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International Water Law and Sovereignty: A Discussion of The ILC Draft Articles on the Law of Transboundary Aquifers

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International Water Law and Sovereignty: A Discussion of The ILC Draft Articles on the Law of Transboundary Aquifers

Margaret J. Vick*

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I. INTRODUCTION

The International Law Commission (“ILC”) submitted draft articles on The Law of Transboundary Aquifers to the United Nations General Assembly (“General Assembly”) in August 2008.¹ The ILC recommended that the General Assembly take note of the Draft Articles, that states use the Draft Articles in the preparation of bilateral and multilateral aquifer agreements, and that the General Assembly consider “at a later stage” the preparation of a convention on the Law

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1. *Report of the International Law Commission*, ¶¶ 46-49, A/63/10 [hereinafter *2008 Report of the International Law Commission*], available at http://untreaty.un.org/ilc/reports/2008/2008_report.htm. The Draft Articles that appear at paragraph 53 of this Report will be referred to hereinafter as the “2008 Draft Articles.” The Draft Articles also appear in *Report of the International Law Commission to the General Assembly*, U.N. GAOR 61st Sess., Supp. No. 10, ¶ 75, U.N. Doc. A/61/10 (2006) [hereinafter *2006 Report of the International Law Commission*]. The Draft Articles that appear at paragraph 75 will be referred to as the “2006 Draft Articles.”

of Transboundary Aquifers.² The Draft Articles consist of nineteen Articles organized into four Parts: Introduction; General Principles; Protection; Preservation and Management; and Miscellaneous Provisions.³ The consideration of the law of transboundary aquifers was taken up by the ILC as part of their consideration of the topic “shared natural resources.” The members of the ILC discussed what resources fit within this topic and considered migratory birds, oil and natural gas, and groundwater.⁴ Settling on the latter two, oil and gas and groundwater, the members decided to take up the less contentious topic of groundwater under the heading of aquifers.⁵

During the consideration of this topic, the ILC had the benefit of presentations from global experts including several U.N. agencies.⁶ The structure and the provisions of the Draft Articles track those of the 1997 U.N. Convention, but have been modified to address particular concerns regarding how the Articles would affect aquifers differently from surface waters. Each of the articles is discussed in some detail by Eckstein in his article *Commentary on the U.N. International Law Commission’s Draft Articles on the Law of Transboundary Aquifers*.⁷ Flavia Loures and Joseph Delapenna also discuss many of the proposed articles and suggest changes that would provide more ecosystem protections in their article, *Forthcoming Developments in International Groundwater Law: Proposals for the Way Ahead*.⁸

This article questions whether a new international convention is needed to address utilization of international/transboundary freshwater resources. The article also examines the inclusion of Draft Article 3, Sovereignty of Aquifer States, when sovereignty was a concept repudiated by the ILC during the development of the 1997 Convention on the Law of International Watercourses.⁹

The author does not question the importance of aquifers to the world water supply, nor the grave need for protection of this vital resource. The question raised in this article is whether a second international instrument for international/transboundary freshwaters is the most effective path to achieve optimal utilization, protection from pollution, and sustainability of freshwaters.

2. *Report of the International Law Commission, supra* note 1, ¶ 49.

3. *Id.* ¶ 53.

4. *Report of the International Law Commission to the General Assembly, supra* note 1, ¶ 76.

5. *Id.* ¶ 76(2).

6. *Id.* ¶ 74.

7. Gabriel E. Eckstein, *Commentary on the U.N. International Law Commission’s Draft Articles on the Law of Transboundary Aquifers*, 18 *COLO. J. INT’L ENVTL. L. & POL’Y* 537 (2007) [hereinafter Eckstein 2007].

8. Flavia Loures & Joseph Dellapenna, *Forthcoming Developments in International Groundwater Law: Proposals for the Way Ahead*, *WATER* 21, Aug. 2007, at 58, available at www.iwapublishing.com/pdf/W21Aug07%20groundwaterlaw.pdf.

9. See Stephen M. Schwebel, Special Rapporteur, *Third Report on the Law of the Non-navigational Uses of International Watercourses*, ¶ 45 A/CN.4/348 (Dec. 1, 1981) [hereinafter Schwebel, *Third Report*]; and Stephen C. McCaffrey, Special Rapporteur, *Second Report on the Law of Non-navigational Uses of International Watercourses*, ¶ 165, A/CN.4/399 (Mar. 19, 1986 and May 12, 21, 1986) [hereinafter McCaffrey, *Second Report*].

After a brief discussion of freshwaters, Part II reviews the law of international freshwaters as codified in the 1997 U.N. Convention and set forth in the Draft Articles. This Part examines the concepts of bifurcation of freshwater into surface waters and aquifers, and discusses the further fragmentation of international law that may be caused by having two instruments that cover the same resource. Part III focuses on Draft Article 3 and the concepts of sovereignty over freshwaters. Part IV uses the century old dispute between the states of Colorado and Kansas over the Arkansas River¹⁰ to provide perspective on the management of surface water and groundwater with one legal regime. This final Part also discusses the strong influence that the concept of “sovereignty” asserts on governments, even when those influences may be contrary to law.

This article concludes with a recommendation that the law of international freshwater will be better served by one international legal regime, the 1997 U.N. Convention. Instead of adopting the new standards embodied in the Draft Articles, a protocol should be added that contains only those provisions necessary to bring all international freshwaters within the scope of the Convention.

II. FRESHWATERS: GROUNDWATER AND SURFACE WATER

It is difficult to make a legal distinction between groundwater and surface water. A given set of water molecules may fall as rain, become soil moisture, exist as groundwater and then flow on the surface before evaporating or transpiring as water vapor.¹¹ “Use of soil moisture diminishes the availability of groundwater; use of groundwater diminishes the availability of surface water, etc. Any use of water, unlike any other natural resources, affects the entire water cycle.”¹²

Groundwaters, surface waters, and watercourses are all freshwaters flowing in interconnected systems. When the law attempts to create separate regimes for water that we can see (surface water) and water that we cannot see (groundwater), it ignores the natural cycle and prevents integrated, efficient, and optimal management.

Granted, the portion of the hydrologic cycle that is out of sight is much more difficult to study; this limits the information available on global groundwater resources.¹³ Regional and local information is often inaccessible for use on a global scale, and the lack of this information limits assessments of global groundwater resources. In addition, the amount of water extracted from aquifers

10. See *Colorado v. Kansas*, 320 U.S. 383, 386-388 (1943).

11. MALIN FALKENMARK & JOHAN ROCKSTRÖM, *BALANCING WATER FOR HUMANS AND NATURE, THE NEW APPROACH TO ECOHYDROLOGY* 208 (Earthscan 2004).

12. *Id.*

13. The U.N. Educational, Scientific and Cultural Organization (UNESCO) recently published a map entitled “Groundwater Resources of the World, Transboundary Aquifer Systems,” available at <http://unesdoc.unesco.org/images/0014/001466/146644e.pdf>.

is usually not quantified. Aquifer boundaries, the volume of water within, and the amount and rate of withdrawal are rarely known with any degree of certainty before ecological harm occurs.¹⁴

The lack of data regarding global aquifers and groundwater resources complicates analysis, but it does not diminish the need for legal regimes and management strategies. In 2005, the status of groundwater extraction was described as follows:

Groundwater pumping is among the largest human-induced changes in the hydrological cycle, leading to changes in water levels, the residence times of water in aquifers, and water quality The environmental contributions [groundwater] makes to stream base flows, wetlands, and surface vegetation are masked and . . . impossible to observe directly. . . . [I]n many areas, over-abstraction is severe and groundwater water levels are declining at rates that range from 1 to 3 meters per year¹⁵

Groundwater is critical to meet global freshwater demand. It is estimated that groundwater makes up ninety-eight percent of the global freshwater that is not in polar ice caps and glaciers.¹⁶ Its availability in remote locations, in addition to its relatively better quality, increases its importance at a local level. It is estimated that groundwater provides fifty percent or more of the global potable water supplies.¹⁷

[T]he value of groundwater to society should not be gauged solely in terms of relative volumetric abstraction. Compared with surface water, groundwater use often brings large economic benefits per unit volume, because of ready local availability, high drought reliability and generally good quality requiring minimal treatment The dependence of expanding cities and innumerable medium-sized towns on groundwater is intensifying, such that it is believed some 1500 million urban dwellers worldwide depend on well, bore-hole and spring sources.¹⁸

14. Marcus Moench, *Groundwater: The Challenge of Monitoring and Management*, in THE WORLD'S WATER 2004-2005, THE BIENNIAL REPORT ON FRESHWATER RESOURCES, 79, 81 (Island Press 2004). For example, the state of California, known for its extensive water management programs, released the first state-wide assessment of groundwater resources in 2003 having left groundwater management to local authorities. *Id.* at 81 (citing CALIFORNIA DEPARTMENT OF WATER RESOURCES, BULLETIN 118-03 CALIFORNIA GROUNDWATER (2003)).

15. *Id.* at 79.

16. S.S.D. Foster & P.J. Chilton, *Groundwater: The Processes and Global Significance of Aquifer Degradation*, 358 PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOC'Y LONDON B 1957, 1957 (2003), available at <http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=1693287&blobtype=pdf>.

17. *Id.* at 1958.

