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Freshwater Boundaries Revisited

Recent Developments in International River and Lake Delimitation

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Abstract

Although boundaries, including freshwater ones, are generally set by treaties concluded by the states concerned, interpretation of such agreements by the different states has varied, resulting in a number of disputes before international tribunals. The aim of this monograph is to describe and analyze the different methods applied in the delimitation of international rivers and lakes and the recent developments in this field. The monograph reassesses these diverse methods of boundary delimitation in view of the latest and abundant jurisprudence of the International Court of Justice and the tribunals under the aegis of the Permanent Court of Arbitration on the subject. The monograph also focuses on the influence of human considerations in the field under study and the legal consequences ensuing therefrom, in addition to drawing some conclusions regarding freshwater boundaries.

Keywords

Boundaries – delimitation – international lakes – international rivers – watercourses

Introduction

Rivers are inherently interesting. They mold landscapes, create fertile deltas, provide trade routes, a source for food and water; a place to wash and play; civilizations emerged next to rivers in China, India, Europe, Africa and the Middle East. They sustain life and bring death and destruction. They are ferocious at times; gentle at times. They are placid and mean. They trigger conflict and delineate boundaries. Rivers are the stuff

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> of metaphor and fable, painting and poetry. Rivers unite and divide—a thread that runs from source to exhausted release.[1]

Rivers—as well as lakes—indeed unite and divide. As a matter of fact, the above description applies to all international watercourses. International rivers and lakes unite inasmuch as they are shared natural resources or, more precisely, a natural resource to be shared.[2] Natural resources are those elements of nature that are susceptible to being taken and consequently modified. Water, soil and flora are natural resources. Shared natural resources are those natural resources which are under the jurisdiction of two or more states sharing the resource to the exclusion of any other state. It is the nature of things and not the will of states that determines the shared character of a natural resource. Shared natural resources are subject to the exclusive jurisdiction of the state in whose territory they lie.

In light of this natural characteristic which they possess, international watercourses have been qualified as natural boundaries. Although they are elements of nature, it is actually the consent of two or more states that erects them as international boundaries. From a legal standpoint, those natural elements will only amount to boundaries insofar as there is a legal norm that so prescribes. Thus, all boundaries are artificial as legal creations. International rivers and lakes divide as much as they unite. States take them as reference points to divide their respective sovereign territories.

In line with this view, one of the main features of state territory is that it is a limited spatial sphere of validity of legal norms. It is a specific legal order, which is valid in a certain space and at a certain time. International law determines the temporal and spatial sphere of validity of each one of the legal orders, which constitute the international community. In doing so, it ensures the co-existence in space and the continuity in time of a community of neighbouring states.[3]

International boundaries are mainly created by the consent of states, which is consent materialised in either treaty provisions or arbitral or judicial awards. International boundary rivers and lakes are not exempted from this rule.

When addressing international boundaries in general, it is important to distinguish between delimitation and demarcation. Delimitation consists of

1 Gargan, E., *A River's Tale: A Year at the Mekong* (New York: Knopf, 2002), p. 7.

2 Caflisch, L., 'Règles générales du droit des cours d'eaux internationaux', *Recueil des cours de l'Académie de droit international de la Haye*, Vol. 219 (1989-VII), p. 134.

3 Barberis, J., *El territorio del Estado y la soberanía territorial* (Buenos Aires: Ábaco, 2003), pp. 135–136.

the establishment of the boundaries of a state's territory, meaning the succession of extreme points of the sphere of validity of the legal norm that entitles the state to cede that territory in question. The act of delimiting a state's territory is a legal act, which implies the creation of one or more legal norms. It determines the spatial sphere of validity of the legal norms that constitute the legal order of a certain state. On the contrary, demarcation is a set of technical procedures by virtue of which the line created by the legal norm is actually established on the ground.[4]

Inasfar as they amount to "a watercourse, parts of which are situated in different States",[5] the uses of international watercourses by a riparian state are likely to affect the other co-riparian states. Reference here is made to international watercourses as comprising international rivers and lakes. Different rules are applicable to groundwater resources, which fall outside the scope of the present monograph. This precision made, it is necessary to specify the notions of international river, and international lake, respectively.

International rivers are those rivers which either flow across the territory of more than one state or act as boundaries between two or more states. These rivers may possess either a successive or a contiguous character. Successive rivers traverse one or more international boundaries; they cross the territory of more than one state. On the other hand, contiguous rivers are those that separate the territory of two states.[6] An international river can thus be defined as that which either passes through the territory of two or more states or constitutes a boundary between them.[7] In this respect, Chile has recently instituted proceedings before the International Court of Justice against Bolivia with regard to a *Dispute over the Status and Use of the Waters of the Silala.* Whereas Bolivia denies the international character of this watercouse and

4 In this regard, see the Arbitral Award of 21 October 1994 in the case of *Laguna del Desierto*, between Argentina and Chile, para. 67.

5 Cf. Article 2(b) of the UN Convention on the Non-Navigational Uses of International Watercourses, adopted on 21 May 1997.

