Water Security and International Law

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Date published

17 January 2017

Editor Mr CB Soyapi
Co-Editor Ms T Honkonen

How to cite this article

Kuokkanen T "Water Security and International Law" *PER / PELJ* 2017(20) - DOI http://dx.doi.org/10.17159/1727-3781/2017/v20n0a1652

DOI
http://dx.doi.org/10.17159/1727-3781/2017/v20n0a1652

Abstract

The article explores water security from an international law point of view. The article argues that in order to better understand water security it is important to focus on the function of international water law. Even though water security is a relatively recent concept it was latent in the process of the evolution of international water law.

In addition, the article examines the relationship between man and water from the point of view of water security. The article seeks to answer the question: how does international water law deal with that relationship? Is water only an object to be utilised and protected or has the relationship become more complex and ambivalent through the occurrence of various extreme events.

Furthermore, the article places the concept of water security into a historiographical and substantive context. It explores three broad approaches by international law to water issues: general international law, the regulatory approach and the management approach. The article argues that they are all relevant to water security.

Finally, the article seeks to demonstrate that even though water security has emerged as a new notion, this does not mean that international law does not include rules and principles relevant for water security. Indeed, many general principles of international law are applicable in the context of water security. In addition, specific regulations dealing with water quantity and quality issues have been developed in international environmental law, although they are not necessarily labelled as water security rules. Moreover, various risk management methods have been elaborated to deal with water-related disasters and crises. Reciprocally, water security arguments are not necessarily new notions but rather reflect already existing concepts and principles.

Keywords

Water security; international law; international environmental law; water law.

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1 Introduction

According to an ancient Chinese proverb, "water will float a boat but it will sink it also".[1] The proverb reveals the dual character of water: it is both a useful and a dangerous element. From a philosophical point of view, the juxtaposition entails a shift from a subject to an object and *vice versa*. While water is usually an object to be used or protected by man, in certain circumstances the reverse could be possible as well: man should then be protected from water. This double movement from a subject to an object appears to reflect the special nature of water security.

Water security has gained more and more attention recently. This is understandable as the frequency of water-related problems has increased.[2] There are 260 major rivers which are shared by two or more states, serving more than 70 per cent of the world's population. Only 3 per cent of the water in the world is fresh water, most of which, as Patricia Wouters notes, is "unevenly distributed around the earth and subject to great variability".[3] Moreover, freshwater resources are vulnerable and have the potential to be strongly impacted by climate change, with wide-ranging consequences for human societies and ecosystems.[4]

As an early instrument on water security, the 2000 *Ministerial Declaration of the Hague on Water Security* listed the following challenges to achieving

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1 Quoted by Grey and Garrick "Water Security" 38. They point out that "[w]ater is a source of production, health, growth and cooperation and a source of destruction, poverty and dispute".

2 On the world's crisis, see eg UN World Water Assessment Programme *Water for People* 1-23.

3 Wouters date unknown https://www.dundee.ac.uk/media/dundeewebsite/water2/documents/policy-briefs/No1.Wouters.pdf 2. For example, there are 260 major rivers which are shared by two or more states, serving more than 70 per cent of the world's population.

4 Bates *et al Climate Change and Water* 210.

water security: meeting basic needs, securing food supply, protecting ecosystems, sharing water resources, managing risks, valuing water, and governing water wisely.[5] More recently the UN Water has provided a definition on water security highlighting various aspects related to water security[6]. The discourse on legal security includes both legal and non-legal aspects. Tadessa Kassa Woldestadik notes that while the former refers to the judicially or diplomatically enforceable rights of an individual or state, the latter refers to a physically dependable supply of water, whether tied to a legal allocation or based on capture.[7] Moreover, water security aspects may concern individuals, states and ecosystems. Drawing from range of definitions, Wouters, Vinogradov and Magsig note that the core issues in water security coalesce around three themes: the availability of water, access to water, and conflict over water use.[8]

This article explores water security from an international law point of view. Firstly, the article argues that in order to better understand water security it is important to focus on the function of international water law, as it is difficult to deal with water security in the abstract. Even though water security is a relatively recent concept it was latent in the process of the evolution of international water law. Many key principles of international water law reflect and promote security thinking, although they are not referred to explicitly as water security principles.[9]

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5 The *Ministerial Declaration of The Hague on Water Security in the 21st Century* (2000) was adopted at the Second World Water Forum in 2000. The declaration listed the following seven challenges: meeting basic needs, securing food supply, protecting ecosystems, sharing water resources, managing risks, valuing water, and governing water wisely.

