Chapter 26
Patterns of Water Law

Joseph W. Dellapenna

Abstract Water law through the centuries has conformed to a limited set of patterns, in part because of the characteristics of the resource and in part because of the migration of water laws from society to society. In order to describe these patterns, this chapter summarily traces the evolution and characteristics of national, transnational (regional), and international water law, how they are related, and where they might be headed.

Introduction: What Counts as Law?

Law applies to water usage at all levels, from informal regulations by small or large communities through local, state/provincial, national, regional, and international or global law. Despite the seemingly infinite variations of these different bodies of law, water law (the law applicable to the management or use of water) actually fits a limited number of patterns. While some of this derives from the nature of the resource itself, other features reflect the spread of laws by various means from place to place and time to time. This chapter seeks to describe the characteristic features of these patterns and the processes by which they were disseminated across the globe.

Readers who come from countries with highly developed formal legal systems are likely to have a firm idea of what 'law' means and how it works, typically involving a legislatively created, highly determinate rule enforced by courts and police. This notion of law, called 'legal positivism', focuses attention on 'positive' law, law that is formally enacted and formally enforced. A leading legal positivist, Austin, defined law as 'the command of a sovereign enforced by a sanction'

J. W. Dellapenna (✉)
212 St. George's Road, Ardmore, PA 19003, USA
e-mail: dellapen@law.villanova.edu

A. Bhaduri et al. (eds.), *The Global Water System in the Anthropocene*,
Springer Water, DOI: 10.1007/978-3-319-07548-8_26,

(Austin 1998, p. 133). The Austinian paradigm is not an adequate notion of what law is and how law operates, a point perhaps best expressed by Goodhart: 'It is because a rule is regarded as obligatory that a measure of coercion may be attached to it; it is not obligatory because there is coercion' (Goodhart 1953, p. 17).

'Law' refers to an organic mechanism whereby certain claims of right are socially established as collectively enforced norms and other claims of right are denied such status. These norms might be formally established and enforced through legislatures, courts, and executives, or informally established and enforced through custom and informal, but often highly effective, collective action. When normative judgments are accepted as law, few will violate the norms, and those who do will pay a higher price than someone who violates a mere social or moral convention: The price might well be exposure to official coercion, while in informal settings enforcement might range from social pressure to exclusion from the group to corporal punishment or even death. What then is the function of formal law, 'law on the books'? History teaches us that informal law functions successfully when persons in a particular community know the others in the community and what they are doing, each depends on the others for wide ranging social support, and each realizes that overreaching too far or too often will cost them the social support needed for survival or thriving. As societies become larger, social interaction becomes less personal and the complex mutual reciprocities that ensure compliance with purely customary rules break down. Formal law allows adequate certainty and predictability of right and obligation when informal or customary law is no longer adequate (Dellapenna 2000). This was as true of Hammurabi's Babylon as it is in modern Europe (Glenn 2010).

Certainty and predictability are important values, particularly for one seeking to make firm plans for the future, but they are not the only consequences that societies resort to formal law. One consequence that seems to follow regularly from the development of systems of formal law is that it ensures that the state itself abides by the law. Yet societies change. The problem confronting lawyers and judges is to mediate the resulting tension between the need for stability and certainty with the need for flexibility and change to accommodate new social realities (Cardozo 1921). Too little flexibility and change and formal law loses touch with social realities. Too much flexibility and change makes planning and legal control impossible.

Lurking behind any discussion of law is the question of how effective such regimes actually are. An effective legal regime cannot be created simply by decree, or by importing a foreign model that works well in the country where it originated. The law in every country is 'path-dependent', a result of what has gone before as well as what is sought for the future. At the extreme, formal law may play little or no real role in structuring social relations or resolving disputes (Dellapenna 1997). In each society, one must learn who the lawyers and judges are, to whom they are connected, and what their role in the state and the economy is. A judiciary or other dispute resolution process functions effectively only when it is embedded in the structures of social, political, and economic power. Yet embedding might serve only to entrench existing power structures to the disadvantage of innovators or the poorly connected.

