basin systems and aquifers, without distinction. The convention then defines transboundary impact as

> any significant adverse effect on the environment resulting from a change in the conditions of transboundary waters caused by a human activity, the physical origin of which is situated wholly or in part within an area under the jurisdiction of a Party, within an area under the jurisdiction of another Party.[82]

This encompasses damages to human health and safety, and the human right to water, which stems from the right to health. However, we can observe that the language refers to a change in the conditions of transboundary waters, not specifying whether these refer to quality or quantity. The UNECE water regime is said to constitute the *lex specialis*, over the U.N. Watercourses Convention.[83] Following the Water Convention, the 1994 Desertification Convention[84] calls for "joint programmes for the sustainable management of transboundary natural resources through bilateral and multilateral mechanisms."[85] It includes the obligation to undertake cooperation to enhance the availability of water resources and proposes an array of specific freshwater yielding technologies.[86] It does not, however, relate to water sharing conflicts. Whilst the Convention on Desertification provides a broad series of measures in a national and transboundary setting to address water scarcity in the most water-scarce regions, it serves as a guideline rather than imposing obligations.

The Convention on the Law of the Non-navigational Uses of Interna-

79. *See* Dinah Shelton, *Stockholm Declaration (1972) and Rio Declaration (1992)*, OXFORD PUB. INT'L L. (2008), https://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e1608 [https://perma.cc/H2SC-XH43].

80. Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Preamble, Mar. 17, 1992, 1936 U.N.T.S. 269 [hereinafter Water Convention].

81. *Id.* art. 1(1).

82. *Id.* art. 1(2).

83. *See generally* Ruby Mahana Moynihan, *Contribution of the UNECE Water Regime to International Law on Transboundary Watercourses and Freshwater Ecosystems*, *in* EDINBURGH RESEARCH ARCHIVE: LAW THESIS AND DISSERTATION COLLECTION (2018).

84. Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, Oct. 14, 1994, 1954 U.N.T.S. 3 [hereinafter 1994 Desertification Convention].

85. *Id.* at annex I, art. 11(a).

86. *Id.* at art. 17(g).

tional Watercourses[87] (U.N. Watercourse Convention) is currently the most relevant multilateral treaty for the governance of transboundary waters, as it is considered the most complete codification of international water law. It currently has sixteen signatory states and thirty-six state parties. The most important provisions found in the General Principles of the U.N. Watercourse Convention are "equitable and reasonable utilization and participation";[88] "factors relevant to equitable and reasonable utilization";[89] and "the obligation not to cause significant harm."[90] Addressing the relationship between uses, the U.N. Watercourse Convention favors no usage above another, only stating that special regard should be given to vital human needs.[91] The subject matter of the convention is somewhat contested, with some saying that the mention of aquifers is unsatisfactory.[92] The provisions inside the convention, therefore, apply to both river systems and aquifers connected to surface waters,[93] which together represent the vast majority of accessible freshwater, excluding polar ice, and provide around 50% of potable water.[94] However, the definition is not wholly inclusive as it does not apply to certain aquifers that are non-recharging (i.e., those not connected to surface water), or when an aquifer and river are linked but operate separately.[95] The significance of the inclusion of groundwater in a transboundary study is that the "borders" are not as properly delimited as those of a surface. This can mean that an action in one state can affect the entire aquifer without clear upstream-downstream relationships to observe pollution and flows. One of the drawbacks of the U.N. Watercourse Convention was the relation between the no-harm rule and the rule of equitable utilization, the former which was ultimately subordinated under the rule of equitable utilization.[96] Despite this resolution, the precise meaning of equitable utilization is still contested because there is no common standard, as reflected in Article 6 wherein factors to equitability are both qualitative and non-hierarchical. This system is inherently non-pragmatic.

Following the U.N. Watercourse Convention and the dissatisfaction with it, the ILA approved the Berlin Rules on Water Resources.[97] These set out to provide a holistic view of international water law. Chapter IV of the Berlin Rules deals with the rights of persons and includes the right of

87. G.A. Res. 51/229, annex, Convention on the Law of the Non-Navigational Uses of International Watercourses, (July 8, 997) [hereinafter U.N. Watercourse Convention].

88. *Id.* at art. 5.

89. *Id.* at art. 6.

90. *Id.* at art. 7.

91. *Id.* at art. 10.

92. Kerstin Mechlem, *Groundwater Protection*, OXFORD PUB. INT'L L. (2010), https://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e1944 [https://perma.cc/QUR3-NNUU].

93. U.N. Watercourse Convention, *supra* note 87, at art. 2(a).

94. Moynihan, *supra* note 83, ¶ 5.

95. *Id.* ¶ 8.

96. *See* BULTO, *supra* note 20, at 262.

97. *See* INT'L L. ASS'N, BERLIN RULES ON WATER RESOURCES (2004) [hereinafter BERLIN RULES].

access to water, information, education, and public participation, as well as the duty to protect particular communities and compensate those displaced by water projects or programs.[98] Besides the ambitious and broad rights inclusion, the enforcement of these rights is different in an interstate system, especially when they are found in a soft law instrument such as the Berlin Rules. Nevertheless, the content of ILA rules is given rise to concrete instruments in the past and have the potential to contribute to custom formation.

Moreover, in the context of transboundary waters, Chapter III of the Berlin Rules focuses on internationally shared waters and asserts the principles of cooperation,[99] equitable utilization,[100] avoidance of transboundary harm,[101] and equitable participation.[102] The latter of these addresses the issue of parties' power inequities often found along river basins that obstruct equitable agreements.

With regards to preferential use of waters, the Berlin Rules depart from the Helsinki Rules, and further develop the principle set out in the U.N. Watercourse Convention, that in determining an equitable and reasonable use, states must first allocate water to satisfy vital human needs.[103] The rules emphasize an obligation to establish management authorities for international waters, provide minimum requirements for these arrangements, and stipulate for compliance reviews.[104] They assert that breaches would engage a state's international responsibility, and create a broad regime for remedies. The rules also discuss access to courts for harmed individuals, including remedies for persons in other states[105]—effectively including extraterritorial obligations. Professor Joseph Dellapenna is optimistic about the Berlin Rules and sees them as a departure from the now-outdated Helsinki Rules and U.N. Watercourse Convention. However, he still holds that the mere codification of custom as done therein, is insufficient in a soft law instrument and that the strongest provisions are those based on human rights and environmental law.[106]

II. The Human Right to Water Paradigm

The second paradigm on water management, that of the human right to water, is still not fully recognized in certain circles. The argument herein, however, is that it does exist both in theory and in law but is merely less actionable than other rights. In this Part, the human right to water will be discussed in light of its status and potential role in transboundary freshwater settings. Below is an account of origins and content of the right, as

98. *See* U.N. Watercourse Convention, *supra* note 87, at arts. 3–5, 7, 9, 23.
99. *Id.* at art. 8.
100. *Id.* at art. 6.
101. *Id.* at art. 7.
102. *Id.* at art. 5.
103. *See id.* at art. 10.
104. *See id.* at arts. 3–4.
105. *See id.* at art. 32.
106. *See generally* BULTO, *supra* note 20.

well as its implications for duty bearers, with a particular emphasis on extraterritoriality.

A. Origins of the Human Right to Water

1. Theoretical Origins

To say that human rights law originated in antiquity is an anachronism. However, there is cause to say that the values and morality written about in both Ancient Rome and Greece can be traced to modern human rights philosophy. The stoic Marcus Cicero famously cited "true law as right reason in agreement with nature."[107] True law was universal, of equal applicability across the world; a rhetoric we find echoed in seminal twentieth-century human rights texts. Universalist claims of freedom, equality, and dignity were also expounded by Ulpian and his ideas of universal citizenship as a consequence of personal dignity, a right whose breach entailed a legal remedy, in a way that mirrors human rights today.[108] Professor Tony Honoré contends that human rights and the civil rights movements are the modern attempts at implementing freedom, equality, and dignity in society.[109] In terms of human rights *law*, there was a view that it ought to be pursued through a philosophy of justice.[110] An early form of natural resource rights based on natural law is found in Justinian's Institutes, which fomented Roman Law principles such as the *res communis* that is today applied to our high seas and space:

> By the law of nature these things are common to mankind, the air, running water, the sea, and consequently the shores of the sea. No one, therefore, is forbidden to approach the seashore, provided that he respects habitations, monuments, and buildings which are not, like the sea, subject only to the law of nations . . . .[111]

Medieval theologians of the Scholastic tradition were in turn proponents of distributive justice as a consequence of natural law theory. Aquinas, in his *Summa Theologiae*, wrote on the concept of *jus*, translated as right or justice, that "distributive justice is concerned with the distribution of the common goods of the civitas proportionately and fairly to the citizens of the civitas."[112] From the late 1400s onwards, however, we see a change in international law and human rights discourse, as new subjects emerged. Hugo Grotius elaborated on the concept of natural rights, with human

---

107. MARCUS TULLIUS CICERO, *The Republic III*, *in* ON THE REPUBLIC OF THE LAW 211 (Clinto W. Keyes trans., 2000).

108. *See* TONY HONORÉ, *The Cosmopolis and Human Rights*, *in* ULPIAN: PIONEER OF HUMAN RIGHTS ix, 89–90 (2d ed. 2002).

109. *See id.* at 85–86.

110. *See id.* at 77–78.

111. Thomas Collett Sandars, *Liber Secundus Tit. I. De Rerum Divisione*, *in* THE INSTITUTES OF JUSTINIAN 90 (1941).

112. Anthony J. Lisska, *Human Rights Theory Rooted in the Writings of Thomas Aquinas*, DIAMETROS, 2013, at 134, 138.

beings as the original subjects of *jus gentium*.[113] Classical international law, as it emerged through the colonial encounter is characterized by its geographical bias, religious aspirations, economic motivations, and political aims.[114] Modern international human rights law and its applicability, notwithstanding its universalist rhetoric, continues to operate within those parameters. This does not discredit the universalist aspirations in a pure form, but rather its conception and application under law.

In the Enlightenment, universalism turned into cosmopolitanism as one of Immanuel Kant's central ideas, which have since been drawn out to encompass modern obligations concerning asylum rights and the idea of a "cosmopolitan world order."[115] Even though Kant's theory only provides for a minimalist cosmopolitan rights obligation of hospitality, it has been read as the starting point for creating transnational interdependence.[116] The philosopher's priority, however, was "the achievement in law of a [r]ightful condition beyond the state," which is more or less found in the European human rights system today, where charters of rights are effectively enforced, based on an international social contract theory.[117] A shift away from the state-centric dependence for human rights was echoed by Hersch Lauterpacht, a seminal figure in twentieth-century international law. He is remembered in great part for his writings on the role of international law in the world, including human rights law. "An International Bill of the Rights of Man" was Lauterpacht's design for a twentieth-century international human rights document.[118] His system of global human rights governance painted a picture of a community of nations with mutual concern and enforcement of obligations, where individuals could petition their rights to a central council.[119] Despite the high regard given by Lauterpacht to human rights, he contested the usefulness of natural law rhetoric. Lauterpacht was more concerned with the enforcement of a universal human rights system. He refers to this issue as the "major—and . . . apparently insoluble—political difficulty."[120]

Today, there is pushback on the improper historiography of human rights, with Professor Samuel Moyn referring to human rights rhetoric as only one of many appealing ideologies.[121] Despite its long theoretical

113. *See generally* Gustavo Gozzi, *Part I—*Ius Gentium *and the Origins of International Law*, *in* RIGHTS AND CIVILIZATIONS: A HISTORY AND PHILOSOPHY OF INTERNATIONAL LAW (2019).

114. Mohammed Bedjaoui, *Poverty of the International Order*, *in* INTERNATIONAL LAW: A CONTEMPORARY PERSPECTIVE 153–54 (1985).

115. Pauline Kleingeld, *Kant's Cosmopolitan Law: World Citizenship for a Global Order*, 2 KANTIAN REV. 72, 72 (1998).

116. *See* ALEC STONE SWEET & CLARE RYAN, A COSMOPOLITAN LEGAL ORDER: KANT, CONSTITUTIONAL JUSTICE AND THE EUROPEAN CONVENTION ON HUMAN RIGHTS 17–22 (2018).

117. *Id.* at 11.

118. HERSCH LAUTERPACHT, AN INTERNATIONAL BILL OF THE RIGHTS OF MAN (Oxford Univ. Press rev. ed. 2013) (1945).

119. *See id.*

120. *Id.* at 14.

121. *See* Samuel Moyn, *The First Historian of Human Rights*, 116 AM. HIST. REV. 58, 59 (2011).

basis, the rhetoric of human rights as such is a relatively novel phenomenon that emerged in the second half of the twentieth century, in part as a language for conducting foreign relations.[122] Moyn warns against the "moralization of politics," as well as using the past (i.e., historiography) of human rights for "new imperatives."[123] Nevertheless, human rights law—including the novel and contested human right to water—insofar as it is codified and given effect for basic and non-controversial human needs, would not be an improper overreach into the political.

2. Normative Origins

The normative concept of a human right to water as an invocable right vis-á-vis states is somewhat novel. The human right to water is not stipulated for in any of the twentieth-century human rights documents. However, there is a sustained theory of interpreting and advocating for its existence through other rights.

Article 25(1) of the Universal Declaration of Human Rights states that "[e]veryone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food . . . ."[124] This language denotes the non-exhaustive nature of human rights, open to the interpretation of elements that could be necessary for a standard of living and health. Whilst the human right to water largely falls under social and cultural rights, it goes without saying that the right to water is necessary for the fulfillment of the essential right to life, which is codified in Article 3 of the Universal Declaration, as well as in Article 6 of the International Covenant on Civil and Political Rights (ICCPR).[125] Commentators differ on the relevance of such articles for the right to water, especially due to the historical implications of civil and political rights as rights of non-interference. The passive nature of these obligations often implies that a government must do all it can not to hinder the possibility to attain these rights. Therefore, whilst the right to life encompassing the right to water is important in terms of rhetoric, it can all but ensure *respect* of the right by a home, or co-riparian state.

In 2003, the U.N. Committee on Economic, Social and Cultural Rights (CESCR) issued *General Comment 15*[126] as an interpretation of Articles 11 and 12 of the International Covenant on Economic, Social and Cultural Rights (ICESCR),[127] which relate to the adequate standard of living and the right to the highest attainable standard of health, respectively. The text of *General Comment 15* says that water is a limited public good and that "the

122. *See id.* at 73.
123. *Id.* at 59–60.
124. G.A. Res. 217 (III) A, Universal Declaration of Human Rights, art. 25 (Dec. 10, 1948).
125. *See id.* at art. 3; G.A. Res. 2200A (XXI), International Covenant on Civil and Political Rights, art. 6 (Dec. 16, 1966).
126. *See generally* Comm. on Econ., Soc. & Cultural Rts., General Comment No. 15: The Right to Water, U.N. Doc. E/C.12/2002/11 (2003) [hereinafter GC15].
127. *See* G.A. Res. 2200A (XXI), International Covenant on Economic, Social and Cultural Rights, arts. 11–12, (Dec. 16, 1966).

human right to water is indispensable for leading a life in human dignity. It is a prerequisite for the realization of other human rights."[128] It entitles everyone to "sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses."[129] States parties to the ICESCR have positive obligations under the covenant; the enforcement mechanisms are, however, a relatively feeble reporting and recommendation system overseen by the CESCR. The Committee was established by the Economic and Social Council's (ECOSOC) Resolution 1985/17 to monitor functions under Part IV of the ICESCR.[130] Despite holding this authority and having the power to issue general comments of interpretation and implementation, such instruments, including *General Comment 15*, are non-binding. Nevertheless, the Limburg Principles on the Implementation of the ICESCR[131] call for cooperation to monitor compliance, as well as a role for international organizations in its implementation.