18. *Id.*

Groundwater studies that aim to accurately determine aquifer boundaries, water quantity in storage, natural inflow, natural discharge and human withdrawals are technically difficult and expensive. The limited availability of this information limits the effectiveness of groundwater management.¹⁹

The Draft Articles are the first international instrument to address only groundwater. The law of international freshwaters developed primarily in relation to surface waters. However, jurists,²⁰ scholars, and the ILC agree that the principles apply to all international freshwaters.

III. THE LAW OF INTERNATIONAL FRESH WATERS

This section discusses international freshwater law. It begins in part A by setting out the customary international law of non-navigational use of freshwaters, as codified in the 1997 U.N. Convention, and the waters to which the Convention pertains. This is followed in part B by a discussion of the Draft Articles, and the overlap of waters included in the two instruments. The legal analysis turns in Part B.1 to the interconnectedness of the hydrologic cycle with a look at the legal and ecological problems within jurisdictions that maintain different laws for groundwater and surface water. Part B.2 moves away from water law to look at the further fragmentation of international law that may result if the ILC recommends that the Draft Articles be considered as a second convention for international freshwaters. The discussion of the Draft Articles concludes in part B.3 with an analysis of the similarities and differences between “groundwaters” and “aquifers.”

The principles of international water law are flexible and adaptive to different watercourses and to changing conditions within a watercourse. McCaffrey summarizes these principles as follows:

1. *Equitable and reasonable utilization*: Shared water must be used in a manner that is equitable and reasonable vis-à-vis co-riparian states. What is ‘equitable and reasonable utilization’ is determined case-by-case, taking into consideration all relevant factors based upon both natural and human-related phenomena.
2. *Prevention of significant harm*: Countries must do their best to prevent uses within their territories from causing significant harm to other states.
[This is] [p]robably [the] most controversial issue in international water law—[the] relationship between equitable utilization and prevention of significant harm. The UN Convention seems to suggest

19. See Moench, *supra* note 14, at 95 (discussing the technical difficulties in the state of Colorado, which separates water in the ground that is tributary to surface water and is governed by surface water law from water in the ground that is non-tributary).

20. See, e.g., *Gabákovo -Nagyymaros Project (Hung. v. Slov.)*, 1997 I.C.J. 7 (Sept. 25).

that one state's use can cause some harm to another state and still be justified as equitable.

3. *Prior notification*: [A] state must notify other states of planned activities that may adversely affect those other states. Potentially affected states must be permitted to comment on and consult with the notifying state concerning the plans.²¹

The factors examined to determine "equitable and reasonable utilization" take into consideration natural phenomena and the circumstances of the water use.²² Though the factors examined to determine the reasonableness of the use vary depending on the location (ground or surface) and the use made of that water, the principles remain the same. A new instrument such as the Draft Articles is not necessary to articulate different circumstances for utilization of the same principles, because the current principles under the 1997 U.N. Convention are flexible enough to accomplish this.

The following sections look at the overlapping scope of the 1997 U.N. Convention and the Draft Articles. Those sections highlight the difficulties of managing freshwater when it is bifurcated into the two separate systems of groundwater and surface water.

A. *Scope of the 1997 U.N. Convention*

During the 20 years of work on the law of non-navigational uses of international watercourses, the ILC left the drafting of provisions regarding scope of the convention until the end.²³ The *Special Rapporteur* recommended including groundwater. However, the work of the ILC did not focus on groundwater, and the members were reluctant to include all freshwaters within the scope of the draft articles. There was also concern that a broader definition of watercourse might determine or limit land use.²⁴ In particular, the ILC was uncertain about state practice in relation to groundwater.²⁵ The term "international watercourse" was used from the start,²⁶ and the later debates focused on the clause "flowing into a common terminus."

21. Stephen C. McCaffrey, *Establishing Rights—The Law of International Waters*, in SHARING WATER, SHARING BENEFITS: WORKING TOWARDS EFFECTIVE TRANSBOUNDARY WATER RESOURCES MANAGEMENT (Aaron T. Wolf ed., forthcoming 2009) (emphasis in original).

22. For lists of non-exclusive factors, see U.N. Doc. A/RES/51/869, May 21, 1997, 36 I.L.M. 700, art. 6 [hereinafter 1997 U.N. Convention], and 2006 Draft Articles, *supra* note 1, art. 5.

23. Stephen C. McCaffrey, Special Rapporteur, *Seventh Report on the Law of the Non-navigational Uses of International Watercourses*, ¶ 6, U.N. Doc. A/CN.4/436/Corr. 1-3 (1991) [hereinafter McCaffrey, *Seventh Report*].

24. See Eckstein 2007, *supra* note 7, at 586 (this remains an issue in regard to aquifers and their recharge zones).

25. McCaffrey, *Seventh Report*, *supra* note 23.

26. G.A. Res. 2669 (XXV) (Dec. 8, 1970).

This was resolved with the addition of the modifier “normally” which resulted in the following definitions which are sufficiently broad to include most freshwaters:

‘Watercourse’ means a system of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus.²⁷

....

‘International watercourse’ means a watercourse, parts of which are situated in different States.²⁸

The obvious exclusion from this definition is freshwater located in confined aquifers, not hydraulically connected to an international watercourse. This is addressed in the ILC Resolution on Confined Transboundary Groundwater,²⁹ which acknowledges that “groundwater not related to an international watercourse, is also a natural resource of vital importance for sustaining life, health and the integrity of ecosystems.”³⁰ That resolution also recognized that there is a “need for continuing efforts to elaborate rules pertaining to confined transboundary groundwater.”³¹ The Resolution goes on to state that the ILC considered the “principles contained in [the] draft articles on the law of the non-navigational uses of international watercourses [applicable] to transboundary confined groundwater.”³² The ILC recommended that states be guided by these principles, that states enter agreements regarding transboundary groundwater, and that disputes be resolved using the provisions of what became Article 33 of the 1997 U.N. Convention.³³

With this resolution, the law of the non-navigational uses of international freshwater is theoretically complete. If waters are not included in the definition of “watercourse,” or within this Resolution on Confined Transboundary Groundwater, the legal principles from the 1997 U.N. Convention still apply.³⁴

B. Scope of the Draft Articles

Like the 1997 Convention, the Draft Articles also contain an expansive scope of included waters. Article 2 states that an “‘aquifer’ is a permeable water-

27. 1997 U.N. Convention, *supra* note 22, art. 2(a).

28. *Id.* art. 2(b).

29. *Report of the International Law Commission on the Work of Its Forty-Sixth Session*, U.N. Doc. A/49/10 (1994), reprinted in [1994] 2 Y.B. Int'l L. Comm'n 135 [hereinafter *1994 Report of the International Law Commission*].

30. *Id.* at pmb1.

31. *Id.*

32. *1994 Report of the International Law Commission*, *supra* note 29.

33. *Id.*

34. See Gabcikovo-Nagymaros Project, *supra* note 20.

bearing underground geological formation underlain by a less permeable layer and the water contained in the saturated zone of the formation.”³⁵ An “‘aquifer system’ means a series of two or more aquifers that are hydraulically connected.”³⁶ A “transboundary aquifer,” or a “transboundary aquifer system,” is an aquifer “parts of which are situated in different states.”³⁷

An “aquifer” is defined, for purposes of the Draft Articles, as including the water within the saturated zone of an underground formation.³⁸ In some formations this will include groundwaters which “by virtue of their physical relationship” to surface waters constitute the “unitary whole” of an international watercourse.³⁹ Therefore, the same water may, at the same time and in the same location, be included within the scope of both the 1997 U.N. Convention and the Draft Articles.

Koskenniemi, a former member of the ILC, criticizes both the 1997 U.N. Convention and the Draft Articles as technical regime-building documents.⁴⁰ He concludes that a state which is a party to such a technical regime merely agrees to ongoing negotiations.⁴¹ This is necessarily true for freshwater, which fluctuates both in the available supply and increasing demand. However, given the continuing negotiation required by regimes based on equity, the global freshwater resources will be best served by one regime and one set of technical criteria that may be used as a framework and as guidance for negotiations for all freshwaters.

1. Legal Bifurcation of Freshwaters

As discussed above, it is often technically difficult to distinguish groundwater from surface water. The hydrologic cycle is just that—a cycle with water flowing, seeping, springing from groundwater to surface water and returning to groundwater. A legal system that distinguishes the water resources based on the point of extraction has inherent difficulties. Some states within the United States make a legal distinction between groundwater and surface water. This results in extensive financial resources and time being spent to determine the appropriate regime for any given water use.

The adverse consequences of bifurcated legal systems are well-documented, but not easily remedied. “The failure to conform legal doctrine to hydrologic reality has profound and adverse consequences for river flows and riparian

35. 2006 Draft Articles, *supra* note 1, art. 2(a).

36. *Id.* art. 2(b).

37. *Id.* art. 2(c).

38. *Id.* art. 2(a).

39. 1997 U.N. Convention, *supra* note 22, art. 2(a).

40. Martti Koskenniemi, *The Fate of Public International Law: Between Technique and Politics*, 70 MOD. L. REV. 1, 10-14 (2007) [hereinafter Koskenniemi, *Fate of Public International Law*].