6 According to the definition by UN Water, water security means: "the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability".

7 Woldetsadik "Remodelling Sovereignty" 650.

8 Wouters, Vinogradov and Magsig 2009 *YbIEL* 106.

9 See Woldetsadik "Remodelling Sovereignty" 641 ("The emerging concept of the 'right to water security' is just another addition to the list of 'theoretical' frames employed in defence of sovereign entitlements and national water resource development

Secondly, the article examines the relationship between man and water from the point of view of water security. The article seeks to answer the question: how does international water law deal with that relationship? Is water only an object to be utilised and protected or has the relationship become more complex and ambivalent through the occurrence of various extreme events.

Relevant international law material is divided into three broad categories in this article: general international law, the regulatory approach and the management approach. The second section deals with general international law, which does not include specific substantive norms on water security, while the third examines the development of such substantive water related regulations in international law or international environmental law. Finally, the fourth section explores water management, which seeks to consider water related issues in a comprehensive manner.

2 Securing sovereignty: water as neither a subject nor an object

General international law does not include water-specific substantive rules. To put it differently, water-related issues have to be argued in legal terms so that they would fall under general international law. For this reason, water problems have been construed, in particular, as issues relating to sovereign rights over the use and control of water[10] or, by contrast, as violations of sovereignty.

The notion of sovereignty is a traditional principle of international law. The idea of international law as law between sovereign states dates back to the *Treaty of Westphalia* of 1648. The Westphalian system established that

policies."). Also see Wouters, Vinogradov and Magsig, who point out that "the evolving international legal frameworks that govern transboundary water resources provide an appropriate platform for addressing water security concerns" (Wouters, Vinogradov and Magsig 2009 *YbIEL* 98).

10 Higgins *Problems and Processes* 133-136

states were masters within their territory and equal in their relations with other sovereigns. As the international community was unorganised for a long time, international relations were predominantly bilateral and there were hardly any community interests involved. Therefore traditional international lawyers focused in particular on doctrines dealing with conflicts between sovereign states.[11] Jurisdictional doctrines formed the basis for dealing with such conflicts.

The tension between an upstream sovereign state and a downstream one reflect a potential conflict between sovereign states. Both the upstream and downstream countries have vital interests in safeguarding a sufficient access to water. In pursuing their water-related interests, they might rely on their sovereignty to support their positions. For instance, while the upstream country could regard access to water as a reflection on its sovereign right to its natural resources the downstream country might regard the upstream country's overconsumption of the transboundary waters as a threat to its sovereignty. The Harmon doctrine and the Lac Lanoux case illustrate the tension between upstream and downstream countries. While the former was not able to provide a workable method to solve the tension, the latter managed to settle a dispute in a legally sound manner.

In October 1895 Mr Matias Romero, the Mexican Minister to the United States, sent a letter to Mr Richard Olney, the United States Secretary of State, in which he protested that the diversions of water from the Rio Grande by farmers in Colorado and New Mexico reduced the water supply available to Mexican communities which were obliged to depend upon irrigation from the Rio Grande. The Secretary of State of the United States referred the issue to Judson Harmon, the Attorney General, for his legal opinion. The Attorney General submitted his opinion on 12 December 1895, in which he

11 David Kennedy has examined the works of Vitoria, Suarez, Gentili and Grotius: "Like the Spanish scholars [Gentili] considers questions of international law involving conflict between sovereigns within the framework of a worldwide normative order". Kennedy 1986 *Harv Int'l LJ* 76.

did not dispute the contention of the Mexican minister concerning the diminution of water.[12] He pointed out that there not being enough water for irrigation in both countries, the question was, which should yield to the other. Having outlined the crux of the controversy, Harmon turned to consider the dilemma between international servitudes and the principle of absolute sovereignty. Harmon stated that he had not been able to find any support for the Mexican claim in the doctrine of international servitudes and was convinced of the supremacy of absolute sovereignty over international servitudes. Harmon noted that "[t]he fundamental principle of international law is the absolute sovereignty of every nation, as against all others, within its own territory".[13] The Attorney General concluded his examination by stating that international law imposed no liability or obligation upon the United States.