Further, in 2010, the UNGA adopted Resolution 64/292 on *The Human Right to Water and Sanitation*.[132] The language used was that they *recognize* the right to safe and clean drinking water, as well as *calling upon* states and independent organizations to "provide financial resources, capacity-building, and technology transfer, through international assistance and cooperation."[133] The right is further supported by Article 24(c) of the Convention on the Rights of the Child.[134] Whilst these are strong sources, they result in few practicable enforcement mechanisms in the transboundary context.

B. The Content of the Right to Water

The human right to water, as outlined in *General Comment 15*, includes the requirements of availability, quality, and accessibility, with the requirement of adequacy, depending on the specific type of water use.[135] The availability requirement underlines that water ought to be "sufficient and continuous for personal and domestic uses."[136] The CESCR gives a non-exhaustive list of sample activities, wherein water for food growth and cultivation is notably absent.[137] Furthermore, specific water quantity availability is said to be determinable by World Health Organisation's guidelines.[138] The requirement for water quality stipulates that water must

128. GC15, *supra* note 126, ¶ 1.
129. *Id.* ¶ 2.
130. *See Committee on Economic, Social and Cultural Rights*, U.N. OFF. HIGH COMM'R, https://www.ohchr.org/en/hrbodies/cescr/pages/cescrindex.aspx [https://perma.cc/84UT-ZW4V] (last visited Apr. 6, 2021).
131. *See generally* Economic and Social Council, The Limburg Principles on the Implementation of the International Covenant on Economic, Social and Cultural Rights, annex, U.N. Doc. E/CN.4/1987/17 (Jan. 8, 1987) [hereinafter Limburg Principles].
132. G.A. Res. 64/292, The Human Right to Water and Sanitation (July 28, 2010).
133. GC15, *supra* note 126, ¶ 12(a).
134. G.A. Res. 44/25, Convention on the Rights of the Child, art. 24 (Nov. 20, 1989).
135. *See* GC15, *supra* note 126, ¶ 11.
136. *Id.* ¶ 12(a).
137. *See id.* ¶ 3.
138. *Id.* ¶ 12(a).

be safe to a degree that it does not constitute a health threat, and is an "acceptable colo[r], odor and taste."[139] And, the accessibility requirement has four sub-sections: physical, economic, informative, and a nondiscriminatory component.[140] Physical accessibility entails that water facilities be within "safe physical reach for all sections of the population," so that water access is not to be prejudicial to physical security.[141] Economic accessibility then mandates that water be affordable for all, so that the cost does not compromise an individual's access to the right.[142] The non-discrimination component of accessibility is there to ensure that water access also applies to the most vulnerable or marginalized sections of the population, "in law and fact."[143] The information accessibility component includes the right to seek, receive, and impart information concerning water issues.[144] This is important, as water access has unfortunately marginalized certain sectors of the population in a de facto manner.[145] Importantly, the accessibility requirement is limited to water and facilities within the jurisdiction of the state party.[146]

When a legal obligation has been established, the state must respect, protect, and fulfill the right.[147] Each of these duties implies a different degree and type of action or omission depending on the nature of the right, but they all work in tandem. The obligation to respect, in the words of *General Comment 15*, includes a duty not to interfere, directly or indirectly, with the enjoyment of the right, and to heed special attention during armed conflicts.[148] The obligation to protect the human right to water under *General Comment 15* mainly requires the prevention of interference by third parties—including individuals, groups, as well as corporations and their agents—with the enjoyment of the right to water.[149] The CESCR specifies the need to implement measures to restrain "third parties from denying equal access to adequate water; and polluting and inequitably extracting from water resources, including natural sources, wells, and other water distribution systems."[150] Finally, the obligation to fulfill the human right to water under *General Comment 15* encompasses essentially the obligations to facilitate, promote, and provide said water.[151]

Several states have recognized the right to water and fulfill it domestically in their own way. The obligation entails non-discrimination in the application, and to take continuous steps in its realization.[152] Domesti-

139. *Id.* ¶ 12(b).
140. *Id.* ¶ 12(c).
141. *Id.* ¶ 12(c)(i).
142. *See id.* ¶ 12(c)(ii).
143. *Id.* ¶ 12(c)(iii).
144. *Id.* ¶ 12(c)(iv).
145. *See id.*
146. *See id.* ¶ 44(b).
147. *See id.* ¶ 22.
148. *See id.* ¶¶ 21–22.
149. *See id.* ¶ 23.
150. *Id.* ¶ 23.
151. *See id.* ¶ 25.
152. *See id.* ¶¶ 13, 15.

cally, the immediate effects are laid out and include, inter alia, ensuring access to the minimum essential amount of water for personal and domestic uses; physical access to sufficient, safe, and regular water facilities; and equitable distribution of available water facilities as well as monitoring the realization of the right to water and targeting water programs to protect the vulnerable and marginalized.[153] To these obligations, the CESCR attaches a reiteration of the importance of states parties and other actors to "provide international assistance and cooperation, especially economic and technical," particularly towards developing countries, to fulfill the above.[154] Reflecting on the minimum core obligations, George McGraw emphasizes that the universal guarantee of international water rights hinges on the adequate reinforcement in national jurisprudence.[155] In his study, McGraw makes a convincing case for the enforceability of the right to water in domestic courts based on appeals of violations of the minimum core content of the right.[156] The ultimate lesson is that "norm transmission" regarding the right to water is successfully taking place in domestic courts for a breach of the ICESCR, which has important, positive implications.

C. The Extraterritorial Application of the Human Right to Water

In the present context that deals with shared, transboundary waters, wherein conduct in one state can have palpable effects on a neighboring states' shared resource, the potential extraterritoriality of the human right to water is the most important avenue to approach fulfilling the right. The idea of extraterritorial obligations stems from a comportment- or effects-driven accountability and is contingent on the element of extraterritorial "control" over a right. These ideas are especially pertinent to freshwater due to the special characteristics of freshwater, as well as the evolving global demography and relations that demand a reassessment of extraterritorial obligations.

1. Extraterritoriality in Law

The meaning of extraterritorial obligations in international human rights law is not self-evident. The most pertinent source for extraterritorial applicability of economic social and cultural rights are the Maastricht Principles on Extraterritorial Obligation of States in the area of Economic, Social and Cultural Rights.[157] The Principles were drafted to address the influence that foreign actors exert on rights-holders. They define the scope of extraterritorial obligations of states as

153. *See id.* ¶ 37.
154. *Id.* ¶ 38.
155. *See* George S. McGraw, *Defining and Defending the Right to Water and Its Minimum Core: Legal Construction and the Role of National Jurisprudence*, 8LOY. U. CHI. INT'L L. REV. 127, 162 (2011).
156. *See id.*
157. *See generally* ETO CONSORTIUM, MAASTRICHT PRINCIPLES ON EXTRATERRITORIAL OBLIGATION OF STATES IN THE AREA OF ECONOMIC, SOCIAL AND CULTURAL RIGHTS (2013), https://www.etoconsortium.org/nc/en/main-navigation/library/maastricht-principles/?tx_drblob_pi1%5BdownloadUid%5D=23 [https://perma.cc/4R3T-SBBD].

> [(a)] obligations relating to the acts and omissions of a State, within or beyond its territory, that have effects on the enjoyment of human rights outside of that State's territory; and [(b)] obligations of a global character . . . to take action, separately, and jointly through international cooperation, to realize human rights universally.[158]

Moreover, the Principles define jurisdiction to impose obligations on states in

> [(a)] situations over which it exercises authority or effective control; [(b)] situations over which State acts or omissions bring about foreseeable effects on the enjoyment of economic, social and cultural rights, whether within or outside its territory; [(c)] situations in which the State . . . is in a position to exercise decisive influence or to take measures to realize economic, social and cultural rights extraterritorially, in accordance with international law.[159]

The contours of jurisdiction, particularly of Principle 9(b) are a significant step away from traditional extraterritoriality of human rights obligations.

In the context of shared transboundary freshwater, the main extraterritorial human rights obligations are within the international obligations of *General Comment 15*.[160] These extend from the requirement to recognize the role of international cooperation and to take action for the achievement of the right to water, to concrete obligations to *respect* the enjoyment of the right in other states by refraining from actions that could interfere with it.[161] Importantly, Paragraph 33 includes the obligation of state parties to prevent their citizens and companies from violating the right to water in other states.[162] In terms of rights fulfillment, there is the obligation to facilitate the realization in other countries through assistance and aid, and general obligations to take the right into account in international fora.[163]

The obligations are of course limited in scope and hinge on the elements of "respect" and "protection," with the exception of Paragraph 34, which presents the idea of fulfilling the human right to water extraterritorially, within a defined scope of necessity for the other state.[164] *General Comment 15* was nevertheless innovative in its inclusion of irregular subjects, drawing attention to international financial institutions and corporations, whilst keeping the onus on states. Part of the difficulty in creative interpretations of extraterritoriality, of course, is the fact that states entering into treaties, such as the ICESCR, accept certain obligations which is not towards other states, but rather to their own citizenry. The types of rights which have been enforced transnationally are those whose violations are said to be a concern for the international community or breaches of *jus cogens* norms. Outside of that context, the principle of sovereign equality

158. *Id.* at 6.
159. *Id.*
160. *See* GC15, *supra* note 126, ¶¶ 30–36.
161. *See id.* ¶¶ 30–31.
162. *See id.* ¶ 33.
163. *See d.* ¶¶ 34–36.
164. *Id.* ¶ 34.

bars third states from becoming involved in the domestic affairs of other states. As such, there is a conceptual issue in creating a system where sovereignty is pierced to account for the citizenry of another a state. However, one should bear in mind that the Limburg Principles say that "States Parties are accountable *both to the international community and to their own people*."[165] Therefore, if we understand that states contracted these human rights treaties to favor every relevant citizen regardless of nationality, it is important to prescribe the character of the obligations that follow.

Beyond *General Comment 15*, there is a lack of specific provisions. Dr. Takele Soboka Bulto argues, however, that the right should be read into the African Charter on Human and Peoples' Rights on account that it is an inspirational and universal source of rights.[166] He further references the African Convention on the Conservation of Nature and Natural Resources.[167] This convention, on the other hand, does have credible extraterritorial human rights provisions: "(1) The Parties shall . . . (b) prevent *damage that could affect human health or natural resource in another State* by the discharge of pollutants; and (c) *prevent excessive abstraction, to the benefit of downstream communities and States*."[168] The final provision states:

> (3) Where surface or underground water resources . . . are *transboundary* to two or more of the Parties, the latter shall act in consultation, and if the need arises, set up inter[ ]State Commissions for their *rational management and equitable utilization and to resolve disputes arising from the use of these resources*, and for the cooperative development, management and conservation thereof.[169]

The human rights link in terms of the nature of the convention is vague, though the preamble does "recall" the African Charter on Human and Peoples Rights.[170] In the same breath, however, the Convention reaffirms the right to exploit natural resources. It is nevertheless one of the most relevant conventions for the purposes of this Article as it grapples with both paradigms, yet favors states as the norm-addressees.

In addition to the provisions calling for a legally invocable extraterritorial human right to water, one may also consider the room for judicial development that exists in current gaps. Professor Bulto states that there is "no textual basis to limit the spatial reach of socio-economic rights . . . or correlative state obligations to a state's territorial jurisdiction."[171] He calls for an interpretation of the extraterritorial applicability of the human right to water in the ICCPR, *General Comment 15*, the European Court of Human Rights, the American Declaration, and the American Convention.

---

165. Limburg Principles, *supra* note 131, ¶ 10 (emphasis added).
166. *See generally* Takele Soboka Bulto, *Right to Water in the African Human Rights System*, 11 AFR. HUM. RTS. J. 343 (2011).
167. *See* African Convention on the Conservation of Nature and Natural Resources, Sept. 15, 1968, 1001 U.N.T.S. 4 [hereinafter African Convention].
168. *Id.* art. at VII(1) (emphasis added).
169. *Id.* art. at VII(3)-(4) (emphasis added)
170. *Id.* at Preamble.
171. BULTO, *supra* note 20, at 176.

There is not much caselaw on this specific context. However, the Inter-American Commission on Human Rights, in the case of *Aleixandre v. Cuba*,[172] interpreted the human right to water as applying extraterritorially under the CESCR's power for clarification as mandated by ECOSOC and endorsed by the UNGA in order to develop a holistic appreciation of obligations under the ICESCR.[173] In 2016, the International Center for Settlement of Investment Disputes decided the arbitration case of *Urbaser v. Argentina*,[174] which discussed whether investors can have obligations under human rights law. Specifically, the arbitration addressed the role that the human right to water played in the framework of the concessions contract given to the claimant. The tribunal ultimately decided that the company could not have human rights obligations based on international law because it did not have these obligations before accepting the bid; thus, the human interests fell on the state.[175] The award emphasized that there is no legal ground for a group of individuals to raise a claim for their right to water against any private party.[176]

2. *Extraterritoriality in Literature*

Aside from the norm indeterminacy stemming from extraterritoriality, Professor Bulto stresses that the three barriers to overcome for the realization of the right to water are relative scarcity, state incapacity, and dependence on extraterritorial actors for its realization.[177] Bulto argues that the imperative to address extraterritorial human rights obligations stems from the advent of the age of globalization, wherein state borders are losing relevance due to the ease of causing transboundary harm.[178]

The special character that transboundary freshwater resources possess is its essential deterritorialization. Water is de-territorialized due to its global distribution through the hydrological cycle, constant movement beyond the nation-state, and the distribution of water-related benefits through virtual water.[179] This shared nature is the reason for a shift in the conception of "control" as a requisite of responsibility. Bulto summarizes the extraterritoriality conundrum as follows: "a course of action may prove to be of little avail when the relevant home state is willing but demonstrably unable to realize the right due to resource constraints caused by an

172. *See generally* Aleixandre v. Cuba, Case 11.589, Inter-Am. Comm'n H.R., Report No. 86/99, OEA/Ser.L.V/II.106, doc.3 rev. (1999).

173. *See id.* at 586.

174. *See generally* Urbaser S.A. v. Argentine Republic, ICSID Case No. ARB/07/26, Award (Dec. 8, 2016).

175. *See id.* ¶¶ 1194–95.

176. *See id.* ¶ 1220.

177. *See* Takele Soboka Bulto, *Towards Rights-Duties Congruence: Extraterritorial Application of the Human Right to Water in the African Human Rights System*, 29 NETH. Q. HUM. RTS. 491, 493 (2011).

178. *See id.* at 9.

179. *See* 1 U.N. WATER, MANAGING WATER UNDER UNCERTAINTY AND RISK 11 (2012), http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/WWDR4%20Volume%201-Managing%20Water%20under%20Uncertainty%20and%20Risk.pdf [https://perma.cc/7TD9-XL9L].