41. *Id.* at 11.

habitat”⁴² This section provides examples of the consequences a bifurcated water law system can have on water use and water rights. The domestic state water laws in Arizona, Colorado, California and Texas provide good examples.⁴³

Arizona general stream adjudications are court proceedings to determine the relative priority of rights for surface water users. The court in these cases must decide whether a particular use is of surface water or groundwater because the court’s jurisdiction is limited to the holders of surface water rights. It took nearly two decades with two appeals to the state supreme court to establish a legal standard to differentiate subflow—which is underground water legally characterized as surface water—from other groundwaters. The legal standard adopted states that underground water is subflow if it is within the “saturated floodplain Holocene alluvium.”⁴⁴ The application of this standard to particular water users is a time consuming and expensive process, the results of which have significant consequences to each well owner. If a use is determined to be surface water drawing from an over-appropriated stream system, that use is subject to being shut off if the priority date is later than others who have rights to the limited supply. If a use is determined to be groundwater, then it is limited only by a standard of reasonable use or by the requirements of the Arizona Groundwater Code.⁴⁵

The judicial effort to differentiate groundwater from surface water has been ongoing in Arizona for three decades. It is reported that the development of a protocol for the thousands of wells potentially drawing water from the “saturated floodplain Holocene alluvium” was not final six years after the standard was established.⁴⁶ Based on this model, determination of which wells are within the jurisdiction of the courts will not be complete within the foreseeable future.⁴⁷

The Arizona Supreme Court acknowledged that maintaining separate laws for groundwater and surface water ignores science.⁴⁸ That Court stated that although the bifurcation of Arizona water law “may be based on an understanding of hydrology less precise than current theories, it would be inappropriate to undo that which has been done in the past.”⁴⁹ While this technically complex machination is taking place within the Arizona courts, groundwater continues to be exploited with detrimental consequences to surface flows.⁵⁰

42. Robert Glennon, *The Disconnect between Water Law and Hydrology*, in ARIZONA WATER POLICY, MANAGEMENT INNOVATIONS IN AN URBANIZING, ARID REGION, at 106 (Bonnie G. Colby & Katharine L. Jacobs eds., Resources for the Future 2007) [hereinafter Glennon, *Water Law*].

43. ROBERT GLENNON, WATER FOLLIES, GROUNDWATER PUMPING AND THE FATE OF AMERICA’S FRESH WATERS Ch. 3-4 (2002) [hereinafter GLENNON, WATER FOLLIES].

44. *In re Gen. Adjudication of All Rights to Use Water in the Gila River System and Source (Gila IV)*, 9 P.3d 1069, 1073 (Ariz. 2000).

45. ARIZ. REV. STAT. ANN. § 45-401 et. seq. (1980).

46. Joseph M. Feller, *The Adjudication that Ate Arizona Water Law*, 49 ARIZ. L. REV. 405, 424 (2007).

47. *Id.*

48. *Gila II*, 857 P.2d at 1243.

49. *Id.*

50. Feller, *supra* note 46, at 432.

The state of Colorado also has a bifurcated system.⁵¹ Groundwater is classified as “tributary” or “non-tributary” to the surface system. The difficulty lies in determining if any given well is “tributary” or “non-tributary.” Marcus Moench comments on the Colorado water rights adjudications as follows:

Despite huge investments in monitoring and analysis, the technical issues inherent in quantifying the volume of water available for appropriation in interlinked groundwater and surface-water systems are not likely to be resolved soon [F]undamental uncertainties regarding the hydrological dynamics of regional systems make accurate quantification impossible in many situations. The inherent technical challenges often undermine the social and political acceptability of volumetric rights systems—if we cannot *prove* . . . that groundwater pumping is affecting surface water rights, it is very difficult for courts or politicians to place limits on new wells or the level of extraction from existing ones.⁵²

The states of California⁵³ and Texas⁵⁴ also have bifurcated water laws and have suffered similar ecological damage and management difficulties. Vested rights to the use of water, if not based on hydrologic reality, will eventually result in harm not only to the ecology, but to other rights as well.

The risk of a separate international instrument for aquifers lies in the lessons learned from these states—too much time, money and effort is required to distinguish aquifers from other waters if different rights accrue. This is said not to minimize the global issues of groundwater extraction and aquifer protection, but to caution against creating a separate legal regime for aquifers and the groundwater therein.

Moving from the “water law” concepts of international law, the next section looks briefly at issues related to fragmentation of international law that should be considered in the examination of the Draft Articles.

51. For a discussion of the bifurcation in Texas water law, see Ronald Kaiser & Frank F. Skillern, *Deep Trouble: Options for Managing the Hidden Threat of Aquifer Depletion in Texas*, 32 TEX. TECH L. REV. 249 (2001).

52. Moench, *supra* note 14, at 96.

53. For a discussion of California law, see Gregory S. Weber, *Twenty Years of Local Groundwater Export Legislation in California: Lessons from a Patchwork Quilt*, 34 NAT. RESOURCES J. 657 (1994).

54. Texas follows a rule of capture for groundwater use. “Under the capture rule, pumping is unregulated and landowners are allowed to withdraw as much groundwater from beneath their land as they can capture. In the exercise of this right there is no liability absent malice, waste, or subsidence.” Kaiser & Skillern, *supra* note 51, n.10 (citing *Sipriano v. Great Springs Water of Am., Inc.*, 1 S.W.3d 75, 79 (Tex. 1999); *City of Sherman v. Pub. Util. Comm’n*, 643 S.W.2d 681, 686 (Tex. 1983); *Friendswood Dev. Co. v. Smith-Southwest Indus., Inc.*, 576 S.W.2d 21, 25-30 (Tex. 1978); *City of Corpus Christi v. City of Pleasanton*, 154 Tex. 289, 294, 276 S.W.2d 798, 801 (1955); *Houston & Tex. Cent. Ry. Co. v. East*, 98 Tex. 146, 148, 81 S.W. 279, 280 (1904)).

2. *Fragmentation of International Law*⁵⁵

The topic of the fragmentation of international law adds a different perspective to the discussion of whether a second freshwater instrument should be adopted. Fragmentation of international law was introduced in the ILC Study Group report as follows:

The rationale for the Commission's treatment of fragmentation is that the emergence of new and special types of law, 'self-contained regimes' and geographically or functionally limited treaty-systems creates problems of coherence in international law. New types of specialized law do not emerge accidentally but seek to respond to new technical and functional requirements Each rule-complex or 'regime' comes with its own principles, its own form of expertise and its own 'ethos', not necessarily identical to the ethos of neighbouring specialization.⁵⁶

The litigation over the MOX Plant nuclear facility near Sellafield in the United Kingdom highlights these issues. Koskenniemi describes the fragmentation of international law in relation to this set of facts as follows:

The question of the possible environmental effects of the operation of the 'MOX Plant' nuclear facility . . . has been raised at three different institutions: an Arbitral Tribunal set up under the United Nations Convention on the Law of the Sea (UNCLOS), another Tribunal under the Convention on the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention) and within the European Court of Justice (ECJ) under the European Community and Euratom Treaties. Three rule-complexes—the UNCLOS, the OSPAR Convention, and EC law—each address the same facts. Which should be determinative? Is the problem principally about the law of the sea, about (possible) pollution of the North Sea, or about inter-EC relationships? To pose such questions already points to the difficulty of providing an answer. Surely the case is about *all* of these matters? And yet, a choice has to be made between the institutions⁵⁷

55. The topic of the fragmentation of international law was the focus of a study group of the International Law Commission chaired by Martti Koskenniemi. In 2006 the Study Group reported to the General Assembly the "Conclusions of the work of the Study Group on the Fragmentation of International Law: Difficulties arising from the Diversification and Expansion of International Law." *2006 Report of the International Law Commission*, *supra* note 1, ¶ 251; Martti Koskenniemi, *Report of the Study Group of the International Law Commission*, ¶15, U.N. Doc. A/CN.4/L.682/Corr.1 (Apr. 13, 2006) [hereinafter Koskenniemi, A/CN.4/L.682/Corr.1].

56. Koskenniemi, A/CN.4/L.682/Corr.1, *supra* note 55.

57. Koskenniemi, *Fate of Public International Law*, *supra* note 40, at 7.

The UNCLOS Arbitral Tribunal deferred making such a choice and pointed out the difficulties of multiple legal regimes:

Considering also that the application of international law rules on interpretation of treaties to identical or similar provision of different treaties may not yield the same results, having regard to, *inter alia*, differences in the respective contexts, objects and purposes, subsequent practice of parties and *travaux préparatoires*⁵⁸

The Draft Articles and the 1997 U.N. Convention contain many of the same or similar provisions. However, these two documents were prepared at different times by different members of the ILC, and both may apply to the same use of water. In essence they may be separate instruments within the same “regime.” Is “equitable and reasonable utilization” of an aquifer⁵⁹ to be interpreted the same as equitable and reasonable utilization of an international watercourse?⁶⁰ Utilization of an aquifer based on the Draft Articles includes Article 3, Sovereignty of Aquifer States, which is not part of the 1997 U.N. Convention. Will this change the principles or change the application of the principles?

One reason given for the fragmentation of international law is the increasingly technical subject matters of concern to states ranging from trade to communications to the global environment. In his Chorley Lecture delivered 7 June 2006, Koskenniemi suggested “that the problems faced by international law today—marginalization, lack of normative force, a sense that the diplomatic mores that stand at its heart are part of the world’s problems—result in large part from . . . the effort of becoming technical.”⁶¹

The Draft Articles and the 1997 U.N. Convention are technical. Freshwater instruments that are based on equitable standards require technical experts to provide the information necessary to balance the factors. The Draft Articles are even more technical than the 1997 U.N. Convention, requiring knowledge and expertise about aquifers as recharging or non-recharging before determining which set of rules to apply. If a question arises in negotiations or within a dispute as to which instrument to apply, the Draft Articles or the 1997 U.N. Convention, should this be decided by hydrologic information that was previously unknown by the parties?

