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## The customary international law of transboundary fresh waters

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Joseph W. Dellapenna

Villanova University School of Law, 299 North Spring Mill Road,  
Garey Hill, Villanova, Pennsylvania 19085-1682, USA  
E-mail: dellapen@law.villanova.edu

**Abstract:** Drawing upon the experience of century, nations have constructed a customary international law for transboundary fresh water resources built around the principle of equitable utilisation. The earliest complete formulation of this body of law as the *Helsinki Rules* on the Uses of International Rivers of the International Law Association of 1966. Like all customary law, this body of international Law retains flexibility by being vague while allowing only for relatively primitive enforcement mechanisms. In an effort to improve things, the United Nations, working initially through the International Law Commission, drafted a convention to codify the customary law. Even before that treaty enters into force, it has become the most cogent summary of the relevant customary international law. Despite certain advances over the customary law in the terms of the treaty, it ultimately fails adequately to integrate the environmental or ecological concerns now emerging in international law into the older body of international water law. This need suggests that a revised *Helsinki Rules* could serve to complete the unfinished task of adapting international water law to the needs of the twenty-first century.

**Keywords:** Absolute sovereignty; cooperative management; customary international law; International Law Commission; no harm rule; equitable participation; equitable utilisation; riparian state; riverine integrity; transboundary resources; United Nations; water.

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**Biographical notes:** Joseph W. Dellapenna is Professor of Law at Villanova University, in Villanova, Pennsylvania, having taught at law schools in the USA and abroad for more than 30 years. In the course of his career, he has practised, taught, and written about managing the water environment, both in the United States and internationally. He made a major contribution to the seven volume treatise *Waters And Water Rights*, the standard reference work on water law in the USA and has written numerous articles on international water law as well as on other topics. He is the Rapporteur for the Water Resources Committee of the International Law Association with the charge to redraft the Helsinki Rules on transboundary water management in light of developments in international water law and international environmental law over the 35 years since the original Helsinki Rules were approved. He is chair Model Water Code Project of the American Society of Civil Engineers, leading the drafting of two Model Water Codes for the United States, and the drafting of three Model Interstate Water Compacts. In addition to environmental management, Professor Dellapenna's teaching interests have centred on international law and commercial law.

## **1 Introduction**

Water is unquestionably one of the most important of all the resources that humans depend upon for their survival and thriving, yet it is a resource under increasing stress because of the growth of human populations and changing patterns of use by those populations [1]. All 264 of the world's largest water river basins – home to about 40 per cent of the world's population – are shared by more than one nation. [2] This reality requires that mechanisms be devised to assure that these waters are managed cooperatively, if water is not to become a major problem for each nation's security. [3] To do so requires the creation of a legal structure to govern the state's cooperation. [4] Without such a structure, competition over water could eventually lead to serious conflict.

This article surveys the evolving body of customary international law as a vehicle for addressing the problems of the need for cooperative management of internationally shared fresh water resources, beginning with a discussion of the sources (and nature) of customary international law generally. There follows an analysis of the customary international law of internationally shared fresh water resources and of the recent efforts of the United Nations to codify that body of customary law. The article closes with a discussion of the proposal to redraft the 'Helsinki Rules' of the International Law Association [5] in light of all the changes in the customary law in the 30 years since the Helsinki Rules were first approved.

## **2 Sources of customary international law**

Until quite recently, international law governed a relatively small and structureless society of states. As late as the end of World War II, the United Nations was created with only 51 members – Switzerland alone chose to stay out of the United Nations, and a handful of defeated Axis states were excluded. The current membership of the United Nations is approaching 200, with at least two significant states (Switzerland and the Republic of China – Taiwan) outside the organisation. The United Nations and other international organisations certainly count as full players ('legal persons') in the international legal system. [6] Rapidly proliferating non-governmental and other official and semi-official participants are also now playing a distinct albeit subordinate role. [7] Even natural and artificial persons (people and corporations) are now recognised to some extent as participants in the international legal community. [8]

Changes in the United Nations and in other international structures have transformed the international legal system from the relatively simple structure of the past to an increasingly diverse and complex community of actors who too often no longer know much about each other. Furthermore, this growing community of states reflects more sharply differentiated cultural traditions than the smaller group of states prior to World War II; these differences were further accentuated by the division of the world into camps identified by ideological hostilities. This is precisely the setting in which one might predict that the participants would welcome the emergence of more specialised and more formal legal structures. [9] And, on a regional level this does appear to be happening (consider, for example, the Association of Southeast Asian States, the European Union, or the North American Free Trade Association). [10] This has even been true on a global scale for specialised forms of activity (consider, for example, the

International Atomic Energy Agency, the International Civil Aviation Organization, and the newly created World Trade Organization). [11] Still, in large measure, the international legal system remains institutionally underdeveloped and decentralised. [12]

The international legal system viewed as a whole, lacks the superstructure of specialised institutions – executive, legislative, judicial, and administrative – found in modern national legal systems. But to conclude from these omissions that international law, is not really law is to confuse particular institutional arrangements with what law really is and how it really operates. Similar institutions, useful and necessary as they have proven to be in large communities, might yet develop in the international system. The absence of those institutions no more indicates an absence of law in the international system than the absence of those institutions indicated the lack of law in pre-industrial societies the world over. [13] The international system's less formal processes similarly are law and must be examined carefully to learn both its capabilities and limitations.

Customary international law is more complex and uncertain than formal agreements such as treaties or conventions. Customary international law consists of the practices of states undertaken out of a sense of legal obligation, that is out of a sense that the practice is required by law (*opinio juris sive necessitatus*, often referred to as simply *opinio juris*). [14] If these two elements combine law results regardless of how long – or how briefly – the practice has continued. [15] As with treaties, the operative theory on which the binding effect of the customary rule depends is that a state has consented to the rule. [16] Customary international law works satisfactorily when there are only a few participants in a particular international process (a regional or special custom) or when general customary international law operates without major controversy. [17] The major analytical difference between a special custom and a general custom is that a special custom, binding only a few states (usually in a particular region), binds only those states that can be shown to have actually consented to the custom, while a general custom, which it deemed to bind all states, is presumed to bind a state unless the state can show that it has consistently resisted (or objected to) the custom. [18]

Customary international law (special or general) develops through a process of claim and counterclaim between states. [19] When one state undertakes an action that affects other states, those other states will either acquiesce in the action or take steps to oppose it, usually first by employing rhetorical strategies. If the matter is important enough to the objecting state, it eventually will escalate its opposition by imposing a variety of sanctions up to the possibility of military operations. Regardless of whether the state initiating the action or those reacting to it prevail, over a period of time a pattern of practice will emerge that describes how states behave and allows one to predict how states will behave. If nothing more were involved, one might well question whether we were talking about anything that could properly be termed law. However, beginning with the simplest rhetorical strategies and continuing right through to outright war, states on both sides of a controversy will refer to international law as a primary justification of their claims and their practices. [20]

Diplomats know very well the difference between appeals to law, appeals to morality, and appeals to expedience; they often express these differences at appropriate points in their statements assertions. References to law connects a customary practice to a sense of legitimacy, and thus constitutes the practice as law in a highly decentralised and institutionally undeveloped system like international law or, for that matter, customary law among subsistence farmers or nomadic tribesmen. This is particularly true if the states involved reach a consensus, often found through the exchange of diplomatic notes,

about what each state has a legal right to do in the circumstances at hand. Some 75 years ago, an English law professor suggested an analogy that makes the development of customary international law clearer. Suppose there is a field between two villages, with no road across the field. People initially will tend to wander at will in order to go from one village to the next. Gradually, most people will follow a particular line. Perhaps this is the shortest route, or perhaps it is the easiest route, or perhaps it is the route most convenient to the heaviest walkers – walkers whose tread wears a path more decisively into the landscape. For whatever reason, a definite path will emerge, and gradually it will become a road. Eventually, everyone will agree that this road is the only right way to travel from village to village even though no one can say precisely when this notion took hold. At that point, they will object to others as trespassers if they choose to use a different path to go from village to village – by which time we have a legal and not merely a factual claim. [21]

In determining what customary international law actually is, diplomats, international tribunals, lawyers, and scholars must examine a wide variety of sources of state practice; finding evidence regarding the reasons for the practice is more challenging. [22] Decisions by international courts or international arbitrators are useful for determining whether a practice has become a rule of customary law. [23] A widespread pattern of treaties or other international agreements has been used to demonstrate that a practice is so widely followed that it has become a rule of customary law binding even on states that are not parties to such treaties. [24] Under some circumstances, even an unratified treaty might be indicative of customary law. [25] General Assembly resolutions, as well as similar resolutions of other international organisations, have been taken as strong evidence that states consider a particular rule to be a legal obligation, leaving one only to determine whether state practice actually is consistent with this *opinio juris*. [26] Even unilateral acts of states can demonstrate that the particular state embraces a particular customary rule of law. [27]

The process of determining customary international law, even when successful, is inelegant. [28] It often leaves gaps and ambiguities in the law as found through examining state practice. Treaties and other international agreements only sometimes fill these gaps or clarify these ambiguities. International decision makers sometimes fill in gaps or clarify ambiguities through recourse to ‘general principles of law’. General principles are a sort of custom, but a custom derived not from state practice and the claims and counter-claims provoked by such practices, but from the principles of law found in most or all national legal systems in their internal operation. [29] General principles, however, can seldom amount to more than the most general abstractions about justice and judicial economy. They are even less likely to fill the many lacunae in customary international law with definitive content given the increasingly heterogeneous nature of an international legal community composed of an increasing number of states expressing highly varied legal traditions and ever more disparate ideologies. [30]

Despite the obvious difficulties in determining the precise content of customary international law, the system has been rather remarkably successful. It is difficult to imagine how any form of international life could exist without a shared set of norms that are largely self-effectuating in the conduct of that life. [31] Only by focusing exclusively on the relatively few, albeit highly dramatic, instances in which the international legal system fails can one gain the impression that the system is entirely ineffective. [32] Successful areas of customary law have tended to be codified under United Nations

auspices. In fact, customary rules become open to codification precisely because the rules are so seldom questioned and so generally followed. [33] The principal organ through which the United Nations initiates this codification is the International Law Commission, a body created by the General Assembly in 1947 to help codify and 'progressively develop' customary international law. [34] The Commission is composed of 34 jurists and diplomats chosen to represent a broad range of legal cultures and political ideologies. As a result, consensus often comes after years of debate, a process that lends a high degree of credibility to any resulting codification. Upon reaching a conclusion, the Commission reports its findings to the General Assembly. In fact, the rules assembled by the Commission often are accorded 'quasi-legal effect' as rules of international law even before they take the form of a binding legal document. [35]

Even when a body of customary law has been codified, however, parts (or even a great deal) of it often survive as customary law. Thus, while the law of the sea has been codified in a series of international conventions, much of this highly successful body of law remains customary if only because many states have declined thus far to ratify some or all of these conventions. [36] Another example is the virtual outlawry of chemical weapons despite the inability of the international community to ratify a treaty dealing with more than a small part of that concern. [37]

Customary international law empowers international actors by legitimating the claims they are permitted to make. [38] Customary international law is, in some respects, ill fitted to perform these functions as it is frequently ill defined and uncertain. These are characteristics of all customary law, and not just customary international law. [39] Identifying when a practice has crystallised as customary law and its precise content has been difficult, requiring research into the proffered reasons for a practice in often obscure sources. Furthermore, turning as it does on a question of motive, any examination of the primary evidence for a customary rule is often inconclusive. The international legal system therefore turns to the work of the leading scholars of international law (the 'most highly qualified publicists') for evidence of what the law is, as opposed to what they think the law should be. [40] States and international tribunals often rely on the learning of the most highly qualified publicists for research and analysis of the primary sources of evidence of what customary international law actually is if only because these sources are scattered, often in obscure locations, and are difficult to interpret. This approach does not authorise such scholars to create law according to their notions of what the law ought to be, although this can be a fine distinction to say the least.

Even when a norm of customary international law has been determined with some certainty, customary forms of enforcement – claim and counterclaim among states – leave us without a neutral enforcement mechanism. Without a neutral enforcement mechanism, there is always the suspicion that national interest overrides any real commitment to law. And without a neutral enforcement mechanism, international law ultimately has nothing better to offer for punishing violations than the law of the vendetta. [41] Coupling a recognised mode of expert analysis of customary international norms with woefully inadequate institutional development, has produced a serious imbalance in international law. The 'most highly qualified publicists' who appear so prominently in international legal processes often devise doctrinal schemes of considerable sophistication without being able to translate those schemes into effective institutional arrangements, a task that has fallen to diplomats and politicians with predictable mixed results.

Institution building has rarely succeeded through customary processes. The lack of institutional machinery for impartial resolution of disputes and reasonably efficient enforcement against individuals or states violating even strongly supported international norms can seriously undermine the effectiveness of international law. The institutional limitations of international law has always been most clear during periods of major crises. [42] A fully developed institutional framework is essential for resolving any serious, long-term crisis, including competition over critical water shortages. [43] To proceed beyond the limitations of custom, states must combine the sophisticated insights of international lawyers with the practical structures of political actors through institutions for managing water cooperatively and resolving conflicts over water before it escalates to injurious levels.

### **3 The customary international law of water management**

A rich body of custom regarding internationally shared fresh water has emerged, largely in the last century. International disputes regarding non-navigational uses of fresh water were rare and rather easily resolved before the modern industrial era. [44] Historically, the process of claim and counterclaim relating to internationally shared fresh waters focused on surface waters. The application of the resulting norms to international aquifers is a relatively recent development. This section opens with an analysis of the evolution of the customary norms applicable to surface waters through state practice and the elaboration of those norms through the work of the leading scholars on the topic, including in particular the Helsinki Rules of the International Law Association. [45] After a brief look at the application of the resulting norms to groundwater, this section closes by evaluating the effectiveness of the customary law of internationally shared fresh waters.

#### *3.1 State practice and opinio juris*

Industrialisation brought the intensive use and extensive diversion of water from its source of origin. The resulting international claims and counterclaims quickly settled into a predictable pattern, depending on the riparian status of the state making the claim. There is one point on which all states agree: Only riparian states (states across which, or along which, a river flows) have any legal right, absent agreement, to use the water of a river, lake, or other surface source. [46] Beyond that point, however, the patterns of international claim and counterclaim initially diverged sharply according to the riparian status of the state making the claim. The uppermost riparian state always initially claims ‘absolute territorial sovereignty’. [47] By this claim, the upper riparian state asserts a right to do whatever it chooses with the water regardless of its effect on other riparian states. Downstream states, on the other hand, generally open by claiming a right to the ‘absolute integrity of the watercourse’. [48] These lower riparian states claim that upper riparian states can do nothing that affects the quantity or quality of water that flows down the watercourse. Friedrich Berber noted that these claims “are grounded in an individualistic and anarchical conception of international law in which personal and egotistical interests are raised to the level of guiding principles and no solution is offered for the conflicting interests of the upper and lower riparians”. [49]

The utter incompatibility of such claims guarantees that neither claim will prevail in the end, although the process of negotiating or otherwise resolving the dispute embodied in these claims might last for decades. The usual solution is found in a concept of 'restricted sovereignty' that goes by the name 'equitable utilisation. [50] States that are both upper and lower riparians on the same stream (usually relative to different states) often are the first to assert a theory of restricted sovereignty under which each state recognises the right of all riparian states to use water from a common source so long as their uses do not interfere unreasonably with uses in other riparian states.

Documenting the process of claim and counterclaim that converts a convenient practice into a customary rule of law is easy for internationally shared waters. Perhaps the most famous claim of absolute territorial sovereignty was made in the USA in 1895. A dispute arose in the 1890s when the Mexican government complained that the USA was wastefully diverting water from the Rio Bravo del Norte (the river the USA calls the Rio Grande) to the detriment of Mexicans down river. The Mexican Minister to the USA complained that US practices violated both treaties and customary international law. [51] The US Attorney General, Judson Harmon, gave the US Secretary of State a legal opinion that international law did not impose any obligation on the USA regarding how it used waters within its sovereign borders. [52] Eventually, after nearly 12 years of dispute, the two states negotiated an agreement whereby the USA promised to 'deliver' (by way of the river) 60,000 ac.-ft. (74 million cubic meters ['MCM']) of water annually to the lower reaches of the Rio Grande for Mexican use. [53] Later, the two nations revised the allocation of the lower Rio Grande and agreed that the USA would 'deliver' 1,850 MCM (1,500,000 ac.-ft.) of water to Mexico by way of the Colorado River. [54] Years later, the US State Department, concluded that the USA had never considered the Harmon Doctrine to be anything more than special pleading and decisively repudiated the Doctrine. [55]

Note the interplay in the Mexican-USA disputes between treaty and custom. The original Mexican claim relied on both forms of law, and Attorney-General Harmon rejected both in similar terms. The dispute was resolved through a series of treaties. The treaties created legal obligations between the two nations and they demonstrate state practice which, if sufficiently widespread, could amount to an international custom. The question arises whether the ensuing treaties in addition demonstrate the *opinio juris* necessary to make that custom law. At one time that question was hotly disputed, with several leading experts on international law in general and on the law of internationally shared rivers in particular, concluding that these treaties could not rise to the level of customary law. [56] Their conclusion was disputed at the time, and consensus has decisively swung in favour of the conclusion that indeed a consistent pattern of treaties can demonstrate both state practice and the necessary *opinio juris* sufficiently to prove the existence of a rule of customary international law. [57] A customary rule of restricted sovereignty ('equitable utilisation') can be said to rest on the current nearly innumerable treaties regarding internationally shared waters. [58]

Establishing that state practice conforms to the general principle that each state's sovereignty over its water resources is restricted by the obligation not to inflict unreasonable injury on another state is easy given the numerous treaties. Generally the treaties are so tailored to the particulars of a specific drainage basin, however, that it is impossible to derive a more specific mandate applicable to the waters of a basin not yet allocated by treaty. [59] As in the agreements between Mexico and the USA, the nations involved often share the water according to historic patterns of use, although

occasionally, some other more or less objective measure of need is substituted (population, area, arable land, etc.) [60]. Yet other treaties simply assured each state of 'equal shares'. Several treaties state in more general terms: a watercourse treaty between Norway and Sweden declares the obligation of each state to prevent 'any considerable inconvenience' to persons in the other country. [61] The Treaty of 'peace, friendship and arbitration' between the Dominican Republic and Haiti provides each with the right to make 'just and equitable use' of their shared waters. [62] The General convention relating to the development of hydraulic power affecting more than one state ('Hydraulic Power Convention'), [63] a treaty ratified by 17 states, similarly speaks in broad terms of an obligation not to 'cause serious prejudice' to another state.