(in)action of a co-riparian state."[180] The concern is, therefore, the lack of responsibility or redress for harm done unto the rights holders. As a warning, Bulto cites the case of *Gabčíkovo-Nagymaros*[181] and Robert Yewdall Jennings' treaty interpretation that in such a situation, a home state could plead supervening impossibility, thereby evading responsibility for the fulfillment of the right. This undoubtedly creates an accountability gap in such contexts. Concerning the state of the art at the time of Bulto's publishing, the "diagonal"[182] human rights linkage was still in its nascence and mostly concerned negative obligations. He extends his interpretation to positive extraterritorial duties to protect, promote, and fulfill the human right to water in an extraterritorial context. He contends that protection entails positive action to ensure that state agents and non-state actors in their jurisdiction do not infringe rights in third states.[183] Further, promotion, which entails active steps to enable the enjoyment of a right in another state could encompass the provision of information and transparency regarding projects that are potentially prejudicial to rights in co-riparian states. This opinion is generally unproblematic, as it is in line with practice and information-sharing provisions of interstate treaties. The most controversial extraterritorial requirement is that of the fulfillment of the right for a third state. Bulto reminds us that this is both politically and legally controversial, nevertheless, *General Comment 15* calls for the obligation of international assistance and cooperation.[184] He defines the "fulfillment" layer as the obligation to "provide material resources, free of charge, to those who cannot afford to pay for those life-sustaining resources," and argues that the definition is analogous in domestic and extraterritorial contexts.[185] He also discusses one of the points previously posited, the latter part of the "unwilling or unable doctrine," wherein the duty is triggered by the inability of a home state to provide for a right.[186] This falls in line with the unilateral duty of international assistance. Relatedly, Dr. Amanda Cahill uses the same dichotomy when writing about positive and negative obligations. She states that the extraterritoriality of the right to water is reflected in *General Comment 15* and interprets that it can be invoked in the context of international assistance to meet the obligation to fulfill, a positive obligation.[187] Importantly, however, this must be done in tandem with the host state. Dr. Ashfaq Khalfan frames what the obligation to fulfill the right to water beyond borders would look like within the development cooperation regime, calling for a move past rights-based approaches

180. BULTO, *supra* note 20, at 12.

181. *See generally* Gabčíkovo-Nagymaros Project (Hung./Slovk.), Judgement, 1997 I.C.J. 7 (Sept. 25).

182. "Diagonal" in this case means "linking a state and people of third states through extraterritorial human rights obligations." Bulto, *supra* note 177, at 14.

183. *See* GC15, *supra* note 126, ¶ 30.

184. *See id.*

185. Bulto, *supra* note 177, at 522.

186. *See id.* at 513.

187. *See* Amanda Cahill, *Protecting Rights in the Face of Scarcity: The Right to Water*, *in* UNIVERSAL HUMAN RIGHTS AND EXTRATERRITORIAL OBLIGATIONS 196–98 (Mark Gibney & Sigrun Skogly eds., 2017).

toward more solid compliance with human rights obligations. He interprets the extraterritorial obligations of donor states to include considering and reporting on the impact that their aid has on the human right to water in the assisted country, and claims that a donor state would retain responsibility in any case, as a host state cannot waive their own citizens' human rights.[188] In contrast to Dr. Khalfan, Professor Marko Milanovic considers the extraterritorial application of human rights, an issue of object or space jurisdiction, with one exception that is a "mixed model" based on the distinction between positive and negative obligations.[189] Milanovic argues that positive human rights obligations can only exist territorially within a state because that is when there is "a sufficient degree of control" to keep such obligations.[190] Meanwhile, negative obligations do not possess a territorial limit.[191] This reads into his balancing of "universality and effectiveness," whereby the state-system, though perhaps at odds with universality, is most effective, despite his claim that sovereignty is the lesser imperative with regards to the universality of human rights.

With this borne in mind, this Article turns to the tensions between both paradigms, how they clash, and how they could be resolved "on paper" and in practice.

III. Resolving the Tensions: On Paper

The manner of thinking about freshwater and deciding the norms that should govern its utilization has implications for addressing water scarcity as well as the freedom that states hold. Much of the differences that became self-evident in the last two Parts were the prioritization of human versus state interests, which are each vested in diverging philosophies.[192] To approximate the paradigms on paper, there is a need to draw out the principles that uphold each one. Secondly, the practical tensions that arise through a clash of norms will be addressed through ex ante and ex post facto forms of regime harmonization.

A. Theoretical Tensions

In the previous two sections, the theoretical origins of the human right to water, and permanent sovereignty over natural resources were discussed. In order to frame the theoretical debate, the paradigms will be looked at through the lens of the humanization of international law, and the moral theory of international law. These choices are based on the premises espoused by, inter alia, H.L.A. Hart that all law is a social construct, and

188. *See* Ashfaq Khalfan, *Development Cooperation and Extraterritorial Obligations*, *in* THE HUMAN RIGHT TO WATER: THEORY, PRACTICE AND PROSPECTS, *supra* note 6, at 410.

189. *See* MARKO MILANOVIC, EXTRATERRITORIAL APPLICATION OF HUMAN RIGHTS TREATIES: LAW, PRINCIPLES, AND POLICY 209–21 (2011).

190. *Id.*

191. *See id.*

192. *See* Julinda Beqiraj, *Water Resources' Exploitation and Trade Flows*, *in* NATURAL RESOURCE GRABBING: AN INTERNATIONAL LAW PERSPECTIVE 339 (Francesca Romanin Jacur et al. eds., 2015).

that there exists an overlap between legal rules and moral rules.[193] The social construct argument implies that the law benefits one party over another, and the overlap with morality implies that law is value-laden beyond its coercive nature. Off that premise, it is necessary to somewhat justify each of the paradigms in light of their moral quality to create a value judgment in the contexts where they collide.

When speaking of morality and the priorities and justifications of international law, human rights is generally the most referenceable for its appealing cosmopolitan quality. However, the *humanization* of international law is a mere iteration of the moralization of politics previously alluded to. "Moralization," however, is not a substantive critique in and of itself, as it simply denotes a refocusing of political imperatives, which due to the law's constructivist nature, is somewhat inevitable. Yet, there is risk in taking leaps in the judgment of the law when it is done so through the lens of human rights.

Measuring international law in its approximation to human rights can be described as "human rightism," a neologism put forward by Alain Pellet, who describes human rights as a virtue in its relationship with international law, but not as the object of it.[194] Whilst the term is not pejorative as such, Pellet does argue against human rights activism in international law scholarship, partly due to the limited role that human rightism should occupy so as to not extend to the replacement of internationalization, the cosmopolitan political project, nor the role of states.[195] Pellet's essay is reminiscent of a call to philosophical asceticism[196] as it calls for restraint in the desires of the "human rightist." Regardless of desirability, scholars such as Boisson de Chazournes have perceived a shift from the law governing freshwater's priorities from regulating interstate relations to the proper management of water resources, in line with the humanization of the law.[197] In light of this, Pellet's argument is more that authors should not claim that legal rules are tilted in the way of human rights when they are not yet so, referring to rulemaking and interpretation as "the art of the possible"; something that could arguably be attributed to Professor Bulto's aspirational interpretations of extraterritorial duties. Bulto, however, is not alone in his ambitions, as authors that claim the existing actionability of the human right to water are arguably aspirational by undermining the necessity for the traditional treaty or custom formulae. Pellet also argues that the critique on states that fail to uphold their obligations should not

193. *See* H.L.A. HART, THE CONCEPT OF LAW (Clarendon Law Series 2d ed. 1994) (1964).

194. Alain Pellet, *"Human Rightism" and International Law*, , *in* Memorial Lectures: Revised and Expanded Second Edition 271 (Gilberto Amado ed., 2012) ("*Human rightism* can be defined as that 'posture' which consists in wanting at all costs to confer 'autonomy' (which, in my opinion, it does not possess) to a 'discipline' (which, in my opinion, does not exist as such): the protection of human rights.").

195. *See id.*

196. *See* Friedrich Nietzsche, *Essay III*, *in* THE GENEALOGY OF MORALS (Dover Publications ed. 2003) (1913).

197. Brölmann, *supra* note 19, at 4.

be done so through the lens of international standards which they may not have ratified, but through their domestic standards.[198] This point stands in the freshwater system because invoking a right that does not exist in fact or law for many states is futile in comparison to similar norms acceded to through the interstate system as the no-harm principle and that of reasonable and equitable utilization. Therefore, in much too short a summary, it is possible to poke holes in the idea that human rights law is the most appropriate lens to treat human needs in the freshwater context. This would then leave the theories underpinning the interstate system as prevalent. However, this is a somewhat unsatisfactory resolution because the opposite of human rightism, as understood by Pellet, is not a system without human rights ideals, but rather a system of positivist scholarship, which in any instance protects other values such as internationalization. This leads, however, to the necessary issue of curtailing sovereignty, which along with its allocative rights should be justified in its role to preserve rights.[199] The issue of balancing state duties based on the philosophy of an international social contract between states and citizens, as through popular sovereignty over natural resources is thus far the most aligned with the ambitions of both human rights and natural resource sovereignty. However, this does not address the important vacuum, pertinent in the case of transboundary resources, where state duties stop at the border but continue to affect beyond it. That is one of the essential flaws of the human rights system: if it is not extended extraterritorially, the connection of control and governance cannot establish positive rights.

Having identified certain flaws with judging the law on freshwater through a human rightist lens, perhaps there exists another less outwardly biased *moral* theory of international law to give a value judgment on the paradigms. Writers of the school of Third World Approaches to International Law have criticized the machinery that allows for "moral depravity" at an international level, including in the context of natural resource exploitation and calls for solidarity.[200] This level of rhetoric leads the conversation towards consideration of what duties states *should* possess, and takes a moral stance on matters often separated from morality.

The source of international morality is, of course, impossible to pin down, and has largely been espoused through universal truths such as equality and liberty provided by law—"truths" that have nevertheless proven problematic in the past. In the present context, attributing goodness to paradigms that deal with human interests alone is too reductive, as it omits the important role that sovereignty plays for the previously disenfranchised. Goodness or equity is therefore subjective and changing depending on the topic. Professor Richard Bilder proves pessimistic on a "moral revolution" that would change the dynamics of resource distribu-

198. *See* Pellet, *supra* note 194, at 281, 283.

199. For a more in-depth discussion of general rights, see generally THOMAS PAINE, RIGHTS OF MAN (Odin Library Classics ed., 2017) (1791).

200. *See* Mohsen Al-Attar & Rosalie Miller, *Towards an Emancipatory International Law: The Bolivarian Reconstruction*, 31 THIRD WORLD Q. 347, 350 (2010).

tion, believing that nations will continually press for their self-interested concepts of equity.[201] International law is, therefore, not the tool to guide morality, rather it is the tool to make the norms defined by international morality workable.

Meanwhile, a less controversial objective of international law is the *international* rule of law. The international rule of law has been both characterized as static and measurable through determinant factors, and value-laden with objectives of justice and democracy. The goal of approximation to the rule of law exists both in the domestic and international contexts. However, determining its achievement is problematic in many ways based on the metric used. This is especially so on "thicker"[202] conceptions of the international rule of law, as international law is arguably legitimated by underlying values that keep it continuously relevant. These underlying values are contested but generally lie in the realm of sovereign equality, international justice, human rights, and international peace and security. With regards to the two paradigms, their norms and their interests are each legitimated for upholding its own values. The precise trouble is, therefore, that both paradigms follow separate rationalities, each value-laden, and thus hierarchizing would serve no benefit to either. In terms of the utility and efficiency of international law as features of the rule of law, in the present context, the interstate system is the only tool available for cooperation on natural resource problems and should therefore not be regarded as moot. Nevertheless, problems of distributive justice are left outside of the interstate system and its norms, and these are the features of the international rule of law that could be addressed through a human rights lens or mechanism. In particular, several situations that arise in the transboundary context are not efficiently resolved through the current law, and part of the argument in Part IV of this Article is that the paradigms can be complementary insofar as they address gaps in the other.

B. Practical Approaches

Absent the possibility of human interests in transboundary settings being seamlessly protected within interstate norms, it is reasonable to explore different methods of bringing the interests of both paradigms into one regulatory model. The practice of regime harmonization will illustrate possibilities for ex ante solutions to norm discrepancies; and the doctrine of choice of law, as well as other alternatives, will be explored as ex post conflict solutions if the regimes were to clash.

1. Regime Harmonization

The practice of "regime harmonization" refers to bridging the gap between two legal regimes that touch on the same subject matter. In this

201. Richard B. Bilder, *International Law and Natural Resources Policies*, 20 NAT. RES. J. 451, 484 (1980).

202. *See* Brian Tamanaha, *A Concise Guide to the Rule of Law* (St. Johns Univ. Sch. L., Legal Studies Research Paper Series No. 07-0082, 2007), http://content.csbs.utah.edu/~dlevin/conlaw/tamanaha-rule-of-law.pdf [https://perma.cc/DC4P-34VY].

instance, the term "regime" is being used as it pertains solely to legal norms, setting aside other differences in the paradigms. This is done as an exercise of whether there could be room for a merged legal system. The paradigms at hand, since they deal with separate norm-addressees would require different harmonization, rather than regimes which have the same norm-addressees but operate on separate regulatory levels, such as those with vertical hierarchy differences.[203] In the context of transboundary water management, the status quo is the simple coexistence of the paradigms, and it provides hurdles of actionability and enforcement of rights as they clash with traditional state duties. As such, if one seeks to harmonize standards across these paradigms, extrapolation is a necessary ingredient to make sense of harmonization.

The model for regime harmonization put forward by Professor David Leebron responded to an increased demand for harmonization claims between national and international standards, particularly in international economic law and policy.[204] Leebron reiterates that harmonization is not an end unto itself, but a means to a specific value outcome such as efficiency or equity—a goal that in this specific context is both for fairness as well as legal coherence. The move to create an integrated approach to water management is discussed in Professor Brown Weiss' critique on water law, which identifies that the fragmentation of norms governing the allocation of rights to surface water, was made with disregard to broader considerations that affect the total quantity and quality of freshwater.[205] This is what Leebron would refer to as the "normative aspect of harmonization claims," which asserts that the laws of one regime should be conformed to a better standard.[206] The harmonization claim in this instance requires the normative element of wanting the interstate regime to incorporate human rights elements and the non-normative element of sameness in certain aspects of both regimes such as mutual recognition and institutional harmonization.

In the present context, reconciliation of both water regimes has to be through the lens of policy objective harmonization, which is imperiled by the variety of stakeholders. Rule harmonization in this context could mean adding new, specific requirements to one regime in order to bring it in line with the other.[207] In the present case, considering the competing paradigms, an approximating the paradigms objectives is the most realistic goal, but the ideal situation would be to incorporate human rights rules into the interstate system. This, however, would not be complete without institutional harmonization, which would be responsible for the implementation and effects of the merged rules. Unifying institutions in the water

203. *See* Fernando Gomez & Juan Jose Ganuza, *An Economic Analysis of Harmonization Regimes: Full Harmonization, Minimum Harmonization or Optional Instrument?*, 7 EUR.REV. CONT. L. 275, 275 (2011).

204. *See* David W. Leebron, *Claims for Harmonization: A Theoretical Framework*, 27 CAN. BUS. L.J. 63, 64-65 (1996).

205. *See generally* BROWN WEISS, *supra* note 22.

206. Leebron, *supra* note 204, at 73.

207. *See id.* at 69.

context would require basin organizations to create for addressing the human rights dimensions. Such institutions are not far-fetched or unworkable and will be revisited in the following Part.

Leebron puts forward several basic justifications for harmonization: jurisdictional interface, externalities, leakage and the non-efficacy of unilateral rules, fair competition, economies of scale, political economies of scale, and transparency. Jurisdictional interface refers to the ability of participants or systems from different jurisdictions to interact or communicate.[208] In the absence of sameness in national rules for co-riparian states, an international regime could serve as the basis for communication. This may in turn lead to harmonization of the rules applicable to a specific situation. Short of institutional harmonization, rules of procedure to predetermine jurisdiction and the applicable law to a dispute would clarify where individuals or groups prejudiced by transboundary activity could seek redress. Leebron states that the choice of law field was one of the early developments in the area of legal harmonization. The idea of externalities in Leebron's article explicitly mentions the idea that domestic activity in one nation can impose trans-border costs on another nation, resulting in welfare loss. In this case, externalities are certainly one of the main reasons for calling for a harmonized system of rules, though not necessarily out of concern for the general welfare. Leebron warns that externalities are inevitable, but harmonization would work for jurisdictions to bear the costs of their externalities and claims that harmonization is strongest in the context of protecting international public goods like freshwater. The transparency justification essentially centers around the fact that requiring jurisdictions to adopt harmonized rules and standards eliminates their ability to choose alternative rules. The harmonization claims in this instance are therefore most supported by the imperative of jurisdictional sameness, externalities, or normative universalist claims.