Both the United States and Mexico implicitly relied on water rights, as both countries were dependent on the waters of Rio Grande and were concerned about water scarcity. The doctrine propounded by Judson Harmon has become known as the Harmon doctrine. Under it, a state wields absolute sovereignty with regard to that part of a river that lies within its territory. The state so situated is free to divert and use the river in any way it finds appropriate without liability to the state downstream. However, the other side of absolute sovereignty is absolute territorial integrity, which is the absolute right of a state not to tolerate any harm originating in the territory of another state. Therefore, the Harmon doctrine failed to resolve the disagreement in the initial stages and it has mainly historical value today.[14] The problem, though, is not the principle of sovereignty but rather the

12 *Official Opinions of the Attorneys-General of the United States, Advising the President and Heads of Departments in Relation to Their Official Duties* (1895) Vol XXI, Treaty of Guadalupe Hidalgo - International Law, Opinion by Judson Harmon, 274-283 (Opinion by Judson Harmon). For a further discussion, see Kuokkanen *International Law and the Environment* 9-24.

13 Opinion by Judson Harmon 280-281.

14 Utton "International Water Quality Law" 155 ("[G]iven the context of colonialism, nationalism and gunboat diplomacy, the theory of absolute territorial sovereignty understandably had some support.")

absolute character of the Harmon doctrine. The *Lac Lanoux* case illustrates how international law is capable of dealing with such issues.

The arbitral tribunal in the *Lac Lanoux* case[15] between France and Spain managed to deal with sovereignty in a more analytical way. The dispute related to the exploitation of water resources. In fact, a clash between hydroelectric and agricultural interests formed the background to the dispute. While the French government planned to divert water to generate electric power, the Spanish government was concerned about the possible adverse impact of such a diversion on Spanish agriculture.

The dispute concerned Lake Lanoux, which lies in the French territory in the Pyrenees. It empties through a single stream, the Font-Vive, which flows into the River Carol. After having flowed about twenty-five kilometres from Lake Lanoux, that river crosses the Spanish boundary and continues its course in Spain approximately six kilometres before it empties into the River Sègre, which eventually flows into the Mediterranean. As early as in 1917, the French authorities drew up plans to divert the waters of Lake Lanoux towards the River Ariège and from there towards the Atlantic in order to use a natural drop of about 800 metres between the Lake and the River for generating electric power. The Spanish Government held that the plan would affect Spanish interests and requested that the plan not be carried out without its consent. Thereafter, the issue of the use of the waters of Lake Lanoux was subject to an exchange of views and negotiations between the two countries. As the two governments were not able to settle the dispute, they decided to submit the matter to arbitration.

In the dispute, the French Government relied on its right to use its water resources and in addition held that the project would not be injurious to any of the rights or interests envisaged in the bilateral treaties between France

15 *Lake Lanoux Arbitration* (English translation) 24 ILR 105-142; *Affaire du Lac Lanoux*, (1957) XII UNRIAA, 285-317 (*Lake Lanoux* case). For a further discussion, see Kuokkanen *International Law and the Environment* 68-79.

and Spain.[16] However, the Spanish Government held that the project would be injurious to the interests and rights of Spain in view of the fact that it altered the natural conditions of the hydrographic basis of Lake Lanoux and made the restitution of the waters to the Carol dependent upon human will. In addition, Spain asserted that the project required prior agreement between the two governments. The tribunal gave its award on 16 November 1957, in which it pointed out that according to the rules of good faith, the upstream State is under an obligation to take into consideration the various interests involved and to show that in this regard it is genuinely attempting to reconcile the interests of other riparian states with its own. As Spain was not able to provide evidence showing any injury, there was no need for the tribunal to consider what kind of injury would establish serious injury.