These treaties certainly establish state practice relative to internationally shared waters. Demonstrating that these treaties taken as a whole, along with other indications of the motives behind such arrangements, amount to the requisite *opinio juris* is not so easy. After all, the treaties were convenient even if no rule of law supported the result – in fact, that must certainly have been the reasoning underlying the earliest of these treaties. [64] Few of the treaties state anything about the customary law that informs their negotiation, interpretation, and application. Some treaties even expressly deny any effect of creating or implementing general customary international law. In article 4 of the Rio Grande Convention, Mexico and the USA agreed that "[t]he delivery of water as herein provided is not to be construed as a recognition of any claim on the part of Mexico to said waters". [65] The same convention stated the premise even more strongly at a later point: "[N]or does the United States in any way concede the establishment of any general principle or precedent by the concluding of this treaty." [66] Before placing too much emphasis on such disclaimers, one should recall that even the USA, after so carefully insisting on placing a disclaimer in the Rio Grande Convention, not once, but twice, has itself since concluded that there is just such a general customary rule of law, relying in part on this very convention as authority for the proposition [67]. This conclusion, however, did not prevent the USA and Canada from including a similar disclaimer in their agreement over the Columbia River Basin just three years later. [68]

On the other hand, a few treaties expressly acknowledge the existence of an underlying customary rule, (albeit generally in vague terms). An example is found in the Hydraulic Power Convention: "The present Convention in no way affects the right belonging to each State, *within the limits of international law*, to carry out on its own territory any operation for the development of hydraulic power which it may consider desirable". [69] The recently negotiated Mekong Basin Agreement also committed the signatories to "utilise the waters of the Mekong River system in a reasonable and equitable manner", and similar expressions are found in bilateral treaties. [70] While there is good reason for considering the appearance of the concept of restricted sovereignty in a multilateral treaty intended to codify customary international law as more decisive evidence of the customary law than a larger number of bilateral treaties, those bilateral treaties count for something. Perhaps most persuasive in this setting is the growing practice of states in a politically, hydrologically, or otherwise dominant position on a river accepting from the start of negotiations that a river or other watercourse is a shared resource over which they cannot claim absolute dominion either in terms of territorial sovereignty or in terms of riparian integrity. [71] Yet, while we can see in these treaties a concept of restricted sovereignty, just what the restrictions are is nowhere indicated.



Many nations have expressed themselves more clearly in international conferences where the topic of internationally shared waters has arisen. The Western Hemisphere states recognised that no state has an absolute right either to do as it pleases with waters it shares with other states or to demand that other states do nothing with those waters. [72] Even nations that objected to the resulting Declaration of Montevideo did so because it was not comprehensive enough, and not because they opposed the principle being expressed. Even better evidence of the customary law of internationally shared waters is found in arbitral and judicial decisions applying the law to particular disputes. These decisions are unanimously in favour of the rule of restricted sovereignty. [73] The best example remains the statement of the Permanent Court of International Justice (the predecessor institution to the international Court of Justice) in discussing the authority of the Permanent Commission of the River Oder:

“When consideration is given to the manner in which states have regarded the concrete situations arising out of the fact that a single waterway traverses or separates the territory of more than one state, and the possibility of fulfilling the requirements of justice and the considerations of utility which this fact places in relief, it is at once seen that a solution of the problem has been sought not in the idea of a right of passage in favour of upstream states, but in that of a community of interest of riparian states. This community of interest in a navigable river becomes the basis of a common legal right, the essential features of which are the perfect equality of all riparian states in the use of the whole course of the river and the exclusion of any preferential privileges of any riparian state in relation to others. [74]

### *3.2 The teachings of the ‘most highly qualified publicists’*

Turning to” the ‘most highly qualified publicists’, one finds general agreement among them on the rule of restricted sovereignty (or equitable utilisation) as the applicable rule of customary international law regarding internationally shared waters. Restricted sovereignty rests ultimately on the concept of an international drainage basin as a coherent juridical and managerial unit, a concept widely supported by naturalists, engineers, lawyers, and economists. [75] We have already seen that the decisions of international arbitral and judicial tribunals have strongly embraced this conclusion. The decisions of national courts litigating the rights of states of a federal union have reached similar conclusions. International tribunals cite such national decisions as evidence of customary international law. [76] The Supreme Court of the USA has freely applied international law to disputes between states of the USA. [77] The Court rejected any claim of absolute territorial sovereignty and any claim to the absolute integrity of the river. Courts and commissions in Germany, India and Switzerland reached similar conclusions. [78] An Italian court reached a similar conclusion in a dispute between a French company and an Italian company regarding a stretch of the Rio Roya, a river that straddled the French-Italian border. [79] The German Reichsgerichtshof expressed the point in these straightforward words:

“The exercise of sovereign rights by every State in regard to international rivers traversing its territory is limited by the duty not to injure the interest of other members of the international community. Due consideration must be given to one another by the States through whose territories there flows an international river. No State may substantially impair the natural use of the flow of such a river by its neighbours.” [80]

Writing on an individual basis, the most highly qualified publicists are nearly unanimous in support of the theory of restricted sovereignty as a customary rule of international law. [81] A study by the United Nations Economic Committee for Europe surveyed 75 publicists and found only four who favoured either of the absolute theories. [82] A similar study by Stephen Schwebel, then Special Rapporteur for the International Law Commission for the drafting of articles on the non-navigational use of international watercourses, found a similarly one-sided pattern. [83] Schwebel concluded that “the right of each State to share equitably in the uses of the waters of an international watercourse system is indisputable and undisputed”. [84] Furthermore, every private international organisation to consider the customary legal regime governing internationally shared water resources has embraced the concept of restricted sovereignty in one form or another. [85]

### 3.3 *The Helsinki Rules*

One particularly influential form of expert opinion is a report or ‘codification’ of one or another of the international associations of legal experts that have flourished since the nineteenth century. Quite a number of these groups have undertaken to synthesise the experience of nations in coping with the shared management of international surface water sources. These have included the Asian-African Legal Consultative Committee, *l’Institut de droit international*, and the Inter-American Bar Association. [86] While these groups have no official standing as law givers, the importance of the opinions of the ‘most highly qualified publicists’ in customary international legal processes give them an importance that would be remarkable for a similar group in a national legal system. Their opinions carry special weight because of the stature of the members who worked on these projects, and because the approval of the end result carries the imprimatur of a large and diverse body of expert opinion.

The International Law Association, a highly-regarded non-governmental organisation of legal experts founded in 1873, completed the best known study of the customary international law of transboundary water resources in 1966. The result is known as the Helsinki Rules on the Uses of the Waters of International Rivers. [87] The Helsinki Rules were the first attempt by any international association to codify the entire law of international watercourses. The resulting rules have heavily influenced state practice as well as the efforts of other international associations in examining the law of internationally shared fresh waters. [88]

The Helsinki Rules treat international drainage basins (watersheds extending over two or more states) as indivisible hydrologic units to be managed as a single unit to assure the “maximum utilisation and development of any portion of its waters”. [89] This rule explicitly includes all tributaries (including tributary groundwater) within the concept of ‘drainage basin’ and thus extends beyond the primary international watercourse itself. The Rules formulated the phrase ‘equitable utilisation’ to express the rule of restricted sovereignty as applied to fresh waters: “Each 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”. [90] The International Law Association has continued to draft rules relating to water-centred activities not addressed directly or adequately by the Helsinki Rules, including flood control (1972), pollution (1972 and 1982), navigability (1974), the protection of water installations during armed conflicts (1976),

joint administration (1976 and 1986), flowage regulation (1980), general environmental management concerns (1980), groundwater (1986), cross-media pollution (1996), and remedies (1996). [91]

The International Law Association also developed what some see as a second principle governing the management of internationally shared water resources, that each nation shall not cause ‘substantial damage’ to the environment or the natural condition of the waters beyond the limits of the nation’s jurisdiction. [92] The American Law Institute, an unofficial association of jurists, lawyers, and scholars that has been highly influential in the development of US law, [93] has also declared that states must “take such measures as may be necessary, to the extent practicable under the circumstances” to avoid injury to neighbouring states. [94] Neither organisation attempted to work out the relation between the ‘no harm’ rule and the ‘equitable utilisation’ rule, a failure that would produce considerable confusion and difficulty in later years.

### 3.4 *Groundwater*

Groundwater makes up about 97% of the world’s fresh water apart from the polar ice caps and glaciers. [95] Yet in contrast to the considerable state practice regarding the sharing of surface water sources, there has been remarkably little state practice regarding sharing of underground sources of water. [96] One major factor contributing to the dearth of relevant state practice is the fact that prior to the spread of vertical turbine pumps after World War II, groundwater was strictly a local resource that could not be pumped in large enough volumes to affect users at any considerable distance away. [97] With the newer technologies, and with the exponential growth in the demand for water of the last several decades, groundwater has emerged as a critical transnational resource that has increasingly become the focus of disputes between nations and yet for which no consistent body of state practice has yet emerged. An all too typical example is found in the several treaties dealing with waters shared between the USA and Mexico; despite the growing importance of groundwater to the border regions of the two nations, the treaties are silent on groundwater with potentially disastrous results. [98] Among the very few early agreements specially allocating groundwaters, are two from the colonial period in Africa whereby the European powers involved agreed to allow certain wells at or near a boundary to be used ‘in common’ by residents on either side of the border as they were accustomed to before colonisation. [99]

The most qualified publicists have concluded that sovereignty over groundwater must be restricted in the same way as it is over surface water, therefore subjecting groundwater to the same rule of equitable utilisation as applied to surface sources. [100] This is based on an understanding that as the hydrologic, economic and engineering variables involved are essentially the same for surface and subsurface water sources, the law must also be the same for both sources. They do not refer to any clearly established pattern of state practice, nor to the discovery of a pertinent *opinio juris*. It seems that the only real state authority these scholars can point to regarding transboundary groundwater is a dispute between two German states in which a German court held that the same international legal principles applied to waters above the ground must also be applied to water below the ground. [101] Indeed, properly speaking, groundwater and surface water are not merely similar, they are in fact the same thing; groundwater and surface water are simply water moving in differing stages of the hydrologic cycle, and what is today one will tomorrow be the other.

The International Law Association initially took a more cautious approach to the question of whether equitable utilisation applied to groundwater because of the dearth of relevant state practice. The Helsinki Rules included only those groundwaters that form part of an international drainage basin, i.e. that either contribute ‘subflow’ to the streams or lakes, or otherwise drain into common terminus of the relevant watershed. [102] Twenty years later, the Association was ready to apply the rule of equitable utilisation even to ‘non-tributary’ groundwater, although state practice still had not developed very much. The Association then adopted the Seoul Rules on the Law of International Groundwater Resources which address ‘international aquifers’ rather than drainage basins, and includes any body of groundwater that is intersected by an international boundary. [103] The Seoul Rules declare that an international aquifer counts as an ‘international drainage basin’ subject to the Helsinki Rules even if the groundwater is in no way connected to an internationally shared surface water source. [104] A gathering of experts on the law of international water recently confirmed this conclusion in a meeting at Bellagio, Italy, where they drafted a model treaty to assure the equitable utilisation and management of internationally shared groundwaters. [105]

Generally, the United Nations as a whole has never taken a position on international groundwaters. At the Mar del Plata Conference, the delegates did adopt a resolution and did endorse equitable utilisation as the governing principle sharing water resources, but without any reference as such to groundwater. [106] The International Law Commission, in its Draft Articles on the Non-Navigational use of International Watercourses, adopted an approach that was even more restrictive than the original approach of the Helsinki Rules, including only groundwaters that drain to a ‘common terminus’ with surface waters within its definition of a ‘watercourse’. [107] Such a restrictive definition of included groundwater ignores the fact that groundwater might be interdependent with surface water sources and yet follow other paths to the sea (or other terminus) than the surface watercourses do. Failure to address all groundwater is one of the most serious failings of the Draft Articles. Arguably the Draft Articles would not apply even to groundwater intimately connected to watercourses covered by the Articles, thus effectively precluding effective, system-wide management. [108] Furthermore, as the Seoul Rules recognise, even groundwater that has no significant connection to surface watercourses can be international in its effects, and thus should be international in its management. Only at the very end of its deliberations on the law of international watercourses did the International Law Commission finally address the problem, but only through a resolution that reads, in relevant part, as follows:

“[T]he principles contained in its draft articles ... may be applied to transboundary confined (sic) groundwater and ... the Commission:

- 1 Commends States to be guided by the principles contained in the draft articles on the law of non-navigational uses of international watercourses, where appropriate, in regulating transboundary groundwater;
- 2 Recommends States to consider entering into agreements with the other State or States in which the confined transboundary groundwater is located;
- 3 Recommends also that, in the event of any dispute involving transboundary confined groundwater, the States concerned should consider resolving such dispute in accordance with the provisions contained in article 33 of the draft articles, or in such other manner as may be agreed upon”. [109]

As Stephen McCaffrey commented, “It appears to be exactly what it is: a hasty effort

tacked onto the draft articles at the conclusion of the Commission's work". [110]

The possibility that equitable utilisation is required as a rule of general customary international law is supplemented by the growing recognition of a right to development and even of a possible human right to water. [111] Now is not the time or place to analyse and evaluate these claims. The arguments are complex and controversial. Here, we need only note that neither social and economic development, nor even the satisfaction of basic survival needs, are possible if only one community sharing an aquifer monopolises its waters. Such supposed human rights, even if they do not provide satisfactory means for resolving disputes over aquifers, at the least lend weight to the supposition that the waters of those aquifers must be shared equitably.

Foremost, among the problems in applying equitable utilisation to an aquifer is the relative lack of firm knowledge of the hydrologic characteristics of the resource. [112] We know quite a lot about surface water sources, having made accurate and ongoing measurement of these sources for a century or more. We can observe where surface water flows and what variables affect its behaviour. Groundwater is very different. Groundwater, like surface waters, responds to gravity, seeking its lowest level, yet it does not flow as freely as surface waters. The structure, porosity, and slope of the rocks or soil through which it seeps or percolates determine the path of movement for groundwater. Because of the variability of subsurface conditions, there is a great deal we simply do not know about the characteristics of particular aquifers. To acquire more knowledge is expensive. We are then only able to make tentative allocations that informal processes as are found in customary regimes are ill adapted to revise or supplement.

### *3.5 The failure of customary regimes*

Reliance on customary international law to allocate surface or subsurface waters among states simply has not worked very well. [113] The system is too informal, lacks precise rules, and also lacks the means of effectuating and enforcing such rules as it has. The remarkable thing is that this informal system has worked as well as it has in many parts of the world. To begin to examine why the customary international regime fails first consider the experience of the USA, a nation in which there has been so much litigation over 'equitable apportionment' between states that the cases of the US Supreme Court are often described as the origin of the international rule of 'equitable utilisation'. Even with each state in the USA agreeing on the rule, and with a highly effective federal judiciary exercising compulsory jurisdiction over competing states, equitable sharing simply has proven too cumbersome and too uncertain to satisfy states involved in disputes over interstate sources of water. [114] There have been frequent and recurring disputes over what should be the common standard and the proper application of any agreed standard. [115]

In disputes over international water sharing, the lack of the elaborate federal institutional arrangements found in the USA would ultimately lead back to the law of the vendetta. [116] International law is simply too primitive to solve the continuing management problems in a timely fashion. While uncertainty of legal right can induce cooperation among those sharing a resource, it can also promote severe conflict. [117] Relying alone upon an informal legal system to legitimate and limit claims to use shared water resources is inherently unstable. It becomes unsettled either when one or more states consider that it is so militarily dominant that it can disregard the interests of its neighbours, or when one or more states consider that their interests are so compromised

by the existing situation that even the risk of military defeat is more tolerable than continuing the present situation without challenge. [118]

Yet, no solution is possible without the creation of the necessary law. If a cooperative management system is to be put in place for internationally shared fresh waters, that system must entail the creation of some sort of legal mechanism for resolving disputes. The inevitability of recurring bitter disputes, even overt military conflict, would remain under a concept of restrictive sovereignty even where water consumption is tied to some more or less objective record of need (historic use or the like) so long as there is no effective alternative mechanism for resolving the inevitable disputes. The situation would be even worse if the actors were to measure the right to use water by a vaguely defined equitable apportionment. The closest analogue to this system is the riparian rights system (and its interstate analogue of 'equitable apportionment') as applied in the eastern USA. We have already noted the difficulties in making the 'equitable apportionment' system work between states of the USA. The 'reasonable use' version of riparian rights applied in the eastern USA is perhaps an even more instructive example of why such vague rules cannot survive as water allocation systems in regions where demand consistently approaches or exceeds supply. The 'reasonable use' theory of riparian rights has barely functioned in areas of the USA that are without chronic water shortages and that have a strong judicial structure to resolve disputes between users. [119] Whenever water use in the eastern USA outstrips the available sources of water, riparian right have been abandoned in favour of a new system of water rights that are heavily administered by state agencies that allocate water to particular uses by time-limited permits and leave authority in the agencies to determine the most socially beneficial ('reasonable') use of the water. [120]

While stress on water resources itself creates pressures for cooperative solutions to the problems confronting the communities sharing the resources, the creation of a formal legal system is a necessary prerequisite to preventing conflict over water in any community where water resources are under stress. Cooperative management has taken many forms around the world, ranging from continuing and unceasing consultations, to a system of active cooperative management that remains in the hands of the participating states, to the creation of a variety of regional institutions capable of making and enforcing their decisions directly. [121] Experience as well as theory thus suggests that serious conflict in one form or another cannot be avoided under the rule of equitable utilisation without a legal mechanism for the orderly investigations and resolution of the disputes characteristic of that theory.

#### **4 The United Nations codifies the customary law**

When first confronted with the Helsinki Rules, the United Nations General Assembly refrained from explicitly endorsing those Rules. [122] Instead, the General Assembly called upon the International Law Commission to prepare a set of 'draft articles' on the 'non-navigational uses of international watercourses'. [123] The Commission worked on the project for 23 years, producing a first draft of the Draft Articles on non-navigational use of international watercourses in 1991, [124] and a final draft in 1994. [125] At that point, the General Assembly instructed the Sixth Committee to prepare a draft convention for the Assembly to consider. This produced a revised text that was approved by the

General Assembly on 21 May 1997, by a vote of 104-3. [126] An examination of the evolution of these texts serves to identify the key points and central difficulties with the existing customary international law of transboundary waters.

#### *4.1 The first draft articles of the International Law Commission*

The International Law Commission is an organ of the United Nations designed to promote the 'progressive codification of customary international law'. [127] Although the law of international rivers has been on the agenda of the Commission since 1949, nothing much was done about it until a resolution of the General Assembly asked the Commission to give priority to the issue. Thereafter, the work was plagued by frequent changes of 'Special Rapporteur' for the project, with five Special Rapporteurs serving in a little more than 20 years. It is not necessary to review these early deliberations as the Commission completed a 'first reading' of its Draft articles on non-navigational use of international watercourses and submitted the resulting Articles to the General Assembly in 1991. [128] At this point, the Commission embraced both the rule of equitable utilisation and the obligation not to cause appreciable harm to other states, without clearly indicating the relationship between the two rules:

##### *Article 5*

"Equitable and reasonable utilisation and participation

- 1 Watercourse States shall in their respective territories utilize an international watercourse in an equitable and reasonable manner. In particular, an international watercourse shall be used and developed by watercourse States with a view to attaining optimal utilisation thereof and benefits therefrom consistent with adequate protection in the watercourse.
- 2 Watercourse States shall participate in the use, development and protection of an international watercourse in an equitable and reasonable manner. Such participation includes both the right to utilize the watercourse and the duty to cooperate in the protection and development thereof, as provided in the present articles."