When considering the process of harmonization, there is a need to also consider the sources and legitimacy of differences. Leebron states that harmonization claims should not be based solely on the existence of a difference. On differences between policies, Leebron writes that each paradigm is "substantively legitimate if the differences in policy are justified by differences in the substantive concerns and values that inform policy. They are procedurally legitimate if we regard the process by which they were adopted as establishing their legitimacy."[209] Extrapolating this thought to the paradigms at hand, both retain substantive legitimacy if we understand that nations adopt different laws based on endowments, which guide policy.[210] This, along with the interaction between endowments and preferences, could explain the different attitudes that water-scarce and water-rich, or liberal and non-liberal, states would approach in managing their natural resources. Leebron proposes that the combination of the elements of endowment, technology, and preferences are what constitutes a

208. *See id.* at 75–76.
209. *Id.* at 92.
210. *See id.* at 93.

states' comparative advantage in any one situation. And the way this translates to harmonization claims is that comparative advantage as a free-market notion cannot be divorced from the law, and the differences in states' comparative advantage, cannot be deemed unfair.[211] Therefore if one sees water use, including the allocation and cooperation of transboundary waters, as a form of production, then the regulation of it would be linked to the states' comparative advantage. This means that if regulation was to be imposed on that resource extraction for the sake of a harmonization claim, there would necessarily be a cost. A harmonized transboundary water law that integrates typical state interests, as well as human interests, would necessarily be advantageous for some and disadvantageous for others by virtue of their inherent differences. What this suggests is simply the issue of substantive legitimacy and choosing to harmonize or not, based on that legitimacy. However, if harmonization claims are vertical, in the sense that differences in policy are carried out to harmonize with an institution or a coalition, differences between societies cannot be defended normatively, only pragmatically or through process-based legitimacy—because the normative standard is set by the upper institution.[212] This is plainly visible in international law, where relinquishments of sovereignty done through and for "higher" institutions would be unproblematic on the basis of substantive legitimacy.

As for process-based legitimacy, the interstate system is undoubtedly based on sound processes of accession to treaty and custom formation, which informs the legitimacy of norms regardless of their content. Human rights law on the other hand, whilst equally legitimate in a domestic context, in the case of the human right to water—especially with its extraterritorial facets—loses its procedural legitimacy due to the lack of existing positive norms and accompanying institutions. In the context of freshwater lawmaking however, it is unclear for now how changing the manner of creating laws and institutions would lead to a more equitable system.

On the face of what Leebron concludes pessimistically—that calls for harmonization merely based on differences are problematic—he poses two alternatives to harmonization: (1) that each society should abide by the substantive choices of its institutions, or (2) that those institutions must meet basic requirements.[213] The first of these is a naturally desirable outcome of all institutions and is completely applicable in the interstate system which does have valuable transboundary provisions. However, abidance by the law fails to bridge the gap between both paradigms and is therefore not the solution sought. The second alternative meanwhile does arrive at the harmonized regime of including human rights standards or considerations in the interstate regime.

The final consideration to think about before deciding on regime harmonization are the costs of enforcing sameness.[214] One of the costs

211. *See id.* at 95.
212. *See id.* at 97.
213. *See id.* at 101.
214. *See id.* at 103.

incurred is linked to the hindrances of the centralization of power, or conversely, moving away from local decision-making as a hindrance to values such as sovereignty. The "cost" of losing localism is participation in the lawmaking process or the relinquishment of sovereignty. But this is somewhat overstated for the present context because, for better or worse, international water law does not impose massive or strict restrictions or effects on sovereign choice.

The lessons drawn from applying Leebron's framework to the problem at hand is that whilst the differences in the regimes are legitimate, there is still plenty of impetus for harmonization to meet the goals laid out. Precise answers for how regime harmonization could look are difficult to design out of thin air, however, an example of regime harmonization for an existing treaty could be a human rights invocation protocol being added to the U.N. Watercourses and UNECE Water Conventions. This, however, would completely shift the means of invocation of the conventions as well as the notions of responsibility and norm-addressees within the conventions. Therefore, harmonization of norms from the paradigms would have two outlooks: (1) the adaptation of existing conventions through additional protocols to include human rights law, or (2) the creation of a new legal instrument and institution to represent the future of transboundary water management with all interests considered. Having explored the avenue of regime harmonization, we turn to other available approaches for coexisting paradigms.

2. *Choice of Law*

The term "choice of law" is generally used to indicate the judicial decision made to determine the law applicable to a single dispute such as in the case of concurrent regimes, or even paradigms. One of the ways to find prevalent norms is by using a method of "hierarchy of norms." The way to approach a hierarchy of norms is by determining the *lex specialis* relating to a particular dispute or subject matter. This principle has been resorted to in important international decisions, often seen between human rights and humanitarian law, such as in *The Wall AO* where the *lex specialis* had to be determined due to the overlap of subject matter in separate regimes.[215] Such situations present legal dilemmas and are present at times where overlapping regimes are left to coexist. Yet, If the two regimes at hand were to clash, they would be classified as contingent conflicts because the key norms of the interstate regime do not intrinsically conflict with human rights law, they only conflict under specific factual circumstances.[216] This is based on a superficial appreciation of the norms and is

215. *See* Conor McCarthy, *Legal Conclusion or Interpretative Success?* Lex Specialis *and the Applicability of International Human Rights Standards*, *in* INTERNATIONAL HUMANITARIAN LAW AND HUMAN RIGHTS LAW 102, 110 (Roberta Arnold & Noelle Quenivet eds., 2008).

216. *See* Hannah Birkenkötter, Book Review, 28 EUR. J. INT'L L. 1415, 1424 (2017) (reviewing VALENTIN JEUTNER, IRRESOLVABLE NORM CONFLICTS IN INTERNATIONAL LAW: THE CONCEPT OF A LEGAL DILEMMA (2017)).

notwithstanding occasionally conflicting prefaces to the main conventions. The relevance of the legal dilemma on irresolvable norms as posited by Valentin Jeunter is, however, to equip states in their decision-making process.

3. Regime Creation, et al.

The final practicable option to harmonize the paradigms is through the creation of a new, specialized legal regime, thus modifying both paradigms to deal with human rights violations that fall within the transboundary water context. The African Convention on the Conservation of Nature and Natural Resources[217] as first discussed in Part I, falls between the human rights instruments and traditional interstate water management instruments, and acknowledges both. Consequently, the African Convention is an attempt at harmonizing two paradigms that are intrinsically linked, and through that process, creates a hybrid. However, the regime to be created would have to encompass not only human rights considerations, but also institutions for individuals to claim their rights. Professor Dellapenna, writing in defense of the progressive ILA Berlin Rules and on the requirements for a new international water law regime, states that "to create the sort of regime necessary to allay conflict and optimize the use and preservation of the resource requires a treaty that includes all basin communities, creates appropriate representative basin-wide institutions, and has the clout to enforce its mandates."[218] His work represents a shift away from the more prominent interstate instruments. Whilst Dellapenna does not explicitly include the need for human rights provisions and redress mechanisms, it is possible to say that a regime wherein human interests are represented in a transboundary context, and includes institutions with dispute resolution bodies, could be an equivalent or preferable hybrid.

Aside from the creation of a new hybrid paradigm, an alternative and increasingly popular option could be to treat transboundary waters as spaces of common jurisdiction, or as spaces with international legal personality of their own. Common jurisdiction over natural resources stems from the idea of popular sovereignty over natural resources. Beyond the moralistic underpinnings, however, spaces of common jurisdiction have practical hurdles, as they imply "an immunity right against dispossession, inequitable exploitation, unilateral appropriation, and property claims based on fraudulent or manipulative contracts."[219] And while this content is clear in terms of property rights, the common ownership of several citizenries over a transboundary river would only be actionable through a sophisticated institutional body. However, legal recourse against inequitable dispossession in the case of a third state exploiting water resources could indeed be a sound legal solution.

217. *See generally* African Convention, *supra* note 167.
218. Dellapenna, *supra* note 64, at 3.
219. Gümplová, *supra* note 28, at 191.

The final avenue to explore is that of environmental personhood, which would entail granting international legal personality to international watercourses. This process would assign the bodies of water legal representatives to advocate for their best interests. The dissonance with this, however, is that it is essentially an environmental tool, wherein litigation of excessive depletion of aquifers, or pollution of rivers could easily be brought. But the interests of the river could be wildly divergent from the interests of people; it is, therefore, a transcendence of "anthropocentric approaches to environmental law."[220] For example, building a dam could be inconsequential to water quality but make downstream irrigation or water consumption impossible.

The debates within this chapter have elucidated on the justifications for claims to harmonization, on the back of the concurrent legitimacy of both paradigms. Despite the important contributions of the scholars here cited, the stalemate within the literature on transboundary resources that fails to address human needs beckons the employment of a practical exercise of how the tensions play, or would play out, on the ground. The next Part addressed this.

IV. The Models for Resolution: In Practice

The human rights perspective is only one of many concerns and one of the languages to discuss the matter of water scarcity and inequities in a transboundary context. How states manage transboundary waters, and how humans are affected by such management, is intersected by a host of other concerns, such as ecological, intergenerational, market, and water security perspectives.[221] Nevertheless, based on the preceding discussions in this Article, the most evident conclusion is that the coexistence between the interstate paradigm and the human right to water paradigm present a dissonance in water law, particularly in transboundary contexts. Beyond the theoretical reasoning and arguments for norm harmonization, the collision of the two paradigms does exist on the ground. This section aims to illustrate scenarios wherein they meet based off existing international conflicts, including hypothetical models for the resolution of disputes. The conflicts will first be mapped based on legislation and past water events, which will be measured on the Basins at Risk (BAR) scale,[222] and then a hypothetical conflict will be illustrated through the legal paradigm interaction. The intention is to illustrate certain issues arising out of the interstate system and the implications that it has on human life in transboundary settings. The six international freshwater conflicts illus-

220. Kieran Bronagh, *Legal Personality of Rivers*, EMA HUM. RTS. BLOG (Jan. 16, 2019), http://www.emahumanrights.org/2019/01/16/the-legal-personality-of-rivers/ [https://perma.cc/E5B3-3SV6].

221. *See* GENEVA WATER HUB, *supra* note 16, at 21–32.

222. The scale ranges from -7 to 7, depending on the negativity or positivity of the water event. *See International Water Event Database*, OR. STATE UNIV., https://transboundarywaters.science.oregonstate.edu/content/international-water-event-database [https://perma.cc/883P-GH8K] (last visited June 22, 2021).

trated are the Senegal river basin, the Nile River, the Rio Grande, the River Jordan, the Nubian Sandstone Aquifer System, and the Zambezi River.

A. Scenario 1. *The Senegal River Basin*

The Senegal river basin is located in West Africa and runs through Senegal (14.9%); Mauritania (50.2%); Guinea (6.1%); and Mali (28.8%).[223] It is important because its regulating agreement is to date the only transboundary water treaty with a provision addressing human rights. The sub-regional basin arrangement in the Water Charter of the Senegal River[224] deals in part with distribution between different sectors of use and calls for "ensuring of the populations . . . the basic human rights to a salubrious water."[225] While the Water Charter is only a very small international agreement, it is the first evidence of this practice in transboundary water management.

Before the 2002 Water Charter, Senegal, Mauritania, Mali, and Senegal had all acceded to the Organisation of African Unity's Bamako Convention regulating hazardous waste, including in a transboundary context, and the 1970 Convention of Dakar on hydropower. Between 1982 and 1992, there are records of the *Organisation Pour la Mise en Valeur du Fleuve Sénégal* (Senegal River Development Organization or OMVS)—with Guinea not represented—working on dam projects and the joint management of waters despite droughts and economic difficulty. There were some reported issues between Senegal and Mauritania that stopped dam construction and only resumed in 1990. Between 1999 and 2000, however, the water conflicts heightened, reaching the level of "small scale military acts" over issues of water quantity between Mali and Mauritania where twenty-six individuals died.[226] A year later, Mauritania claimed that Senegal's irrigation violated an agreement of the OMVS that stipulated for no project altering characteristics of the river. After several canceled mediations, the conflict resulted in Senegal and Mauritania each expelling nationals of the other state. This is the last reported incident in the database for water conflict in the basin.

Since the Water Charter came into effect, the basin states have taken part in regional summits on equitable water use, as well as in the World Bank Senegal River Basin Water and Environmental Management Project. The trend, as read from the conflict data, shows a decrease in negative events after the 2002 Water Charter. The causation of this is, however, not possible to attest to, and neither is the particular effect of the human rights provisions within the charter. Qualitative research indicates that human rights, in this case, are effectively represented by non-governmental organi-

223. *The Senegal River Basin*, U.N. FOOD & AGRIC. ORG., http://www.fao.org/3/W4347E/w4347e0h.htm [https://perma.cc/86XL-2BJU] (last visited June 22, 2021).

224. *See generally* CHARTE DES EAUX DU FLEUVE SÉNÉGAL [CHARTER OF WATERS OF THE SENEGAL RIVER] (Sen.).

225. *Id.* at art. 4.

226. *International Water Events*, OR. STATE UNIV., http://gis.nacse.org/tfdd/internationalEvents.php [https://perma.cc/U4PG-B9Q5] (last visited June 22, 2021).

zation within the cooperative framework. Nevertheless, end-users are somewhat excluded due to a lack of capacity on the ground that excludes certain sectors of the population, and one of the key problems is the public health impacts of dams.[227] Those findings by the World Water Assessment Programme seem to indicate that the institutions in place are functioning and do not show hostilities in the transboundary activity. It is interesting to note that as a response to droughts, three of the co-riparian states invested in dams together and these dams are considered shared property. Despite the need to have pause towards the causation between the content of the law and the peace and cooperation that has ensued, the Senegal Basin has emphatically been called a model for African shared water resources.[228] This has been chalked up to the legal architecture that promotes cooperation of the basin states, as well as a clear crystallization of the community of interest, a departure from the general features of general international law on transboundary resources, and the 1997 Watercourses Convention.[229] Such studies are indeed encouraging signs of an emerging, improved practice towards a participatory form of water governance with the community and human interests.

The hypothetical exercise for the first basin system takes the form in a scenario where a dam is built in cooperation of three co-riparian states—comparable to the Manantali Dam—for irrigation and hydropower, which eventually affects its downstream riparian states' citizens. The dam, which is on the Bafing river in Mali, was planned by Mali, Senegal, and Mauritania under the auspices of the OMVS, and was financially backed by a variety of institutions, from individual European governments, to the European Union, Islamic Development Bank, African Development Bank, the Canadian International Development Agency and Kreditanstalt Für Wiederaufbau (German Development Bank).[230] Said dam, due to suppressing natural flooding patterns, in turn, eliminated the possibility to make a livelihood off of flood recession agriculture, depleted groundwater resources, deforested 12,000 hectares of land, and displaced upwards of 180,000 individuals from Senegal and Mauritania.[231] The financiers of the dam and its attached hydroelectric power plant were warned on several occasions of the potential consequences, with donors such as the World Bank and Norway

227. *See The Senegal River*, U.N. DEP'T ECON. & SOC. AFFS. (Jan. 10, 2013), https://www.un.org/waterforlifedecade/water_cooperation_2013/senegal_river.shtml [https://perma.cc/XZZ4-KSAC].