As discussed above under the topic of bifurcation, freshwater is not easily characterized. It can be identified as belonging to an aquifer and thereby governed by an instrument specific to aquifers, or it can be characterized as an international watercourse as defined by the 1997 U.N. Convention. Loures and

58. MOX Plant Case (No. 10) (Ir. v. U.K.), 126 I.L.R. 273, ¶ 51 (Int’l Trib. L. of the Sea 2001), available at http://www.itlos.org/case_documents/2001/document_en_197.pdf.

59. 2006 Draft Articles, *supra* note 1, art. 4.

60. 1997 U.N. Convention, *supra* note 22, art. 5.

61. Koskenniemi, *Fate of Public International Law*, *supra* note 40, at 2.

Delapenna discuss the difficulty of separating a naturally interconnected hydrologic system into separate legal regimes, and conclude that the Draft Articles should not become a second international freshwater instrument but should take the form of a protocol to the 1997 U.N. Convention.⁶²

In the commentary to the Draft Articles, the ILC acknowledged the difficulty of overlapping instruments⁶³ and deferred resolution by referencing the charge to the Commission to codify the law on “shared natural resources”⁶⁴ stating:

[T]he present draft articles apply only to “transboundary” aquifers or aquifer systems. All the transboundary aquifers and aquifer systems will be governed by the present draft articles, regardless of whether they are hydraulically connected to international watercourses [T]he possibility that such groundwaters [those included in the 1997 UN Convention] are also governed by the present draft articles could not be completely disregarded. Accordingly, when the present draft articles were to become a legally binding instrument, the need would arise to determine the relationship between the present draft articles and the 1997 [UN] Convention.⁶⁵

3. Aquifers or Groundwater

Koskenniemi maintains that within a fragmented system of international law the characterization of a dispute as environmental, trade, or human rights, determines the applicable legal regime which in turn determines the outcome of a dispute. The author submits that the characterization of the topic before the ILC as aquifers, not as groundwaters, influenced the approach taken by the ILC in preparing the Draft Articles.

The definition of “aquifer” is “a permeable water-bearing geological formation underlain by a less permeable layer and the water contained in the saturated zone of the formation.”⁶⁶ This definition, while scientifically correct,⁶⁷ is less than clear and raises legal questions. The geologic formation is static and made up of the rock, soil, and underground “cavities.” The water contained therein is fluid and moves across boundaries in response to natural conditions and human activities. The Draft Articles reflect this dichotomy. Draft Article 3 regarding Sovereignty is applicable to the geologic formation and not the water. However, Draft Articles 4, Equitable and Reasonable Utilization, applies to the water contained in the aquifer. Describing its scope in terms of “aquifers” not

62. Loures & Dellapenna, *supra* note 8.

63. *2008 Report of the International Law Commission, supra* note 1, ¶¶ 39-45.

64. *Id.* ¶ 32.

65. *Id.* ¶ 54, art. 1 cmt..

66. *Id.* art. 2(a).

67. See, e.g., Kerstin Mechlem, *International Law Commission Adopts Draft Articles of a Transboundary Aquifers Convention*, 12 AM. SOC'Y INT'L L. 18 (2008).

“groundwaters” is not without consequence. This approach moves the perspective of the Draft Articles away from the topic of freshwater—which is “of vital importance for sustaining life, health and the integrity of ecosystems”⁶⁸—to that of underground geologic formations.

The inclusion of the provisions on sovereignty over the aquifer may have been influenced by this definitional structure and by the manner in which the ILC took up the topic. The ILC took up the law of transboundary aquifers as part of the topic of “Shared Natural Resources.” The ILC Report to the General Assembly states, “It was generally understood that this topic included groundwaters, oil and natural gas, while some preferred to include also such resources as migratory birds and animals on one hand and some others preferred to limit it so as to deal solely with groundwaters on the other.”⁶⁹ The ILC Commentary to the Draft Articles goes on to state that the *Special Rapporteur* “recognises that the work on transboundary groundwaters could affect any future codification work by the Commission on oil and natural gas.”⁷⁰ This characterization of groundwater as a similar resource to oil and natural gas for purposes of determining the legal principles for “sharing” natural resources may account for the decision to include Draft Article 3, Sovereignty of Aquifer States, even though sovereignty is a discredited theory of international water law.⁷¹

Freshwater is not an economic good in the same sense as oil and natural gas. Falkenmark makes the following observation about freshwaters as economic goods:

[W]ater is vital to life for which there is no substitute, and there is no alternative choice to water. The only choice is how to allocate water and to find the most efficient way of using it. Water, then, is immeasurably different from other economic goods. One cannot easily choose another type of water without tapping the same resource. Water is not an ordinary economic good: it is [sic] special economic good.⁷²

This does not mean that the law related to groundwater should be identical to that of the 1997 U.N. Convention. Eckstein cautions against using a surface water management regime for groundwaters, giving as an example the

68. *Resolution on Confined Transboundary Groundwater, in 1994 Report of the International Law Commission, supra* note 29, at 135.

69. *2006 Report of the International Law Commission, supra* note 1, ¶ 76, gen. cmt.

70. *Id.* ¶ 76, art 2. In his fifth report, *Special Rapporteur Yamada* acknowledged that comments from governments dealt with the differences between water, oil, and gas, but only after the text of the 2006 Draft Articles was solidified. He noted that the 2006 Draft Articles would not form the basis of the ILC work on oil and gas, but did not acknowledge that concerns over oil and gas may have influenced the Draft Articles. See Chusei Yamada, *Special Rapporteur, Fifth Report on Shared Natural Resources: Transboundary Aquifers*, ¶¶ 4-6, U.N. Doc. A/CN.4/591 (Feb. 21, 2008) [hereinafter *Yamada, Fifth Report*] for this discussion.

71. *See infra* Part IV.

72. Falkenmark & Rockström, *supra* note 11.

vulnerability of groundwaters to contamination because it does not cleanse itself like surface waters. He says,

The applicability of surface water law to ground water resources must be examined carefully, keeping in mind the similarities and differences of surface and ground water, the relationship between the two resources, and the science of water. This is especially important with regard to the general principles related to the utilization, allocation, and management of transboundary aquifers.⁷³

These differences do not require a new international instrument. They are easily accommodated within a determination of what is an equitable and reasonable utilization of freshwater, what is sustainable, and what is required for the prevention of significant harm. Earlier, in 1995, Eckstein argued that the principles of the draft articles that became the 1997 U.N. Convention should apply to groundwater resources.⁷⁴ He stated:

The inclusion of transboundary groundwater within the legal regime governing international water resources is a relatively recent concept in the development of international water law. It is following, albeit slowly, the acknowledgement by science that the two sources of water are indissociable and interdependent such that the deterioration of one will likely have serious consequences upon the other. The recognition of this nexus by planners and policy makers is especially crucial in light of the growing demands being placed on water resources globally.⁷⁵

Given the increase in scientific understanding of aquifers and the interconnectedness within the hydrologic cycle since 1995, this earlier reasoning is more supportive of a unified freshwater regime.

The ILC and international scholars should make an effort to focus on water as an integrated hydrologic system and to reduce the fragmentation of international water law and recall that the object of the Draft Articles is water. The differences in management of groundwater and surface water may be accommodated within one body of international water law, the 1997 U.N. Convention.

The next section looks at Article 3, Sovereignty of aquifer states, a substantive article within General Principles that was not included in the 1997 U.N. Convention.

73. Eckstein 2007, *supra* note 7, at 559-560.

74. Gabriel Eckstein, *Application of International Water Law to Transboundary Groundwater Resources, and the Slovak-Hungarian Dispute over Gabčíkovo-Nagymaros*, 19 SUFFOLK TRANSNAT'L L. REV. 67 (1995) [hereinafter Eckstein 1995].

75. *Id.* at 98.

IV. SOVEREIGNTY OVER AQUIFERS

“Sovereignty” is a politically charged word which changes the dynamics of discussions and negotiations. This section discusses the addition of a General Principle on sovereignty. It deconstructs Article 3 and the meaning of sovereignty before reviewing the discredited theories of sovereignty over freshwater resources. This is followed in Part V with a discussion of the legal dispute over use of the Arkansas River, in which each side used theories of sovereignty to support conflicting claims.