##### *Article 7*

"Obligation not to cause appreciable harm

Watercourse States shall utilize an international watercourse in such a way as not to cause appreciable harm to other watercourse States."

Some see in article 5's formulation of the rule of equitable utilisation a diminution of the right of each state to share a common watercourse. [129] These critics see article 5 (and the Draft Articles generally) as focusing too much on procedural questions and not enough on substantive issues. They object to the omission of the word 'right' and to the focus on 'equitable utilisation' rather than an 'equitable share' of the water source, and to the criterion of 'optimal utilisation' when, one critic has argued, the criterion should be 'sustainable utilisation'. The concepts of 'equitable and reasonable utilisation' and 'optimal utilisation' are sufficiently open ended that any of the goals of the critics are compatible with the Draft Articles. [130] However, the Draft Articles do not guarantee

such goals. Flexibility is a real strength of the rule of equitable utilisation. The ‘no harm’ rule is more troubling.

State practice provides some support for a ‘no harm’ rule. A number of treaties have included promises by each state not to undertake or to permit to be undertaken any works on a river or other water body if the works would cause ‘any injury’ (or words to like effect) to interests centred in the other state. [131] This proposition is simply an application of the Latin maxim ‘*sic utere tuo ut alienam non laedas*’: ‘Do not use your property so as to injure the property of another. [132] The arbitral panel in the Trail Smelter case, an international dispute involving air pollution, applied the proposition:

“[U]nder the principles of international law, ... no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another ... when the injury is of serious consequence and the injury is established by clear and convincing evidence.” [133]

Finally, the principle was endorsed by the United Nations General Assembly in 1972, and by the Declaration of Asunción on the Use of International Rivers adopted by Argentina, Brazil, and Paraguay the year before. [134]

The problem is not whether some form of the ‘no harm’ rule is valid, but how is one to reconcile the apparently absolute command expressed in article 7 of the first reading of the Draft Articles with the flexibility inherent in the rule of equitable utilisation as expressed in article 5 of the same Articles. Strict application of a ‘no harm’ rule prohibits any meaningful use by an upper-riparian state, turning the rule into merely a variant form of the absolute integrity claim. But would not the barring of all development in the upstream state be a harm to it, just as a reduction in the quantity or quality of flow reaching the downstream state is an injury to it? Either the ‘no harm’ rule incorporates some measure of flexibility into its application or the rule is strictly binding with the ‘equitable utilisation’ rule being somehow aberrational, relevant only in certain (unspecified) peculiar circumstances.

Experts on international water law have been nearly unanimous on the primacy of the equitable utilisation rule in international water law, [135] including the Special Rapporteurs who collectively drafted articles 5 and 7. [136] Stephen McCaffrey, the fourth Special Rapporteur for the project, however, later concluded, that the International Law Commission intended the ‘no harm’ rule to be primary, with the rule of equitable utilisation to be subordinate to the ‘no harm’ rule. [137] McCaffrey himself did not seem entirely convinced. He has publicly stated that the ‘no harm’ rule does not comport with state practice [138] and he has argued that there is a ‘human right to water’, [139] a right that can hardly exist if the overriding obligation of communities is to defer to pre-existing or downstream uses under the ‘no harm’ rule.

At least three reasons have been advanced for the primacy of the ‘no harm’ rule. [140] First, the rule is said to protect a weaker state against harm inflicted by a stronger co-riparian. Second, the ‘no harm’ rule provides a clear line to determine which state is in the wrong. Finally, the ‘no harm’ rule is said to be preferable because the most important current issues in managing shared water resources pertain to pollution rather than to allocation as such, and in principle, so it is argued, no pollution should be tolerated. [141] There are a number of reasons why McCaffrey’s conclusion that the ‘no harm’ rule is primary and will not withstand careful analysis. The language of the Draft Articles themselves does not support the primacy of the ‘no harm’ rule. One perhaps could conclude that the ‘no harm’ rule of article 7 is primary by comparing the categorical



command in article 7 with the more precatory language of article 5. Such an analysis, however, requires us to ignore the express command of the Draft Articles themselves as proposed in the 1991 version of the articles (as well as the current version):

*Article 10*

“Relationship between different kinds of uses:

- 1 In the absence of agreement or custom to the contrary, no use of an international watercourse enjoys priority over other uses.
- 2 In the event of a conflict between uses of an international watercourse, it shall be resolved with reference to the principles and factors set out in articles 5 to 7, with special regard being given to the requirements of vital human needs.”

More important than the language of the Draft Articles is the reality that what harm is ‘appreciable’ or rises to some other such standard is not an objective truth, but a matter which each state will appreciate for itself – leading not to clear bright lines but to serious disputes that will in the end be negotiated or arbitrated on some equitable basis. [142] While the appearance of harm (or the threat of harm) tends to trigger the process of claim and counterclaim from which customary international law arises, the resolution of any such dispute does not centre on the prevention of harm, but on the equitable allocation of benefits and costs. [143] No resolution of an interstate water dispute has ever been based upon the proposition, nor logically derived from, the ‘no harm’ rule that upper-riparian states can make no significant use of a watercourse for fear of inflicting harm downstream. [144] Similarly it is not always clear which state is the ‘weaker state’.

A state seeking to initiate a new use would generally be cast in the posture of the one creating the ‘injury’, therefore the ‘no harm’ or absolute integrity claim favours the more highly developed states at the expense of their less developed neighbours, particularly as the lower basin states tend to develop earlier and faster than upper basin states. [145] One would expect the downstream state to be in the weaker position in relation to the upstream state; after all, the upstream state has the power to affect the river. If the upstream state dams or diverts the flow, it literally could cut off some or all of the water from reaching a downstream state. However, one finds, that the ‘weaker’ state is actually the stronger state. [146] The exceptions generally occur in situations where a region is colonised by a technologically more developed culture from outside the region. Perhaps the most notable example is the USA relative to Mexico. [147]

In practical application, the ‘no harm’ rule resembles the ‘natural flow’ theory of riparian rights in US law and also the rule of prior appropriation as found in the western states of the USA. [148] Priority of use, while undoubtedly relevant to an equitable allocation of water among national communities, has never been treated as dispositive in international law. [149] This is implicit in all texts of the ILC Draft Articles, and explicit in the commentary to those articles as were adopted on the second reading. [150]

To treat priority in time as controlling, or even dominant, would replace the balancing of need and interest characteristic of equitable utilisation with an absolute rule derived from history rather than from geography. Nowhere is it made clear why protection should be given to recently developed uses as opposed to long-established historic uses (over centuries or even millennia) simply because, for any number of reasons, the historic uses were in abeyance when the recently established uses began. [151] As Eyal Benvenisti, an Israeli expert on international water law, has noted, to give absolute priority to uses

existing at the start of the negotiations destroys any incentive for the ‘harmed state’ – the state with the ‘existing’ uses – to negotiate with a state that seeks to initiate new uses. [152] The ‘no harm’ rule therefore would hardly be conducive to achieving the developmental equity proclaimed under various banners at the United Nations, let alone sustainable development. [153] Indeed, Stephen McCaffrey, despite his assertion of the primacy of the ‘no-harm’ rule, has himself argued that there is not only a personal right to water but also a social right for states to receive the water from co-riparian states as necessary in order for the receiving state to develop and flourish. [154]

We can reconcile the two rules by stressing that the no harm rule actually prohibits, in its various incarnations, only ‘appreciable harm’, ‘sensible harm’, ‘significant harm’, ‘substantial harm’, or the like. [155] These standards could be interpreted to require a determination whether a use represents a reasonable or equitable utilisation. [156] As the German federal supreme court stated in *The Donauversinkung* case, “[o]ne must consider not only the absolute injury caused to the neighbouring State, but also the relation of the advantage gained by one to the injury caused to the other.” [157] By this view, the rule of no appreciable harm is just a variant statement of restricted sovereignty in the water source, that is, of the rule of equitable utilisation. This approach does not deny appropriate protection to ecosystems or prevent appropriate regulation of pollution: the leading authorities on the protection of international water resources from pollution or other degradation have all found the rule of equitable utilisation to be an appropriate vehicle for achieving the necessary protection. [158]

#### *4.2 The final Draft Articles of the International Law Commission*

The first Draft Articles provoked considerable controversy, both among the foreign ministries of member states of the United Nations and among the most highly qualified publicists who have worked on the topic. As a result, the Draft Articles were considerably revised at their ‘second reading’ by the International Law Commission in Geneva in July 1994. [159] Under the leadership of yet another Rapporteur, Robert Rosenstock of the USA, the International Law Commission did not revise either article 5 or article 10, but completely rewrote article 7 on the ‘no harm rule’:

##### *Article 7*

“Obligation not to cause significant harm

- 1 Watercourse States shall exercise due diligence to utilize an international watercourse in such a way as not to cause significant harm to other watercourse States.
- 2 Where, despite the exercise of due diligence, significant harm is caused to another watercourse State, the State whose use causes the harm shall, in the absence of agreement to such use, consult with the State suffering such harm over:
  - a the extent to which such use has proved equitable and reasonable taking into account the factors listed in article 6;
  - b the question of ad hoc adjustments to its utilisation, designed to eliminate or mitigate any such harm caused and, where appropriate, the question of compensation.”

In rewriting Article 7, the Commission went considerably beyond even what Special Rapporteur Rosenstock had recommended. [160] The substitution of the phrase ‘significant harm’ for the earlier term ‘appreciable harm’ perhaps itself signals a greater recognition of the need for balancing the interests of the competing states in order to determine whether the infliction of harm violates the norms of customary international law. [161] Others would see the changes as merely cosmetic, designed to make the Draft Articles consistent with the language usually employed by others summarising this body of customary international law. However, one need not resolve this question, as the other changes in the text of article 7 appear clearly to subordinate the ‘no harm’ rule to the rule of equitable utilisation.

Former Special Rapporteur Stephen McCaffrey, who wrote the original article 7, reads the revised article 7 as substituting a process for resolving issues relating to harm for the flat prohibition of harm found in the original article 7, without changing the ultimate dominance of the ‘no harm’ rule over the ‘equitable utilisation’ rule. [162] McCaffrey saw the revision as a recognition that the complex issues that invariably arise during disputes over an internationally shared watercourse must be negotiated within a legal framework, but without a predetermined outcome. Apparently, McCaffrey reads the first subsection of the revised article 7 without regard for the real importance of the changes introduced into article 7 in the second reading. Even McCaffrey concedes that the new subsection 2 of the article 7 implies that a use that causes significant harm is not “per se a breach of the state’s international obligations” [163] and that “if a state’s use is equitable it should be allowed to continue, even if it causes significant harm to another state” while also noting that the two paragraphs are meant to interrelate, with any negotiations about the equitableness of a use being combined with negotiations about adjustments and compensation. [164] McCaffrey never attempted to reconcile these several observations with his overall conclusion that the ‘no harm’ rule remains intact and dominant.

The new article 7, in subsection 1, reduces the apparently absolute command of the original article 7 to an obligation to use ‘due diligence’ to avoid significant harm. McCaffrey has argued that this is a cosmetic change, and that the limitation that only due diligence was required to avoid harm was always implicit in the original text of article 7. [165] This may have been McCaffrey’s intention when he wrote the original article 7, but unfortunately there is not one word in the text to support such an implication, and even McCaffrey concedes that the new subsection 2 does significantly alter the thrust of the article. In subsection 2, the new article 7 provides an obligation for the state causing harm to consult with the injured state, qualifying that limited obligation by requiring consultation only over the question of whether the harmful use is ‘equitable and reasonable’ and the question of whether harm might be reduced or prevented by ‘adjustments’ to the way the water is used. The reference to ‘the question of compensation at the end of the subsection (2)(b) thus becomes highly ambiguous. [166] To conclude, as McCaffrey does, that under the revised Article 7 compensation will always be due when significant harm occurs ignores the inclusion of the reference to compensation only in subsection (2)(b). Such a conclusion also ignores the introduction of the obligation to make compensation by the limitation ‘where appropriate’. Clearly, even when there is significant harm, compensation will not always be appropriate.

The International Law Commission’s commentary to revised article 7 is nearly as confusing as the text. It opens by indicating that the goal is to avoid “significant harm as far as possible while reaching an equitable result in concrete cases” and that “ ‘equitable

and reasonable utilisation' of an international watercourse may still involve significant harm to another watercourse state." [167] The Commission's commentary then goes on to state that "the principle of equitable utilisation remains the guiding criterion in balancing the interests at stake." [168] However, shortly thereafter, the commentary states that the requirement of due diligence "sets the threshold for lawful State activity" which some would see as reaffirming the primacy of the no harm rule. [169]

The Commission's endorsements of the primacy of the principle of equitable utilisation in the commentary are repeated and explicit. The notion that the 'no harm' rule sets a legal threshold simply begs the question of what is the obligation to avoid or prevent harm. Indeed, the Commission indicated that the obligation of due diligence "is an obligation of conduct, not an obligation of result." [170] The Commission's only attempt to define the obligation of due diligence is to indicate (only in the commentary) that a State violates its obligation of due diligence:

"only if it knew or ought to have known that the particular use of an international watercourse would cause significant harm to other watercourse states. [171] While this tells us that a State cannot be held responsible for an unforeseeable effect of activities for which it is responsible, it does not tell us what diligence is due under the circumstances when a State can or should foresee the likelihood of significant harm to another State." [172]

For that question, whether a use is equitable is surely relevant both in light of the text of revised section 7, and in light of the commentary's analysis. As the International Law Commission's official commentary on the revised article indicates, even that a use caused significant harm "would not of itself necessarily constitute a basis for banning it." [173]

The same ambiguity is found in the UN Convention on the Protection and Use of International Watercourses and International Lakes. This convention requires States to take "all appropriate measures to prevent, control, and reduce any transboundary impact." [174] The notion that States are only required to take 'appropriate' steps appears again and again throughout the convention. [175] A similar problem arises in the recent signed Mekong River Basin Agreement. This agreement commits the states to "make every effort to avoid, minimise, and mitigate harmful effects" and makes it an obligation for the state to cease any harmful activity upon notification by another state. [176] It then goes on to require compensation for "substantial damage ... in conformity with the principles of international law relating to state responsibility", [177] without mentioning whether those principles include and are controlled by the principle of equitable utilisation also adopted in the agreement. [178]

The Commission's commentary does indicate clearly that there is one narrow situation where the notion of 'no significant harm' would prevail as a near absolute in the following words: "A use which causes significant harm to human health or safety is understood to be inherently inequitable and unreasonable." [179] McCaffrey points to this language (not to the text of revised article 7 itself) as indicating the ultimate primacy of the rule of no reasonable harm. [180] Assuming that the commentary accurately reflects the meaning of revised article 7, it hardly affects the question of which rule is primary. The Draft Articles themselves devote two entire articles to 'harmful conditions' and emergencies. [181] These include floods, erosion, siltation, and waterborne diseases. States are obligated to take all necessary measures to prevent or mitigate conditions of extreme augmentation, depletion, pollution, or contamination whether caused by natural conditions or by human conduct. That a use undertaken by or in a particular state that

induces such an extreme condition is inherently inequitable and unreasonable tells us virtually nothing about the far more common situation where one state's use impairs uses in another state without inducing any such harmful condition or emergency situation – as the Draft Articles themselves make clear regarding pollution in general:

#### *Article 21*

“Prevention, reduction and control of pollution ... (2) Watercourse States shall, individually or jointly, prevent, reduce, and control pollution of an international watercourse that may cause significant harm to other watercourse States or to their environment, including harm to human health or safety, to the use of the waters for any beneficial purpose or to the living resources of the watercourse. ...”

Pat Wouters reads article 21 as flatly prohibiting pollution of international watercourses. [182] The Institut de Droit International proposed such a prohibition when it concluded that pollution is inherently unreasonable even when it does not provoke a crisis in human health or safety. [183] Article 21 is not a complete prohibition of pollution. The obligation is to prevent, reduce, or control; the latter two requirements clearly include the possibility that pollution to some extent will be lawful. The only criterion proffered by the Draft Articles for determining when that may occur is the principle of equitable utilisation.

In view of the above and given the limited role assigned to compensation in the revised article 7, it is at least arguable that no compensation is due if a harmful use is ‘equitable and reasonable’. If so, compensation would be ‘appropriate’ if adjustments to prevent an ‘inequitable or unreasonable’ harm are not possible, but one would hardly think the International Law Commission intended there to be no obligation to consult over steps to avoid or minimise harm for uses that were ‘equitable and reasonable’. The interpretive problem can be resolved if one reads the second obligation – the obligation to consult over mitigating harm – as explanatory rather than as indicating some independent duty: If harm can be prevented or reduced by reasonable adjustments in the manner, place, or timing of use, the harmful use is neither equitable nor reasonable. Subsection (b)(2)'s function is to make explicit the obligation to compensate for ‘inequitable and unreasonable’ uses; in other words, the rewritten article 7 is explicitly subordinated to the now clear primary rule of equitable utilisation in article 5. [184]

#### *4.3 The UN Convention*

At its first meeting after the International Law Commission completed its work on the Draft Articles, the General Assembly directed the Sixth Committee (the legal committee of the Assembly) to rework the ‘second reading’ of the Draft Articles into a draft convention for the Assembly's consideration. [185] The Sixth Committee considered the matter for several weeks in October 1996, and in March 1997. [186] Producing an acceptable text generated considerable controversy, with the final product being approved in the committee by a vote of 42–3, with 18 abstentions. [187] Again, the controversy centred on the relationship of articles 5 and 7, the rule of equitable utilisation and the ‘no harm’ rule. [188] Article 5 emerged with only minor changes which arguably only clarify the text; article 7 was completely rewritten once again: [189]

### *Article 5*

“Equitable and reasonable utilisation and participation

Watercourse States shall in their respective territories utilize an international watercourse in an equitable and reasonable manner. In particular, an international watercourse shall be used and developed by watercourse States with a view to attaining optimal and sustainable utilisation thereof and benefits therefrom, taking into account the interests of the watercourse States concerned, consistent with adequate protection in the watercourse.

Watercourse States shall participate in the use, development and protection of an international watercourse in an equitable and reasonable manner. Such participation includes both the right to utilize the watercourse and the duty to cooperate in the protection and development thereof, as provided in the present articles.”