Even though the *Lac Lanoux* case recognised France's right to use its water resources, it also established that a state is not the sole judge of its water rights, as suggested by the Harmon doctrine.[17] Indeed, sovereignty serves only as a presumption.[18] According to international law a state cannot use its territory without taking into account the consequences of such use on other states. Likewise, a state is expected to tolerate a certain degree of interference by other states.[19] As O'Connell notes:

> Obviously the law cannot tolerate the situation that one riparian might, through an irrigation programme which diverts the greater part of the available water, turn its neighbour's territory into a dessert and destroy the livelihood of its

16 *Treaty of Bayonne* of 26 May 1866 and in the Additional Act between the two countries. France pointed out that "the Treaties of Bayonne have only established a legal equality and not an equality in fact". *Lake Lanoux* case 126.

17 O'Connell *International Law* 617. Instead of the Harmon doctrine, O'Connell refers to the *Faber* case by noting as follows: "Sometimes the *Faber case* is cited as support for the proposition that since a State is sole judge of its own security it may close a river whenever it asserts this necessary for security, but as the *Lake Lanoux* Award illustrates, there may exist effective machinery for objective appraisal of any such action".

18 *Lake Lanoux* case 301 ("Territorial sovereignty plays the part of a presumption. It must bend before all international obligations, whatever their origin, but only before such obligations").

19 Cassese *International Law* 490.

> people; but neither can it bar unilateral development of river resources when only minor inconvenience is occasioned the neighbor.[20]

In the light of the above, it is legitimate that a state seeks to secure water-related interests by relying on its sovereignty. However, as illustrated by the Lac Lanoux award and other subsequent decisions, sovereignty is not absolute. Moreover, general doctrines are neither pro- nor anti-doctrines *per se*. Depending on the specific factual scenario and the applicable law, they can lead to either a pro- or an anti-result from the point of view of water issues. In the same vein, the relationship between man and water is not topical for general international law.

3 Securing the quantity and quality of water resources: water as an object

As water utilisation grew after World War II, more and more competing interests began to emerge. Concern about increasing conflicts and disputes among states therefore started to grow. In many instances general international law did not provide sufficient guidance and substantive regulations were needed to regulate the utilisation of water in order to avoid disputes. At a later stage, in the 1960s and 1970s, water pollution began to occur. There was a need to develop substantive regulations to protect waters for this purpose too. Water was the object of both sets of such rules – those concerning utilisation and those concerning protection.

States have had a vital interest in securing freedom of navigation for a long time.[21] They have therefore been particularly eager to conclude agreements

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20 O'Connell *International Law* 617-618.

21 Discussing states' interests in navigation, Brierly notes as follows: "Clearly, one important interest at stake is that of navigation; it may be of vital concern to an up-river state that states nearer the mouth should not cut off its access to the sea. It may also be important to non-riparian states to have access to the uppers waters of the river. But we are also increasingly aware of the importance of the economic uses of rivers for such purposes as irrigation, the supply of water to large cities, and the generation of hydro-electric power. It is obviously desirable that all these interests should, as far as possible, be effectively protected". See Clapham *Brierly's Law of Nations* 207-208.

to safeguard the freedom of navigation and to establish international bodies to deal especially with navigational interests. The first international waterway administration was established in 1804 to deal with navigation on the Rhine.[22] Subsequently, internationalisation was extended also to other rivers.[23] Under the auspices of the League of Nations, the *Statute on the Régime of Navigable Waterways of International Concern* was adopted at Barcelona in 1921.[24]

While navigation enjoyed privilege over other interests in those early days, gradually states recognised that they had an interest in securing non-navigational utilisation of water also. As Brownlie notes:

> The early assumption that navigational uses enjoyed primacy is no longer accurate; irrigation, hydro-electricity generation, and industrial uses are now more prominent in many regions than navigation, fishing, and floating of timber, and domestic use is growing rapidly.[25]

With regard to non-navigational uses of boundary waters, states had already concluded a number of bilateral and multilateral treaties prior to World War II. Some of those treaties regulated utilisation in general terms, while others regulated such traditional uses as fishing, irrigation, and the

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22 *Convention Respecting the Navigation of Rhine between the Empire and France* (1804).