With a concept of law that includes both formal and informal norms and institutions of varying degrees of effectiveness in mind, a society (of people, of communities, or of states) is never without law, but law can take a myriad of forms and express highly varied content. We must not overstress formal legal structures applicable to water except when they actually reflect how water is managed and how disputes over water are resolved. In many ways this notion of law mirrors the on-going discussion on governance, where there is a shift from centralized, top-down, hierarchical approaches to more diffuse systems of rulemaking in society (Gupta 2011). This is also in line with discussions on global administrative law where scholars have found that international law emerges not just from legislative and judicial processes, but also from executive and administrative actions (Krisch 2006). These introductory remarks allow us to understand how pervasive and varied water law is even while searching out patterns of consistency across societies. If we find such consistencies, the consistencies, and not the variations, demand explanation.

The Beginnings of Formal Water Law

Today, water laws are found around the world as local customs and regulations, national legislation, regional agreements, and global treaties, together creating a complex legal governance framework for water. The framework is a result of historical processes. Given the broad concept of law indicated above, there cannot be a society without water law of some sort, and formal water laws are found in the earliest human civilizations. So central was the need to regulate water in these early civilizations that Wittfogel concluded that this need drove the emergence of basin-wide or other hydraulically focused empires in early civilizations (Wittfogel 1981).

In Mesopotamia, archaeologists have uncovered numerous records of contracts and legal cases. Codes of laws inscribed on steles set forth early water law, including the *Code of Hammurabi* (1738 BCE) (King 1910, pp. 53–56). These early laws indicate communal management, although the actual provisions of the Mesopotamian codes were limited to liability for flooding a neighbour's fields (Kornfeld 2009, pp. 29–33). The ancient Hindu *Arthashastra* (*ca.* 300 BCE) (Rangarajan 2000) are similarly limited, providing that water belonged to the king but authorizing private uses on payment of a tax so long as the private actor maintained the infrastructure, with severe penalties for injuring another water user (Cullet and Gupta 2009, p. 160). The slightly later *Laws of Manu* (*ca.* 200 BCE) in India are similar (Cullet and Gupta 2009, p. 159). The *Law of Moses* (*ca.* 1000 BCE), as developed and extended by rabbinical scholarship, remained focused on a few simple rules regarding rights to use water and the duty to protect its purity (Laster et al. 2009).

These water laws developed in a highly contextual manner reflecting the history, geography, and political systems of the countries concerned. Early water laws exhibit certain recurring patterns. Some of these are purely cultural, reflecting

the predominant forms of social structure of a time and place. Most commonly in ancient times, laws were presented as divinely revealed. Other features reflect the nature of the resource and patterns of use. Thus the right to use water is variously granted to owners of riparian land (land contiguous to a water source) or because of temporal priority in using the water (first in time, first in right) (Scott and Coustalin 1995). The riparian approach generally required a sharing of the water, while the priority approach often did not. Some cultures would mix the two principles, while others gave preferences to particular types of use (e.g., irrigation vs. municipal uses). And from the beginning, the laws addressed questions of pollution as well as the allocation to particular uses such as prohibitions of allowing cattle to defecate in flowing water. These ancient water laws tended to be most developed in arid or semi-arid regions. As in arid and semi-arid regions today, the resulting water laws emphasized allocation rather than pollution (Teclaff 1985).