Draft Article 3 first appeared in the July 28, 2005 Report of the Working Group, without commentary or reference to the practices of states.⁷⁶ Prior to this, *Special Rapporteur Yamada* discussed “sovereignty” by reference to the General Assembly Resolution 1803, Permanent Sovereignty over Natural Resources. Yamada reported:

The need to have an explicit reference to General Assembly resolution 1803 (XVII) on permanent sovereignty over natural resources in the preamble to the draft articles was advocated particularly by those delegations that are of the opinion that water resources belong to the States in which they are located and are subject to the exclusive sovereignty of those States. The Special Rapporteur recognizes the sensitivity of the question and is willing to include such a reference in the preamble. However, in accordance with the general practice of the Commission, he prefers to postpone the formulation of the preamble until after the substantive draft articles have been agreed upon and all factors to be incorporated in the preamble are known.⁷⁷

Yamada discussed the sovereign equality of states and the sovereign rights of states with the following statement as commentary to the Draft Article on equitable and reasonable utilization:

States have sovereign rights over the natural resources located within their jurisdiction and aquifer States are entitled to utilize aquifers and aquifer systems within their territories. It is needless to say that such rights should not be absolute and unlimited.⁷⁸

The ILC reports and documentation do not include a discussion of the practice of States that support inclusion of an article on the sovereignty of aquifer States over groundwater. Similarly, those States submitting comments on this

76. Working Group on Shared Natural Resources, *Report of the Working Group*, ¶ 6, U. N. Doc. A/CN.4/L.681 (July 28, 2005).

77. Chusei Yamada, Special Rapporteur, *Third Report on Shared Natural Resources: Transboundary Groundwaters*, ¶ 4, delivered to the General Assembly, U.N. Doc. A/CN.4/551 (Feb. 11, 2005) [hereinafter Yamada, *Third Report*].

78. *Id.* ¶ 19.

topic in 2005 in response to the ILC questionnaire did not assert sovereignty as a general principle in the utilization of groundwater.⁷⁹ Nevertheless, “Sovereignty of aquifer States,” the first article in Part II, General Principles, reads as follows:

Article 3

Sovereignty of Aquifer States

Each aquifer State has sovereignty over the portion of a transboundary aquifer or aquifer system located within its territory. It shall exercise its sovereignty in accordance with international law and the present draft articles.⁸⁰

The 2006 Draft Articles qualified the concept of sovereignty by stating that it shall be “exercise[d] . . . in accordance with the present draft articles,”⁸¹ which include utilization of the aquifer “according to the principle of equitable and reasonable utilization.”⁸² Eckstein maintains that the inclusion of Article 3 with this qualifying language provides more limitations on utilization of an aquifer than if Article 3 were not included.⁸³ This paper, however, maintains that the limitations in the second sentence are insufficient to temper the charge “sovereignty” injects into a negotiation.

The Draft Articles as recommended to the General Assembly in 2008 have been changed slightly from the earlier version. The second sentence in Article 3 now states that the exercise of sovereignty over a transboundary aquifer shall be exercised in accordance with “international law” in addition to the present draft articles.⁸⁴ States are bound by customary international law, regardless of what is included in this Draft Article. The addition of this phrase does not enhance Article 3 and the Commentary makes the provision more confusing⁸⁵ with references to general treaties and instruments dealing with air, biological diversity, fish stocks and a host of other topics. However, the Commentary does not address the theories of sovereignty over water resources or the previous work of the ILC on this topic.⁸⁶

79. See U. N. GAOR, *Shared Natural Resources: Comments and Observations Received from Governments and Relevant Intergovernmental Organizations*, U.N. Doc. A/CN.4/555. (April 29, 2005).

80. 2008 Draft Articles, *supra* note 1, art. 3.

81. 2006 Draft Articles, *supra* note 1, art. 3.

82. *Id.* art. 4.

83. Eckstein 2007, *supra* note 7, at 560-62.

84. *Report of the International Law Commission*, *supra* note 1, art. 3.

85. See *id.* art. 3 cmt.

86. Compare the *travaux préparatoire* for the Draft Articles on the Law of Transboundary Aquifers with only one of the Reports on the Law of Preparatoire the Non-navigational Uses of International Watercourses. Stephen M. Schwebel, Special Rapporteur, *Second Report on the Law of the Non-navigational Uses of International Watercourses*, A/CN.4/332 (Apr. 24, May 22, 1980), reprinted in [1980] 2 Y.B. Int'l L. Comm'n 159 [hereinafter Schwebel, *Second Report*].

The 1997 U.N. Convention does not contain a corresponding provision on sovereignty. Therefore, it is reasonable to argue that the addition of Article 3 bestows additional rights on a State utilizing an aquifer under the Draft Articles than what are available under the 1997 U.N. Convention. In order to examine possible implications of Draft Article 3 regarding sovereignty over a portion of a transboundary aquifer, this section examines the definition and use of the term sovereignty.

Black's Law Dictionary defines sovereignty by describing the independent powers included in the concept of sovereignty: "The supreme, absolute, and uncontrollable power by which any independent state is governed By "sovereignty" in its largest sense is meant supreme, absolute, uncontrollable power, the absolute right to govern."⁸⁷

"Sovereignty" distinguishes a self-governing area, that is recognized by other States, from a territory of another State, a trusteeship or a "no-man's land." Sovereignty is the recognition that a State is legitimate vis-à-vis other States and private interests.⁸⁸

Thusly defined we have two concepts of sovereignty; first, a territory recognized as a state within the international community of states and second, the exercise of the highest governmental authority within that territory. Brownlie describes the two concepts:

In spatial terms the law knows four types of regime: territorial sovereignty, territory not subject to the sovereignty of any state or states and which possesses a status of its own (trust territories, for example), the *res nullius*, and the *res communis*. Territorial sovereignty extends principally over land territory, the territorial sea appurtenant to the land, and the seabed and subsoil of the territorial sea.⁸⁹

The state territory and its appurtenances (airspace and territorial sea), together with the government and population within its frontiers, comprise the physical and social manifestations of the primary type of international legal person, the state. The legal competence of states and the rules for their protection depend on and assume the existence of a stable, physically delimited, homeland. The competence of states in respect of their territory is usually described in terms of sovereignty and jurisdiction⁹⁰

Sovereignty is also the concept that links the two aspects, fixing authority to a place. Sovereignty is a "mappable understanding of authority's domain, namely, territory."⁹¹

87. BLACK'S LAW DICTIONARY 1396 (6th ed. 1990).

88. See KEN CONCA, GOVERNING WATER: CONTENTIOUS TRANSNATIONAL POLITICS AND GLOBAL INSTITUTION BUILDING 44 (MIT Press 2006).

89. IAN BROWNLIE, PRINCIPLES OF PUBLIC INTERNATIONAL LAW 105 (Oxford University Press 7th ed. 2008) (1966).

90. *Id.*

91. CONCA, *supra* note 88, at 46.

Draft Article 3 provides, “Each aquifer state has sovereignty over the portion of a transboundary aquifer or aquifer system located within its territory.”⁹² This is irrefutable if it applies to sovereignty over the rocks and soil that make up the “geological formation[s].”⁹³ If, however, Draft Article 3 means that states exercise sovereignty over the transboundary (international) fresh water resources contained within the “geological formation,” this is contrary to international law, which does not recognize sovereignty as a basis for the use of international freshwaters.⁹⁴

International freshwaters are not static; they do not stay within one territory nor do they respect political boundaries. Even static water within a non-recharging or confined aquifer flows in a cone of depression toward the point of pumping. The constant movement of freshwater through the hydrologic cycle makes water unsuitable for the application of legal concepts based on territory. One possible interpretation of Draft Article 3 is that sovereignty is exercised over a state’s equitable and reasonable portion of the water within the aquifer. In other words, State A holds a right to utilize an equitable share of an aquifer and uses its sovereign authority to determine how and by whom that water is used.⁹⁵ This is consistent with the language of Principle 2 of the Rio Declaration on the Environment and Development:

States have, in accordance with the Charter of the United Nations and the principles of international law, *the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies*, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.⁹⁶

This interpretation is not consistent with the language of Article 3 that each state has sovereignty *over* aquifers within its territory. The ILC Commentary does not indicate that this is the preferred interpretation.⁹⁷ However, sovereignty and concepts of equitable utilization of a resource are inherently contradictory⁹⁸

92. 2008 Draft Articles, *supra* note 1, art. 3

93. *Id.* art. 2(a).

94. See Schwebel, *Second Report*, *supra* note 86; STEPHEN C. McCAFFREY, *THE LAW OF INTERNATIONAL WATERCOURSES* ch. 5 (Oxford University Press 2d ed. 2007).

95. See *Hinderlider v. La Plata River & Cherry Creek Ditch Co.*, 304 U.S. 92, 108-109 (1938) *reh'g denied*, 305 U.S. 668 (1938) (proposing that a state may exercise authority only over so much water as is permitted to be used within the state according to an equitable apportionment contained in an interstate compact).

96. U.N. GAOR, *Report of the United Nations Conference on Environment and Development, Rio Declaration on the Environment and Development*, A/CONF.151/26 (Vol. I) (June 3-14, 1992) (emphasis added), available at <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>.

97. See 2008 Draft Articles, *supra* note 1, art. 3 cmt.

98. CONCA, *supra* note 88, at 119 (express provisions affirming a state’s sovereign rights may be in response to “the emergence of ‘trans-sovereign’ norms stressing the responsibilities as well as rights of states in

unless the principle of sovereignty is limited in its exercise to a State's equitable portion of the water resources within an aquifer.⁹⁹

Equitable utilization of water resources includes a temporal element.¹⁰⁰ What is equitable today may not be equitable next year or into the next decade because the resource available for utilization has changed and because the human interaction with the resource changes. The water within "the portion of a transboundary aquifer or aquifer system located within [a State's] territory"¹⁰¹ is also constantly changing and will continue to change as water is withdrawn from one side, and then the other side, of a border. Sovereignty over a resource is a static state that does not incorporate this temporal aspect.