228. *See* Makane Moïse Mbengue, *A Model for African Shared Water Resources*, 23 REV. EUR. CMTY & INT'L ENV'T L. 59, 59 (2014).

229. *See id.* at 60.

230. This fact pattern was derived from the Manantali Dam project. *See* Peter Bosshard, *A Case Study on the Manantali Dam Project (Mali, Mauritania, Senegal)*, INT'L RIVERS (Mar. 1, 1999), https://archive.internationalrivers.org/resources/a-case-study-on-the-manantali-dam-project-mali-mauritania-senegal-2011 [https://perma.cc/R923-43PP].

231. *See* JAN WILLEM VAN GELDER ET AL., THE IMPACTS AND FINANCING OF LARGE DAMS 169 (2002), http://awsassets.panda.org/downloads/aidenvdamfinancereport.pdf [https://perma.cc/4558-RM26].

declining to support it.[232] In this sort of scenario, consequences on environmental and human life are often dealt with through compensation and relocation funds, which often do not account for long-term social impacts.[233] Such social impacts, in this case, intersect with elements of the right to water, meaning that states and institutions responsible could face a host of human rights responsibilities beyond the superficial compensation. In this case, however, the building of a dam is not unilateral, and rather adds the dimension of an organization as the actor representing all three impacted states, and a host of governments and international foreign investors as the financiers. The participation of the OMVS makes the Manantali dam a "common and indivisible property," which implies common management and equitable benefit sharing.[234] The multitude of actors creates complexities for attributing responsibilities, as well as for creating a legal case or claiming compensation—and additionally makes the harm not necessarily transboundary. This kind of situation is therefore not properly covered by the interstate international law paradigm.

In terms of paradigm interaction, the Senegal Basin agreement has the only human right to water clause within international water law. The consequence of this is still unclear. On paper, there is room in the legal framework for norms to account for individuals and state actors, though the Water Charter, as a whole, is drafted as an interstate document, meaning that despite humanist rhetoric, it has states as norm-addressees. The level of relinquishment of sovereignty to the OMVS, however, implies that there is a public authority for water management, which under the understanding of the Water Convention,[235] includes institutions such as the OMVS with multiple levels of capacity to exercise authority. Furthermore, the Charter outlines in Article 7 the principles to bear in mind for water distribution, such as storage capacity, hydroelectric production, and economic principles on water distribution, which are all subsidiary to the principle of nondiscrimination and to the satisfaction of individuals' vital needs.[236] In terms of allocation priorities, however, the principles also state that the OMVS would not prioritize between needs, unless the resource was in shortage, in which case priority would be given for drinking and sanitation needs.

Due to the language of the law, in principle, the model for paradigm interaction present in the Senegal Basin is the most fully integrated. In this

232. *See* HELGA-JANE SCARWELL & FRÉDÉRIC LASSERRE ET LUC DESCROIX, EAUX ET TERRITOIRES: TENSION, COOPÉRATIONS ET GÉOPOLITIQUE DE L'EAU 460 (Presses de l'Université du Québec 3d ed. 2011).

233. *See generally* Youliang Huang et al., *Social Impacts of Dam-Induced Displacement and Resettlement: A Comparative Case Study in China*, 10 SUSTAINABILITY 4018 (2018).

234. GENEVA WATER HUB, TRANSBOUNDARY GOVERNANCE IN THE SENEGAL AND NIGER RIVER BASINS 4 (2016), https://www.genevawaterhub.org/sites/default/files/atoms/files/gwh_water_governance_omvs_and_abn_20160419.pdf [https://perma.cc/XJ9U-YWFH].

235. *See* Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes art. 2(12), June 17, 1999, 2332 U.N.T.S. 202.

236. *See* CHARTE DES EAUX DU FLEUVE SÉNÉGAL, *supra* note 224, at art. 6.

case, therefore, we can see how principles and norms aimed at states, with an organization as an intermediary, can interpret principles such as equitable and reasonable utilization to be measured for human needs. This is compatible with the 2002 Water Charter as well as with general international water law. The question of a clash of paradigms is resolved through a supranational institution which determines water allocation based on these principles, with human interests in mind. Based on this level of paradigm integration, one could imagine a role for individual appeals to be cast to the regional organization based on state obligations. This form of paradigm interaction brings us back to forms of regime harmonization through norms and institutions, as outlined in the previous Part.

B. Scenario 2. *The Nile*

Another river where the interstate system has existing colonial repercussions is the Nile basin. The Nile is one of the longest rivers in the world, measuring 5,611 kilometers. It originates from the White Nile in Lake Victoria, and the Blue Nile in Lake Tsana, Ethiopia, and flows into the Mediterranean Sea through Egypt. The ten Nile Basin countries are Burundi, the Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, and Uganda. The contributions towards the waters are contested, but studies place Ethiopia's contribution at 85%.[237] For a long time, Egypt and Sudan held a power hegemony over the river based on political might as well as a colonial treaty ensuring their priorities. Following decolonization, the question of state succession to treaties became relevant, as newly sovereign states demanded water access, as well as a rejection of the colonial-era treaties. Despite these demands, Egypt and Sudan largely cited the Harmon doctrine and claimed that the Nile treaties were binding in perpetuity.

Beyond the evident political problems in striking a deal for an international agreement on water cooperation and allocations, this Article focuses on a specific source of tension on the Blue Nile. The traditional power hegemony on the Nile has been challenged in recent years by the increasingly economically developed upstream riparian states. In particular, the river source of the Blue Nile, Ethiopia, and its plans for The Grand Ethiopian Renaissance Dam (GERD). The existing plans would make the dam the largest in Africa. The benefits for Ethiopia would be manifold, as the dam would become the largest energy producer in the country, however, it presents a problem for their downstream riparian counterparts of Egypt and Sudan, which depend on the Blue Nile for upwards of 50% of their freshwater flow.[238] The level of control that Ethiopia would have should not be understated, as it is planning to build the dam so close to its border that closing or opening it would have the immediate effect of causing

237. ARTHUR OKOTH-OWIRO, THE NILE TREATY: STATE SUCCESSION AND INTERNATIONAL TREATY COMMITMENTS: A CASE STUDY OF THE NILE WATER TREATIES 3 (2004), https://www.kas.de/c/document_library/get_file?uuid=03f3b3a7-47bc-a01d-0e28-300afddd3939&groupId=252038 [https://perma.cc/4B7L-79A9].

238. *See id.* at 3, 4.

floods or drought. This has not gone amiss by the downstream states, which have hastily threatened military action if the project were to move forward.

The law and obligations relevant to the Nile basin have been in dispute for some time. In line with the 1997 Watercourses Convention, the principles of equitable and reasonable sharing, as well as the obligation not to cause significant harm, ultimately serve as a guide to decision-making, and should be taken into account. Those principles fill gaps and complement existing basin-specific agreements.[239] As such, basin-specific agreements on allocation and consultation on new projects are preferable, particularly taking into account that in the present scenario, neither co-riparian is a party to the U.N. Watercourses Convention or the UNECE Water Convention. In 1993, the concern over upstream control was already a factor, and Egypt and Ethiopia entered into an agreement based on principles of international law for general cooperation between both states on the Nile.[240] In 1999, the ten Nile Basin countries established the Nile Basin Initiative as a forum for cooperation on the sustainable use of the Nile's resources.[241] This was a positive shift towards a cooperative attitude, but it was merely a transitional body awaiting a permanent framework.[242]

In 2010, the Agreement on the Nile River Basin Cooperative Framework was opened for signature to provide for a basin-wide, permanent legal and institutional framework, though it is not yet in force due to some disagreements on the status of existing treaties and procedures regarding planned measures.[243] Said existing treaties are a direct result from the British colonial power hegemonies, which ensured that Nile's flow was guaranteed to serve Egypt and Sudan.[244] The ensured flows, outlined by a 1929 treaty between the United Kingdom and Egypt gave the Egyptian government a veto on irrigation works on the river if they could negatively impact Egypt, Sudan, or other countries under British administration through the reduction of water flows.[245] Those same flows, referred to as "current uses" are the subject of disagreement on Article 14(b) of the Agreement on the Nile River Basin Cooperative Framework. Egypt and Sudan believe that Article 14(b), which deals with water security, should be reworded as "not to adversely affect the water security and current uses

239. *See* GENEVA WATER HUB, *supra* note 16, at 33.

240. *See generally* Framework for General Co-operation Between the Arab Republic of Egypt and Ethiopia, Egypt-Eth., July 1, 1993, http://www.fao.org/3/w7414b/w7414b0p.htm [https://perma.cc/HMQ8-RJ29].

241. *See generally* The Nile Basin Initiative Act, Feb. 14, 2002, http://extwprlegs1.fao.org/docs/pdf/uga80648.pdf [https://perma.cc/3JTW-B85M].

242. *See* Dereje Zeleke Mekonnen, *The Nile Basin Cooperative Framework Agreement Negotiations and the Adoption of a 'Water Security' Paradigm: Flight into Obscurity or a Logical Cul-de-Sac?* 21 EUR. J. INT'L. L. 425, 430 (2010).

243. *See id.* at 428.

244. *See id.* at 424.

245. Exchange of Notes Between Her Majesty's Government in the United Kingdom and the Egyptian Government on the Use of Waters of the Nile for Irrigation (May 7, 1929) (on file at http://treaties.fco.gov.uk/docs/pdf/1929/TS0017.pdf [https://perma.cc/84V2-UVC9])

and rights of any other Nile Basin State," as opposed to the current wording of "not to significantly affect the water security of any other Nile Basin State."[246] The essential difference is the opinion that "water security" implies "current use." This difference is contingent on the prominent positions of both Egypt and Sudan based on the colonial agreements (emphasized by their downstream position) and is not necessarily relevant to the remaining eight co-riparians. Dereje Zeleke Mekonnen refers to the Egyptian and Sudanese position as a "perpetuation of the legally anachronistic and non-viable *status quo* under the cloak of water security."[247] Such differences in opinion have barred any constructive lawmaking for a basin-wide agreement. However, concerning the particular case of Grand Ethiopian Renaissance Dam, there has been more concrete progress because of the position Egypt found itself in.

In 2011, Ethiopia unilaterally decided to begin the construction of the dam despite downstream fears of stifled flow during the long process of filling the dam.[248] The decision has been met with general hostility, war threats,[249] and concern over Egyptian livelihoods. As a response to the demands by Egypt, in 2015, the states of Ethiopia, Egypt, and Sudan signed an agreement on the Declaration of Principles on the Grand Ethiopian Renaissance Dam Project, including the principle not to cause significant harm, and the principle of equitable and reasonable utilization.[250] In this particular case, it seems that the governments eventually saw eye-to-eye, perhaps with the persuasion of benefit-sharing from the dam. However, had the power hegemonies been flipped, the upstream riparian may not have had the same incentive to cooperate, and while Egypt and Sudan's attitudes on legal entitlements to freshwater are not necessarily admirable, the fears of livelihoods being quashed through an extraterritorial exercise of power are not necessarily unsubstantiated. Had these co-riparian states not arrived at an agreement in 2015, they could have addressed the situation by using human rights tools: an ex ante measure to be taken by Ethiopia, which is increasingly commonplace for financiers is human rights impact assessments as a part of strategic planning.[251] Working off the

246. Agreement on the Nile River Basin Cooperative Framework, Apr. 13, 2010, https://nilebasin.org/images/docs/CFA%20-%20English%20%20FrenchVersion.pdf [https://perma.cc/3P6T-62K9].

247. Mekonnen, *supra* note 242, at 430.

248. *See* Shimelis Dessu, *The Battle for the Nile with Egypt over Ethiopia's Grand Renaissance Dam Has Just Begun*, QUARTZ AFR. (Feb. 26, 2019), https://qz.com/africa/1559821/ethiopias-grand-renaissance-dam-battles-egypt-sudan-on-the-nile/ [https://perma.cc/G8W5-4WGV].

249. *See Egypt Warns Ethiopia over Nile Dam*, ALJAZEERA (June 11, 2013), https://www.aljazeera.com/news/africa/2013/06/201361144413214749.html [https://perma.cc/Q8AM-232M].

250. *See* Agreement on Declaration of Principles Between the Arab Republic of Egypt, the Federal Democratic Republic of Ethiopia and the Republic of the Sudan on the Grand Ethiopian Renaissance Dam Project, Mar. 23, 2015, https://www.hlrn.org/img/documents/Renaissance%20Dam%20Agreement.pdf [https://perma.cc/2GKP-ZN72].

251. ZACHARY HURWITZ, INT'L RIVERS, DAM STANDARDS: A RIGHTS-BASED APPROACH 17 (2014), https://www.internationalrivers.org/wp-content/uploads/sites/86/2020/05/intlrivers_dam_standards_final.pdf [https://perma.cc/HB6R-PG5B].

assumption that Ethiopia satisfies the factor of "control" necessary to affect the human rights of individuals downstream in Sudan and Egypt, it would have ensuing obligations before and after harm takes place according to *General Comment 15* and the previously discussed literature.[252]

The above scenario is useful to understand the paradigm interaction when there is a clear convergence between both state and individual stakeholders, but there are only—albeit tenuous—interstate obligations present. The resolution in this case is most sound through the applicability of extraterritorial human rights obligations, with a different conception of "control" under human rights law to account for transboundary actions outside of the context of occupation. The conclusion stems from the fact that extraterritoriality of human rights obligations addresses the difficulty in the tensions of having different, cross-paradigm norm-addressees. In the present scenario, where Ethiopia would typically owe the states of Sudan and Egypt interstate duties, it would instead owe prejudiced citizens ensuing human rights obligations to at least respect and protect their right to water. Through this model, the intention is that individuals at the mercy of foreign action would not be prejudiced by the status of foreign relations of their home state with the riparian state.

C. Scenario 3. *The Rio Grande*

The need and difficulty in cooperation in an arid climate between powerful co-riparian states is a dynamic echoed in the Rio Grande. The river lies on the border between Mexico and the United States and has been a source of conflict for a very long time. There are a number of treaties governing the border waters, from the rules delineating the boundaries, the distribution of the waters of the river, the creation of the International Boundary Commission, the water treaty for the utilization of waters of the Colorado and Tijuana Rivers and of the Rio Grande, the Chamizal Convention dealing with boundary disputes, and the 1970 treaty to establish the rivers as the official international boundaries.[253] In the late nineteenth century, then-U.S. Attorney General Judson Harmon issued a now-infamous opinion dubbed the "Harmon Doctrine" in reference to Mexican appeals for equitable use on the other side of the river. The opinion stated:

> [t]he fact that the Rio Grande lacks sufficient water to permit its use by the inhabitants of both countries does not entitle Mexico to impose restrictions on the United States which would hamper the development of the latter's territory or deprive its inhabitants of an advantage with which nature had endowed it and which is situated entirely within its territory. To admit such a principle would be completely contrary to the principle that the United States exercises full sovereignty over its national territory.[254]

252. *See, e.g.*, GC15, *supra* note 126, ¶ 37.

253. *See Treaties Between the U.S. and Mexico*, INT'L BOUNDARY & WATER COMM'N, https://www.ibwc.gov/treaties_minutes/treaties.html [https://perma.cc/D8ZB-52VU] (last visited June 22, 2021).

254. 21 *Op. Att'y Gen.* 274 (1895).