23 In 1814 a general declaration on the freedom of navigation was made by the *Definitive Treaty of Peace and Amity between Austria, Great Britain, Portugal, Prussia, Russia and Sweden, and France* (1814). In 1821 a river commission was established to oversee navigation of the Elbe. The *General Treaty for the Re-establishment of Peace between Austria, France, Great Britain, Prussia, Sardinia and Turkey, and Russia* (1856) (*1856 Treaty of Paris*) established the European Danube Commission. In 1885, the International Commission for the Navigation of the Congo was established. After World War I, the freedom of navigation of the important European rivers was confirmed by the *Treaty of Peace between the British Empire, France, Italy, Japan and the United States (the Principal Allied and Associated Powers) and Belgium, China, Czechoslovakia, Cuba, Greece, Nicaragua, Panama, Portugal, Romania, the Serb-Croat-Slovene Stata and Siam, and Austria* (1919) (*Treaty Versailles*).

24 The Statute defined as navigable waterways of international concern all parts of a waterway which separate or traverse different states and which are naturally navigable to and from the sea.

25 Crawford *Brownlie's Principles* 338. Also see Clapham *Brierly's Law of Nations* 207-208: "But we are also increasingly aware of the importance of the economic uses of rivers for such purposes as irrigation, the supply of water to large cities, and the generation of hydro-electric power. It is obviously desirable that all these interests should, as far as possible, be effectively protected".

floating of timber. After the industrial revolution new agreements were concluded on such matters as the use of hydro-electric power,[26] the size of a dam to be constructed in a boundary water, or the volume of water to be diverted for mining or industrial purposes.

As there were a number of different uses of water, in many instances a question arose of how to deal with a situation in which there was a conflict between different uses. Article 10 of the *Convention of Non-navigational Uses of International Watercourses*[27] lays down the general principles that in the absence of agreement or custom to the contrary, no use enjoys inherent priority over other uses. According to the article such a conflict shall be resolved with reference to articles 5 (equitable and reasonable utilisation and participation), article 6 (factors relevant to equitable and reasonable utilisation) and article 7 (the obligation not to cause significant harm), "with special regard to the requirements of vital human needs". Thus, special attention in water issues had evolved from navigation and other uses to vital human needs. Such needs were understood in the negotiations in the following way:

> In determining "vital human needs", special attention is to be paid to providing sufficient water to sustain human life, including both drinking water and water required for production of food in order to prevent starvation.[28]

As water pollution problems increased, states recognised their interest in securing not only water quantity but also water quality. Even though some early boundary waters treaties regulated water protection,[29] it was mainly in the 1960s and 1970s that a number of bilateral and multilateral treaties were

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26 For example, in 1923 a multilateral treaty called the *Convention Relating to the Development of Hydraulic Power Affecting More than One State* (1923) was adopted.

27 *Convention on the Law of the Non-navigational Uses of International Watercourses* (1997) (*UN Watercourse Convention*).

28 See *Report of the Sixth Committee Convening as the Working Group of the Whole* UN Doc A 51/869 (1997) para 8.

29 For example, according to para 2 of art IV of the *Treaty between Great Britain and the United States Relating to Boundary Waters, and Questions Arising between the United States and Canada* (1909) (*Boundary Waters Treaty*). "It is further agreed that the waters herein defined as boundary waters and waters floating across the boundary shall not be polluted on either side to the injury of health or property on the other."

adopted to protect international watercourses. For example, regulations were adopted to protect Lake Constance, the Mosel, the Rhine and the Great Lakes.[30] These regulations set specific water quality objectives or emission limits or, alternatively, established joint bodies under which specific regulations could be determined.

In the light of above, specific regulations were adopted to secure the utilisation of water for both navigational and non-navigational purposes, as well as to protect watercourses. Even though the object of both categories of regulations was the same element – water – the focus of such regulations was different. While the former focused on securing quantity the latter was concerned with securing quality. As problems became more difficult, it was recognised that there was a need to broaden the scope of regulation in the context of water security.[31]

4 Securing the sustainable use of water: water as an object and a subject

In the 1980s and 1990s a more comprehensive approach to water issues was adopted. First, as opposed to regarding quantity and quality aspects separately, the new approach began to focus on securing the sustainable use of water. Second, the new approach broadened the scope from bilateral relations to community relations. Third, policy-makers adjusted international action to a more dynamic approach to manage, through international regimes, freshwater ecological processes. Fourth, the new approach also took a more realistic approach to water issues. Instead of assuming that it