How Water Law Systems Spread Across the Planet

The nature of water resources and the nature of the uses of the resource to some extent provide a measure of unity to patterns of water law, along with a continuing debate about which legal approach is best (Dellapenna 2008b; Trelease 1974). The purely social, or jurisprudential, features of water laws create a possibility of passing water law even regarding features that do not simply reflect the nature of the resource or its uses from one society to another through one or more of several processes. These have included: (1) the spread of civilizations or cultures (Kornfield 2009); (2) the spread of religion when laws are considered divinely revealed (Naff 2009; Laster et al. 2009); (3) conquest and colonization, including the spread and decline of Communism (Cullet and Gupta 2009; Farias 2009; Kidd 2009; Kotov 2009; McCay and Marsden 2009; Nilsson and Nyanchaga 2009; van der Zaag 2009); (4) the widespread codification of law in the nineteenth century (Watson 1993); (5) the rise of engineering and epistemic communities (Gupta 2009); (6) the spread of environmentalism (Zellmer 2009); and (7) the "second wave of globalization" (a wave of global integration set off after 1950 with the freeing of trade and accelerated by the end of the Cold War), with new water laws often promoted by aid agencies, development banks, and UN agencies (Dellapenna 2008b; Gupta 2003). These various influences can co-exist, while pre-existing institutions and laws often persist, resulting in a process that Francis Cleaver has termed "bricolage" (Cleaver 2012). By bricolage, Cleaver means an uneven blending of old practices and norms with new practices and norms. Such institutional and legal bricolage involves a constant renegotiation of norms and the reinvention of tradition.

The result today is almost 200 different national water law systems, each with country specific characteristics. These systems are composed of overlapping and contradictory elements derived from the above processes. Many nations have

residual indigenous laws that conflict with water laws imposed by colonial regimes or imported from 'more advanced' systems, all subject to attempts at water law reform deriving from international legal standards or the prevalent thinking of epistemic communities (Cullet and Gupta 2009; Farias 2009; Kidd 2009; Nilsson and Nyanchaga 2009; van der Zaag 2009). This leaves multiple systems of water law competing for application (Cullet and Gupta 2009; Gupta and Leenderste 2005; Nilsson and Nyanchaga 2009).

One can find some communities applying indigenous law to manage their water resources even without formal legal recognition, while other communities in the same state apply formal law left by a colonial regime, and yet other communities in the state apply markets or otherwise embrace whatever legal thinking appears most modern. The resulting pluralism could be positive, recognizing interests that cannot be aggregated in universalist approaches (Krisch 2006, p. 248), or negative, fragmenting interests and policies and breaking down legal structures. Recent efforts to integrate different regulations into a comprehensive water code sometimes succeed for better (as in Israel, Laster and Livney 2009) or worse (as in Russia, Kotov 2009). In other cases, they founder on the resistance of those who are committed to earlier regimes. Examples of successful resistance include Brazil (Farias 2009), East Africa (Nilsson and Nyanchaga 2009), and India (Cullet and Gupta 2009).

Contemporary Patters of Water Law at the Local or National Level

The nearly 200 national water legal systems define the right to use water according to only a few possibilities (Gupta and Dellapenna 2009). Thus the right to use water might be defined be in terms of the relationship of the use to the water source: (1) based on the location of the use (a riparian connection); (2) the timing of the use (a temporal or seasonal priority system); or (3) the nature of the use (preferences for the most socially important uses). Rights to use water are often characterized as a kind of property, which allows a different typology: (1) common property (the resource is used freely by those with lawful access, without collective decision making); (2) private property (defined water rights are allocated to particular users with considerable control over 'their' water); or (3) community or public property (water is managed jointly by those entitled to share the resource) (Dellapenna 2010; Ostrom 1990).

Each type of property right must recognize to some extent the public nature of water resources, and therefore even in the most thoroughly privatized water property regime there will be regulations to: (1) enforce the property or water right regime, (2) protect the resource from pollution or degradation, and (3) promote or preclude markets.

The Evolution of Water Law at the Level of Transnational Regions

In a sense, transnational regional water law systems are as old as the earliest recorded formal water laws in the form of early hydraulic empires (Wittfogel 1981). Examples include early China, Egypt, India, and Mesopotamia. These legal systems generally imposed rules on certain limited questions of water management while deferring to local customs or laws for day-to-day decisions. Such hybrid regimes operated for centuries unless the imperial system became strong enough to displace indigenous law completely (*see*, e.g., Kotov 2009).

The demise of most empires in the twentieth century did not mean the end of transnational regional systems. Instead, in the twentieth century, states often voluntarily created transnational water law systems. The European Union's European Water Framework Directive of 2000 is now the leading example of such a transnational water law, although this is embedded in a system of transnational law covering a broad range of issues (Aubin and Varone 2004; Canelas de Castro 2009). Another type of transnational system is the growing number of river basin organizations and water commissions (Conca 2006; Merrey 2009). Although river basin bodies and water commissions rarely have strong transnational law-making functions, they are increasingly part of the growing system of international administrative law (Farrajota 2009).