While the Harmon Doctrine is largely regarded as outdated, the hostility around this specific resource—partially due to ecology and partially due to politics—is still present today. As Professor C.J. Alvarez states, the desert section of the Rio Grande was converted from a symbol of life and biodiversity to a dead zone, through physical alterations.[255] Part of the imperatives was to aid the U.S. Border Patrol in having a smaller distance to protect.[256]

Data from the water events database reveals a lesser level of hostility in interstate relations. In 1994, there was a conflict regarding U.S. pollution of the waters, resulting in uncultivable land, after which Mexico proposed renegotiation of the 1944 treaty.[257] Other issues in the late 90's arose with regards to the U.S.' plans to store nuclear waste close to the border, and the structural changes to the river endangering the ecosystem. Issues of water quantity have hinged, however, on Mexico's unfulfillment of their part of the 1944 treaty.[258] Problems came to a head in 2001 when Mexico missed water delivery deadlines due to droughts, prejudicing Texan farmers. The Mexican government relied on the fact that their citizens were facing water scarcity and that the U.S. was using a water debt as fictitious rhetoric for electoral purposes—with calls for economic sanctions to be placed upon Mexico for their alleged violations.[259] As a response, Mexico transferred the water in 2004 to the U.S., angering Mexican citizens who had to change their crops. Later that year, a group of Texan farmers filed a legal claim for $500 million in damages for the violation of the 1944 treaty.[260] The debt concluded in 2005 with an agreement on the debt payment. There are no further water events in the database.[261] However, this dispute, which included civilian action, is an interesting example of the interplay between human and state interests and their respective invocation.

Beyond the menial conflicts in 2000, the countries signed a memorandum of understanding concerning the financial contributions that they would respectively give for drinking water supply and wastewater infrastructure for communities along the border. By 2013, the grant contributions had been fruitful in increasing access to drinking water from 91% to 96%, and sanitation services from 72% to 82%.[262] These steep accomplishments were reached through the use of political tools, without an overarching legal framework. Nevertheless, human interests were prioritized. It is, however, important to note that the United States and Mexico are both economically developed countries with resources and budgets incompara-

255. *See* C.J. Alvarez, *Living and Dying Near the Limit: The Transformation of the Desert Section of the Rio Grande Border*, 11 ENV'T SPACE PLACE 57, 84 (2019).
256. *See id.*
257. *International Water Event Database*, *supra* note 222.
258. *Id.*
259. *Id.*
260. *Id.*
261. *Id.*
262. *Transboundary Cooperation Between Mexico and the United States*, U.N. ECON. & SOC. AFFS. (Jn. 8, 2013), https://www.un.org/waterforlifedecade/water_cooperation_2013/mexico_usa_case.shtml [https://perma.cc/4UWV-4YCM].

ble to most of the other case studies at hand. This can be easily tied back to the considerations of comparative advantages when implementing new norms into legal systems—both states have an upper hand in resources vis-á-vis most other states. However, amongst each other, the relative equality of resources masks a comparative advantage, leaving them at a similar playing field.

Perhaps due to culture or ease of access to legal resources, rights under this international watercourse have been claimed under the North American Free Trade Agreement (NAFTA). One relevant claim,[263] previously alluded to, was brought under Chapter 11 of NAFTA by a group of Texan landowners and a water company, claiming that the failure of Mexico to release quantities of water that had been stipulated for in their 1944 Treaty was an improper withholding which amounted to a government act tantamount to direct appropriation.[264] The quantities of water were withheld due to shortages and were repaid in the following years. The rights claimed by the Texans where property rights in the form of an "integrated investment" of the waters in Mexico, which was prejudiced by Mexico's withholding.[265] The amount of water receivable by the Texans is contingent on the 1944 Treaty, which itself includes recognition that Mexico may not be able to deliver the decided amounts, and, in such cases, providing for later repayment of the water owed. The claimants were, therefore, seeking recognition of entitlements that, as Paul Kibel and Jonathan Shultz put it, the U.S. did not possess.[266] Thus, acknowledging the subsidiary nature of individual rights vis-á-vis state rights when it comes to transboundary waters.

In the above case there was a clear attempt to seek redress and get around the shortcomings of the interstate system. In particular, individual claims to property rights, or other rights potentially related to the human right to water addressed through private means, was a creative approach. The Texans' case, however, is not representative of most grievances that occur in a transboundary setting, and the relationship between the United States and Mexico is favorable enough to ensure cooperation for an eventual resolution. As such, private means of redress are not a proper substitute for the existence of rights and obligations by co-riparian states in transboundary settings.

The Rio Grande sticks out amongst the other case studies due to of the many water events that both states effectively dealt with. In this model, however, international water law lost its relevance as an appropriate mode of redress due to the tension between rights-claiming and the regulation of common resources. The lack of an appropriate forum is in part responsi-

263. *See generally* Bayview Irrigation District et al. v. The United Mexican States, ICSID Case No. ARB(AF)/05/1, Award (June 19, 2007).

264. *See* Paul Stanton Kibel & Jonathan R. Schutz, *Rio Grande Designs: Texan's NAFTA Water Claims Against Mexico*, 25 BERKELEY J. INT'L L. 229, 229 (2007).

265. *See id.* at 252. Notably, various aspects of the claim were unsubstantiated. *See generally id.*

266. *See id.* at 258.

ble for such awkward compensation claims.[267] The Rio Grande, therefore, represents a scenario where extraterritorial obligations are addressed through private law means, making it normatively weaker and less accessible as a model for satisfactorily addressing the gap between the paradigms.

D. Scenario 4. *The River Jordan*

The fourth river to look at is perhaps one of the most politically entangled. The River Jordan lies in the Middle East, running through Syria, Lebanon, Israel, Palestine, and Jordan, eventually flowing into the Dead Sea, with Israel in an upstream position, and running along the border of the Palestinian West Bank and Golan Heights.

Although there have been several water conflicts in the area, this Article focuses on the question of water rights between Israel and the Occupied Palestinian Territories (OPT). The river is both the site of water conflict—related to co-riparian relationships—and water crises—a disparity between supply and demand.[268] Due to political conflict, the Israeli government has on many occasions stifled water supply to the Palestinian territories and population, which have compromised Palestinian's capacity to grow crops for subsistence and fulfillment of basic human needs.[269] Water rights in the region have long been a topic of contention, and in fact, the CESCR first mentioned water rights in 1998 stating urging Israel "to recognize the existing Arab Bedouin villages, the land rights of the inhabitants and their right to basic services, including water."[270] Because the OPT's statehood is still disputed, Israel is the traditional duty-bearer.[271]

Database records indicate that in 1951 Israel evacuated 650 Arabs from the Hula Valley, creating issues of water quantity.[272] In the following decade, there were small scale military actions (BAR scale -6) regarding the Hula Valley between Israel and Syria.[273] In the meantime, Israel diverted waters of the river away from Jordan, as well as pumped water from Lake Tiberias, causing further clashes over water control.[274] The database trends expose the use of transboundary waters being weaponized and bombed to meet geopolitical goals. Meanwhile, in 1990, water supply and payment for water became a political tool when Hamas called for a payment strike on water services provided by Israel to Palestinians in a refugee

267. *See id.* at 267.

268. AARON T. WOLF, HYDROPOLITICS ALONG THE JORDAN RIVER: SCARCE WATER AND ITS IMPACT ON THE ARAB-ISRAELI CONFLICT 139 (U.N. Univ. Press, 1995).

269. *See generally, e.g.*, STEPHEN C. LONERGAN & DAVID B. BROOKS, WATERSHED: THE ROLE OF FRESH WATER IN THE ISRAELI-PALESTINIAN CONFLICT (Int'l Dev. Rsch. Ctr., 2014); Amanda Cahill Ripley, *The Human Right to Water and Its Application in the Occupied Palestinian Territories*, 12 HUM. RTS. L. REV. 173 (2011).

270. Comm. on Econ., Soc. & Cultural Rts., Concluding Observations: Israel, ¶ 42, U.N. Doc. E/C.12/l/Add.27 (1998) [hereinafter Concluding Observations: Israel].

271. Lara El-Jazairi, *The Occupied Palestinian Territory*, *in* THE HUMAN RIGHT TO WATER THEORY, PRACTICE AND PROSPECTS, *supra* note 6, at 394–428.

272. *International Water Event Database*, *supra* note 222.

273. *Id.*

274. *Id.*

camp.[275] By 1991, several middle eastern rivers were being pumped into occupied territories, and in 1992 the first water pipe from Israel to the Gaza Strip was installed to reach the refugee camps.[276] In that same year, a multilateral working group on water resources discussed the issue in an international forum, and Israel replied that water rights are strictly a bilateral issue. In 1993, a Declaration of Principles was signed between Israelis and Palestinians, creating a Palestinian Water Administration Authority.[277] Dissonance, however, kept occurring, with Arab states acknowledging that water is one of the principal issues in Middle East peace, and Israel's then-Foreign Minister Shimon Peres asking: "Does water have a nationality? . . . Water is not a political issue."[278] This, however, is a statement that would only be made by the party in the advantageous position—such is the nature of arguments centered on water supply as opposed to demand.

Nevertheless, progress was made and, in 1995, there was an Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip, which, inter alia, provided for joint management and rights provisions.[279] Following this Interim Agreement, Israel, Jordan, and Palestinian National Authority signed the Declaration of Principles for Cooperation on Water-Related Matters, with provisions for cooperation, importation, desalination, and cloud seeding. In the aftermath, however, allegations were made of non-abidance on water provisions by Israel.[280] Progress on water cooperation came to a halt for several years, with differences noted in the parties' conceptions of water rights. An example of this is the twenty-five Israeli wells alongside the border of the Green Line, with Israeli citizens consequently having five times more water than Palestinians. Hostile actions came to a head in 1998 with Israeli plans to divert the river Jordan before reaching Lake Tiberias, which would effectively count as a harmful unilateral action. In 1999, Palestine Authority intended on filing a compensation claim against Israel at the International Criminal Court under the category of crimes against humanity for the transferring water from Palestine to Israel and polluting Palestinian groundwater (-2 on the BAR scale).[281] The final database record for Israel-Palestine events on the river Jordan is from 2006 and reveals that there is now a memorandum of understanding for cooperation on water issues, including shared water problems of Palestinians.[282]

The regime clash is more evident here than in the other scenarios due to the question of statehood, specifically Israel's lack of recognition of Pal-

275. *Id.*
276. *Id.*
277. *Id.*
278. CAIRO AL-AHRAM NEWSPAPER (Oct. 23, 1993), sourced from http://gis.nacse.org/tfdd/internationalEvents.php [https://perma.cc/MVD2-ANFC].
279. *Factsheet: Water in the West Bank*, CIV. ADMIN. JUDEA & SAMARIA 2 (2012), https://reliefweb.int/sites/reliefweb.int/files/resources/3274.pdf [https://perma.cc/JA4A-RBBA].
280. *International Water Event Database*, *supra* note 222.
281. *Id.*
282. *Id.*

estinian statehood morphs the idea of interstate relations. In terms of legal obligations in the interstate context, only the "State of Palestine" has acceded to the 1997 Watercourses Convention.[283] However, due to issues of recognition as well as control, Israel is the only state recognized on an official level within that territory; thus, it retains national and resource sovereignty. Despite conversations at the U.N. and ICJ on Israel's compliance with international law, there is no enforcement mechanism to ensure domestic conformity.

Meanwhile, in the human rights context, Israel is in a position to exercise effective control over the territory through occupation, and the question of human rights jurisdiction was treated by the ICJ in its advisory opinion in *Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory*.[284] There, the court held that Israel was responsible for the implementation of human rights as a state party to the ICESCR and as the occupying power exercising effective control,[285] and confirmed Israel's obligations vis-á-vis Palestine for the fulfillment of the right to water under the ICESCR.[286] In the context of water conflicts in the OPT, it is clear that Israel's actions would be contrary to the Berlin Rules principle to "protect water installations and ensure adequate water supply to the population of an occupied territory."[287] With this in mind, through its practices, Israel is prima facie in violation of its obligations under the ICESCR as outlined in *General Comment 15* to "ensur[e] sustainable access to water resources for agriculture to realize the right to adequate food" and the cross-cutting principles of non-discrimination.[288]

The example of the OPT is compelling because it is an example where the strict concept of the nation-state has left people vulnerable to a rights vacuum. If Israel is the only recognized state in that territory, its government is the only one with the right of water allocation within its borders since Palestine's questioned statehood and lack of central government makes it fall outside the definition of a watercourse state, and it may even affect the classification of certain stretches of the River Jordan as an international watercourse.[289] This presents a difficulty for the invocation of water rights of the Palestinian people as they are not on the same legal footing as the Israelis.

In a similar scenario, the right to water of an occupied people would be prejudiced by the occupying state's water allocation between both territories. Some would argue that there are no interstate obligations due to the

283. *See generally* Convention on the Law of the Non-Navigational Uses of International Watercourses, May 21, 1997, https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-12&chapter=27&lang=EN#1 [https://perma.cc/RUU2-M2HE] [hereinafter Watercourses Convention].

284. *See generally Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory*, Advisory Opinion, 2004 I.C.J 136 (July 9).

285. *See id.* ¶¶ 88, 112.

286. Concluding Observations: Israel, *supra* note 270, at 202.

287. BERLIN RULES, *supra* note 97, at art. 54(2).

288. GC15, *supra* note 126, ¶ 7.

289. *See* Watercourses Convention, *supra* note 283, at art. 2.

questioned Palestinian statehood, but regardless of this, the existence of the Palestinian Water Administration Authority and the Declaration of Principles for Cooperation on Water-Related Matters signed by both Israel and the Palestinian National Authority implies certain bilateral commitments which perhaps do not fall into the interstate paradigm but does recognize some form of Palestinian organizational competence. To this end, considering that Israel is a party to the 1997 Watercourses Convention, it has certain obligations such as equitable and reasonable utilization of the water, and the obligation not to cause significant harm in its transboundary waters. Still, with the interstate paradigm somewhat inapplicable in this context, the human rights paradigm can offer a solution. In such a context, barring political solutions to the freshwater problem in the OPT, extraterritorial obligations are the necessary approach from a legal standpoint to circumvent the incompatibility of the interstate system.

E. Scenario 5. *Nubian Sandstone Aquifer*

The Nubian Sandstone Aquifer System (NSAS) is the largest non-rechargeable fossil aquifer in the world, and it is made up of two aquifers: the Nubian and the Post-Nubian. NSAS is located in Northeast Africa and spans through Libya, Egypt, Chad, and Sudan. Not only is the aquifer in one of the most water-scarce areas of the planet, but in recent years, some aquifer states have come under fire for unsustainable pumping of this limited resource.[290] There are much fewer laws and cooperation efforts in general with regards to transboundary aquifers, and the lack of coordinated policy can have massive impacts for states who are dependent on groundwater pumping for irrigation and drinking water. Regulating groundwater extraction is important because accessible water found in aquifers accounts for sixty times more surface freshwater.[291]

While legislation and other soft law instruments do exist, there is very little to govern this specific aquifer system.[292] The aquifer states of Libya and Egypt entered into a Joint Authority Agreement[293] in 1992, with Chad and Sudan joining in 1996.[294] Since then, these states have reached an

290. *See, e.g.*, *Water Scarcity: Overview*, WORLD WILDLIFE FUND, https://www.worldwildlife.org/threats/water-scarcity [https://perma.cc/A3AZ-JJRE] (last visited June 22, 2021).

291. Kimberly Mullen, *Information on Earth's Water*, NAT'L GROUND WATER ASS'N, https://www.ngwa.org/what-is-groundwater/About-groundwater/information-on-earths-water [https://perma.cc/XE5V-CQSH] (last visited Apr. 6, 2021).