Sovereignty is also a territorial concept that is inapplicable to international freshwaters. The next section summarizes the historical legal theories of sovereignty over water resources that have been asserted and repudiated.

A. *Theories of Sovereignty Over Fresh Waters*

The Commentary to the Draft Articles does not reference the historical theories of sovereignty over water resources¹⁰² or the previous work of the ILC on this topic in preparation of the 1997 U.N. Convention.¹⁰³ The United States Supreme Court, the International Law Commission, and scholars of domestic and international water law have thoroughly examined and repudiated the theories of sovereignty over freshwaters.¹⁰⁴

In his book on the law of international watercourses,¹⁰⁵ Stephen McCaffrey traces the development of the legal theories of sovereignty over international watercourses.¹⁰⁶ The theory of absolute territorial sovereignty was historically asserted by upstream states and is reflected in the "Harmon Doctrine" most notably set forth by an attorney general for the United States during negotiations with Mexico over the Rio Grande. The doctrine provides that an upstream state may utilize a transboundary watercourse within its territory without consideration of the consequences downstream.¹⁰⁷ It is a theory based on international independence and an expression of the absolute sovereign powers within a state's territory.

The opposite theory, asserted by downstream states, is that of absolute territorial integrity. While not using the word "sovereignty" in its label, it is based in principles

shared basins").

99. *See id.*

100. MCCAFFREY, *supra* note 94, at 388.

101. 2008 Draft Articles, *supra* note 1, art. 3.

102. *See* 2008 Draft Articles, *supra* note 1, art. 3 cmt.; 2006 Draft Articles, *supra* note 1, art. 3 cmt.

103. *See* Schwebel, *Second Report*, *supra* note 86.

104. *See* MCCAFFREY, *supra* note 94, ch. 5.

105. *Id.* Stephen C. McCaffrey served as *Special Rapporteur* on this topic from 1985 to 1991.

106. *Id.*

107. *Id.* at 77.

of absolute dominion and power within a state's territory and the maxim *sic utere tuo ut alienum non laedas* (so use your own as not to harm that of another).¹⁰⁸ Absolute territorial integrity entitles a state to receive the full flow of a watercourse undiminished by upstream uses. McCaffrey again references the work of a United States advisor to an international controversy as articulating this theory: "It is a fundamental principle of the law of nations that a sovereign state is supreme within its own territorial domain and that it and its nationals are entitled to use and enjoy their territory and property without interference from an outside source."¹⁰⁹ The practical problem with this theory is that if applied to all States that are riparian to an international watercourse, only the State farthest downstream is entitled to utilize the watercourse.

McCaffrey concludes the discussion of these two theories as follows:

History has been no kinder to the doctrine of absolute territorial integrity than to its theoretical opposite absolute territorial sovereignty. Both doctrines are, in essence, factually myopic and legally 'anarchic': they ignore other states' need for and reliance on the waters of an international watercourse, and they deny that sovereignty entails duties as well as rights. As freshwater becomes increasingly precious and nations of the world ever more interdependent, both doctrines become increasingly less relevant and defensible.¹¹⁰

McCaffrey goes on to trace the limitations of sovereignty in relation to waters including the following quote from Oppenheim's 1905 treatise on international law.

[T]erritorial supremacy does not give a boundless liberty of action. Thus, by customary International Law . . . a State is, in spite of its territorial supremacy, not allowed to alter the natural conditions of its own territory to the disadvantage of the natural conditions of a territory of a neighbouring state—for instance, to stop or divert the flow of a river which runs from its own into a neighbouring territory.¹¹¹

The Commentary to Draft Article 3¹¹² indicates that many states advocated including Article 3¹¹³ and/or referencing the 1962 General Assembly resolution

108. See *id.* ch. 11 (discussing in general the no-harm principle based in part on the principle of *sic utere tuo ut alienum non laedas*).

109. *Id.* at 127 (quoting Green H. Hackworth, *Memorandum in Relation to the Arbitration of the Trail Smelter Case*, 5 WHITEMAN 183 (Aug. 10, 1937)).

110. *Id.* at 133 (internal citations removed).

111. *Id.* at 391 (quoting OPPENHEIM 175 (1st ed. 1905)).

112. 2006 Draft Articles, *supra* note 1, art. 3 cmt.

113. *Id.*; see also International Law Commission, *Shared Natural Resources: Comments and Observations by Governments on the Draft Articles on the Law of Transboundary Aquifers*, A/CN.4/595 (March 26, 2008); Yamada, *Fifth Report*, *supra* note 70.

1803, “Permanent sovereignty over natural resources.”¹¹⁴ Since 1962 international law has developed limitations on the exercise of sovereignty over natural resources, requiring states to respect the natural environment beyond their territorial limits.¹¹⁵ The law recognizes that utilization of transboundary resources impacts all states that share the same resource.

Eckstein, in his *Commentary on the Draft Articles*, indicated that Article 3 was added to dispel “the notion that ground water resources might be subject to a common heritage of humankind.”¹¹⁶ This concern is not expressed by the official commentary prepared by the ILC. However, it would appear that this concern is alleviated by a discussion of the inapplicability of this concept to freshwater and aquifers. First, the concept of a “common heritage of mankind” is not a principle of international law, but has been described as no more than “a philosophical notion.”¹¹⁷ Second, the precepts of this “notion” are not applicable to transboundary aquifers. The “common heritage of humankind” applies to unappropriated global common spaces such as outer space and the deep sea beds. Aquifers are not unappropriated global common spaces. They are regional resources utilized by the overlying states. In many instances the legal issue to be addressed by the law of transboundary freshwaters is not the preservation of an unappropriated global commons, but the over-appropriation by local interests.

Eckstein indicates that Draft Article 3 explicitly limits absolute sovereignty by making sovereignty exercisable only in accordance with the Draft Articles,¹¹⁸ which include the principles of equitable and reasonable utilization and the prevention of significant harm.¹¹⁹ This is one interpretation. It is equally plausible that States will consider Draft Article 3 to be an explicit “recognition” of sovereignty over aquifers, and that the equitable and reasonable utilization of aquifers is in some way different from utilization of surface waters.

Considering that the 1997 U.N. Convention on the law of non-navigational uses of international watercourses does not include a provision on sovereignty, the question becomes: What does the addition of Article 3 mean? It cannot be determined that it is a codification of customary international law without

114. G.A. Res. 1803 (XVII), (Dec. 14, 1962). A thorough discussion of this Resolution is beyond the scope of this article; however that this Resolution passed at the end of the colonial era is a recognition that governmental control over the natural resources within a territory is an attribute of sovereignty and within state authority. Transboundary freshwaters do not conform to these territorial limitations and create special circumstances not covered by this more general statement on sovereignty.

115. See ALEXANDRE KISS & DINAH SHELTON, *INTERNATIONAL ENVIRONMENTAL LAW* 189-90 (Transnational Publishers 3d ed. 2004) (discussing the development of the environmental principles limiting sovereignty).

116. Eckstein 2007, *supra* note 7, at 561.

117. Christopher C. Joyner, *Legal Implications of the Concept of the Common Heritage of Mankind*, 35 *INT’L & COMP. L.Q.* 190, 199 (1986).

118. Eckstein 2007, *supra* note 7, at 561.

119. The 2008 Draft Articles as recommended to the General Assembly added that sovereignty be exercised in accordance with “international law.” 2008 Draft Articles, *supra* note 1, art. 3.

documentation of this custom and *opinio juris*.¹²⁰ Is it the progressive development of international law?¹²¹ This question is particularly pertinent recalling that the scope of the Draft Articles overlaps the scope of the 1997 U.N. Convention. Both potentially apply to the same waters, and leave an impression that the later Draft Articles are the more progressive instrument.

McCaffrey characterizes the addition of Article 3, Sovereignty of Aquifer States, and the placement of this article in such a prominent position as “unhelpful” at best.¹²² As the stress on freshwater resources increases, integrated and transboundary management of these resources becomes more important. To be effective, management must move beyond the boundaries of sovereignty for even those water resources which are considered domestic and wholly within one state. If any of these freshwaters are mismanaged, polluted, or depleted, there will be international consequences.¹²³

Negotiations over transboundary freshwaters that use the framework established by the 1997 U.N. Convention start with a common understanding of the law based on three principles: equitable and reasonable utilization, prevention of significant harm and prior notification of planned measures. Negotiations among states over utilization of transboundary aquifers based on the Draft Articles may start with the assertion of sovereignty over that portion of the aquifer underlying each state’s territory. To use McCaffrey’s term, this is “unhelpful” to promote cooperation over shared transboundary water resources. The politically charged concept of sovereignty is illustrated in the history of disputes between the states of Colorado and Kansas over the Arkansas River.

V. ARKANSAS RIVER DISPUTES

In what seems like a comment on today’s global water situation, Justice Brewer of the United States Supreme Court described the dispute between the states of Kansas and Colorado over use of the Arkansas River more than one hundred years ago as follows:

Controversies between the States are becoming frequent, and in the rapidly changing conditions of life and business are likely to become still more so. Involving as they do the rights of political communities, which in many respects are sovereign and independent, they present not infrequently questions of far-reaching import and of exceeding difficulty.¹²⁴

120. Eckstein 2007, *supra* note 7, at 561.

121. G.A. Res. 174 (II) (Nov. 21, 1947), *amended by* G.A. Res. 485 (V) (Dec. 12, 1950), G.A. Res. 984 (X) (Dec. 3, 1955), G.A. Res. 985 (X) (Dec. 3, 1955), G.A. Res. 36/39, art. 1 (Nov. 18, 1981).