One way to conceive of transnational regional water law is that sovereignty is sacrificed for the greater good of all the parties concerned. A better way to conceive of such transnational water law is that states are realizing their sovereignty by expressing it through cooperative transnational institutions. Either way, such institutions seem likely to become more common and more effective.

The Evolution of Globally Applicable International Water Law

Although international water agreements go back at least 800 years, true international water law developed only in the last two centuries. International law in general provides an institutional framework, with rules for treaty making and interpretation and means for dispute resolution. International law empowers international actors by legitimating their claims, but it also limits the claims they are allowed to make (Dellapenna 2008a). International water law is found in numerous treaties (e.g., UN 1997) and in customary international law.

Customary international law develops through states making claims and counterclaims until they agree on what the law requires (Danilenko 1993, pp. 75–82). Identifying customary law is informal and challenging. Customary international water law evolved largely through water treaties, beginning in the late eighteenth century. The treaties focus first on freeing navigation, then

(because of the industrial revolution in the nineteenth century) on water allocation, and finally on cooperative or joint management regimes in the twentieth and twenty-first centuries (Dellapenna 1994).

Contemporary customary international water law resembles the common principles underlying national water laws, including recognizing rights in riparian or aquifer states, considering temporal priority to some extent, and emphasizing the nature of and need for particular uses. These principles often take on different colorations when applied to an incompletely organized community of states. Customary international water law primarily includes three principles: (1) limited territorial sovereignty over national waters (requiring states to consider the needs of other riparian states) (Dellapenna 2001); (2) the no-harm principle (derived from the Roman law maxim, *sic utero tuo ut alineium non laedes*—'Use not your property so as to injure the property of another') (Dellapenna 2008a); and (3) the obligation to settle disputes peacefully. Some states claim historic rights, i.e., the right to use the quantity of water they have been using for a significant period of time (Brunnée and Toope 2002). These principles emerged through a dialectic process where the claim of absolute territorial sovereignty competed with claims of absolute integrity of state territory. Examples abound (Dellapenna 1996, 2001). Perhaps the best known is the dispute (at the turn of the nineteenth century) between Mexico and the United States which took about a decade to negotiate to a sharing agreement (McCaffrey 1996). Today, limited sovereignty prevails, expressed as the principle of equitable utilisation (ILA 1966, art. IV; ILA 2004, art. 12; UN 1997, art. 5), i.e., the need to share international waters equitably (fairly) (Dellapenna 1996).

The codification of the customary international water law effectively began with the International Law Association's approval of the *Helsinki Rules on the uses of international rivers* (ILA 1966). The UN General Assembly then asked the International Law Commission to codify international water law based in large part on the *Helsinki Rules.* The result was the UN Watercourses Convention, approved by a vote of 103–3 on 21 May 1997 (UN 1997). Thus far 30 states have ratified, leaving the convention 5 short of entering into force. Still the convention is an authoritative reflection of existing customary water law (Gabçikovo-Nagymaros Case 1997, p. 140) and influencing regional law in Southern Africa, South Asia, and Europe (Farrajota 2009; van der Zaag 2009).

The UN Watercourses Convention adopts the principles of limited sovereignty (equitable utilisation), no significant harm, and peaceful resolution of disputes, with great emphasis on the procedures to be followed. Its approval is important for showing that the principle of limited sovereignty is not inconsistent with the principle of 'permanent sovereignty' of states over their natural resources approved by the General Assembly some 35 years earlier (UN 1962). The convention is a limited framework for structuring negotiations. Although it includes environmental values and some modern ideas about water governance, arguably it was out-of-date when it was adopted for it scarcely refers to legal developments in the environmental, human rights, and investment arenas since the *Helsinki Rules.*

Environmental concerns are not entirely absent from the UN Watercourses Convention, but they appear only in the most general terms and only in terms as transboundary issues. These limits highlight the most basic problems with the UN Watercourses Convention—its attempt to address transboundary water issues in isolation from other, intimately connect water issues (such as groundwater) (UN 2008). Perhaps its most glaring omission is the lack of any mention the right of the public to participate in decision making regarding transboundary water resources, although perhaps more important is the failure to consider the extent to which modern international law speaks to environmental and resource issues within states and not just in transboundary contexts. Both of these points become critical with the emergence (after the UN Watercourses Convention was completed) of an increasingly well established human right to water (UN 2010).