30 *Convention on the Protection of the Waters of Lake Constance Against Pollution* (1960) (*Lake Constance Convention*); *Protocol Concerning the Constitution of an International Commission for the Protection of the Mosel against Pollution* (1961) (*Mosel Convention*); *Agreement Concerning the International Commission for the Protection of the Rhine against Pollution* (1963) (*Rhine Agreement*); *Convention for the Protection of the Rhine against Chemical Pollution* (1976) (*Rhine Convention*); and the *Agreement between the United States of America and Canada on Great Lakes Water Quality* (1978) (*Great Lakes Agreement*).

31 See, eg Grey and Garrick "Water Security"; Woldetsadik "Remodelling Sovereignty"; Wouters, Vinogradov and Magsig 2009 *YbIEL*.

would be possible to resolve water-related problems through regulation, the new approach recognised that some problems are uncontrollable. Therefore it was important to adopt risk and crisis management in water issues. Finally, the new approach integrated environmental thinking in security issues and reciprocally adopted security thinking in water policy.

While the new approach formally emerged in late the 1980s and 1990s as part of the sustainable development doctrine, the integration of quantity and quality aspects had already germinated and begun to grow in the beginning of the 20th century in relation to the principle of the reasonable and equitable utilisation of waters. According to Lipper, the principle means "the division of waters in such a manner as to permit the reasonable use of its waters by each of the riparian states".[32] In other words, as noted by the International Court of Justice in the *Gabčíkovo-Nagymaros Project* case, a riparian state cannot deprive another riparian state of its right to an equitable share of an international watercourse.[33] The principle was codified in the 1997 *Convention on the Law of the Non-navigational Uses of International Watercourses*.[34] Along with the emergence of the doctrine of sustainable development, in many instances the concept of the sustainable use of

32 According to Lipper, the principle of equitable utilisation means that a riparian state cannot deprive another riparian state of its right to an equitable share of the natural resources of an international watercourse (Lipper "Equitable Utilisation" 43). From the doctrinal point of view, the concept of equitable utilisation did not necessarily mean equal division or "mathematical equality" (Koskeniemi 1984 *Oikeustiede-Jurisprudentia* 154), but rather equality of rights. According to Schwebel, "[i]n short, disputes over the right to use waters flowing across sovereign lines must be adjusted on the basis of 'equality of rights'. But such equality does not necessarily mean equal division" (*Third Report of the Law of the Non-navigational Uses of International Watercourses, Special Rapporteur Schwebel* UN Doc A/CN.4/348 (1982) 76 para 47).

33 *GabCikovo-Nagymaros Project (Hungary v Slovakia)* Judgment of 25 September 1997, ICJ Reports 1997, 7 para 85.

34 According to the key provision in art 5 of the *UN Watercourse Convention*: "[w]atercourse States shall in their respective territories utilise 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 consistent with adequate protection of the watercourse".

international watercourses was also used.[35] For example, many freshwater agreements concluded since the 1990s refer to sustainable use or sustainable management.[36]

In his classical work on the economic uses of international watercourses, HA Smith discusses the need for the community of interest. He notes that "in any particular case the interest of Utopia in promoting a certain scheme may be just as vital as the interest of Arcadia in opposing it", and that "the only interest which can be allowed to dominate is that of the community as a whole".[37] In the same vein, the Permanent Court of Justice emphasised the community of interest in the *River Oder* case.[38]

Regime building started to develop in the water area, as in other environmental fields, from the 1970s onwards. Its purpose was to establish dynamic processes and frameworks under which normative regulations and scientific expertise would develop synchronically. Through the partnership between policy and science, water regimes seek to manage potential adverse impacts on a long-term basis and to reconcile economic interests and environmental concerns. The *UNECE Convention on the Protection*

35 Birnie, Boyle and Redgwell *International Law and the Environment* 562, note that most of the new freshwater agreements recognise "in some form the importance of sustainable development, sustainable use, or sustainable management as an aim or objective".