292. *See generally* STEFANO BURCHI & KERSTIN MECHLEM, GROUNDWATER IN INTERNATIONAL LAW: COMPILATION OF TREATIES AND OTHER LEGAL INSTRUMENTS (2005), http://www.fao.org/3/a-y5739e.pdf [https://perma.cc/MP2W-8KX6].

293. Constitution of the Joint Authority for the Study and Development of the Nubian Sandstone Aquifer, 1992, http://ewp.cedare.org/wp-content/uploads/2018/09/Constitution-of-the-Joint-Authority-for-the-Study-and-Development-of-the-Nubian-Sandstone-Aquifer-Waters-1992.pdf [https://perma.cc/AU4C-ADGZ].

294. *See* MUNA MIRGHANI, GROUNDWATER NEED ASSESSMENT: NUBMIAN SANDSTONE AQUIFER 7 (2012), https://splash-era.net/downloads/groundwater/5_NSAS_final_report.pdf [https://perma.cc/AU4C-ADGZ].

agreement on monitoring and data sharing.[295] In 2013, progress for cooperation was made when all four aquifer states agreed on a framework for joint management, including a strategic action plan (SAP) which outlines the necessary legal, policy, and institutional reforms necessary for proper transboundary cooperation.[296] The implementation of the SAP is still at its inception and has advanced most in gathering knowledge and increasing domestic capacity for implementation, such as financing options and national management reforms.[297] Below we will look at the paradigm interaction in the context of aquifers, which varies from surface waters due to geology and legislation.

The way the world thinks of aquifers varies depending on the culture, but often in the Western world, groundwater is treated as a private good attached to the land above it, and therefore subsidiary to the tenure. For this reason, public claims to water flows beneath land have been difficult to implement globally, though it is now the overwhelming trend.[298] For transboundary aquifers, however, there is still a debate on defining the ownership and usufructuary rights of the groundwater. In the present case, distinct from interstate surface water law, it is possible that the human right to water paradigm is more "mature" than the international water law, based on the lack of binding legal instruments on transboundary aquifers.

One of the most comprehensive documents on aquifer usage is the 2008 ILC Draft Articles on the Law of Transboundary Aquifers.[299] While some of the general principles applicable to surface water, such as equitable and reasonable utilization[300] and the obligation not to cause significant harm,[301] are equally mentioned in the Draft Articles on aquifers, their underlying purpose is expressed differently.[302] A key departure from surface water customary law is present in the Draft Articles, which state that "[e]ach aquifer State has sovereignty over the portion of a transboundary

295. Terms of Reference for the Monitoring and Exchange of Groundwater Information of the Nubian Sandstone Aquifer System, Oct. 5, 2000, http://extwprlegs1.fao.org/docs/pdf/int39094E.pdf [https://perma.cc/NB2G-YGUL].

296. *See Chad, Egypt, Libya and Sudan Agree on a Framework for Joint Management of the Nubian Sandstone Aquifer System*, INT'L ATOMIC ENERGY AGENCY NEWS (Sept. 20, 2018), https://www.iaea.org/newscenter/news/chad-egypt-libya-and-sudan-agree-on-framework-for-joint-management-of-the-nubian-sandstone-aquifer-system [https://perma.cc/L9AK-4Q9B].

297. *See Enabling Implementation of the Regional SAP for the Rational and Equitable Management of the Nubian Sandstone Aquifer System*, INT'L GROUNDWATER RES. ASSESSMENT CTR., https://groundwaterportal.net/project/nubian-aquifer [https://perma.cc/9HYB-U7LT] (last visited June 22, 2021).

298. *See* Kerstin Mechlem, *Groundwater Governance: The Role of Legal Frameworks at the Local and National Level—Established Practice and Emerging Trends*, WATER, Aug. 2016, at 1, 12.

299. *See generally* Int'l L. Comm'n, Draft Articles on the Law of Transboundary Aquifers, U.N. Doc. A/63/10 (2008) [hereinafter Draft Articles].

300. *See id.* at art. 4.

301. *See id.* at art. 6.

302. *See* Owen McIntyre, *International Water Resources Law and the International Law Commission Draft Articles on Transboundary Aquifers: A Missed Opportunity for Cross-Fertilisation?*,13 INT'L CMTY L. REV. 237, 249 (2011).

aquifer or aquifer system located within its territory. [Consequently,] [i]t shall exercise its sovereignty in accordance with international law and the present draft articles."[303] The commentary to the Draft Articles supports this choice in defense of the interests of states that value natural resource sovereignty "along the lines of oil and gas" equally for groundwater.[304] But while permanent sovereignty over natural resources is a normatively sound claim, its unbridled application to freshwater is problematic due to its "essential" character, and de-territorialized nature. Furthermore, whilst claims to water quantities in proportion to a state's land covering an aquifer may sound reasonable, this is not the same as basing comportment off a principle of sovereignty, due to the potential effects of one aquifer state on another. Nevertheless, due to the sovereignty-territoriality claims and maxims, little can be done to regulate domestic water usage for foreign benefits.[305]

This brings us to the point of the human right to water paradigm. If there was already dissonance with interstate surface water law, the law on aquifers—based on the 2008 Draft Articles—is even more difficult to reconcile with human rights obligations due to the underscoring of natural resource sovereignty, which is opposed to foreign interference. Insofar as human interests, however, the Draft Articles do mention a prioritization of vital human needs in transboundary aquifers as a factor to reasonable and equitable utilization.[306] Vital human needs are mentioned yet again as a situation wherein aquifer states would be permitted to temporarily derogate from their Article 4 and Article 6 duties. The commentary explains that it is necessary to empower states to exploit the aquifer in excess of recharge rates without fulfilling their other obligations if their population needed drinking water in an emergency scenario.[307] While this stance comes across as protectionist, it does follow a rational thought based on the inherent differences of water flow in a river versus recharge rates in an aquifer. The NSAS is, however, non-rechargeable, and the Draft Articles acknowledge that in these instances, equitable and reasonable utilization is for the aim of maximizing long-term benefits from the use of the waters.[308] In this context, therefore, notwithstanding the acknowledgment of the primacy of vital human needs in transboundary water governance, the possibility of derogation could be problematic.

To illustrate how the two paradigms could collide in the Nubian Sandstone Aquifer, and how the underlying issue of freedom to exercise sovereignty can play out, we will take the topical issue of unsustainable groundwater pumping. Intensive groundwater extraction has obvious repercussions for water quantity, but it can also affect water quality. It does so by increasing the cone of depression, which, if close enough to the

303. Draft Articles, *supra* note 299, at art. 3.
304. *Id.* at art. 3.
305. *See id.*
306. *See id.* at art. 5(2).
307. *See id.* at art. 17.
308. *See id.* at art. 4.

freshwater-saltwater interface, ends up polluting parts of the aquifer, which in turn decreases the quality of the water to a non-potable point.[309] If one of the aquifer states, say Libya, due to water shortages and their notorious lack of alternate freshwater sources, were to implement a massive irrigation project (comparable to the Great Man-made River), they could run the risk of unsustainable pumping. If the groundwater were to hypothetically pollute a significant portion of the aquifer, it would prejudice the other aquifer states. If the water in the aquifer were to become salinized, it could heavily affect a neighbor such as Egypt, which counts on that water for the irrigation of crops in the Sinai Peninsula and the New Valley's Oasis.[310] In such a scenario, Egypt's natural resource rights are diminished, as are those of individuals in that area who are dependent on potable water for their drinking and agriculture. The consequences of such action are difficult to predict due to the difficulty in de facto attributions of blame, especially when tied to a legal obligation. Furthermore, one could also imagine that since the Nubian Sandstone Aquifer is in such an arid zone, and it is the main source of freshwater for Libya for drinking and agriculture, they could hypothetically fall back on obligations of equitable and reasonable utilization and claim circumstances precluding wrongfulness, such as *force majeure* or necessity. Since their utilization is based on a system of sovereignty and there are lax legal obligations, such claims might even be sustained. In this circumstance, the interstate paradigm would have failed the neighboring aquifer states. Once again, by the same applicability as in the other scenarios, extraterritorial obligations stemming from the human right to water could be relevant.

In terms of legislation, the model exemplified by the exploitation of the NSAS is one of the least protected, due to the lack of binding instruments, and seemingly different priorities compared to transboundary watercourses. If the interests of individuals and states that are deeply dependent on groundwater are to be protected in transboundary situations, it is contingent that aquifer states cooperate based on customary norms from surface water law. To place the emphasis back to a "community of interest" is important if the principle of "vital human needs" is to be upheld beyond state borders, and international water law is to be cohesive in its purposes.[311] Aside from such changes, the paradigm of the human right to water could apply to groundwater both theoretically and normatively. However, the essential differences in geology with surface water, such as a difficulty to ascertain extraction rates and to measure transboundary harm make determinations of rights violations fundamentally more difficult. As such, in the context of groundwater, the international

309. *See* U.N. Food & Agric. Org., Groundwater Management: The Search for Practical Approaches 7 (2003), http://www.fao.org/3/y4502e/y4502e00.htm#Contents [https://perma.cc/4LRH-8EH7].

310. *See* Hussein I. Abdel-Shafy & Aziza H. Kamel, *Groundwater in Egypt Issue: Resources, Location, Amount, Contamination, Protection, Renewal, Future Overview*, 59 Egyptian J. Chemistry 321, 325 (2016).

311. *See* McIntyre, *supra* note 302, at 254.

obligations as outlined in *General Comment 15* become much more difficult to monitor and implement.[312] This, however, does not mean that aquifers are a human rights-free zone, seeing as *General Comment 15* does not distinguish on sources of freshwater, and there is no material impossibility for implementing domestic human rights obligations with relation to aquifers, meaning that international obligations would analogously apply. Whether infusing human rights rhetoric into a natural resource to whom the ILC has assigned permanent sovereignty over natural resources as its governing principle is somewhat of a sensitive issue. However, any claim to theoretical primacy is contestable in this case. As such, barring the potential for the law on transboundary aquifers to develop alongside surface water law, the international obligations of *General Comment 15* of an extraterritorial character could fill the normative gap.

F. Scenario 6. *The Zambezi River*

The Zambezi River is shared by Mozambique, Angola, Namibia, Zimbabwe, Zambia, Botswana, Tanzania, and Malawi. In recent years, these states have been lauded for taking on a "comprehensive action plan" for the joint management of the basin, including on water quantity. Agreements well into the mid-twentieth century were still carried out by the colonial powers of Great Britain and Portugal on matters of water quantity for indigenous persons and hydro-power agreements. The Kariba dam is remembered for its mixed results and colonial heritage, as the Zambezi River was created by colonists in 1958 to generate hydroelectric power for mineral mining, and consequently displaced 57,000 Tonga farmers.[313] In 1977, the first conflict was perceived when Great Britain supported the Zambian Kariba Dam project, which led to a military conflict between Zambia and Zimbabwe (BAR level -6). The dam, and in particular its initial owners,[314] were a source of disagreement and were thus replaced by the Zambezi River Authority in 1987, wherein power created by the dam was distributed in each sovereign country.[315] After the full decolonization process, the events remained in positive digits on the BAR scale. The data for this basin system stops in 2008 and there is no further conflict indicated after cooperative frameworks were put into place. However, research shows that much of the promised benefits of effective irrigation and high fish

312. *See* GC15, *supra* note 126, ¶ 31 (mandating that states "refrain from actions that interfere, directly or indirectly, with the enjoyment of the right to water in other countries. Any activities undertaken within the State party's jurisdiction should not deprive another country of the ability to realize the right to water for persons in its jurisdiction.").

313. David McDermott Hughes, *Whites and Water: How Euro-Africans Made Nature at Kariba Dam*, 32 J.S. AFR. STUD. 823, 823 (2006).

314. The initial owner was the Central American Power Corporation of Northern and Southern Rhodesia. *See About Us*, KARIBA DAM REHAB. PROJECT, http://www.zambezira.org/about-us [https://perma.cc/LA8C-2NUP] (last visited June 22, 2021).

315. James R. Scarritt & Solomon M. Nkiwane, *Friends, Neighbors, and Former Enemies: The Evolution of Zambia-Zimbabwe Relations in a Changing Regional Context*, 43 AFR. TODAY 7, 15 (1996).

production fell through, and the dispossessed did not reap the benefits of the project.[316] The Kariba Dam is only one of thirty reservoirs that currently alter the flow of the Zambezi, which is having repercussions on the ecosystem and human life. Nevertheless, this Article focuses on the sales of virtual water in the highly fertile areas of Zambia which are currently prejudicing the human rights of citizens through the sale of land to foreign entities for unjust compensation. The stakeholders causing such "extraterritorial" harm and consequences are notably not neighboring states as in the other cases, thus there is a lack of transboundary context.

A recent study on freshwater consumption and production in transboundary basins reveals that one of the socio-economic aspects that can influence conflicts and scarcity of freshwater, otherwise referred to as "water footprints," are now of a global character.[317] One of the ways in which freshwater has become global and is being usurped from local communities is through the trade of virtual water. The trade in virtual, or embedded water, is a term used to explain the trade in goods which allows countries with limited water resources to rely on the water resources of other countries.[318] While studies have shown that the trade in virtual water can reduce net freshwater usage for water-scarce countries by importing products with embedded water from water-rich states, countries' water footprints can vary vastly regardless of their national freshwater resources, and the states which save the most are Japan, Mexico, Italy, the U.K., and Germany.[319] Some of these are notably not water-scarce countries, signifying that the water-saving advantage is driven by factors other than a resource-alleviation trade strategy.[320] The reality is also that freshwater grabbing by states and corporations is difficult to regulate, and the ensuing human rights are often unenforced due to the need to attract foreign investment.[321]

To illustrate how this freshwater trade dynamic plays out in terms of legal obligations, we can hypothesize that Zambia, a "water-rich country that is hardly being tapped at present"[322] is receiving a surge in international investment. One of the main investors, China, put in an estimated

316. *See generally* Eugene K. Balon, *Kariba: The Dubious Benefits of Large Dams*, 7 AMBIO 40 (1978).

317. Xia Wu et al., *Assessment of Water Footprints of Consumption and Production in Transboundary River Basins at Country-Basin Mesh-Based Spatial Resolution*, 16 INT'L J. ENV'T RES. PUB. HEALTH 703, 703 (2019).

318. *See Virtual Water Trade*, WATER FOOTPRINT NETWORK, https://waterfootprint.org/en/water-footprint/national-water-footprint/virtual-water-trade/ [https://perma.cc/C5CK-8JWC] (last visited June 22, 2021).

319. *See* MESFIN MEKONNEN & ARJEN YSBERT HOEKSTRA, NATIONAL WATER FOOTPRINT ACCOUNTS: THE GREEN, BLUE AND GREY WATER FOOTPRINT OF PRODUCTION AND CONSUMPTION 22 (2011), https://research.utwente.nl/en/publications/national-water-footprint-accounts-the-green-blue-and-grey-water-f [https://perma.cc/R2AZ-7TMC].

320. *See id.*

321. *See generally* Marta Bordignon et al., *Water Grabbing and Water Rights: Indigenous 'Sovereignty' v. State Sovereignty?*, *in* NATURAL RESOURCE GRABBING: AN INTERNATIONAL LAW PERSPECTIVE, *supra* note 192.