International water agreements provide sources of law for participating states as well as for inferring a developing customary international law. A major regional and increasingly globally relevant source of water law is the 1992 UN Economic Commission for Europe Convention on Transboundary Watercourses (UNECE 1992). This treaty obliges parties to prevent, control, and reduce transboundary impacts and to use the waters in an ecologically sound and rational way, to conserve water resources, and to protect the environment. While it embraces the principle of equitable utilization, its emphasis is on environmental protection—the 'no harm' side of the equation. There are hundreds of other bilateral and multilateral international water agreements (Oregon State University 2002) which together give rise to a body of international customary law that sets basic standards even for water resources not covered by an international agreement (Dellapenna 2001). International adjudication of water disputes is another rich area of legal development (Gabçikovo-Nagymaros Case 1997; Castillo-Laborde 2009).

The most recent effort to codify all this body of law is the *Berlin Rules on Water Resources,* approved unanimously by the International Law Association in 2004 to replace the *Helsinki Rules* (ILA 2004). The *Berlin Rules* integrate insights from environmental, humanitarian, human rights, and resource law. Where appropriate, these comprehensive rules cover all national and international fresh waters and related resources (the aquatic environment) and thereby penetrate national jurisdiction. The rules include the principles of public participation, the obligation to use best efforts to achieve conjunctive and integrated management of waters, and the duties to achieve sustainability and to minimize environmental harm. They identify the rights and duties of states and persons, the need for environmental impact assessments, and rules relating to extreme situations including accidents, floods, and droughts. The *Berlin Rules* are grounded in existing law interpreted in light of evolving changes in global water law.

Groundwater traditionally has been neglected by national and international water law (Cassuto and Sampaio 2013). The *Berlin Rules* (ILA 2004, Chap. VIII) provided the first attempt at a comprehensive codification of the customary international law of groundwater. The UN Law Commission has subsequently adopted draft articles on transboundary aquifers that were noted but not approved by the UN General Assembly (UN 2008).

A second wave of globalization has washed over the planet in the last 60 years or so. This wave has supported neoliberal dominance, challenging concepts of sovereignty underlying traditional international law and further marginalizing states (van Creveld 1999). Economists and others have strongly advocated markets based on a private property in water resources as the best way to manage water (Griffin 2006), generating considerable controversy about the utility of markets (Dellapenna 2008b; Griffin 2006). In any event, markets need strong regulation, leading to bilateral and multilateral agreements on trade and investment (e.g., WTO 1994). The neo-liberal approach and enhanced private sector participation in water management has inspired a reaction in the form of a human rights approach that pierces the veil of sovereignty to protect access rights for the most vulnerable in society (UN 2010; Gupta et al. 2010).

Conclusion

Despite talk of 'water wars', water resources tend not to be a key reason for conflict (Kalpakkian 2004). Instead, at the national, regional, and international levels water law has served to mediate conflict and resolve disputes. Yet after 5000 years, water law remains tied to old models that, at least at a general level, can be traced back to the earliest extant historical records. As noted above, the laws for allocating water to particular uses, broadly speaking, fall into three distinct patterns (or mixtures thereof) that are found very early in the historical record: (1) based on the location of the use (a riparian connection); (2) the timing of the use (a temporal or seasonal priority system); or (3) the nature of the use (preferences for the most socially important uses). The resulting right to use water are often characterized as property rights, which in turn can be characterized in one or three ways (although some systems also mix these): (1) common property (under which all who have lawful access are allowed to use the resource freely, without collective decision making); (2) private property (under which persons holding defined water rights are allowed considerable control over 'their' water so long as they remain within the specified right); or (3) community or public property (under which water is managed jointly by those entitled to share the resource) (Dellapenna 2010; Ostrom 1990). Each type of water law regime recognizes to some extent the public nature of water resources, and therefore even in the most thoroughly privatized water property regime there will be regulations to: (1) enforce the property or water right regime, (2) protect the resource from pollution or degradation, and (3) promote or preclude markets.