### *Article 7*

“Obligation not to cause appreciable harm

- 1 Watercourse States shall, in utilizing an international watercourse in their territories, take all appropriate measures to prevent the causing of significant harm to other watercourse States.
- 2 Where significant harm nevertheless is caused to another watercourse State, the States whose use causes such harm shall, in the absence of agreement to such use, take all appropriate measures, having due regard for the provisions of articles 5 and 6, in consultation with the affected State, to eliminate or mitigate such harm, and where appropriate, to discuss the question of compensation.”

The only potentially significant change in article 5 was the substitution of the phrase ‘optimal and sustainable utilisation’ for the phrase ‘optimal utilisation’ in the first paragraph of the article. [190] The failure to include ‘sustainability’ in the International Law Commission drafts was criticised as predisposing the Draft Articles towards development of, and away from protection of, the resource. [191] In fact this was a very small change. Not only did the concept of ‘optimal utilisation’ allow consideration of sustainability, but also the concept of ‘sustainability’ itself is so open-ended as to enable one to reach any decision one might prefer. [192] We are then left with the only real criteria under article 5.

The revision of article 7 is far more significant. Paragraph 1 of article 7 has moved from an apparently absolute command to prevent ‘appreciable harm’, to a duty to use ‘due diligence’ to prevent ‘significant harm’, to a duty merely to take ‘appropriate measures’ to prevent ‘significant harm’. [193] Even more clearly than the phrase ‘due diligence’, a requirement of ‘appropriate measures’ mandates a consideration of what is appropriate under all the circumstances, including the cost of preventing harm and the feasibility of minimising harm by redesigning a particular use. [194] As if this were not enough to justify a conclusion that the UN convention makes the obligation to prevent harm subordinate to the rule of equitable utilisation, this relationship is made explicit in paragraph 2 of the article where the obligation to take ‘appropriate measures’, as well as the obligation to ‘discuss compensation’, are to be made with ‘due regard to the provisions of article 5 and 6’ – the principle, in other words, of equitable utilisation. Given the reality that each state’s actions, if undertaken without regard for the interests of

the other state, would inflict harm on the other, [195] one could hardly reach any other conclusion.

The UN Convention was approved by a vote of 104–3 (with 27 declared abstentions) in the General Assembly, on 21 May 1997. [196] The UN Convention contains 37 articles dealing with the obligations of riparian states to share the common resource, to consult with each other, to protect the environment, and to resolve disputes. It became open for signature on the day it was approved, and remains open for signature until 20 May 2000.

In attempting to apply the UN Convention, one must always recall that ‘equitable’ does not mean ‘equal’ – a confusion that can arise in some non-common law countries where the notion of ‘equity’ in its common law sense is lacking. ‘Equity’ means a fair share considering the water needs and the ability to use the water efficiently of the several riparian states. [197] The UN Convention provides some certainty to the broadly stated rule by listing the factors to be considered in evaluating claims relating to equitable utilisation: [198]

#### *Article 6*

“Factors relevant to equitable and reasonable utilisation

- 1 Utilisation of an international watercourse in an equitable and reasonable manner within the meaning of article 5 requires taking into account all relevant factors and circumstances, including:
  - a Geographic, hydrographic, hydrological, climate, ecological and other factors of a natural character;
  - b The social and economic needs of the watercourse States concerned;
  - c The population dependent on the watercourse in each watercourse State;
  - d The effects of the use or uses of the watercourse in one watercourse State on other watercourse States;
  - e Existing and potential uses of the watercourse;
  - f Conservation, protection, development and economy of use of the water resources of the watercourse and the costs of measures taken to that effect;
  - g the availability of alternatives, or corresponding value, to a particular planned or existing use.
- 2 In the application of article 5 or paragraph 1 of this article, watercourse States shall, when the need arises, enter into consultations in a spirit of cooperation.
- 3 The weight to be given to each factor is to be determined by its importance in comparison with that of other relevant factors. In determining what is a reasonable and equitable use, all relevant factors are to be considered together and a conclusion reached on the basis of the whole.”

The Helsinki Rules provide a somewhat longer but comparable list of relevant factors. [199]

Non-lawyers, particularly engineers and hydrologists, sometimes see in these catalogues of factors a poorly stated equation. By this view, if one simply fills in numerical values for each factor, one could somehow calculate each watercourse state's share of the water without reference to political or other non-quantitative variables. [200] They simply ignore that the UN Convention, the Draft Articles and the Helsinki Rules are legal documents that ultimately are addressed to judges. Judges make judgements, and in the English language, at least, the word judgement carries a strong connotation that the result is not dictated in any immediate sense by the factual and other inputs that the judge relies upon in exercising judgement [201] Any attempt to treat the list of relevant factors as an algorithm simply misses the point entirely.

The fact that legal judgements necessarily involve a measure of discretion has been the focus of much attention in the USA in recent years. [202] This is not a recent thought, nor has it been ignored in the context of the customary law of transboundary waters. Writing more than 60 years ago, Professor Herbert Smith expressed scepticism about the utility of the abstract rules of international law as applied to transboundary waters: "The practical value of legal discussion is in direct proportion to its concern with actual facts, and experience has shown that all attempts to solve river problems by dogmatic insistence upon abstract legal principles have been either futile or mischievous." [203]

The Jordan Valley provides a prime example of why an algorithmic approach would result in inequitable utilisation: the primary contributors to water in the Jordan basin according to the pre-1967 boundaries are the Lebanese and the Syrians, precisely the two communities that have the greatest alternative sources of water. [204] This situation is normal in a dry region like the Middle East. For example, Turkey contributes 98% of the precipitation for the Euphrates, yet Turkey has immensely more water available from other sources (whether measured in absolute figures or *per capita*) than Iraq, by far the major consumer from the Euphrates. [205] Close examination of the controversies over water among the five national communities sharing the Jordan Valley illustrates the shortcomings of the customary international law of transboundary waters generally and why that body of law without more will not solve the water management problems in the Valley. [206] It will be necessary in such a case for the interested states to negotiate an agreement, or for them to have recourse to a third party to resolve any disputes.

## **5 Time for a revised Helsinki Rules?**

At a meeting in Edinburgh of the Committee on Water Resources of the International Law Association in January, 1996, the Committee voted to undertake a compilation and review of the entire body of its work beginning with the Helsinki Rules of 1967 and including the various supplementary rules prepared by the Committee and approved by the Association in the ensuing 30 years. This decision was confirmed by the Committee and by the Association at the biennial meeting of the Association in August 1996, appropriately in Helsinki. Professors Alan Boyle and Joseph Dellapenna undertook the initial step, a consolidated compilation of the various rules approved by the Association over the intervening 30 years. Based upon this consolidated draft, the Committee decided at a meeting in Rome in June, 1997, to undertake to revise the compiled rules, with a view of incorporating the experience of the three decades since the initial Helsinki Rules were adopted, taking into account the development since 1967 of an important and



impressive body of international environmental law and the approval of a framework treaty on fresh water resources by the General Assembly of the United Nation.

The most significant developments, (not directly reflected in the current body of rules formulated by the International Law Association) are the emergence of environmental concerns, integrated management, and sustainable development as central principles of international resource and environmental law. These concepts, either completely unknown or of peripheral importance in 1967, have become the organising principles of a large and increasingly effective body of law of which the law of transboundary waters properly is a special instance rather than an independent and competing set of rules. These newer concepts are found today in the practice of states (including conventional and customary international law), in the writings of the leading publicists of the international law of environmental and resource management, and in the documentary record of the United Nations and other relevant international organisations. [207]

The rule of equitable utilisation, the heart of the original Helsinki Rules, still provides the primary rule of customary international law regarding the allocation of waters among states. The new body of international environmental law is not incompatible with the rule of equitable utilisation. Yet equitable utilisation is sufficiently uncertain in application that some critics have argued the principle focuses too strongly on the procedures for resolving disputes over water and presupposes that water is to be consumed even in consumption is not sustainable. [208] The correct relationship of equitable utilisation to standards regarding harm to environment generally as well as harm to the interests of other states bedeviled the drafting of the UN Convention both in the workings of the International Law Commission and in the Sixth Committee of the General Assembly. The resulting convention is hardly the definitive word on the problem that one might hope to see available to those who must cope with the looming global water crisis [209]

The political processes within the International Law Commission and the Sixth Committee virtually assured that the result of their efforts would be a compromise that elides serious problems where the various competing legal principles conflict most directly. If the law governing the allocation of internationally shared waters is to be a positive contribution to the solution of the looming global water crisis rather than being seen as expressing obsolete formulae reflecting a vanished time of plentiful water, organisations like the International Law Association must undertake to provide the leadership that has been their traditional primary role. The Association is in a unique position to bring to the project the collective expertise of the 'most highly qualified publicists' knowledgeable about the law of internationally shared fresh water resources. To fulfil this goal, the Helsinki Rules must be restated to express clearly and properly the relation between the principle of equitable utilisation and the relevant principles of international environmental law, particularly the principle of integrated management, the precautionary principle, and the principle of sustainable development. Flexibility is the real strength of the rule of equitable utilisation. However, it must be a flexibility constrained by the principles necessary to assure a sustainable and ecologically sound environment.

At this time the Water Resources Committee is working on devising a new chapter on 'general principles' in order to state clearly and concisely the several relevant principles that govern the allocation and utilisation of fresh water resources. Once the general principles are defined, the compiled Helsinki Rules will be reviewed to ensure that they adequately and properly develop and apply the general principles, particularly in so far as these matters are not dealt with, or are dealt with inadequately, by the UN Convention.

If this project is completed successfully, the resulting revised rules can be expected to carry weight in the deliberations of nations both as a coherent and compelling restatement of the relevant customary international law and as an aid to interpretation of the UN convention when it applies to a particular dispute.

## References and Notes

- 1 See generally, Hillel, D. (1994) *Rivers of Eden: The Struggle for Water and the Quest for Peace in the Middle East*, pp.20–23, 28–37; McDonald, A. and Kay, D. (1988) *Water Resources: Issue and Strategies*; Petts, G. (1984) *Impounded Rivers: Perspectives for Ecological Management*; Powledge, F. (1982) *Water*, pp.12–39; Dellapenna, J. (1997) ‘Population and water in the Middle East: the challenge and opportunity for law’, *Int. J. Env’t. and Pollution*, Vol. 7, pp.72–110.
- 2 Wolf, A. (1998) ‘Conflict and cooperation along international waterways’, *Water Policy*, Vol. 1, pp.251–265, 251–52.
- 3 Westing, A.H. (Editor) (1996) *Global Resources and International Conflict*, Kukk, C. and Deese, D. (1996) ‘At the water’s edge: regional conflict and cooperation over fresh water’, *UCLA J. Int. L. & For. Aff.*, Vol. 1, pp.21–64.
- 4 Dellapenna, ref. 1, pp.89–91.
- 5 International L. Assoc., *The Helsinki Rules on the Uses of the Waters of International Rivers*, (Rep. of the 52d Conf., Helsinki 1966) (Helsinki rules).
- 6 Advisory Opinion on reparations for injuries suffered in the service of the United Nations (1949) ICJ 174; Bekker, P. (1994) *The Legal Position of Intergovernmental Organizations: A Functional Necessity Analysis of their Legal Status and Immunities*, Brownlie, I. (1990) *Principles of Public International Law*, 4th ed. pp.63–64, 679–689, 694–698; Restatement (Third) of foreign relations law of the United States § 219 (Henkin, L., Lowenfeld, A. and Vagts, D., reporters, 1987) (Restatement Third); Bedjaoui, M. (1991) ‘Introduction to subjects of international law’, in Bedjaoui, M. (Editor) *International Law: Achievements and Prospects*, pp.1–18, at p.23 (*Achievements and Prospects*); Schermers, H. (1991) ‘International organizations’, *Achievements and Prospects*, pp.67–100.
- 7 Yoder, A. (1992) *The Evolution of the United Nations Systems*, 2nd ed. pp.35–36; Cohen, C.P. (1990) ‘The role of non-governmental organizations in the drafting of the covenant of the rights of the child’, *Hum. Rts. Q.*, Vol. 12, pp.137–155; Manno, J. (1993) ‘Advocacy and diplomacy in the Great Lakes; a case history of non-governmental-organization participation in negotiating the Great Lakes Water Quality Agreement’, *Buff. Env’tl. L.J.*, Vol. 1, pp.1–61; sands, P. and Bedecarré, A. (1990) ‘The convention on international trade in endangered species: the role of public interest non-governmental organizations in ensuring the effective enforcement of the ivory trade ban’, *B.C. Env’tl. Aff. L. Rev.*, Vol. 17, pp.799–882; Shelton, D. (1994) ‘The participation of non-governmental organizations in international judicial proceedings’, *Am. J. Int. L.*, Vol. 88, pp.611–642; Tolbert, D. (1991) ‘Global climate change and the role of international non-governmental organisations’, in Churchill, R and Freestone, D. (Editors) *International Law and Global Climate Change*, pp.95–108; Trubek, D. et al. (1994) ‘Global restructuring and the law: studies of the internationalization of legal fields and the creation of transnational arenas’, *Case-W. Res. L. Rev.*, Vol. 44, pp.407–498, 474, 489–493. The awkward phrase ‘non-governmental organizations’ (NGOs) persists because it is the term used in the United Nations Charter. UN Charter, art. 71.
- 8 Danzig Railway Officials (Poland v. Danzig) (1928) PCIJ, Series B, no. 15, digested in *Int. L. Rep.*, Vol. 4, pp.287–292. See generally Brownlie, ref. 6, pp.67–69, 553–602; Restatement (Third) ref. 6, §§ 701–703; Seidl-Hohenveldern, I. (1991) *Corporations In and Under International Law* (1987); Shaw, M., *International Law*, 3rd ed., pp.178–181; Cassese, A. (1991) ‘Individuals’, *Achievements and Prospects*, ref. 6, pp.113–120; Rigaux, F. (1991) ‘Transnational corporations’, *Achievements and Prospects*, supra at pp.121–132; Sohn, L.

- (1982) 'The new international law: protection of the rights of individuals rather than States', *AM. U. L. Rev.*, Vol. 32, pp.1–64.
- 9 De Visscher, C. (1961) *Theory and Reality in International Law*, 3rd Ed., pp.161–162.
  - 10 Bowett, D. (1982) *The Law of International Institutions*, 4th Ed., pp.199–248; Merrills, J.G. (1991) *International Dispute Settlement*, 2nd Ed., pp.207–229; Shaw, ref. 8., pp.127–128, 762–771.
  - 11 Bowett, ref. 10; Shaw, ref. 8, pp.742–761, 771–782.
  - 12 Handl, G. (1997) 'Compliance control mechanisms and international environmental obligations', *Tulane J. Int. & Comp. L.*, Vol. 5, pp.29–49.
  - 13 Barkun, M. (1968) *Law Without Sanctions*; Bohannon, P. (1957) *Justice and Judgement Among the Tiv*; Engel, D. (1975) *Code and Custom in a Thai Provincial Court: The Interaction of Formal and Informal Systems of Justice*; Hooker, M.B. (1978) *Adat Law in Modern Indonesia*; Khadduri, M. (1984) *The Islamic Conception of Justices*; Li, V. (1978) *Law Without Lawyers*; Moore, S.F. (1978) *Law As Process*; Nader, L. (1990) *Harmony Ideology: Justice And Control in a Zapotec Mountain Village*; Rosen, L. (1989) *The Anthropology of Justice: Law as Culture in Islam*; Starr, J. (1978) *Dispute and Settlement in Rural Turkey: an Ethnography of Law*; Trubek et al., ref. 7, pp.481–487.
  - 14 The North Sea continental shelf (Federal Rep. of Germany v. Denmark & Netherlands) (1969) ICJ 3, 44; The SS Lotus (France v. turkey) (1927) PCIJ, Ser. A, no. 10, at pp.18, 28. See generally Brierly, J.L., Waldock, H. (Editor) (1963) *The Law of Nations*, pp.52, 59–60; Brownlie, ref. 6, pp.4–11; D'Amato, A. (1971) *The Concept of Custom in International Law*, pp.1–10; Danilenko, G.M. (1993) *Law-Making in the International Community*, pp.75–77, 81–82; Henkin, L. (1995) *International Law: Politics and Values*, student ed., pp.29–37; Lauterpacht, H. (1958) *The Development of International Law by the International Court*, pp.368–393; Restatement (Third) ref. 6, § 102(2); Shaw, ref. 8, pp.60–76; Tunkin, G.I. (Butler, W. translator) (1974) *Theory of International Law*, pp.89–203; Verzijl, J.H.W. (1968) *International Law in Historical Perspective*, pp.31–47; Wolfke, K. (1993) *Custom in Present International Law*, 2nd ref. ed., pp.1–51, 58–64, 66–67, 96–98; Condorelli, L. (1991) 'Custom', *Achievement and Prospects*, ref. 6, pp.179–211.
  - 15 The North Sea continental shelf (Federal Rep. of Germany v. Denmark & Netherlands) (1969) ICJ 3, 43; Asylum (Colombia v. Peru) (1950) ICJ 266, pp.276–77; D'Amato, ref. 14, pp.56–58; Danilenko, ref. 14, pp.77–81; Wolfke, ref. 14, pp.59–60.
  - 16 The SS Lotus (France v. Turkey) (1927) PCIJ Ser. A, no. 10, at p. 18 ('The rules of law binding upon States ... emanates from their own free will'). See also Wolfke, ref. 14, pp.50, pp.160–167.
  - 17 Henkin, L. (1979) *How Nations Behave: Law and Foreign Policy*, 2nd ed., pp.25–26, 47, pp.89–98, 320–321; Brownlie, I. (1981) 'The reality and efficacy of international law', *Brit. Y.B. Int. L.*, Vol. 52, pp.1–8.
  - 18 The right of passage over Indian Territory (Portugal v. India) (1960) ICJ 6, pp.39–43; US Nationals in Morocco (France v. USA) (1952) ICJ 21, pp.199–200; The fisheries case (United Kingdom v. Norway) (1951) ICJ 116, 131; The right of asylum case (Colombia v. Peru) (1950) ICJ 266, pp.268–269, 276–278; Brownlie, ref. 6, pp.5–6, 9–11; D'Amato, ref. 14, pp.223; Danilenko, ref. 14, pp.109–113; Restatement (Third) ref. 6, § 102 comments c, d; Shaw, ref. 8, pp.76–79; Wolfke, ref. 14, pp.58–61, 66–67, 86–90, 160–168; Charney, J. (1986) 'The persistent projector rule and the development of customary international law', *Brit. Y.B. Int. L.*, Vol. 56, pp.1–24; Colson, D. (1986) 'How persistent must the persistent objector be?', *Wash. L. Rev.*, Vol. 81, pp.957–970; Condorelli, ref. 14, pp.202–207; Loschin, L. (1986) 'The persistent objector and customary human rights law: a proposed analytical framework', *U.C. Davis J. Int. L. & Pol'y*, Vol. 1, pp.147–172; Stein, T. (1985) 'The approach of a different drummer: the principle of the persistent objector in international law', *Harv. Int. L.J.*, Vol. 26, pp.457–482; Weil, P. (1983) 'Toward a relative normativity in international law?', *Am. J. Int. L.*, Vol. 77, pp.413–442, pp.433–438.