122. *See* MCCAFFREY, *supra* note 94, at 502.

123. *See* CONCA, *supra* note 88, at 169.

124. *Kansas v. Colorado*, 206 U.S. 46, 80 (1907).

In *Kansas v. Colorado*,¹²⁵ the U.S. Supreme Court defined the principle of equitable apportionment which formed the basis of the international doctrine of equitable utilization.¹²⁶ The Arkansas River disputes between the upstream state of Colorado and the downstream state of Kansas are examples not atypical of transboundary water disputes. The downstream state was the first to develop and cried foul when the upstream state starting using the watercourse. Each state claimed sovereignty over the waters. The United States Supreme Court resolved the competing claims of sovereignty with the first articulation of the principle of equitable apportionment.¹²⁷ After decades of litigation, the two states reached a compromise agreement memorialized in an interstate compact, which held off further litigation until groundwater use upstream increased such that it impacted downstream uses and the two states returned to court to determine the scope of the compact in relation to groundwater.

The Arkansas River originates in the Rocky Mountains in the state of Colorado. It flows southeasterly for approximately 280 miles (450 km) until it crosses into the state of Kansas where it flows for 300 miles (482 km) to the border with the state of Oklahoma. It then flows through Oklahoma and into the state of Arkansas where it joins the Mississippi River, which empties into the Gulf of Mexico. The Arkansas River is fed at its headwaters by snowmelt which creates a torrential river in the spring and summer. It becomes a slow meandering watercourse in Kansas with few tributaries. Throughout Kansas the river flows through a broad and deep alluvial valley.¹²⁸

In 1902, the time of the first dispute between Kansas and Colorado,¹²⁹ both states were young¹³⁰ and competing for wealth from their resources. The downstream portion of the Arkansas River Valley was settled in Kansas with the river used for agriculture development, power production, manufacturing and milling. In Kansas, the Arkansas River flows within the banks of the river as surface water and through the alluvial deposits in the valley. Water allocation within the state of Kansas is based on riparian rights to the usual and normal flow of the river “as it was accustomed to run.”¹³¹ In 1902, Kansas alleged that the usual and normal flow was being diminished by new uses within Colorado.

125. *Id.*

126. MCCAFFREY, *supra* note 94, at 384. “Born of the United States Supreme Court’s decisions in interstate apportionment cases beginning in the early twentieth century, and supported by decisions in other federal states, the doctrine of equitable utilization” was used in the 1966 Helsinki Rules, confirmed by the International Court of Justice in the *Case concerning the Gabčíkovo-Nagymaros Project* as the ‘overarching principle governing the use of international watercourses’ . . .” *Id.* at 384-385 (citations omitted).

127. *Kansas*, 206 U.S. at 118.

128. *Kansas v. Colorado*, 185 U.S. 125, 126-29 (1902).

129. *Kansas*, 185 U.S. 125.

130. Kansas was admitted as a state in the union of the United States January 29, 1861 and Colorado was admitted on August 1, 1876. *Kansas*, 206 U.S. at 50.

131. *Id.* at 60.

Colorado is one of several states in the western United States that are arid or semi-arid and follow the law of prior appropriation of surface waters. The law of prior appropriation gives the first person who puts the water to beneficial use the prior, and superior, right to continue that use. This system of water law creates a ranking of users giving the “first in time” priority over those “later in time” during times of water shortage. At the turn of the twentieth century, diversion projects in Colorado were being built in order to “reclaim” non-riparian lands and convert “arid and uninhabited wastes into populous districts with productive farms and thriving towns and industries.”¹³²

Both Kansas and Colorado had strong interests in protecting their economic base, the livelihood of their citizens, and their own rule of law over water resources. Both states asserted sovereignty over the water of the Arkansas River. Colorado, the upstream state, asserted the sovereign right “to appropriate all the waters of this stream for the purposes of irrigating its soil and making more valuable its own territory.”¹³³ This embodied a position of “absolute territorial sovereignty,” or the Harmon Doctrine. Kansas, the downstream state following riparian law, asserted “that the flowing water in the Arkansas must . . . be left to flow as it was wont to flow, no portion of it being appropriated in Colorado for the purposes of irrigation”¹³⁴ Thus Kansas’ position was one of “absolute territorial integrity.” The Supreme Court rebuked each of these claims of sovereignty characterizing each state’s legal position as “extreme.”¹³⁵ The Court stated that “[i]f the two States were absolutely independent nations [this dispute] would be settled by treaty or by force.”¹³⁶

The Court transformed the assertions of state sovereignty over the resource by acknowledging the quasi-sovereign status of each state recognizing their “sovereign equality” and then characterizing the assertions of sovereignty over the water resource as matters of state jurisdiction.¹³⁷ The Court determined that “each state has full jurisdiction over the lands within its borders, including the beds of streams and other waters,”¹³⁸ and that each state “may determine for itself whether the common-law rule in respect to riparian rights or that doctrine which obtains in the arid regions of the West of the appropriation of waters for the purposes of irrigation [the doctrine of prior appropriation] shall control.”¹³⁹ However, the Court determined that neither state had sovereignty over the water to the exclusion of the other.

132. *Id.* at 62-63.

133. *Id.* at 98.

134. *Id.*

135. *Id.*

136. *Id.*

137. *Id.* at 100.

138. *Id.* at 93 (citations omitted).

139. *Id.* at 94.

To resolve the dispute the Court examined the benefit to Colorado resulting from appropriation of waters from the Arkansas River balanced against the harm to Kansas resulting from not receiving the full flow. The Court acknowledged harm to individual interests in Kansas, but did not find that the harm to the *state* was sufficient to counter the great benefits that were accruing to Colorado from the irrigation of arid lands. “We must consider the effect of what has been done upon the conditions in the respective states and so adjust the dispute upon the basis of equality of rights as to secure as far as possible to Colorado the benefits of irrigation without depriving Kansas of the like beneficial effects of a flowing stream.”¹⁴⁰

The action by Kansas against Colorado was dismissed without prejudice “to institute new proceedings whenever it shall appear that through a material increase in the depletion of the waters of the Arkansas [River] by Colorado, its corporations or citizens, the substantial interests of Kansas are being injured to the extent of destroying the equitable apportionment of benefits between the two states resulting from the flow of the river.”¹⁴¹ This did not take long. Three years after the Court dismissed the case, a private ditch company in Kansas sued water users in Colorado seeking an adjudication of relative rights.¹⁴² This was followed by numerous lawsuits by private entities in Kansas against Colorado water users until 1928, when Colorado sued Kansas seeking an injunction against further private lawsuits. In response, Kansas asked the Court to make a volumetric apportionment of the waters of the Arkansas River. The Special Master appointed by the Supreme Court to take evidence made such an apportionment, but the Court did not accept the Special Master Report. In rejecting the apportionment, the Court stated:

The reason for judicial caution in adjudicating the relative rights of states in such cases is that, while we have jurisdiction of such disputes, they involve the interests of quasi-sovereigns, present complicated and delicate questions, and, due to the possibility of future change of conditions, necessitate expert administration rather than judicial imposition of a hard and fast rule. Such controversies may appropriately be composed by negotiation and agreement, pursuant to the compact clause of the Federal constitution.¹⁴³

In 1943, the Court enjoined the entities in Kansas from continuing to sue water users in Colorado and encouraged the states to negotiate an agreement

140. *Id.* at 100.

141. *Id.* at 117-18.

142. *See Colorado v. Kansas*, 320 U.S. 383, 386-388 (1943), *reh'g denied*, 321 U.S. 803 (Mar. 6, 1944) (discussing, but not citing, litigation that commenced on August 27, 1910, brought by the United States Irrigating Company against the Graham Ditch Company to determine the priorities of Kansas and Colorado water users).

143. *Id.* at 392.

based on an equitable apportionment of benefits. The next section discusses that agreement.

A. *Arkansas River Compact*¹⁴⁴

Kansas and Colorado proceeded to negotiate the Arkansas River Compact, which was concluded in 1948 and approved by the United States Congress in 1949. The provisions of import for this discussion are Article III defining the scope of the compact, Article IV(D) regarding future development, and Article VI(A) regarding reservation of rights to each state. The discussion starts with the latter.

Colorado and Kansas both asserted sovereign rights to the water of the Arkansas River, which were repudiated by the United States Supreme Court. In the Compact both states preserved those aspects of sovereignty accepted by the Court in a way most important to each, while clarifying the extent of rights withheld and granted.

Kansas placed its focus on state jurisdiction with the following provision: Nothing in this Compact shall be construed as impairing the jurisdiction of Kansas over the waters of the Arkansas river that originate in Kansas and over the waters that flow from Colorado across the state line into Kansas.¹⁴⁵

Colorado focused on administration of water rights with this provision:

Except as otherwise provided, nothing in this Compact shall be construed as supplanting the administration by Colorado of the rights of appropriators of waters of the Arkansas river in said state as decreed to said appropriators by the courts of Colorado, nor as interfering with the distribution among said appropriators by Colorado, nor as curtailing the diversion and use for irrigation and other beneficial purposes in Colorado of the waters of the Arkansas river.¹⁴⁶

The scope of the Arkansas River Compact is determined by the description of the waters that are included. The Compact provides that a major purpose is to “[e]quitably divide and apportion . . . the waters of the Arkansas river and their utilization,”¹⁴⁷ defining “waters of the Arkansas river” as “the waters originating in the natural drainage basin of the Arkansas river, including its tributaries”¹⁴⁸ “River flow” is defined as “the sum of the flows of the Arkansas and the Purgatoire rivers into John Martin Reservoir as determined by gaging [sic]

144. KAN. STAT. ANN. § 82a-520 (2008).

145. *Id.* art. VI(A)(1).