Today, many challenges exist worldwide to water management and to water law. One result has been the emergence and strengthening of both transnational (regional) law and of general international law addressed to water resources. In many respects these bodies of law are still in their formative stages and no one suggests that either body of law can, or should, fully displace national or local water law regimes. These supranational regimes (regional as well as international)

both in many ways reflect the same concerns as embodies in national water law patterns, but generally with much less well developed institutions for applying the law and resolving disputes.

Communities at all levels face global water problems such as access, sanitation, pollution, ecosystem destruction, and changing flow regimes as a result of dams, other human activities, and the increasingly disrupted climate. Governance systems themselves are in a state of flux (Gupta 2011). In the future, the 'global public good' characteristics of water, its ecosystem services, and its links to energy, food, and climate are likely to gain prominence (Kaul et al. 1999), further challenging traditional notions of sovereignty. Some might see law—local, national, transnational (regional), and international—as an impediment to coping adequately with the water needs of the coming century. Conceiving of rights to use water as property rights in itself introduces a kind of rigidity that can make it more difficult to introduce change into the legal structure of water use. As issues of water governance become very technical, technocratic solutions may lead to growing formal and informal administrative law and governance in the water field, some of which might be adopted through international development cooperation processes but without a formal international legal consensus. Champions of markets as a water management tool in particular often see existing water laws as an impediment to the successful operation of markets for raw water, i.e., water not yet abstracted from its natural sources (Brandes and Nowlan 2009).

History shows, however, that water law is able, if slowly, to rise to the challenge of change. While there is an on-going shift in the locus of governance (van Creveld 1999), there have been only limited shifts in the rules to guarantee legality, legitimacy, accountability, transparency, and the rule of law. Against this background, water law is slowly moving forward through regional agreements, administrative frameworks, and joint water management bodies at all levels of governance from community up to global levels. Legal systems, however slow their development, have the authority of history behind them and may ultimately provide the vehicle for problem solving and conflict resolution in the twenty-first century. Meanwhile, as global governance grapples numerous difficult issues, water law will figure prominently in the results as water management systems and social justice processes struggle to cope with tomorrow's needs.

References

Aubin D, Varone F (2004) The evolution of European water policy. In: Kissling-Näf I, Kuks S (eds) The evolution of national water regimes in Europe: transitions in water rights and water policies. Kluwer, Dordrecht, pp 49–86

Austin J (1998) The province of jurisprudence determined. In: Hart HLA (ed) Hacket Publishers, Indianapolis

Brandes OM, Nowlan L (2009) Wading into uncertain waters: using markets to transfer water rights in Canada—possibilities and pitfalls, 19. J Environ Law Pract 19:267–287

Brunnée J, Toope SJ (2002) The changing Nile basin regime: does law matter? Harvard Int Law J 43:105–159