- 19 De Visscher, ref. 9; Wolfke, ref. 14, pp.56–58; Chinkin, C. and Sadurska, R. (1991) ‘The anatomy of international dispute resolution’, *Ohio St. J. Dispute Resol.*, Vol. 7, pp.39–81, at pp.70–74; McDougal, M. and Schlei, N. (1955) ‘The hydrogen bomb test in perspective: lawful measures for security’, *Yale L.J.*, Vol. 64, pp.648–710.
- 20 Higgins, R. (1963) *The Development of International Law Through the Political Organs of the United Nations*, (Higgins, *Political Organs*); Higgins, R. (1970) ‘The place of international law in the settlement of disputes by the security council’, *Am. J. Int. L.*, Vol. 64, pp.1–18. See also Hart, H.L.A. (1961) *The Concept of Law*, pp.222–225; Levi, W. (1991) *Contemporary International Law: A Concise Introduction*, 2nd ed., p.21.
- 21 Cobbet, P. (1922) *Cases on International Law*, p.5. See also Brownlie, ref. 6, pp.31–32; D’Amato, ref. 14, pp.51, 88; de Visscher, ref. 9, p.149; Wolfke, ref. 14, pp.52–56, 160–168.
- 22 Brierly, ref. 14, pp.60–62; Brownlie, ref. 6, pp.5, 11, 24; Danilenko, ref. 14, pp.82–128; Levi, ref. 20, pp.36–38; Wolfke, ref. 14, pp.8–29, 67–85, 116–159; Condorelli, ref. 14, pp.187–192.
- 23 Brownlie, ref. 6, pp.19–24; Lauterpacht, ref. 14, pp.1–25; Rosenne, S. (1985) *The Law and Practice of the International Court*, 2nd ed., pp.611–614, 616–619; Shaw, ref. 8, pp.678–680.
- 24 The North Sea continental shelf (Federal Rep. of Germany v. Denmark & Netherlands) (1969) ICJ 3, pp.31, 42–43; The Wimbledon (United Kingdom, France, Italy & Japan v. Germany) (1923) PCIJ, ser. A, no. 1, at p.25, digested in *Int. L. Rep.*, Vol. 2, pp.99–102; the Panevezys-Saldutiskis Ry. (Estonia v. Lithuania) (1939) PCIJ, ser. A/B, no. 76, at pp.51–52; the Paquette Habana, 175 US pp.677, 687–688 (1900). See Brownlie, ref. 6, pp.3–4, 11–14, 180–181, 201, 214–217, 604; D’Amato, ref. 14, pp.103–166; Danilenko, ref. 14, pp.156–172; McNair, A.D. (1961) *The Law of Treaties*, 2d ed., pp.216–218; Restatement (third) ref. 6, § 102 comment f; Shaw, ref. 8, pp.81–82; Wolf, ref. 14, pp.68–72; Charney, J. (1986) ‘International agreements and the development of customary international law’, *Wash. L. Rev.*, Vol. 81, pp.971–996; Kishoiyian, V. (1994) ‘The utility of bilateral investment treaties in the formulation of customary international law’, *Nw. J. Int. L. & Bus.*, Vol. 14, pp.327–375; McCaffrey, S. (1991) ‘The restatement’s treatment of sources and evidence of international law’, *Int. Lawyer*, Vol. 25, pp.311–330, pp.319–321; Tunkin, G. (1993) ‘Is general international law customary law only?’, *Eur. J. Int. L.*, Vol. 4, pp.534–541; Weil, ref. 18, pp.434–435, 438–440; Weisburg, A. (1988) ‘Customary international law: the problem of treaties’, *Vand. J. Transnat’l L.*, Vol. 21, pp.1–46.
- 25 Delimitation of the continental shelf boundary (Libya v. Malta) (1985) ICJ 13, pp.29–34; The Gulf of Maine (Canada v. USA) (1984) ICJ 246, pp.294–95 (merits); Fisheries Jurisdiction (United Kingdom v. Iceland) (1973) ICJ 3, pp.18; Advisory opinion on the status of Namibia, (1971) ICJ 16, pp.47. See generally Brownlie, ref. 6, pp.181, 201–202, 217, 232; Lee, L. (1983) ‘The law of the sea convention and third states’, *Am. J. Int. L.*, Vol. 77, pp.541–568; Sinclair, I. (1986) ‘The impact of the unratified convention’, in Bos, A. and Siblesz, H. (Editors) *Realism in Law-Making*, pp.211–229; Sohn, L., ‘Unratified treaties as a source of customary international law’, in Bos & Siblesz, supra at. pp.231–246; Weil, ref. 18, pp.435–438.
- 26 Military and paramilitary activities in Nicaragua (Nicaragua v. USA) (1986) ICJ 14, pp.99–100; Advisory opinion on the Western Sahara, (1975) ICJ 12, pp.31–37; UN GA Res. 3232, 32d Sess., Preamble Nov. 12, 1974). See generally Brownlie, ref. 6, pp.14–15, 30–31, 698–700; Bokor-Szegö, H. (1978) *The Role of the United Nations International Legislation*; Bowett, ref. 10, pp.41–51; Castaneda, J. (1969) *Legal Effects of United Nations Resolutions*; Elias, T.O. (1972) *Africa and the Development of International Law*, pp.71–75; di Qual, L. (1967) *Les effect des résolutions des nations unies*; Higgins, *Political Organs*, ref. 20, pp.1–10; Restatement (Third) ref. 6, §§ 102(3) 103(2)(c); Schachter, O. (1995) *International law in Theory and Practice* (student ed.) pp.84–101; Sloan, F.B. (1991) *United Nations General Assembly Resolutions In Our Changing World*; Wolfke, ref. 14, pp.79–84, 100–104; Bleicher, S. (1969) ‘The legal significance of re-citation of general assembly resolutions’, *Am. J. Int. L.*, vol. 63, pp.444–478; Chodosh, H. (1991) ‘Neither treaty nor custom: the emergence of declarative international law’, *Tex. Int. L.J.*, Vol. 26, pp.87–124; McCaffrey, ref. 24, pp.323–324, 326–330; Schwebel, S., ‘United Nations resolutions, reent arbitral awards and

- customary international law', in Bos and Siblesz, ref. 25, pp.203–210; Weil, ref. 17, pp.416–418.
- 27 The Nuclear Tests Case Australia & New Zealand v. France) 1974 ICJ 255, pp.267–270. See generally Janis, M. (1993) *An introduction to International Law*, 2nd ed., pp.14, 38–43; Wolfke, ref. 14, pp.77–78; Skubiszewski, K. (1991) 'Unilateral acts of states', in *Achievements and Prospects*, ref. 6, pp.221–240; Rubin, A. (1977) 'The international legal effects of unilateral declarations', *Am. J. Int. L.*, Vol. 71, pp.1–30.
- 28 Janis, ref. 27, pp.52–54. See also Condorelli, ref. 14, pp.181–183.
- 29 Brierly, ref. 14, pp.62–63, 67–68, 366–373; Brownlie, ref. 6, pp.15–19, 153–162; Danilenko, ref. 14, pp.173–189; de Visscher, ref. 9, pp.356–358; Janis, ref. 27, pp.54–61; Levi, ref. 20 pp.39–44; Restatement (third) ref. 6, § 102(4); Rosenne, ref. 23, pp.608–611; Rossi, C. (1993) *Equity And International Law: A Legal Realist Approach To International Decision Making*, pp.87–154; Schachter, ref. 26, pp.49–61; Shaw, ref. 8, pp.84–89; Tunkin, ref. 14, pp.190–203; Wolfke, ref. 14, pp.105–108; Bokor-Szegö, H. (1991) 'General principles of law', *Achievements and Prospects*, ref. 6, pp.213–220; Chemillier-Gendreau, M. (1991) 'Equity', *Achievements and Prospects*, supra at pp.271–282; Ford, C. (1994) 'Judicial discretion in international jurisprudence', Article 38(I)(c) and 'General principles of law', *Duke J. Comp. & Int. L.*, Vol. 5, pp.35–86.
- 30 Chen Tiqiang (1984) 'The people's republic of China and public international law', *Dalhousie L.J.*, Vol. 8, pp.3–31; Danilenko, G. (1991) 'The changing structure of the international community: constitutional implications', *Harv. Int. L.J.*, Vol. 32, pp.353–361; Flory, M. (1982) 'Adapting international law to the development of the third world', *J. African L.*, Vol. 26, pp.12–20; Gunther, K. (1982) 'Re-defining international law from the point of view of decolonisation and development and African regionalism', *J. African L.*, Vol. 26, pp.46–67; Hazard, J. (1985) 'Socialism and international public law', *Colum. J. Transnat'l L.*, Vol. 23, pp.251–263; Hoya, T. (1985) 'Marxism and international private law', *Colum. J. Transnat'l L.*, Vol. 23, pp.265–279; Murphy, jr., E. (1981) 'The diminishing world of western law', *Tex. Int. L.J.*, Vol. 16, pp.1–10; Ntambirweki, J. (1991) 'The developing countries in the evolution of international law', *Hastings Int. & Comp. L. Rev.*, Vol. 14, pp.905–928; Park, No-Hyoung (1987) 'The third world as an international legal system', *B.C. 3rd World L.J.*, Vol. 7, pp.37–60; Sathirathai, S. (1984) 'An understanding of the relationship between international legal discourse and third world countries', *Harv. Int. L.J.*, Vol. 25, pp.395–419; Thomas, J. (1990) 'International law in Asia: an initial review', *Dalhousie L.J.*, Vol. 13, pp.683–724; Wang Tieya (1983) 'The third world and international law', *Selected Articles from the Chinese Yearbook of International Law*, pp.6–40 (Chinese Soc'y Int. L.).
- 31 Merrills, ref. 10, pp.86–90. See generally Rittgerger, V. and Mayer, P. (Editors) (1993) *Regime Theory and International Relations*.
- 32 Morgenthau, H. (1967) *Politics Among Nations*, 4th ed., p.283; Schachter, ref. 26, pp.227–246.
- 33 Danilenko, ref. 14, pp.130–156; Schachter, ref. 26, pp.66–81; Condorelli, ref. 14, pp.192–194.
- 34 UN Charter, art. 13(1); GA Res. 174(II) Nov. 21, 1947. See generally Brierly, ref. 14, pp.78–86; Briggs, H. (1965) *The International Law Commission*; Sinclair, I. (1987) *The International Law Commission*; UN Secretariat (1988) *The Work of the International Law Commission*, 4th ed.; Condorelli, ref. 14, pp.194–197; Graefrath, B. (1991) 'The international law commission tomorrow: improving its organization and methods of work', *Am. J. Int. L.*, Vol. 85, pp.595–612.
- 35 Kirgis, F. (1977) *International Organisation in Their Legal Setting: Documents, Comments And Questions*, pp.250–251.
- 36 Convention on the law of the sea, opened for signature, April 30, 1982, UN Doc. A/CONF.62/122 (1982); Convention on the continental shelf, opened for signature, 29 April 1958, UNTS, Vol. 499, p.311; Convention on fishing and conservation of the living resources of the sea, opened for signature, April 29, 1958, UNTS, Vol. 559, p.285; Convention on the high seas, opened for signature, April 29, 1958, UNTS, Vol. 450, p.82; convention on the territorial sea and the contiguous zone, opened for signature, April 29, 1958, UNTS, Vol. 516, p.205. On the continuing importance of customary law in the law of the sea, see

- Delimitation of the continental shelf boundary case (*Libya v. Malta*) (1985) ICJ 13, pp.29-34); *The Gulf of Maine Case* (*Canada v. USA*) (1984) ICJ 246, 295 (merits); *The North Sea continental shelf case* (*Federal Rep. of Germany v. Denmark & Netherlands*) (1969) ICJ 3, 31. See generally Churchill, R.R. & Lowe, A.V. (1988) *The Law of the Sea*, 2nd ed., pp.5-19; O'Connell, D. (1982) (Shearer, I.A. Editor) *The International Law of the Sea*, Vol. 1, pp.22-28, 37-53; Restatement (Third) ref. 6, §§ 513 comment j, 514 comment a, 515 reporters' note 1, 523 comment b; Shaw, ref. 8, pp.337-392; Condorelli, ref. 14, pp.184-185, 197-200.
- 37 Kennedy, D. (1992) 'The jurisprudence of non-proliferation: taking international law seriously', *Transnat'l L. & Contemp Probs.*, Vol. 2, pp.357-383, at pp.373-374; Koplow, D. (1990) 'Long arms and chemical arms: extraterritoriality and the draft chemical weapons convention', *Yale J. Int. L.*, Vol. 15, pp.1-82, at pp.19-20; Smith, E. (1984) 'International regulations of chemical and biological weapons: 'yellow rain' and arms control', *U. Ill. L. Rev.*, Vol. 1984, pp.1011-1073, at p.1048.
  - 38 Haas, P. (1989) 'Do regimes matter? Epistemic communities and Mediterranean pollution control', *Int. Org.*, Vol. 43, pp.377-403, at pp.401-402. See generally Rittgerger & Mayer, ref. 31.
  - 39 Bloch, M. (Manyon, L.A. translator) (1961) *Feudal Society*, pp.114; Havelock, E. (1963) *Preface to Plato*, pp.121-122, Kern, F. (Chrimes, S.B. Translator) (1939) *Kingship and Law in The Middle Ages*, p.179; Collins, R. & Skover, D. (1992) 'Paratexts', *Stan. L. Rev.*, Vol. 44, pp.509-552, pp.516-521.
  - 40 *The North Sea continental shelf case* (*Federal Rep. of Germany v. Denmark & Netherlands*) (1969) ICJ Vol. 3, pp.33-35. See generally Brierly, ref. 14, pp.65-66; Brownlie, ref. 6, pp.24-28; Lauterpacht, ref. 14, pp.23-25; Restatement (Third) ref. 6, § 103(2)(d); Rosenne, ref. 23, pp.614-616; Schachter, ref. 26, pp.38-39; Shaw, ref. 8, pp.91-93; Wolfke, ref. 14, pp.76-77; Sourang, M. (1991) 'Jurisprudence and teachings', *Achievements and Prospects*, ref. 6, pp.283-288.
  - 41 Naff, T. and Matson, R. (Editors) (1984) *Waters in the Middle East: Conflict or Cooperation?*, p.161. See also Henkin, ref. 14, pp.60-62; Bilder, R. (1982) 'Some limitations of adjudication as an international dispute settlement technique', *Va. J. Int. L.*, Vol. 23, pp.1-12; Chinkin & Sadurska, ref. 19, pp.57-60; Doxey, M. (1969) 'The Beirut raid and the international law of retaliation', *Am. J. Int. L.*, Vol. 63, pp.415-443; Radinsky, M. (1994) 'Retaliation: the genesis of law and the evolution toward international cooperation: an application of game theory to modern international conflicts', *Geo. Mason U.L. Rev.*, Vol. 2, pp.52-75.
  - 42 Morgenthau, ref. 32, pp.282; Falk, R. (1964) 'The adequacy of contemporary theories of international law - gaps in legal thinking', *Va. L. Rev.*, Vol. 50, pp.231-265.
  - 43 Teclaff, L. (1967) *The River Basin in History and Law*, pp.13-203; Dellapenna, J. (1994) 'Designing the legal structures of water management needed to accomplish the Israeli-Palestinian declaration of principles', *Palestine Y.B. Int. L.*, Vol. 7, pp.63-103, pp.98-103 (Dellapenna, Designing); Dellapenna, J. (1990) 'The waters of the Jordan Valley: the potential and limits of law', *Palestine Y.B. Int. L.*, Vol. 5, pp.15-47, pp.40-45; Dellapenna, J. (1994) 'Treaties as instruments for managing internationally-shared water resources: restricted sovereignty vs. community of property', *Case-W. Res. J. Int. & Comp. L.*, Vol. 26, pp.27-56, pp.51-56 (Dellapenna, Treaties).
  - 44 Teclaff, ref. 43, pp.75-112; Teclaff, L. (1985) *Water law in historical perspective*, pp.78-128 (Teclaff, *Historical Perspective*).
  - 45 Helsinki Rules, ref. 5.
  - 46 Int. L. Comm'n, Draft articles on the law of non-navigational uses of international watercourses (Draft Articles II) art. 4, *Report of the 46th Meeting of the International Law Commission*, 2 May - 22 July, 1994, A/49/10 (ILC Report) pp.195-236; *Water in the Middle East*, ref. 41, pp.166-167; Benvenisti, E. (1996) 'Collective action in the utilization of shared freshwater: The challenges of international water resources law', *Am. J. Int. L.*, Vol. 90, pp.384-415, at pp.384, 388; Fahmi, A. (1967) 'International river law for non-navigable rivers