146. *Id.* art. VI(A)(2).

147. *Id.* art. I(B).

148. *Id.* art. III(B).

stations”¹⁴⁹ The Compact does not further define its scope as to groundwater or surface waters within the drainage basin. Farmers in Kansas divert water from the surface flow and also withdraw water with pumps in the alluvial basin, all of which is considered “waters of the Arkansas river.” Appropriators in Colorado also divert directly from the surface watercourse and with pumps.

Article IV(D) discusses future development providing that:

This compact is not intended to impede or prevent future beneficial development of the Arkansas river basin in Colorado and Kansas . . . which may involve construction of dams, reservoirs and other works for the purposes of water utilization and control, as well as the improved or prolonged functioning of existing works: Provided, that the waters of the Arkansas river . . . shall not be materially depleted in usable quantity or availability¹⁵⁰

The Compact apportionment is based on measurements of inflow and outflow at John Martin Reservoir. It does not include volumetric allocations to either state. In the 1990’s, Kansas sued Colorado asserting that the increased pumping of “groundwater” in Colorado “materially depleted” the usable quantity of the Arkansas River available in Kansas. The Court appointed a Special Master who took extensive evidence on the impact of groundwater withdrawals in Colorado. The Special Master concluded that since wells were in existence at the time the states entered the Compact, some groundwater pumping was permissible. Users in Colorado subsequently increased the capacity of the wells, thereby increasing the amount of water withdrawn. Therefore, the Special Master concluded that the increased pumping violated Article IV(D) of the Compact. Colorado was thereafter enjoined from withdrawing more than the amount withdrawn in 1948 when the Arkansas River Compact was entered.

This 1995 litigation is of note for our discussion because of what the Court did not do. There was no distinction made between groundwater and surface water based on the point of withdrawal because Article III(B) of the Compact included “the waters originating in the natural drainage basin of the Arkansas River” without a distinction between groundwater and surface water.¹⁵¹ By so defining the scope of the Compact, the parties avoided costly and difficult attempts to define boundaries of the watercourse and of aquifers within the basin. The Special Master and the Court examined impacts of water use, and enjoined the uses in violation of the Compact.¹⁵²

149. *Id.* art. III(H).

150. *Id.* art. IV(D).

151. *Kansas v. Colorado*, 514 U.S. 673 (1995).

152. *Id.* at 694.

B. *Lessons Learned From the Arkansas River Disputes*

This foray to the Arkansas River is intended to remind us of the difficulties of resolving transboundary water disputes, which are a complex combination of politics, changing natural conditions, and technical evaluations. Below is a summary of some of the lessons to be drawn from this century-old dispute.

First, sovereignty over freshwater resources is repudiated. In 1907, the Court rejected both the theories of absolute territorial sovereignty and absolute territorial integrity over transboundary waters. However, even a decision from the Supreme Court of the United States did not end the political attraction to assert sovereignty over freshwater against other states. In 1922, Colorado again asserted absolute territorial sovereignty, this time over the waters of the Laramie River that originates in Colorado and flows into the state of Wyoming. Fifteen years after the Supreme Court rebuked Colorado in the *Kansas v. Colorado* decision, Colorado stated in its pleadings before the Supreme Court “that it is the right of Colorado as a state to dispose, as she may choose, of any part or all of the waters flowing in the portion of the river within her borders, ‘regardless of the prejudice that it may work’ to Wyoming and her citizens”¹⁵³ The United States Supreme Court, citing its decision in *Kansas v. Colorado*,¹⁵⁴ held that “[t]he contention of Colorado that she as a state rightfully may divert and use, as she may choose, the waters flowing within her boundaries in this interstate stream, regardless of any prejudice that this may work to others having rights in the stream below her boundary, cannot be maintained.”¹⁵⁵

Second, each state utilizes a transboundary river on the basis of the sovereign equality of states. No state has a greater claim to the utilization of the water than any other state.

Third, each state has the sovereign right to use a transboundary watercourse and the sovereign authority, or jurisdiction, to regulate water use within its territory, but this does not give any state a right to utilize more than its equitable apportionment.

VI. CONCLUSION

The United States Supreme Court established the legal standard for utilization of a United States transboundary watercourse in 1907, which subsequently influenced the development of international law. Based on the sovereign equality of states, each watercourse state may share in the equitable

153. *Wyoming v. Colorado*, 259 U.S. 419, 457 (1922).

154. *Kansas v. Colorado*, 206 U.S. 46, 46 (1907).

155. *Wyoming*, 259 U.S. at 466 (citing *Kansas*, 206 U.S. 46). The Court went on to discuss the fact that both states followed the law of prior appropriation and that both developed under the public land laws of the United States, thereby concluding that the “just and equitable” means of determining an apportionment of water between the two states is to apply the doctrine of prior appropriation without regard to the state line. *See id.* at 470-496.

apportionment of benefits so long as the uses in one state do not substantially injure another state.

The drafters of the 1997 U.N. Convention relied on this case.¹⁵⁶ Article 8 Section 1of the 1997 U.N. Convention incorporates the principles of sovereign equality; Article 5 incorporates the concept of “benefits” from the watercourse that are to be shared equitably; and Article 6 sets forth factors and circumstances for consideration of equitable and reasonable utilization. It is time for the political pull to assert sovereignty over freshwater resources to end. Sovereignty as a theory of water law was repudiated more than 100 years ago and rejected in the 1997 U.N. Convention.

Moving forward, the overriding natural facts of the hydrologic cycle cannot be ignored in the law. International law should not bifurcate the hydrologic cycle with separate instruments for aquifers and watercourses. This makes integrated water management extremely difficult. Those jurisdictions that have bifurcated laws offer little protection to ecosystems caught between the definitions of surface water and groundwater and do not permit integrated utilization for optimal benefits.

The 1997 U.N. Convention is a framework convention that incorporates integrated basin-wide management, including groundwater. It is based on principles of equity and reasonableness. What impact will a second international instrument governing freshwater have on the effort to protect and preserve freshwater resources? That is difficult to predict. However, the efforts to obtain a global regime for the law of freshwaters will slow as states, scholars, and commentators wrangle with competing instruments.

In 1966 the International Law Association (ILA) adopted the Helsinki Rules, the scope of which included the international drainage basin. The international drainage basin was defined as a “system of waters, including surface and underground waters, flowing into a common terminus.”¹⁵⁷ The ILA addressed transboundary groundwaters not included within this definition at the 1986 Seoul Conference. The “Seoul Rules” provide that the Helsinki Rules apply to an aquifer intersected by two or more states even if that aquifer does not fit within the Helsinki Rules’ definition of an international drainage basin. Additional articles of this four article document provide for the protection of groundwater,¹⁵⁸ and the integrated management of groundwater and surface waters.¹⁵⁹ The ILC used this same approach and in 1994 adopted the Resolution on Confined

156. See Schwebel, *Third Report*, *supra* note 9, ¶ 45, n.87; see also McCaffrey, *Second Report*, *supra* note 9, n.315.

157. Helsinki Rules on the Uses of the Waters of International Rivers, *Report of the Fifty-Second Conference*, 484, art. II (Int’l Law Ass’n 1966). The Helsinki Rules were revised in 2004 by the Berlin Rules which are available as the Final Conference Report 2004 at <http://www.ila-hq.org/en/committees/index.cfm/cid/32>.

158. International Law Association, *Water Resources Law Committee Report*, in ILA SEOUL REPORT, at 251, art. 3 (Aug. 24-30, 1986).

159. *Id.* art. 4.

Transboundary Groundwaters,¹⁶⁰ stating that the principles of the 1997 U.N. Convention should apply to all freshwaters. If this Resolution is approved as a Protocol, the law of international freshwaters would be complete.

If the ILC continues to develop a second freshwater instrument, Loures and Dellapenna advocate that the Draft Articles be revised to become a Protocol to the 1997 U.N. Convention.¹⁶¹ This paper agrees that this would be a good first step. The ILA process outlined above for adoption of the Seoul Rules provides a precedent.

This paper has further argued that Draft Article 3 should be deleted or transformed in the way the United States Supreme Court transformed the sovereignty arguments in *Kansas v. Colorado*. Draft Article 3 should recognize the sovereign equality of each state and the sovereign right of each state to assert jurisdiction over and regulate the use of its equitable share of the water contained in transboundary aquifers.

As a final note, groundwater has been described as the world's savings account,¹⁶² not visible or readily accessible, but available for our use when we do *not* have rainy days. In order to protect our savings, we need to recognize the management obstacles that inherently arise when hydrologic realities are ignored and bifurcated water laws are created. We must continue to build on scientific facts, and strive to maintain a sufficient balance in our savings account.

160. *1994 Report of the International Law Commission*, *supra* note 29, at 135.

161. *See* Loures & Dellapenna, *supra* note 8.

162. Weber, *supra* note 53, at 658.