Canelas de Castro P (2009) European community water policy. In: Dellapenna JW Gupta J (eds) The evolution of the law and politics of water, Springer, New York, pp 227–244
Cardozo NB (1921) The nature of the judicial process. Yale Univ Press, New Haven
Cassuto DN, Sampaio RSR (2013) Hard, soft & uncertain: the Guarani Aquifer and the challenges of transboundary groundwater. Colorado J Int Environ Law Policy 24:1–41
Cleaver F (2012) Development through bricolage: rethinking institutions for natural resources management. Routledge, New York
Conca K (2006) Governing water: contentious transnational politics and global institution building. MIT Press, Cambridge, MA
Cullet P, Gupta J (2009) India: the evolution of water law and policy. In: Dellapenna JW, Gupta J (eds) The evolution of the law and politics of water. Springer, New York, pp 157–173
del Castillo-Laborde L (2009) Case law on international watercourses. In: Dellapenna JW, Gupta J (eds.) The evolution of the law and politics of water. Springer, New York, pp. 319–335
Danilenko GM (1993) Law-making in the international community. M. Nijhoff, Dordrecht
Dellapenna JW (1994) Treaties as instruments for managing internationally shared water resources: restricted sovereignty vs. community of property. Case West Res J Int Law 26:27–56
Dellapenna JW (1996) Rivers as legal structures: the examples of the Jordan and the Nile. Nat Resour J Law 36:217–250
Dellapenna JW (1997) The lesson of the triple-twisted pine: plum blossoms on mountain peaks and the future of the rule of law in Hong Kong. Vanderbilt J Transnat Law 30:637–673
Dellapenna JW (2000) Law in a shrinking world: the interaction of science and technology with international law. Kentucky Law J 88:809–883
Dellapenna JW (2001) The customary international law of transboundary fresh waters. Int J Global Environ Issues 1:264–305
Dellapenna JW (2008a) International water law in a climate of disruption. Mich State J Int Law 17:43–94
Dellapenna JW (2008b) Climate disruption, the Washington consensus, and water law reform. Temple Law Rev 81:383–432
Dellapenna JW (2010) Global climate disruption and water law reform. Widener Law Rev 15:409–445
Farias PJL (2009) Brazil: the evolution of the law and politics of water. In: Dellapenna JW, Gupta J (eds) The evolution of the law and politics of water. Springer, New York, pp 69–86
Farrajota MM (2009) International cooperation on water resources. In: Dellapenna JW, Gupta J (eds) The evolution of the law and politics of water. Springer, New York, pp 337–352
Glenn HP (2010) Legal traditions of the world: sustainable diversity in law, 4th edn. Oxford University Press, Oxford
Goodhart AL (1953) English law and the moral law. Stevens, London
Griffin RC (2006) Water resource economics: the analysis of scarcity, policies, and projects. MIT Press, Cambridge, MA
Gupta J (2003) The role of non-state actors in international environmental affairs. Heidelberg J Int Law 63:459–486
Gupta J (2011) Developing countries: trapped in the web of sustainable development governance: performance, legal effects and legitimacy. In: Dilling O, Herberg M, Winter G (eds) Transnational administrative rule-making: performance, legal effects and legitimacy. Hart Publishing, Oxford, pp 305–330
Gupta J, Ahlers R, Ahmed I (2010) The human right to water: moving toward consensus in a fragmented world. Rev Eur Community Int Environ Law 19:294–305
Gupta J, Dellapenna JW (2009) The challenge for the twenty-first century: a critical approach. In: Dellapenna JW, Gupta J (eds) The evolution of the law and politics of water. Springer, New York, pp 391–410
Gupta J, Leenderste K (2005) A multi-level, dynamic approach to water law and policy. In: Amaya OD, Milla A, Gracia MDP (eds) Incorporation of the IWRM principles in legal frameworks in Latin America: experiences and lessons learned. Universidad Externado de Colombia, Bogota, pp 17–37