- with special reference to the Nile', *Revue égyptienne de droit international*, Vol. 23, pp.39–62 at p.51.
- 47 Berber, F.J. (Batstone, R.K. translator) (1959) *Rivers in International Law*, pp.14–19, 77–78, 108; Bruhàcs, J. (1993) *The Law of Non-Navigational Uses of International Watercourses*, pp.41–47; Caponera, D. (1992) *Principles of Water Law and Administration*, pp.212–213; Elmusa, S. (1996) *Negotiating Waters: Israel and the Palestinians*, pp.37–38; Godana, B.A. (1985) *Africa's Shared Water Resources: Legal and Institutional Aspects of the Nile, Niger and Senegal River Systems*, pp.32–35; Smith, H.A. (1931) *The Economic Uses of International Rivers*, pp.7–8; Lipper, J. (1967) 'Equitable utilization', in Garretson, A., Hayton, R. and Olmstead, C., *The Law of International Drainage Basins*, pp.15–88, pp.18, 20–23; Maluwa, T. (1992) 'Towards an internationalisation of the Zambezi river regime: the role of international law in the common management of an international watercourse', *Comp. & Int. L.J. S. Afr.*, vol. 25, pp.20–43, pp.25–26; McCaffrey, S. (1986) 'Second report on the law of non-navigational uses of international watercourses', UN Doc. A/CN.4/399 (1986) *Y.B. Int. L. Comm'n*, Vol. II, pt. 2, pp.87–144, pp.88, 105–110; Sheng Yu (1991) 'International rivers and lakes', *Achievements and Prospects*, ref. 23, pp.989–998, p.990.
- 48 Berber, ref. 47, pp.9–22; Bruhàcs, ref. 47, pp.43–47; Caponera, ref. 47, p.213; Godana, ref. 47, pp.38–40; Lipper, ref. 47, pp.18–20; Maluwa, ref. 47, pp.24–25; Sheng Yu, ref. 47, p.990.
- 49 Berber, ref. 47, p.14.
- 50 Berber, ref. 47, pp.11–14, 78–79; Bruhàcs, ref. 47, pp.45–48; Caponera, ref. 47, pp.213–214; Godana, ref. 47, p.40; Bush, W. (1981) 'Compensation and the utilization of international rivers and lakes; the role of compensation in the event of permanent injury to existing uses of water', in Zacklin, R. & Cafilisch, L. (Editors) *The Legal Regime of International Rivers and Lakes*, pp.309–329; Lipper, ref. 47, pp.23–38; Maluwa, ref. 47, pp.26–30; McCaffrey, ref. 47, pp.110–133; Sheng Yu, ref. 47, p.991.
- 51 Letter of Minister Matías Romero to Secretary of state Richard Olney, Oct. 21, 1894, in (1984) *Foreign Ref. of the US*, p.395.
- 52 Op. Att'y Gen. (1895) Vol. 21, pp.274, 281–282, reprinted in Moore, J. (1906) *Digest of International Law*, Vol. 1, p.654. See generally Hyde, C. (1945) *International Law Chiefly as Interpreted and Applied by the USA*, 2nd ed., p.565; Kriskau, K. (1966) *Die Harmon Doktrin – cine These der Vereington Staaten zum inernationalen Flussrecht*; Mackay, R.A. (1928) 'The international joint commission between the USA and Canada', *Am. J. Int. L.*, Vol. 22, pp.292–318; McCaffrey, S. (1996) 'The Harmon Doctrine one hundred years later: buried, not praised', *Nat. Resources J.*, Vol. 36, pp.549–590, at pp.556–558; Simsarian, J. (198) 'The diversion of waters affecting the USA and Mexico', *Tex. L. Rev.*, Vol. 17, pp.27–61, 59.
- 53 Convention providing for the equitable distribution of the waters of the Rio Grande for irrigation purposes, signed May 21, 1906, Mexico-United States, *Stat.*, Vol. 34, p.2953 ('Rio Grande Convention'). See generally Berber, ref. 47, pp.110–111; Teclaff, *Historical Perspective*, ref. 44, pp.429–433; McCaffrey, ref. 47, pp.105–107; McCaffrey, ref. 52, pp.745–757; Utton, A. (1998) 'Mexican international waters', in Robert Beck (Editor) *Waters and Water Rights* (replacement volume) Vol. 5, § 51.02.
- 54 Treaty respecting utilization of waters of the Colorado and Tijuana Rivers and of the Rio Grande, signed Feb. 3, 1944, Mexico-United States, UNTS, Vol. 3, p.313 ('Colorado Treaty'). See generally McCaffrey, ref. 47, pp.107–108; Utton, ref. 53, 51.03.
- 55 Memorandum to the legal advisor, Nov. 23, 1942, reprinted in Whiteman, M. (1964) *Digest of International Law*, Vol. 3, p.950. See also State Dep't (1958) 'Legal aspects of the use of systems of international waters', *Sen. Doc.* No. 118, 85th Cong., 2d Sess. pp.89–91, reprinted in Whiteman, supra. Vol. 3, pp.939–942. See generally Deener, D.R. (1957) *The USA Attorney Generals and International Law*, pp.253–257, 308–309; McCaffrey, ref. 52, pp.757–767.
- 56 Berber, ref. 47, p.149; Hyde, ref. 52, Vol. 1, p.12.
- 57 Bruhàcs, ref. 47, pp.15, 59–65, 71–73, 156; Kaeckenbeeck, G. (1919) *International Rivers*, pp.24–29; Saliba, S. (1968) *The Jordan River Dispute*, pp.48–62; Teclaff, *Historical Perspective*, ref. 44, pp.428–443; Lipper, ref. 47, pp.33–35; Sheng Yu, ref. 47, pp.993–996.

- See generally *The North Sea continental Shelf case* (Federal Rep. of Germany v. Denmark & Netherlands) (1969) *ICJ* 3, p.31; *The Wimbledon case* (France, Italy, Japan and United Kingdom v. Germany) (1923) *PCIJ*, ser. A., no. 1, at p.25, digested in *Int. L. Rep.*, Vol. 2, pp.99–102; *The Panevezys-Saldutiskis Ry. Case* (Estonia v. Lithuania) 1939, ser. A/B, no. 76, pp.51–52; *The Pacquett Habana*, (1900) 175, US 677, pp.687–688; Brierly, ref. 14, p.59; Brownlie, ref. 6, pp.3–4, 11–14, 180–181, 201, 214–217, 604; D'Amato, ref. 14, pp.51, 104, 134; Danilenko, ref. 14, pp.156–172; McNair, ref. 25, pp.216–218; McDougal, M., Lasswell, H. and Vlasic, I. (1963) *Law and Public Order in Space*, pp.82, 115–119; Restatement (third) ref. 6, § 102 comment f; Shaw, ref. 8, pp.81–82; Wolfke, ref. 14, pp.68–72; Jennings, R. (1991) *Treaties, Achievements and Prospects*, ref. 6, pp.135–177, pp.146–148; Tunkin, ref. 24.
- 58 The treaties are collected in UN Doc. A/CN.4/283, (1974) *Y.B. Int. L. Comm'n*, Vol. 2, pp.33–264. See also Berber, ref. 47, pp.52–127; Report of the UN Commission for Europe, Legal aspects of hydro-electric development of rivers and lakes of common interests, pp.95–152 UN Doc. E/ECE/136 (1952) (ECE Report); Smith, ref. 47; Burchi, S. (Editor) (1993) 'Treaties concerning the non-navigational uses of international watercourses – Europe', FAO Legislative Study no. 50; United Nations (1964) *Legislative Texts and Treaty Provisions Concerning the Utilization of International Rivers for Other Purposes Than Navigation*, ST/LEG/SER.B./12 (Legislative texts); Dellapenna, *Treaties*, ref. 44, pp.42–47; McCaffrey, ref. 47, pp.134–138; Schwebel, S. (1982) 'Third report on the law of non-navigational uses of international watercourses', UN Doc. A/CN.4/348 (1982) *Y.B. Int. L. Comm'n*, Vol. 2, pt. 2, pp.65–197, pp.76–82, 88–90.
- 59 Berber, ref. 47, pp.148–159; Brownlie, ref. 6, p.272; Bruhàcs, ref. 47 pp.16–17, 60–61; Godana, ref. 47, p.66; Hyde, ref. 52, Vol. 1, p.563; Smith, ref. 47, p.56; Fahmi, ref. 46, pp.46–48; Goldenman, G. (1990) 'Adapting to climate change: a study of international rivers and their legal arrangements', *Ecol. L.Q.*, Vol. 17, pp.741–802, p.771; Lipper, ref. 47, p.42; Maluwa, ref. 47, pp.28–29.
- 60 Saliba, ref. 57, pp.51–54, 57–59; Teclaff, ref. 43, pp.157–165; Teclaff, *Historical Perspective*, ref. 44, pp.429–443.
- 61 Convention on certain questions relating to the law of watercourse (1929) signed May 11, 1929, Norway-Sweden, art. 12(1) LNTS Vol. 120, p.277.
- 62 Signed Feb. 20, 1929, art. 10, LNTS Vol. 105, p.225. See also Agreement concerning the waterpower of the Pasvik River, signed Dec. 18, 1957, Norway-USSR, UNTS Vol. 312, p.274.
- 63 Opened for signature, Dec. 9, 1923, LNTS Vol. 36, pp.76. See also General convention regulating navigable waterways of international concern, opened for signature, Apr. 20, 1921, art. 4, LNTS Vol. 7, p.35. See Berber, ref. 47, pp.122–124; Bruhàcs, ref. 47, p.11; Caponera, ref. 47, pp.209–210.
- 64 Teclaff, L. (1991) 'Fiat or custom: the checkered development of international water law', *Nat. Resources J.*, Vol. 31, pp.45–73; Young, O. (1989) The politics of international regime formation: managing natural resources and the environment, *Int. Org.*, Vol. 43, pp.349–403.
- 65 Rio Grande Convention, ref. 53, art. 4.
- 66 Rio Grande Convention, ref. 53, art. 6. See also Indus Waters treaty, signed Sept. 19, 1960, India-Pakistan, art. 11, UNTS Vol. 419, p.126.
- 67 State Dep't, ref. 55, pp.62–63, 89–91. See generally Berber, ref. 47, pp.110–118; Bloomfield, L.M. and Fitzgerald, G.F. (1958) *Boundary Waters Problems of Canada and the USA: The International Joint Commission, 1912–1958*, pp.46–47; Saliba, ref. 57, pp.51–55; Lipper, ref. 47, pp.25–28; McCaffrey, ref. 47, pp.106–109.
- 68 Treaty for the co-operative development of the Columbia River Basin, Jan. 17, 1961, USA-Canada, art. 17(1) UST Vol. 15, p.1555.
- 69 Hydraulic Power Convention, ref. 63, art. 1 (emphasis added).
- 70 Agreement on the cooperation for the sustainable development of the Mekong River basin, signed April 5, 1995, Cambodia-Laos-Thailand-Vietnam, art. 5, reprinted in *Int. Legal Materials*, Vol. 34, pp.864–880 ('Mekong River basin agreement'). See also Agreement on



- regulation of boundary waters, signed November 20, 1866, Spain-Portugal, Annex 1 (the whole agreement in turn is an annex to the Convention on boundaries, signed on 29 September, 1864, Spain-Portugal, *Legislative Texts*, ref. 58, p.241); Treaty concerning the regulation of water management of frontier waters, signed Dec. 7, 1967, Austria-Czechoslovakia, art. 19(4) UNTS Vol. 728, p.313.
- 71 The Lake Lanoux arbitration (France v. Spain) (1957) *Int. L. Rep.*, Vol. 24, 101, pp.111–112 (France did not assert absolute sovereignty); Papers regarding a Treaty of Alliance with Egypt – Egypt No. 1 at p.31 (U.K. Cmd. 3050, 1928) (the United Kingdom did not assert absolute sovereignty on behalf of the Sudan). See also Lammers, J.G. (1984) *Pollution of International Watercourses*, pp.289–290; [Sudanese] Ministry of Irr. & Hydro-Elec. Power (1955) *Nile Waters Question*, p.13; Smith, ref. 47, p.147; Lipper., ref. 47, pp.27–28; McCaffrey, ref. 47, pp.110–113.
- 72 Declaration on industrial and agricultural use of international rivers, Montevideo, Dec. 24, 1933 (7th Int. Conf. of Am. States) reprinted in *Am. J. Int. L.*, Vol. 28, p.59 (1934 supp.). See generally Berber, ref. 47, pp.125–127.
- 73 See UN Doc. A/CN.4/283, ref. 58, pp.187–99; Bruhàcs, ref. 47, pp.12–13; Caponera, ref. 47, pp.192–194; Saliba, ref. 57, pp.62–64; Lipper, ref. 47, pp.28–31; McCaffrey, ref. 47, pp.113–122.
- 74 Permanent Commission of the River Oder case (1929) PCIJ, ser. A, no. 23, at p.27. See also Jurisdiction of the European Commission for the Danube Case, (1927) PCIJ, ser. B, no. 14, pp.61–64; Lammers, ref. 71, p.507. Teclaff, *Historical Perspective*, ref. 44, pp.378–399; McCaffrey, ref. 47, pp.113–114.
- 75 UNCED Report, Agenda 21, 2 UN Doc. A/Conf.151/26, pp.167–168; Bruhàcs, ref. 47, pp.17–19, 24–35; Caponera, ref. 47, pp.185–186; Lammers, ref. 71, pp.18; McDonald, A. and Kay, D. (1988) *Water Resources: Issues and Strategies*, pp.190–223, 239–245; Teclaff, ref. 43; Wunderlich, W. and Prins, J. (Editors) (1987) *Water for The Future: Water Resources Developments In Perspective*, pp.245, 245–250; Dworsky, L. and Utton, A. (1993) ‘Assessing North America’s management of its transboundary waters’, *Nat. Resources J.*, Vol. 33, pp.413–459; Francis, G. (1993) ‘Ecosystem management’, *Nat. Resources J.*, Vol. 33, pp.315–345; Linnerooth, J. (1990) ‘The Danube Basin: negotiating settlements to transboundary environmental issues’, *Nat. Resources J.*, Vol. 30, pp.629–660; Maluwa, ref. 47, pp.22–23; Maluwa, T. (1988) ‘The legal aspects of the Niger River under the Niamey Treaties’, *Nat. Resources J.*, Vol. 28, pp.671–697; McCaffrey, S. (1991) ‘International organizations and the holistic approach to water problems’, *Nat. Resources J.*, Vol. 31, pp.139–165, at p.143; Okidi, C.O. (1988) ‘The state and the management of international drainage basins in Africa’, *Nat. Resources J.*, Vol. 28, pp.645–669; Xue Hanqin (1992) ‘Relativity in international water law’, *Colo. J. Int. Env’tl. L. and Pol’y*, Vol. 3, pp.45–57, at pp.46–48.
- 76 The trail smelter arbitration (1941) digested in *Int. L. Rep.*, Vol. 9, pp.315–333; Bruhàcs, ref. 47, p.155; Caponera, ref. 47, p.194; Saliba, ref. 57, pp.64–66; Hayton, R.D. (1967) The formation of the customary rules of international law, in Garretson, Hayton and Olmstead, ref. 47, pp.834–895, at pp.845–847; Kunz, J. (1951) ‘International law by analogy’, *Am. J. Int. L.*, Vol. 45, pp.329–335; Lauterpacht, H. (1929) ‘Decisions of municipal courts as a source of international law’, *Brit. Y.B. Int. L.*, Vol. 10, pp.65–95; Lipper, ref. 47, pp.31–33. Maluwa, ref. 47, p.25; McCaffrey, ref. 47, pp.129–130; Schwebel, ref. 58, pp.75–76. Berber, ref. 47, pp.168–184 (contra).
- 77 *Texas v. New Mexico*, 482 US 124 (1987); *Kansas v. Colorado*, 475 US, 1079 (1986); *Colorado v. New Mexico*, 467 US 310 (1984); *Wisconsin v. Illinois*, 388 US 426 (1967); *Arizona v. California*, 373 US 546 (1963); *Texas v. New Mexico*, 352 U. 991 (1957); *New Jersey v. New York*, 345 US 369 (1953); *Nebraska v. Wyoming*, 325 US 589 (1945); *Colorado v. Kansas*, 320 US 383 (1943); *Wyoming v. Colorado*, 309 US 572 (1940); *Washington v. Oregon*, 297 US 517 (1936); *Nebraska v. Wyoming*, 295 US 40 (1935); *Arizona v. California*, 283 US 423 (1931); *New Jersey v. New York*, 283 US 336 (1931); *Connecticut v. Massachusetts*, 282 US 660 (1931); *Wisconsin v. Illinois*, 281 US 179 (1930); *Wyoming v. Colorado*, 259 US 419 (1922); *Kansas v. Colorado*, 206 US 46 (1907);

- Missouri v. Illinois, 200 US 496 (1906). Grant, D. (1996) 'Interstate water allocation', in Beck, ref. 53, Vol. 4, chs. 43–48; Tarlock, A.D. (1985) 'The law of equitable apportionment revisited, updated and restated', *U. Colo. L. Rev.*, Vol. 56: pp.381–411.
- 78 The Donauversinkung Case (Württemberg and Prussia vs. Baden) (1927) *Entscheidungen des Reichsgerichts in Zivilsachen* ('RGZ') Vol. 116, p.1 (Staatsgerichtshof ['SGH'], reprinted in Lauterpacht, H. ed. (1931) *Ann. Digest of Pub. Int. L. Cases*, p.128; *Report of the Rao Commission* (1942) pp.10, 11, quoted in Whiteman, ref. 72, Vol. 3, p.943; Zurich v. Aargau (1898) *Entscheidungen des Schweizerischen Bundesgerichts*, Vol. 4, pp.34, 37. Guliaty, N.D. (1972) *Development of Interstate Rivers: Law And Practice In India*; Jain, S.N., Jacob, A. and Jain, S. (1971) *Interstate Water Disputes In India*; Schindler, D. (Zeydel, E.H. Translator) (1921) 'The administration of justice in the Swiss federal courts in international disputes', *Am. J. Int. L.*, Vol. 15, pp.149–188.
- 79 Decision of Feb. 13, 1939 (Société énergie électrique du littoral méditerranéen v. Compagnia impresa elettrica liguri) (Corte de Cassazione) translated in Lauterpacht, H. (Ed.) (1938–40) *Ann. Digest Pub. Int. L. Cases*, No. 47.
- 80 *Ann. Digest of Public Int. law Cases*, p.128.
- 81 Arsanjani, M. (1981) *International Regulation of Internal Resources*; Berber, ref. 47, pp.185–255; Brierly, ref/ 14, pp.231–232; Brownlie, ref. 6, pp.271–276; Bruhàcs, ref. 47, pp.73–79, 155–173; Caponera, ref. 47, pp.189–190, 212–214; Chauhan, B. (1981) *Settlement of Water Law Disputes In International Drainage Basins*; Feinberg, N. (1979) 'Studies in international law with special reference to the Arab-Israeli conflict', pp.491–497; Godana, ref. 47, pp.8, 50–57, 338–344; Hackworth, G.H. (1940) *Digest of International Law*, Vol. 1, p.621; Kaackenbeeck, ref. 58, pp.1–3, 17–23; O'Connell, D. (1970) *International Law*, 2nd ed., pp.556–558; Oppenheim, L. (Lauterpacht, H. editor) (1955) *International Law*, 8th ed., Vol. 1, pp.313, 345–47, 474–476; Schwarzenberger, G. (1941) *International Law*, 2d ed. p.13; Smith, ref. 47, pp.148–51; Teclaff, ref. 43, pp.152; Teclaff, *Historical Perspective*, ref. 44, pp.424–456; Verzijl, ref. 14, Vol. 3, pp.103–220; Alhérière, D. (1987) 'Settlement of public international disputes on shared resources: elements of a comparative study of international instruments', in Utton, A. and Teclaff, L. (editors) (1987) *Transboundary Resources Law*, pp.139–149; Ahmed, S. (1990) 'Principles and precedents in international law governing the sharing of Nile waters', in Howell, P.P. and Alan, J.A. (Editors) *The Nile: Resources Evaluation, Resource Management, Hydropolitics And Legal Issues*, pp.225–238; Austin, ref. 52; Benvenisti, E. and Gvirtzman, H. (1993) 'Harnessing international law to determine Israeli-Palestinian water rights: the mountain aquifer', *Nat. Resources J.*, Vol. 33, pp.543–567, at pp.547–548; Bilder, R. (1980) 'International law and natural resources policies', *Nat. Resources J.*, Vol. 20, pp.451–486; Chalabi, H. and Majzoub, T. (1995) 'Turkey, the waters of the Euphrates and public international law', in Allan, J.A. and Mallat, C. (Editors) *Water In the Middle East: Legal, Political And Commercial Implications*, pp.189–236, at pp.227–229; Dellapenna, 'Treaties', ref. 43, pp.35–38; Fahmi, ref. 46; Goldenman, ref. 59, pp.775–779; Griffin, W. (1959) 'The use of waters of international drainage basins under customary international law', *Am. J. Int. L.*, Vol. 53, pp.50–80; Goldie, F.L.E., 'Equity and the international management of transboundary resources', *Transboundary Resources Law*, supra, pp.103–137; Lester, A.P. (1963) 'River pollution in international law', *Am. J. Int. L.*, Vol. 57, pp.828–853, 832; Lipper, ref. 47, pp.62–66; Maluwa, ref. 47, pp.26–28; Nanda, V. (1977) 'Emerging trends in the use of international law and institutions for the management of international water resources', in Ved Nanda (Editor) *Water Needs for the Future*, pp.15–37; Sewell, W.R. (1964) 'The Columbia River treaty and protocol agreement', *Nat. Resources J.*, Vol. 4, pp.309–331; Van Alstyne, W. (1960) 'International law an interstate river disputes', *Cal. L. Rev.*, Vol. 48, pp.596–622; Wouters, P. (1992) 'Allocation of the non-navigational uses of international watercourses: efforts at codification and the experience of Canada and the USA', *Can. Y.B. Int. L.*, pp.43–88, at p.45; Sheng Yu, ref. 47, pp.93–96.
- 82 ECE Report, ref. 58, pp.57–68.
- 83 Schwebel, ref. 58, pp.82–85, 87–88, 91–103. Berber, ref. 47, pp.11–44 (noting that many earlier commentators supported one or the other of the absolute theories, but that the later commentators were coalescing around restricted sovereignty); McCaffrey, ref. 47, pp.127–129.