36 See, eg, the *Convention on the Protection and Use of Transboundary Watercourses and International Lakes* (1992) (*UNECE Convention* / *Helsinki Convention*); the *Convention on Cooperation for the Protection and Sustainable Use of the Danube River* (1994); the *Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin* (1995); and the *Revised SADC Protocol on Shared Watercourses* (2000).

37 Smith *Economic Uses of International Rivers* 143.

38 "[The] 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 privilege of any one riparian State in relation to the others." (*Case Relating to the Territorial Jurisdiction of the International Commission of the River Oder* Permanent Court of Justice Judgement No 16 of 10 September 1929 (*River Oder* case) 27).

and Use of Transboundary Watercourses and International Lakes is a good example of an environmental regime.[39]

The integration of environmental thinking into other sectors is an important feature of the sustainable development doctrine. Through the integration process, environmental considerations were extended not only to industrial sectors but also to military operations.[40] Yet at the same time the national security sector turned to the environmental sector. The scope of national security was broadened thereby to cover not only military aspects but also various environmental aspects, including water-related threats.[41]

However, even though the new approach has been able to reconcile water quantity and quality aspects under the sustainable use approach, the tension between utilisation and protection has remained. In the same way, the tension between narrow and broad interests, for instance, or short-term and long-term interests, or man and water ecosystems has remained. As opposed to providing a harmony of interests and solving all problems, the new approach has brought various issues, interests and tensions to be dealt with under the same framework.

The new approach also took also a more realistic approach to water. As opposed to merely seeking to prevent water-related threats, it was recognised that some extreme events, such as floods and drought, appear to be uncontrollable, and that climate change will make such extreme events

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39 For discussion, see eg, Lipponen "The UNECE Water Convention". The Convention has been strengthened by the *Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes* (1885) (*Water and Health Protocol*) and by the *Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes and to the 1992 Convention on the Transboundary Effects of Industrial Accidents* (2003) (*Civil Liability Protocol*).

40 See, eg Biswas "Scientific Assessment" 304-305.

41 For example, in 2016 the World Economic Forum ranked the possibility of a water crisis as the top global risk to industry and society over the next decade. See World Economic Forum 2016 http://reports.weforum.org/global-risks-2016/.

even worse. States therefore began to explore options to promote preparedness for and responses to the adverse impacts of such events. The relationship between man and water thereby became more ambivalent. Paradoxically enough, water was not now only an object to be utilised or protect, but also a potential threat to man.[42]

5 Conclusions

This article has sought to demonstrate that even though water security has emerged as a new notion, this does not mean that international law does not include rules and principles relevant for water security. Indeed, many general principles of international law are applicable in the context of water security. In addition, specific regulations dealing with water quantity and quality issues have been developed in international environmental law, although they are not necessarily labelled as water security rules. Moreover, various risk management methods have been elaborated to deal with water-related disasters and crises. Reciprocally, water security arguments are not necessarily new notions but rather reflect already existing concepts and principles.

The purpose of this article has been to better understand the concept of water security by placing the concept into a historiographical and substantive context. The article has explored three broad approaches by international law to water issues: general international law, the regulatory approach and the management approach. The article has sought to demonstrate that they are all relevant to water security.

With regard to the relationship between man and water, it first appeared that general international law does not include specific rules and principles on water security but that such rules and principles might be applicable in a water security context. On the contrary, though, the regulatory approach regarded water as an object for substantive regulation of water utilisation or

42 For more discussion see Kuokkanen *International Law and the Environment* 279-286.

protection. Finally, the relationship between man and water has become more ambivalent in connection with the management approach. Water is no longer merely an object for regulations but also a potential threat to man. This broadening of the context implies a fundamental change in relation to water security.

Even though issues relating to water security were discussed separately in the article, this does not mean that such issues would also be separate functionally. On the contrary, they are often interlinked. Depending on the context, different rules and methods can be applicable.

Indeed, as water-related problems are becoming more serious, a range of options is needed to promote water security.

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List of Abbreviations

Harv Int'l LJ	Harvard International Law Journal
IPCC	Intergovernmental Panel on Climate Change
UNECE	United Nations Economic Commission for Europe
YbIEL	Yearbook of International Environmental Law