Kalpakkian J (2004) Review of identity, conflict and cooperation in international river systems. Ashgate, Aldershot
Kaul I, Grunberg I, Stern M (1999) Global public goods: international cooperation in the 21st century. Oxford University Press, Oxford
Kidd M (2009) South Africa: the development of water law. In: Dellapenna JW, Gupta J (eds) The evolution of the law and politics of water. Springer, New York, pp 245–261
King LW (1910) The code of Hammurabi (trans.). British Museum, London. http://www.yale.edu/lawweb/avalon/medieval/hamframe.htm
Kornfeld I (2009) Mesopotamia: a history of water and law. In: Dellapenna JW, Gupta J (eds) The evolution of the law and politics of water. Springer, New York, pp 21–36
Kotov S (2009) Russia: historical dimensions of water management. In: Dellapenna JW, Gupta J (eds) The evolution of the law and politics of water. Springer, New York, pp 139–156
Krisch N (2006) The pPluralism of global administrative law. Eur J Int Law 17:247–278
Laster R, Aronovsky RD, Livney D (2009) Water in the Jewish legal tradition. In: Dellapenna JW, Gupta J (ed) The evolution of the law and politics of water. Springer, New York, pp 53–66
Laster R, Livney D (2009) Israel: the evolution of water law and policy. In: Dellapenna JW, Gupta J (eds) The evolution of the law and politics of water. Springer, New York, pp 121–137
McCaffrey SC (1996) The Harmon doctrine one hundred years later: buried, not praised. Nat Resour J 36:965–1007
McKay J, Marsden S (2009) Australia: the problem of sustainability in water. In: Dellapenna JW, Gupta J (eds) The evolution of the law and politics of water. Springer, New York, pp 175–189
Merrey DJ (2009) African models for transnational river basin organizations in Africa: an unexplored dimension. Water Altern 2:183–204
Naff T (2009) Islamic law and the politics of water. In: Dellapenna JW, Gupta J (eds) The evolution of the law and politics of water. Springer, New York, pp 37–51
Nilsson D, Nyanchaga EN (2009) East African water regimes: the case of Kenya. In: Dellapenna JW, Gupta J (eds) The evolution of the law and politics of water. Springer, New York, pp 105–120
Oregon State University (2002) Atlas of international freshwater agreements. UNEP, Nairobi
Ostrom E (1990) Governing the commons: the evolution of institutions for collective action. Cambridge University Press, Cambridge
Rangajaran LN (2000) The Arthashastra (ca. 300 BCE) (trans.). Penguin, New Delhi
Scott A, Coustalin B (1995) The evolution of water rights. Nat Resour J 35:821–979
Teclaff L (1985) Water law in historical perspective. W.S Hein, Buffalo, NY
Trelease FJ (1974) The model water code, the wise administrator, and the goddam bureaucrat. Nat Resour J 14:207–229
van Creveld M (1999) The rise and decline of the state. Cambridge University Press, Cambridge
van der Zaag P (2009) Southern Africa: evolving regional water laws and policies. In: Dellapenna JW, Gupta J (eds) The evolution of the law and politics of water. Springer, New York, pp 245–261
Watson A (1993) Legal transplants: an approach to comparative law, 2nd edn. University of Georgia Press, Athens, GA
Wittfogel KA (1981) Oriental despotism: a comparative study of total power, reprint edn. Vintage Books, New York
Zellmer S (2009) United States: emergence of environmental considerations. In: Dellapenna JW, Gupta J (eds.) The evolution of the law and politics of water. Springer, New York, pp. 205–223

Case

Gabçikovo-Nagymaros Case (Hungry/Slovakia) (1997) Judgment of 25 Sept 1997, 1997 ICJ no. 92

Other Legal Materials

EU Water Framework Directive (2000) EC Directive 2000/60/EC
International Law Association ('ILA') (1966) The Helsinki rules on the uses of the waters of international rivers. In: Report of the fifty-second conference of the international law association, International Law Association, London
International Law Association ('ILA') (2004) The Berlin rules on water resources. In: Report of the seventy-first conference of the international law association, International Law Association, London
UN (1962) Permanent sovereignty over natural resources, GA res. 1803 (XVII), 17 U.N. GAOR Supp. no.17 at 15, UN Doc. A/5217
UN (1997) UN convention on the law of non-navigational uses of international watercourses', UNGA Res. A/51/49. http://untreaty.un.org/ilc/texts/instruments/english/conventions/8_3_1997.pdf
UN (2008) The law of transboundary aquifers, UNGA Res/63/124. http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N08/478/23/PDF/N0847823.pdf?OpenElement
UN (2010) The human right to water and sanitation, UNGA/Res/64/292. http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/64/292
UNECE (UN Economic Commission for Europe) (1992), Convention on the protection and use of transboundary watercourses and international lakes. http://www.unece.org/fileadmin/DAM/env/water/pdf/watercon.pdf
WTO (World Trade Organization) (1994) Agreement establishing the world trade organization, 1867 UNTS 154. http://www.wto.org/english/docs_e/legal_e/04-wto_e.htm