- 84 Schwebel, ref. 58, p.85.
- 85 Bruhàcs, ref. 47, pp.77–79; Caponera, ref. 47, pp.194–196.
- 86 Asian-African legal consultative comm., *Report of the Fourteenth Session*, p.100 (1974); Inter-American Bar Ass'n (1957) 'Resolution on principles of law governing the uses of international rivers and lakes; Utilization on non-maritime international waters (Except for navigation)' (Salzburg resolution) *Annuaire de l'instute de droit international*, Vol. 40, p.381 (1961). See also Whiteman, ref. 55, Vol. 3, pp.922–924, 929–930; McCaffrey, ref. 47, pp.124–127; Schwebel, ref. 48, pp.84–87.
- 87 Helsinki Rules, ref. 5. The project was begun in 1954 and produced an interim report tot he Association's Conference in New York in 1958. *Int. L. Ass'n, Research Project on the Law and Uses of International Rivers*, pp.197–198 (1959) (NYU Conference).
- 88 Bourne, C. (1996) 'The international law association's contribution to international water resources law', *Nat. Resources J.*, Vol. 36, pp.155–216, pp.155–77, 213–216; Schwebel, ref. 48, pp.83–84, 87–88.
- 89 Helsinki Rules, ref. 5, art. II and comment (a).
- 90 Helsinki Rules, ref. 5, art. IV.
- 91 The sets of rules (except those approved in 1996) are collected, with ample commentary, in Manner, E.J. and Metsälampi, V. (Editors) (1988) *The Work of the International Law Association on the Law of International Water Resources*. For a summary of the provisions of these several documents, see Bourne, ref. 88, pp.177–208; McCaffrey, ref. 75, pp.144–150; Schwebel, ref. 58, p.85.
- 92 International L. Ass'n, *Rules on the Relationship between Water, Other Natural Resources and the Environment*, art. I (Rep. of the 59th Conf., Belgrade 1980) (Belgrade Rules). Shaw, ref. 8, pp.532–539. See also NYU Conference, ref. 87, p.197.
- 93 Hazard, G. (1994) *The American Law Institute: What It Is and What It Does*; Massey, D. (1997) 'Note, how the American Law Institute influences customary law: the reasonableness requirement of the restatement of foreign relations law', *Yale J. Int. L.*, Vol. 22, pp.419–445; White, G.E. (1997) 'The American Law Institute and the triumph of modernist jurisprudence', *Law and Hist. Rev.*, Vol. 15, pp.1–47; Wechsler, H. (1969) 'The course of the restatements', *ABA J.*, Vol. 55, pp.147–151.
- 94 Restatement (third) ref. 6, 601.
- 95 Powledge, ref. 1.
- 96 Caponera, ref. 47, pp.252–253; Hillel, ref. 1, pp.275–276.
- 97 Hillel, ref. 1, p.192.
- 98 Colorado Treaty, ref. 54; Rio Grande Convention, ref. 53. See generally, Day, J.C. (1978) 'International aquifer management of the Hueco Bolson on the Rio Grande', *Nat. Resources J.*, Vol. 18, pp.163–180; Hansen, N. (1982) 'Economic growth patterns in the Texas borderlands', *Nat. Resources J.*, Vol. 22, pp.805–821; Kelecher, M. (1988) 'Note, Mexican-United States shared groundwater: can it be managed?', *Geo. Int. Envntl. L. Rev.*, Vol. 1, pp.113–131; Rodgers, A. & Albert Utton, A. (1985) 'The Ixtapa draft agreement relating to the use of transboundary groundwaters', *Nat. Resources J.*, Vol. 25, pp.715–772.
- 99 Agreement fixing the frontier between Cyrenaica and Egypt, signed Dec. 6, 1925, Egypt-Italy, art. 6, *Brit. & For. State Papers*, Vol. 133, pp.976 (1935); Exchange of Notes with regard to the Somali coast, Feb. 9, 1888, France-United Kingdom, *Brit. & For. State Papers*, Vol. 83, p.672 (1897).
- 100 Caponera, ref. 47, pp.254–255; Teclaff, L. and Utton, A. (Editors) (1981) *International Groundwater Law*; Barberis, J. (1991) 'The development of the international law of transboundary groundwater', *Nat. Resources J.*, Vol. 31, pp.167–186; Benvenisti, ref. 46, pp.398–399; Caponera, D. and Alhéritière, D. (1978) 'Principles of international groundwater law', *Nat. Resources J.*, Vol. 18, pp.589–619; Hayton, R. (1982) 'The law on international aquifers', *Nat. Resources J.*, Vol. 22, pp.71–93; Schwebel, ref. 58, p.95; Teclaff, L. (1996) 'Evolution of the river basin concept in national and international water law', *Nat. Resources*

- J., Vol. 36, pp.359–391, pp.372–374; Utton, A. (1982) ‘The development of international groundwater law’, *Nat. Resources J.*, Vol. 22, pp.95–118.
- 101** The Donauversinkung Case (Württemberg and Prussia vs. Baden) 116 RGZ 1 (SGH 1927) in Lauterpacht, H. (Editor) (1931) *Ann. Digest Pub. Int. L. Cases* 128.
- 102** Helsinki Rules, ref. 5, art. II.
- 103** International Law Ass’n, *The Seoul Rules on the Law of International Groundwater Resources* (Report of the sixty-second conference, Seoul, 1986) (Seoul Rules).
- 104** Seoul Rules, ref. 103, art. II (2).
- 105** Hayton, R. and Utton, A. (1989) ‘Transboundary groundwaters: The Bellagio draft treaty’, *Nat. Resources J.*, vol. 29, pp.663–722.
- 106** *Report of the United Nations Water Conference*, Mar del Plata, 14–25 March 1977, UN Doc. No. E.77.II.A.12 (recommendations 90, 91).
- 107** *Draft Articles II*, ref. 46, art. I.
- 108** The Donauversinkung case involved a dispute that arose because part of the groundwater underlying the upper Danube discharge into the Aach River which feeds into the Rhine and not into the Danube. The Donauversinkung case (Württemberg and Prussia vs. Baden) 116 RGZ 1 (SGH 1927) Lauterpacht, H. (Editor) (1931) *Ann. Digest Pub. Int. L. Cases*, p.128. See also Teclaff, ref. 43, p.9.
- 109** ILC Report, ref. 46, p.326. McCaffrey, S. (1996) ‘An assessment of the work of the international law commission’, *Nat. Resources J.*, Vol. 36, pp.297–318, at pp.316–318; Rosenstock, R. (1995) ‘The forty-ninth session of the international law commission’, *Am. J. Int. L.*, Vol. 89, pp.390–395, at p.392.
- 110** McCaffrey, ref. 109, p.138.
- 111** Kanaaneh, H., McKay, F. and Sims, E. (1995) ‘A human right approach for access to clean drinking water: a case study’, *Health and Hum. Rts.*, Vol. 1, pp.191–204; McCaffrey, S. (1992) ‘A human right to water: domestic and international implications’, *Geo. Int. Envtl. L. Rev.*, Vol. 3, pp.1–24. Smith, ref. 47, p.96; Benvenisti, ref. 46, pp.405–408; Bourne, C. (1965) ‘The right to utilize the waters of international rivers’, *Can. Y.B. Int. L.*, Vol. 3, pp.184–264, pp.192–264, pp.192–195; Dellapenna, J. (1996) ‘Rivers as legal structures: the examples of the Jordan and the Nile’, *Nat. Resources J.*, Vol. 36, pp.217–250, pp.246–247.
- 112** Hillel, ref. 1, pp.194. Murphy, E.F. (1991) ‘Geology and hydrology’, in Beck, ref. 53, Vol. 3, §18.03; Tsur, Y. (1995) ‘Uncertainty and irreversibility in groundwater resource management’, *J. Envtl. Econ. & Mgt.*, Vol. 29, pp.149–161.
- 113** Paisley, R. and McDaniels, T. (1995) ‘International water law, acceptable pollution risk and the Tatshenshini River’, *Nat. Resources J.*, Vol. 35, pp.111–132, at pp.124–126.
- 114** Anderson, S. (1984) ‘Note, equitable apportionment and the Supreme Court: what’s so equitable about apportionment?’, *Hamline L. Rev.*, Vol. 7, pp.405–429; Dellapenna, J., ‘The Delaware and Susquehanna River Basins’, Beck, ref. 53, Vol. 6, pp.137–150; Grant, ref. 77; Tarlock, ref. 77.
- 115** See the authorities collected at ref. 77.
- 116** Shapland, G. (1995) ‘Policy options for downstream states in the Middle East’, Allan & Mallat, ref. 81, pp.301–323, at p.309; Van Alstyne, W. (1964) ‘The justiciability of international river disputes: a study in the case method’, *Duke L.J.*, Vol. 1964, pp.307–340. Falk, R. (1959) ‘International jurisdiction: horizontal and vertical conceptions of legal order’, *Temple L.Q.*, Vol. 32, pp.295–320.
- 117** Benvenisti, ref. 46; Radinsky, M. (1994) ‘Retaliation: the genesis of a law and the evolution toward international cooperation: an application of game theory to modern international conflicts’, *Geo. Mason U. L. Rev.*, Vol. 2, pp.52–75. Axelrod, R. (1984) *The Evolution of Cooperation*; Ellickson, R. (1991) *Order without Law: How Neighbors Settle Disputes*; Fisher, R. and Brown, S. (1988) *Getting Together*, pp.197–202; Bendor, J. (1993) ‘Uncertainty and the evolution of cooperation’, *J. Conflict Resolution*, Vol. 37, pp.709–734; Kornhauser, L. (1992) ‘Are there cracks in the foundation of spontaneous order? Order

- without law: how neighbors settle disputes (book rev.)' *NYU L. Rev.*, Vol. 67, pp.647–673; Young, ref. 64.
- 118** Naff and Matson, ref. 58, p.161. Cf. Habeeb, W.M. (1988) *Power and Tactics in International Negotiations: How Weak Nations Bargain with Strong Nations*.
- 119** Dellapenna, J. (1991) 'The right to consume water under 'pure' riparian rights', Beck, ref. 53, Vol. 1, ch. 7.
- 120** Dellapenna, J. 91991) 'Regulated riparianism', Beck, ref. 53, ch. 9.
- 121** Dellapenna, 'Designing', ref. 43.
- 122** Bruhàcs, ref. 46, p.19.
- 123** Progressive development and codification of the rules of international law relating to international watercourses, GA Res. 2669 (XXV) Dec. 8, 1970, UN Doc. A/8028; Sinclair, ref. 34; UN Secretariat, ref. 34, pp.27, 40. For summary histories of the Commission's work on international rivers, see McCaffrey, ref. 109; Rahman, R. (1995) 'The law of international uses of international watercourses: dilemma for lower riparians', *Fordham Int. L.J.*, Vol. 14, pp.9–24, at pp.10–17; Westcoat, jr., J. (1992) 'Beyond the river basin: the changing geography of international water problems and international watercourse law', *Colo. J. Int. Envtl. L. and Pol'y*, Vol. 3, pp.301–330.
- 124** Int. L. Comm'n, *Draft Articles on the Law of Non-Navigational Use of International Watercourses*, UN Doc. A/CN.4/L.463/Add/4 (1991) reprinted in *Colo. J. Int. Envtl. L.*, Vol. 3, pp.1–11 (1992) (Draft Articles I).
- 125** *Draft Articles II*, ref. 46.
- 126** UN Convention on the law of non-navigational uses of international watercourses, approved May 21, UN Doc. No. A.51/869, reprinted in *Int. Legal Materials*, Vol. 36, pp.700–720 (UN Convention). The three negative votes were by Burundi, the People's Republic of China and Turkey.
- 127** UN Charter, art. 13(1); *Statute of the International Law Commission*, UN Doc. A/CN.4rev.2 (1982); Sinclair, ref. 34; UN Secretariat, ref. 34; Condorelli, ref. 14, pp.179, 194–197; Graefrath, ref. 34.
- 128** *Draft Articles I*, ref. 124.
- 129** Rahman, ref. 123, pp.16–17, 22–23.
- 130** *ILC Report*, ref. 46, pp.218–219.
- 131** Act regarding navigation and economic co-operation between the States of the Niger Basin, signed Oct. 26, 1963, Cameroon-Chad-Dahomey-Guinea-Ivory Coast-Mali-Niger-Nigeria-Upper Volta, art. 2, pp.587, UNTS pp.9; Convention concerning the lakes or courses of common waters, Oct. 26, 1905, Norway-Sweden, art. 11, 34 G.F. de Martens, *Nouveau Recueil Général des Traités* (2<sup>e</sup> ser.) p.711; Treaty relating to boundary waters between the USA and Canada, Jan. 11, 1909, United Kingdom-United States, art. 2, *Legislative Texts*, ref. 75, no. 79. See also Colorado Treaty, ref. 54, art. 17.
- 132** The Corfu Channel (United Kingdom v. Albania) (1949) ICJ 4, at p.22; Godana, ref. 64, p.50; Ahmed, ref. 81, pp.225–226; Goldenman, ref. 59, pp.779–781; McCaffrey, ref. 47, pp.115–116, 133–134; *Report of the United Nations on the Human Environment*, Stockholm, pp.5–16, 1972, UN Sales, No. E.73.II.A.14 (principle 21) (*Stockholm Declaration*); Schwebel, ref. 58, pp.92–95. See also (1911) *Annuaire de l'institut de droit international*, Vol. 24, pp.365–366 (Madrid Declaration); Berber, ref. 47, pp.211–215; Bruhàcs, ref. 47, pp.121–148; Lammers, ref. 71, pp.525–527; Oppenheim, ref. 81, pp.345–346, 474–476; Lester, ref. 81, p.847; Wouters, ref. 81, pp.45–46. See also Merrill, T. (1997) 'Golden rules for transboundary pollution', *Duke L.J.*, Vol. 46, pp.931–1019.
- 133** The Trail Smelter arbitration (1941) *Int. L. Rep.*, Vol. 9, pp.315, 317. See generally Shaw, ref. 8, pp.532–539; Kirgis, F. (1974) 'The technological challenge of the shared environment: US practice', *Am. J. Int. L.*, Vol. 66, pp.291–320; McCaffrey, ref. 47, pp.119–121; Read, J. (1963) 'The Trail Smelter arbitration', *Can. Y.B. Int. L.*, Vol. 1, pp.213–229.
- 134** GA Res. 2995 (XXVII) Dec. 15, 1972; Act of Asuncion, signed June 3, 1971, Argentina-

- Bolivia-Brazil-Paraguay, art. 4, reproduced in Organization of Am. States, *Rios y Lagos Internacionales*, 4th rev. ed., OEA/Ser. I/Vi, CIJ-75 ref. 2 (1971). See also *Stockholm Declaration*, ref. 133, principle 21 and recommendation 21; McCaffrey, ref. 47, pp.111, 122.
- 135** See the authorities collected in refs. 81–85.
- 136** International Law Comm'n, 1785th Meeting, (1983) *Y.B. Int. L. Comm'n*, Vol. 1, pp.171, 177–178. (statement of Special Rapporteur Jens Evensen); McCaffrey, S. (1985) 'An update on the contributions of the International Law Commission to international environmental law', *Envtl. L.*, Vol. 15, pp.667–678, at pp.672–674; McCaffrey, ref. 75, pp.150–161; McCaffrey, ref. 47, pp.94–95, 130–134; Schwebel, ref. 58, pp.82–85, 103. See also Bourne, C. (1992) 'The International Law Commission's draft articles on the law of international watercourses: principles and planned measures', *Colo. J. Int. Env'tl. L. and Pol'y*, Vol. 3 pp.65–92, at pp.73–77.
- 137** McCaffrey, ref. 109, pp.307–309; McCaffrey, S. (1995) 'The International Law Commission adopts draft articles on international watercourses', *Am. J. Int. L.*, Vol. 89, pp.395–404, at p.399, (McCaffrey, Commission adopts draft articles); McCaffrey, S. (1991) 'The International Law Commission and its efforts to codify the international law of waterways', *Annuaire suisse de droit international*, Vol. 47, pp.32–35, at pp.48–52; McCaffrey, S. (1990) 'The law of international watercourses: ecocide or ecomangement?', *Revista Juridica U.P.R.*, Vol. 59, pp.1003–1012, at pp.1005–1008, (McCaffrey, Ecocide); McCaffrey, S. (1989) 'The law of international watercourses: some recent developments and unanswered questions', *Den. J. Int. L. and Pol'y*, Vol. 17, pp.505–526, at pp.509–510 (McCaffrey, 'Recent Developments'). See also Bourne, ref. 136, pp.77–82; Handl, G. (1992) 'The International Law Commission's draft articles on the law of international watercourses (general principles and planned measures): progressive or retrogressive development of international law?', *Colo. J. Int. Env'tl. & Pol'y*, Vol. 3, pp.123–143, at pp.129–133; Wouters, ref. 81, pp.46–47.
- 138** McCaffrey, ref. 109, pp.309–310, 312; McCaffrey, S. (1990) 'The non-navigational uses of international watercourses', *Proc. Am. Soc'y Int. L.*, Vol. 84, pp.228–232, at p.231, (McCaffrey, Non-navigational uses); McCaffrey, 'Recent developments', ref. 137, p.523 n. 71. See also Wouters, P. (1996) 'An assessment of recent developments in international watercourse law through the prism of the substantive rules governing use allocation', *Nat. Resources J.*, Vol. 36, pp.417–439, at p.438.
- 139** McCaffrey, ref. 111.
- 140** Wouters, ref. 81, pp.80–86.
- 141** *ILC Report*, ref. 46, p.242; *Belgrade Rules*, ref. 92, art. 1; Bruhàcs, ref. 47, pp.194–204; Caponera, ref. 47, pp.219–221, 223–225; Nollkaemper, A. (1993) *The Legal Regime for Transboundary Water Pollution: Between Discretion and Constraint*, pp.61–69; Teclaff, historical Perspective, ref. 44, pp.457–477; Ando, N., 'The law of pollution prevention in international rivers and lakes', Zacklin and Cafilisch, ref. 50, p.331; Prieur, M. (1991) 'Protection of the environment', *Achievements and Prospects*, ref. 6, pp.1017–1038, at pp.1020–1022; McCaffrey, Ecocide, ref. 137; McCaffrey, ref. 109, p.308; McCaffrey, 'Recent developments', ref. 137, pp.513–525.
- 142** Bruhàcs, ref. 47, pp.142–143; Bourne, ref. 136, pp.83–88; Handl, ref. 81, pp.61–62.
- 143** Krishna, R. (1990) 'The non-navigational uses of international watercourses', *Proc. Am. Soc'y Int. L.*, Vol. 84, pp.232–235, at pp.234–235; Solanes, ref. 75, pp.120–121; Young, ref. 64, pp.368–369; Wouters, ref. 81, pp.81–86.
- 144** *ILC Report*, ref. 46, pp.212–213. For a contrary view, see Bourne, ref. 111, pp.230–245, 261–264. Bourne's view was criticized and Bourne has not repeated his argument in his later writings. See also Bruhàcs, ref. 47, pp.135–139.
- 145** Bruhàcs, ref. 47, pp.132–143; Bourne, ref. 88, p.92; Dellapenna, ref. 111, pp.245–246; Ely, N. and Wolman, A. (1967) 'Administration', in Garretson, Hayton and Olmstead, ref. 47, pp.124–159, at pp.124–125; Garretson, A. (1967) 'The Nile basin', in Garretson, Hayton and Olmstead, supra at pp.256–297, at pp.264–265. See also Ahmed, ref. 81, pp.225–229. See generally Westcoat, ref. 123.