322. LENA HORLEMANN & SUSANNE NEUBERT, VIRTUAL WATER TRADE: A REALISTIC CONCEPT FOR RESOLVING THE WATER CRISIS? 9 (2007), https://www.gwp.org/globalassets/

$27 million in 2010 in the agricultural sector.[323] The Zambian government sees such investments as a huge potential for economic growth, and as such has been taking steps to convert traditional farmland through commercial agriculture projects, in part by seeking such foreign investors. However, this results in the displacement of residents without due process or proper compensation, which in turn is a violation of a range of other rights[324] In such a case, where a home state, to fulfill the interests of foreign investors, violates or aids in the violation of their citizens' rights, there is a convergence of various duty-bearer relationships.

It is difficult to identify the relevant international legal paradigms at play, or even the stakeholders involved due to a lack of relevant legislation, particularly a lack of international law in the field. In this respect, the scenario of virtual water may for some even fall outside the scope of both the interstate and human rights paradigms. The "victims" in this instance are clear: the people who were disposed of their land with the potential of embedded water without proper information or compensation for it. The duty bearer, however, is more tenuous, with some pointing at the state and others the private or public foreign agent. This case, of course, does not involve a transboundary watercourse or aquifer, but it nevertheless involves an international freshwater relationship. Scholars have therefore argued that customary principles of international water law and international human rights law pertinent to freshwater could apply.[325]

Part of the hurdle related to privatization is a misunderstanding of economic and social rights, which leads to the false premise that the right to water creates a direct relationship with the management of water utilities. For those favoring obligations for the home state, the accountability gap could be addressed through several of the obligations found in *General Comment 15* such as the obligation to protect the right to water by requiring states to prevent third parties from interfering with the enjoyment of the right to water, including individuals, groups, corporations, and other entities.[326] Meanwhile, for those favoring obligations for the foreign agent (only in the case that the usurping entity qualifies as an agent of a state), one could turn to the international obligations under *General Comment 15* which set out that states parties have to respect the enjoyment of the right in other countries by refraining from actions that interfere with said enjoyment with respect to activities undertaken within the State party's jurisdic-

---

global/toolbox/references/virtual-water-trade.-a-realistic-concept-for-resolving-the-water-crisis—neubert—s.-2007.pdf [https://perma.cc/B95P-CKQ7].

323. Arshad Dudhia, *Silk Road or Dragon Path? The Impact of Chinese Investment in Zambia*, AFR. LEGAL NETWORK, https://www.africalegalnetwork.com/zambia/news/silk-road-or-dragon-path-the-impact-of-chinese-investment-in-zambia/ [https://perma.cc/2H7P-5FVZ] (last visited June 22, 2021).

324. *See Forced to Leave: Problems for People in Zambia When Company Farms Take over Land*, HUM. RTS. WATCH (Oct. 25, 2017), https://www.hrw.org/report/2017/10/25/forced-leave/commercial-farming-and-displacement-zambia [https://perma.cc/HXP8-EFJU].

325. *See id.*

326. *See* GC15, *supra* note 126, ¶ 23.

tion.[327] The question of jurisdiction for human rights brings us back to the same question of extraterritoriality, and the need for the establishment of the element of control, as in the above scenarios. And outside of agents of the state, states parties to the ICESCR also have obligations to take steps to prevent their citizens and companies from violating the right to water of individuals and communities in other countries.[328] The combination of these obligations broadly address the relationships present in these scenarios of virtual water grabbing.

The above and final resolution is, therefore, the final example of the applicability of extraterritorial human rights obligations to address traditionally state-centric freshwater concerns. Besides the onus on the home state, this model also introduces extraterritorial human rights obligations when the control element is not properly exercised by the home state, or exercised by agents of a second, non-riparian state. Despite the difficulty in dealing with individual rights to sell land and reap benefits from natural resources, a cautionary approach should be considered by resource wealthy states—where freshwater should be included—in the equitability of sales when these have the capacity to impact many rights that converge around freshwater. Following the obligations in *General Comment 15* and the increasing potential for individual petitions to the CESCR,[329] individuals in this position could seek redress under human rights law.

G. Conclusion on the Models of Interaction

Below is a summary of the "models" for paradigm interaction looked at above, and they are ordered from most to least straightforward in terms of paradigm interaction. The models are an introductory illustration at what the identified paradigm clashes look like, and how they could be addressed. The overwhelming trend is that they could be addressed using extraterritorial human rights obligations. This is, however, by no means the necessary avenue, as an evolution of the interstate paradigm to properly address human interests in all situations where transboundary freshwater issues arise, would be a welcomed development.

Model 1 is a paradigm with integrated norms, as exemplified by the Senegal River Basin, its Water Charter, and its ensuing organization, which works as the effector between state and individual interests.

Model 2 is a paradigm where extraterritorial human rights obligations address the tensions of norm addressees by using a different conception of "control" under human rights language, as exemplified by the Nile Basin.

Model 3 is a paradigm where extraterritorial obligations are addressed through private law means, as exemplified by the Rio Grande.

Model 4 is a paradigm where extraterritorial obligations are applicable because of the occupation context, as exemplified by the River Jordan

327. *See id.* ¶ 31.
328. *See id.* ¶ 33.
329. *See generally* G.A. Res A/RES/63/117, Optional Protocol to the International Covenant on Economic, Social and Cultural Rights (Dec. 10, 2008).

within Israel and the OPT, wherein the interstate paradigm would be inapplicable.

Model 5, which relates to cases in transboundary aquifers, here exemplified by the Nubian Sandstone Aquifer System, is one of the least protected due to the lack of legislation around it. To address human needs, it is contingent that states cooperate based on surface water norms, or likewise adopt the possibility of extraterritorial human rights obligations.

Model 6 is the final example of a model for the protection of individuals within the classical interstate paradigm and is exemplified in the scenario of the Zambezi River and the inequitable sale of virtual water. This is the most complex scenario as neither party is necessarily a state, and thus there is no model for accountability that even human rights could address, except for attribution of international responsibility through "agent of the state" status.

Conclusion

This Article has sheds light on the two paradigms concerned with freshwater management in a transboundary setting: the human right to water paradigm and the interstate paradigm. As observed, the subject of freshwater, its scarcity, and the concern for its distribution is the overlapping theme between these two paradigms. However, the theoretical underpinnings and normative frameworks for each prioritize separate issues and have at their core, different subjects. This disconnect is problematic and particularly prejudicial to the human right to water paradigm, whose success and value is contingent on state efforts. The more concrete goal was, therefore, to arrive at a philosophical and practical approximation between both paradigms to remove some of the dissonances in the law and literature. To ultimately bridge together two paradigms that follow essentially distinct rationales, the relationship between the two was discussed to differing levels of success through philosophical valuation, the practice of regime harmonization, and the practical approaches in Part IV of this Article.

The ultimate lesson from philosophical valuation was that it is not objectively possible to compare paradigms that were created to serve entirely different interests, regardless of the overlapping subject matter. Insofar as regime harmonization, whilst professor Leebron's model helped emphasize the impetus for harmonizing norms from the paradigms as well as outline the utility of institutional harmonization, it made evident the fact that the parallel nature of the paradigms meant they could not comfortably take from each other to form a complete unitary whole. Rather, collisions between the paradigms, as illustrated throughout the case studies in Part IV are not competitions for normative prominence. Instead, the case studies evidenced that the content of interstate norms does not holistically address all situations that arise in transboundary freshwater situations. The argument that follows is that those gaps are normatively and practically fillable by the development and employment of an extraterritorial

application of the human right to water. At the risk of undue optimism, this has been illustrated in a non-exhaustive series of scenarios that have been labeled the "models for resolution." The extraterritorial facet of the human right to water, which is still in its nascent stage, has the potential to address a series of situations, ranging from traditional concerns of upstream riparian states exercising control, to govern basins or aquifers that lack frameworks, and to include situations with nontraditional stakeholders. Although the feasibility or actionability of this development is not yet clear, the possibility of invocation of the ICESCR or regional human rights instruments in such scenarios paints a positive picture for the implementation of the human right to water in precarious situations, and for the goal of bringing the paradigms closer together.

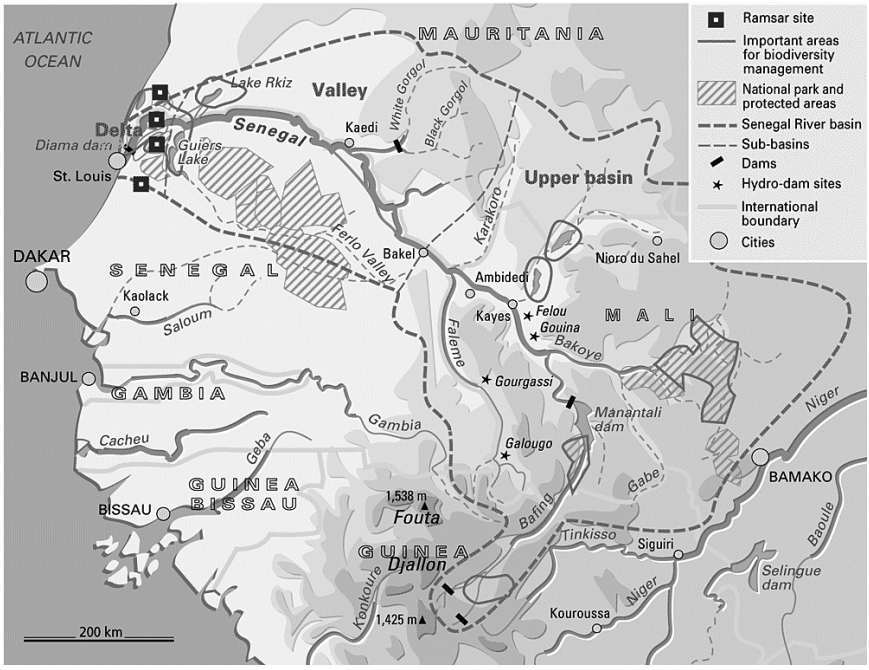
To better address this topic and its concerns in the future, it would be interesting and necessary to study how "integrated regimes" such as the one of Senegal's OMVS bear fruit and deal with conflicts. The negotiation of transboundary allocations through an adaptation of water laws and an increase of water institutions, including enforcement mechanisms, has been identified by FAO as one of the key strategies for coping with water scarcity.[330] Such integrated institutions, which essentially create a new paradigm, could be the answer to the normative goal of both reaching legal certainty and providing for an actionable right. Furthermore, research into the particularities of invocation of the right to water in regional courts, and how these cases influence political decisions, as well as how climate change and increasing desertification affect state willingness to cooperate on the matter. Additionally, with the increase in advocacy for a "soft law" approach to resolving water needs, tools such as the implementation of sustainable development goal six are a welcomed approach that is not bound by the hurdles found in human rights law. Such an approach is also attractive in the face of critiques of international water law, and its inherent capacity to manage transboundary freshwater conflicts.[331]

330. U.N. FOOD & AGRIC. ORG., COPING WITH WATER SCARCITY: AN ACTION FRAMEWORK FOR AGRICULTURE AND FOOD SECURITY 34 tbl.4 (2012), http://www.fao.org/3/a-i3015e.pdf [https://perma.cc/Y38G-UT7H].

331. *See generally* Dellapenna, *supra* note 64.

Appendices

Appendix 1: Figure of the Senegal River Basin[332]



332. *The Senegal River*, U.N., https://www.un.org/waterforlifedecade/images/water_cooperation_2013/senegal_river-5.png [https://perma.cc/8P57-UUFZ] (last visited July 26, 2021).

Appendix 2: Figure of the Nile Basin, showing the Grand Ethiopian Renaissance Dam[333]

333. *7JPhoto1*, UTRECTH UNIV., https://securing-europe.wp.hum.uu.nl/nile-grand-ethiopian-renaissance-dam-gerd-water-security-international-rivers/7jphoto1/ [https://perma.cc/2QMS-4C85] (last visited July 26, 2021).

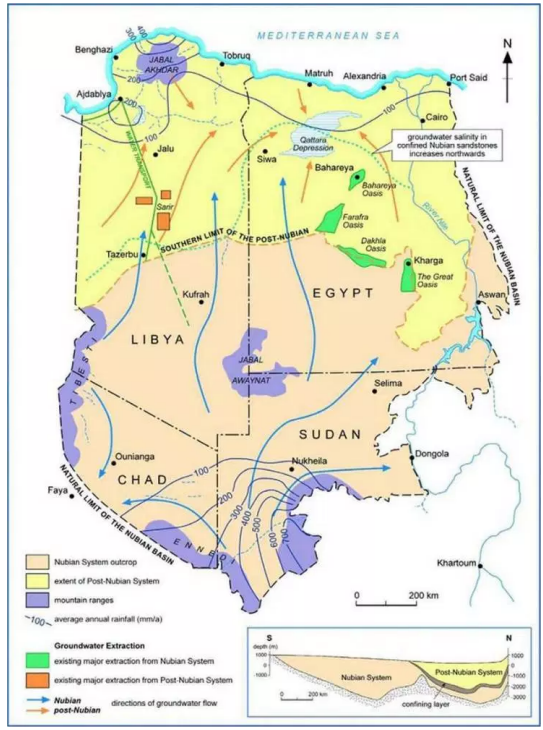
Appendix 3: Figure of the Rio Grande[334]

334. *About the Rio Grande*, Rio Grande Int'l Study Ctr., https://rgisc.org/about-the-rio-grande/ [https://perma.cc/5MW2-VEQ2] (last visited July 26, 2021).

Appendix 4: Figure of the River Jordan[335]

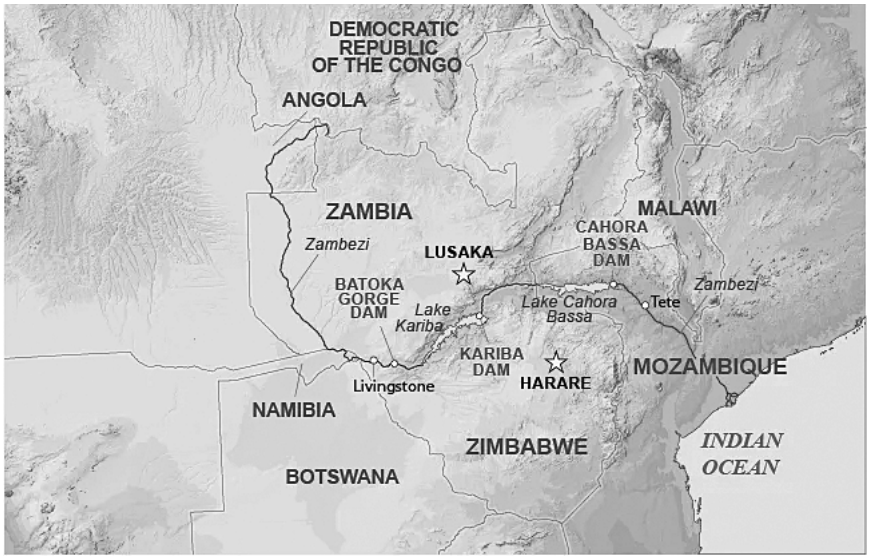
335. *Water Resources*, FANACK, https://water.fanack.com/palestine/water-resources/ [https://perma.cc/C5WP-R3TF] (last visited July 26, 2021).

Appendix 5: Figure of the Nubian Sandstone Aquifer[336]



336. *Adoption of Regional Strategic Action Plan on the Nubian Sandstone Aquifer*, INT'L WATER L. BLOG, https://www.internationalwaterlaw.org/blog/2013/10/20/adoption-of-regional-strategic-action-plan-on-the-nubian-sandstone-aquifer/ [https://perma.cc/XCJ9-V77U] (last visited July 26, 2021).

Appendix 6: Figure of the Zambezi River[337]



337. *The Zambezi: A River Worth Saving*, OARS, https://www.oars.com/blog/zambezi-river-worth-saving/ [https://perma.cc/HK5Y-N4DT] (last visited July 26, 2021).