- 146 Dellapenna, ref. 111, p.245; Wouters, ref. 81, p.82. See also Lammers, ref. 81, p.364; Gaines, S. (1991) 'Taking responsibility for transboundary environmental effects', *Hastings Int. and Comp. L. Rev.*, Vol. 14, pp.781–809, at p.798.
- 147 Székely, A. (1992) 'General principles' and planned measures provisions in the international Law commission's Draft Articles on the non-navigational uses of international watercourses: a Mexican point of view', *Colo. J. Int. Env'tl. L. and Pol'y*, Vol. 3, pp.93–101.
- 148 Benvenisti, ref. 46, p.403. Beck, R. (1991) 'Prevalence and definition', *Waters and Water Rights*, ref. 53, Vol. 1, ch. 12; Dellapenna, ref. 136, § 7.02(c).
- 149 Helsinki Rules, ref. 5, art. V(d); Baxter, R.R. (1977) *Legal Questions Arising Out of the Construction of a Dam at Maqarin on the Yarmuk River*, pp.65–68; Bruhács, ref. 47, pp.132–140; Elmusa, ref. 47, p.36; Saliba, ref. 57, p.70; Smith, ref. 47, pp.40, 146; Benvenisti, ref. 46, pp.408–409, 411; Bourne, ref. 111, pp.233, 257; Dellapenna, ref. 111, pp.247–249; Garretson, ref. 146, pp.287–289; Lipper, ref. 47, pp.57–58; Maluwa, ref. 47, pp.30–33; Shuval, H. (1992) 'Approaches to resolving water conflicts between Israel and her neighbors – a regional water for peace plan', *Water Int.*, Vol. 17, pp.133–143, at pp.136–138, 141–142; Wouters, ref. 81, p.82. For a contrary view, see Fahmi, ref. 46, pp.51–54. On the importance of prior uses under international law without making them the determining factor in the allocation of water, see Godana, ref. 47, p.62; Batstone, R.K. (1959) 'The utilization of Nile waters', *Int. and Comp. L.Q.*, Vol. 8, pp.523–558, at p.529; Benvenisti, supra at pp.408–409; Benvenisti and Gvirtzman, ref. 81, pp.548–549.
- 150 *Draft Articles II*, ref. 46, art. 6(1)(e) (requiring consideration of existing and potential uses of the watercourse); *Draft Articles I*, ref. 124, art. 6(1)(e) (same); ILC Report, ref. 46, p.233 (explaining the text as having been adopted "in order to emphasize that neither is given priority ...").
- 151 Beaumont, P. (1964) 'The growing pressures on water resources in the Middle East and the need for new approaches to provide solutions', in Bagis, A.I. (Editors) *Water as an Element of Cooperation and Development in the Middle East*, pp.201–212, at pp.209–210. See also *ILC Report*, ref. 46, p.221.
- 152 Benvenisti, ref. 46, p.403.
- 153 Benvenisti, ref. 46, p.403–404.
- 154 McCaffrey, ref. 111, pp.17–24. see also Smith, ref. 47, p.96; Benvenisti, ref. 46, pp.405–408; Bourne, ref. 111, pp.192–195; Dellapenna, ref. 111, pp.246–247.
- 155 Schwebel, ref. 58, pp.98–100. See also Bruhács, ref. 47, pp.129–130; Magraw, D.B. (1986) 'Transboundary harm: the International Law Commission's study of 'international liability' ', *Am. J. Int. L.*, Vol. 80, pp.305–330, at p.322; Sachariew, K. (1990) 'The definition of thresholds of tolerance for transboundary environmental injury under international law: development and present status', *Neth. Int. L. Rev.*, Vol. 37, pp.193–206.
- 156 Belgrade Rules, ref. 92, art. 1; Helsinki Rules, ref. 5, art. X commentary; Bruhács, ref. 47, pp.137–140; McCaffrey, ref. 75, pp.144–150; Schwebel, ref. 58, pp.99–107.
- 157 The Donauversinkung Case (Württemberg and Prussia vs. Baden) 116 RGZ 1, 4 (SGH 1927) Lauterpacht, H. (editor) (1931) *Ann. Digest Pub. Int. L. Cases*, pp.128, 131. Bourne, ref. 111, pp.82–92; Schwebel, ref. 58, p.102. See generally Coase, R. (1960) 'The problem of social cost', *J.L. and Econ.*, Vol. 3, pp.1–44.
- 158 UN Convention on the protection and uses of transboundary watercourses and international lakes, signed at Helsinki, Mar. 17, 1992, art. 2(2) (qualifying the obligation to reduce transboundary pollution with an obligation to 'ensure that transboundary waters are used in a reasonable and equitable way') UN Doc. E/ECE/1267, reproduced in *Int. Leg. Mat'ls*, Vol. 31, pp.1312–1329 (1992) ('Helsinki Convention'). Lammers, ref. 71, pp.496–501, 540–543, 580–584, 600; Shaw, ref. 8, pp.532–537; Brownlie, I. (1991) 'State responsibility and international pollution: a practical perspective', in Magraw, D. (Editor) *International Law and Pollution*, pp.120–125; Dupuy, P.-M., 'Overview of the existing customary legal regime regarding international pollution', *International Law and Pollution*, supra at pp.61–89; Goldenman, ref. 59, pp.786–792; Gaines, ref. 146, p.798; Handl, G. (1975) 'Balancing of interests and international liability for the pollution of international watercourses: customary

- principles revisited', *Can. Y.B. Int. L.*, Vol. 13, pp.156–194; Kiss, A. (1987) 'The protection of the Rhine against pollution', *Transboundary Resources Law*, ref. 98, pp.51–75; McCaffrey, S. (1991) 'International liability and international watercourses: the work of the International Law Commission relating to international pollution', *International Law and Pollution*, supra at pp.90–119; Magraw, ref. 155; Nanda, V. (1992) 'The law of the non-navigational uses of international watercourses: draft articles on protection and preservation of ecosystems, harmful conditions and emergency situations and protection of water installations', *Colo. J. Int. Envtl. L. and Pol'y*, Vol. 3, pp.175–207; Prieur, ref. 137, pp.1026–1027; Teclaff, L., 'International control of cross media pollution – an ecosystem approach', *Transboundary Resources Law*, supra at pp.289–321. Nollkaemper, ref. 141, pp.66–69; Boyle, A. (1990) 'State responsibility and international liability for injurious consequences of acts not prohibited by international law: a necessary distinction', *Int. and Comp. L.Q.*, Vol. 39, pp.1–26, at pp.19–20.
- 159** *Draft Articles II*, ref. 46; Rosenstock, ref. 109, p.392.
- 160** Rosenstock, R. (1994) *Second Report on the Law of the Non-Navigational Uses of International Watercourses*, UN Doc. A/CN.4/452, at 11 (Apr. 21, 1994). See generally Bruhàcs, ref. 47, pp.217–220; McCaffrey, 'Commission adopts Draft Articles', ref. 137, p.399, n. 29.
- 161** Rahman, ref. 123, p.23; Schwebel, ref. 58, pp.93–107. The permutations of this phrase are summarized in Schwebel, supra at p.93.
- 162** McCaffrey, ref. 109, pp.308–311; McCaffrey, 'Commission adopts Draft Articles', ref. 137, pp.399–401. See also Wouters, ref. 138, pp.421–425, 437.
- 163** McCaffrey, 'Commission adopts Draft Articles', ref. 137, p.400.
- 164** McCaffrey, ref. 109, pp.310–312.
- 165** McCaffrey, ref. 109, pp.309–310.
- 166** McCaffrey, ref. 126, pp.310–311; McCaffrey, 'Commission adopts Draft Articles', ref. 154, pp.400–401.
- 167** ILC Report, ref. 46, p.236.
- 168** ILC Report, ref. 63, p.236.
- 169** ILC Report, ref. 46, p.237. See Wouters, ref. 138, pp.423–424.
- 170** ILC Report, ref. 46, p.237.
- 171** ILC Report, ref. 46, p.237.
- 172** Dupuy, P.-M., (1977) 'Due diligence in the international law of liability', in OECD, *Legal Aspects of Transfrontier Pollution*, p.369; Pisillo-Mazzeschi, R. (1992) 'The due diligence rule and the nature of the international responsibility of states', *Germ. Y.B. Int. L.*, Vol. 35, p.9.
- 173** ILC Report, ref. 46, p.236.
- 174** Helsinki Convention, ref. 158, art. 1.
- 175** Wouters, ref. 138, pp.425–427.
- 176** Mekong River basin agreement, ref. 70, art. 7.
- 177** Mekong River basin agreement, ref. 70, art. 8.
- 178** Mekong River basin agreement, ref. 70, art. 5. See also Treaty concerning the integrated development of the Mahakali River, signed Feb. 12, 1996, India-Nepal, art. 9(1) (declaring that the relations of the parties regarding common waters are to be governed by 'the principles of equity, mutual benefit, and no harm to either Party') re-printed in (1997) *Int. Legal Materials*, Vol. 36, pp.531–546; Treaty on the sharing of the Ganges Waters at Farakka, signed Dec. 12, 1996, Bangladesh-India, art. IX (declaring that the relations of the parties regarding common waters are to be governed by 'the principles of equity, fairness and no harm to either Party') reprinted in (1997) *Int. Legal Materials*, Vol. 36, pp.521–528.
- 179** ILC Report, ref. 46, p.242. Utton, R. 91996) 'Which rule should prevail in international water



- disputes: that of reasonableness or that of no harm?', *Nat. Resources J.*, Vol. 36, pp.635–641.
- 180 McCaffrey, ref. 109, p.311.
- 181 Draft Articles II, ref. 46, arts. 27, 28. McCaffrey, ref. 109, p.314.
- 182 Wouters, ref. 138, p.424.
- 183 Institut de Droit International, 'Athens Resolution', art. 2, *Annuaire de l'Institut de Droit International*, Vol. 58, pp.196 (1979). Lipper, ref. 47, pp.36–38; McCaffrey, ref. 47, pp.125-126; Schwebel, ref. 58, pp.97–98.
- 184 Cf. *ILC Report*, ref. 46, pp.243–44. Benvenisti, ref. 46, pp.404; Paisley and McDaniels, ref. 113, p.121; Rahman, ref. 123, pp.23–24.
- 185 GA Res. 49/52, UN GAOR, 49th Sess., Supp.No. 49, at 293, UN Doc. A/49/49. On the Sixth Committee generally, see Morris, V. and Bourloyannis, M.C. (1993) 'The work of the sixth committee at the forty-seventh session of the UN General Assembly', *Am. J. Int. L.*, Vol. 87, pp.306–323, p.306, n. 1,2.
- 186 Morris, V. and Bourloyannis, M.C. (1997) 'The work of the sixth committee at the fifty-first session of the UN General Assembly', *Am. J. Int. L.*, Vol. 91, pp.542–554, at pp.546–47.
- 187 Morris and Bourloyannis, ref. 186, p.547, n. 24.
- 188 Morris and Bourloyannis, ref. 186, p.547.
- 189 UN Convention, ref. 126, arts. 5, 7.
- 190 Compare the text quoted at ref. 128.
- 191 Rahman, ref. 123, pp.16–17, 22–23.
- 192 Biswas, Jellali and Stout, ref. 75; Carley, M. and Christie, I. (1993) *Managing Sustainable Development*; Holmberg, J. (Editor) (1992) *Making Development Sustainable: Redefining Institutions, Policy and Economics*; Pearce, D. and Turner, R.K. (1990) *Economics of Natural Resources and the Environment*; Sanwal, M. (1994) 'Sustainable development, the Rio Declaration and multilateral cooperation', *Colo. J. Int. Env'tl. L. and Pol'y*, Vol. 4, pp.45–68; symposium (1995) 'The promise and challenge of ecologically sustainable development', *Willamette L. Rev.*, Vol. 31, pp.235–493.
- 193 Compare the texts quoted at refs. 128 and 159.
- 194 See the texts at refs. 162–74.
- 195 See the texts at ref. 135–58.
- 196 GA Res. 51/229.
- 197 ILC Report, ref. 46, pp.221–22; Moustafa, S. (1994) 'Egypt's experience of cooperation and development of the Nile Bagis', in Bagis, ref. 151, pp.101–105, at p.104.
- 198 UN Convention, ref. 189, art. 6.
- 199 Helsinki Rules, ref. 5, art. v.
- 200 Probably the most extreme version of attempting to reduce the rule of equitable utilization to an algorithm is found in Moore, J.W. (1994) 'An Israeli-Palestinian water-sharing regime', in Isaac, J. and Shuval, H. (Editors) *Water and Peace in the Middle East*, pp.181–192. Kliot, N. (1994) *Water Resources and Conflict in the Middle East*, pp.95–99, 167–172, 259–276; Lonergan, S. and Brooks, D. (1994) *Watershed: The Role of Fresh Water in the Israeli-Palestinian Conflict*, pp.71–73; Hager, R. (1990) 'Note, the Euphrates basin: in search of a legal regime', *Georgetown Int. Env'tl. L. Rev.*, Vol. 3, pp.207–228, pp.219–220; Telerant, N. (1995) 'Riparian rights under international law: a study of the Israeli-Jordanian peace treaty', *Loy. L.A. Int. and Comp. L.J.*, Vol. 18, pp.175–205, at pp.194–195; Zarour, H. and Isaac, J. (1993) 'Nature's apportionment and the open market: a promising solution to the Arab-Israeli water conflict', *Water Int.*, Vol. 18, pp.40–52, at pp.50–51.
- 201 Benvenisti and Gvirtzman, ref. 81, pp.548; Bourne, ref. 88, p.199; Griffin, ref. 81, pp.78–79; Picard, E., 'Aspects of international law of the water conflict in the Middle East', in Bagis, ref. 151, p.213. The classic statement of this reality in more general contexts is Hutcheson, jr., J. (1929) 'The judgement intuitive: the function of the 'hunch' in judicial decision', *Cornell L.Q.*, Vol. 14, pp.274–288.

- 202** Allott, A. (1980) *The Limits of Law*; Cornell, D., Rosenfeld, M. and Carlson, D.G. (Editors) (1992) *Deconstruction and the Possibility of Justice*; Dworkin, R. (1986) *Law's Empire*; Greenawalt, K. (1992) *Law and Objectivity*; Raz, J. (1979) *The Authority of Law*; West, R. (1993) *Narrative, Authority and Law*; White, J. (1990) *Justice as Translation*.
- 203** Smith, ref. 47, p.vi. Elmusa, S. 'Towards an equitable distribution of the common Palestinian-Israeli waters: an international water law framework', Isaac and Shuval, ref. 200, pp.451–467, at pp.456–460.
- 204** Dellapenna, J. (Forthcoming 2001) *Water in the Middle East: The Limits and Potential of Law* §§ 2.04(c) 2.04(e). Natural contribution might carry more weight in more humid regions where pressing needs in lower riparian states are less compelling. Godana, ref. 46, p.58; Benvenisti and Gvirtzman, ref. 81 pp.549–550.
- 205** Dellapenna, J. (1996) 'The two rivers and the land between: Mesopotamia and the international law of transboundary waters', *BYU J. Pub. L.*, Vol. 10, pp.213–261.
- 206** Dellapenna, 'Designing', ref. 43.
- 207** Rio Declaration on Environment and Development, UN Doc. A/CONF.151/5/Rev. 1 (1992) reprinted in *Int. Legal Materials*, Vol. 31, pp.874–880; Carley and Christie, ref. 192; Hohmann, H. (1994) *Precautionary Legal Duties and Principles of Modern International Law*; Lammers, ref. 71; Holmberg, ref. 192; Nollkaemper, ref. 141; Pearce and Turner, ref. 192; Sand, P. (Editor) (1992) *The Effectiveness of International Environmental Agreements: A Survey of Existing Legal Instruments*; Sands, P. (Editor) (1994) *Greening International Law*; Weiss, E.B. (1988) *In Fairness To Future Generations*; World Comm'n On Environment And Development, *Our Common Future* (1987) ('The Bruntland Report'); Hickey, jr., J. and Walker, V. (1995) 'Refining the precautionary principle in international environmental law', *Va. Env'tl. L.J.*, Vol. 14, pp.423–454; Marini, G. and Sacramozzino, P. (1995) 'Overlapping generations and environmental control', *J. Env'tl. Econ. and Mgt.*, Vol. 29, pp.64–77; Sanwal, ref. 192; Symposium, ref. 192.
- 208** Rahman, ref. 123, pp.16–17, 22–23.
- 209** UN Comm'n on sustainable dev. (1997) 'Comprehensive assessment of the fresh water resources of the world', UN Doc. No. E/CN.17/1997/9.