6 As a matter of fact, it may well occur that the same river corresponds to both categories depicted above. Such is the case with the Danube, which right from its source is a successive river (between Germany and Austria), then it turns into a contiguous one (between Slovakia and Hungary), to become again successive (when leaving Hungarian territory) and later on becomes contiguous again (between Croatia and Serbia, the latter and Romania, and finally between Romania and Bulgaria), and finally it recovers its successive character when it gets into Romanian territory, to end up being a contiguous river between Romania and Ukraine before flowing into the Black Sea.

7 Barberis, J. A., *Los recursos naturales compartidos entre Estados y el derecho internacional* (Madrid: Tecnos, 1979), p. 15.

proclaims its full sovereignty over its waters, Chile has requested the Court to adjuge and declare that ["t]he Silala River system, together with the subterranean portions of its system, is an international watercourse, the use of which is governed by customary international law".[8] In accordance with Chile's claim, the nature of the Silala River as an international watercourse was never disputed until 1999, when Bolivia started claiming its waters as exclusively Bolivian. In its Application, Chile argues that the Silala River originates from groundwater springs in Bolivian territory "at a few kilometres north-east of the Chile-Bolivia international boundary", and that the river then flows across the border into Chilean territory where it "receives additional waters from various springs (...) before it reaches the Inacaliri River".[9] In addition, Chile invokes the Treaty of Peace and Friendship of 20 October 1904, which established the boundary between the two states. On that occasion, both states adopted a map, which depicts the "Río Silala" as crossing the boundary between Bolivia and Chile, between point 15 (Cerro Silala) and point 16 (Cerro Inacaliri) of that boundary.[10] Consequently, Chile asserts its right to the reasonable and equitable utilization of that river's waters.

As regards international lakes, they comprise both those lakes whose hydrological basin is common to more than one state, and those other lakes that are cut in some way or another by a boundary between more than one state.[11] The

8 Ministerio de relaciones exteriores de la República de Chile, *Application Instituting Proceedings*, 6 June 2016, p. 11, para. 50(a). In addition, Chile requests the Court to declare that: "(b) Chile is entitled to the equitable and reasonable use of the waters of the Silala River system in accordance with customary international law; (c) Under the standard of equitable and reasonable utilization, Chile is entitled to its current use of the waters of the Silala River; (d) Bolivia has an obligation to take all appropriate measures to prevent and control pollution and other forms of harm to Chile resulting from its activities in the vicinity of the Silala River; (e) Bolivia has an obligation to cooperate and to provide Chile with timely notification of planned measures which may have an adverse effect on shared water resources, to exchange data and information and to conduct where appropriate an environmental impact assessment, in order to enable Chile to evaluate the possible effects of such planned measures, obligations that Bolivia has breached" (Ibid.). http://www.icj-cij.org/docket/index.php?p1=3&p2=1&k=74&case=162&code=chb&p3=0. Accessed on 10 June 2016.

9 Ibid., p. 3, para. 10.

10 Ibid., p. 4, para. 15.

11 These latter ones have also been named boundary lakes, in order to distinguish them from international lakes. Thus, international lakes would be tantamount to a *genus*, out of which boundary lakes ('lacs-frontière') would be a *species*. Pondaven, Ph., *Les lacs-frontière* (Paris: Pedone, 1972), p. 6 et seq.

subject of the present monograph is circumscribed around international rivers and lakes of a contiguous nature.

Despite the attempt made in doctrine to assimilate rivers and lakes, they are indeed distinct from a geological and hydrographical standpoint. Such a misconception is usually based on the fact that many lakes are part of a river system taken as a whole. There are in limnology two decisive distinguishing elements of lakes: first, lakes are tantamount to a mass of water with a horizontal surface.[12] Second, the relation between the daily amount of water flow and water retained is much lower than a unit. These particular features of lakes enable them to be distinguished from the phenomeon of water accumulation, which takes place in dams.

Lakes should further be distinguished from seas. The international law consequences ensuing from such a distinction are crucial since they will determine the application of the norms appertaining to the Law of the Sea in one case or of those on the delimitation and uses of international watercourses in the other. In this regard, the distinguishing element will be provided by the level of the waters under consideration. Whilst the level of waters in lakes does not correspond to that of seas, every expanse of water situated at altitude zero is, no doubt, a sea.[13] Despite its being otherwise advanced, the degree of saltiness of the waters does not enable any distinction in this regard.[14] Actually, there are seas whose degree of saltiness is rather low[15] and large lakes which have turned out to be extremely salty.[16]

The aim of the present monograph is an analysis of the different systems currently applied in the delimitation of international boundary rivers and lakes in the light of the latest developments in this field. Taking as a basis the previous work of this author on the subject at the Hague Academy of International Law,[17] the existing diverse methods of international watercourse delimitation will be reassessed in view of the most recent and abundant jurisprudence of the International Court of Justice and the tribunals under the aegis of the

12 Ibid., p. 11.

13 Ibid., p. 12.

14 Cf. Daillier, P., & Pellet, A. (eds.), Nguyen Quoc Dinh, *Droit international public* (Paris: L.G.D.J., 1999), p. 1180.

15 Such is the case of the Baltic Sea. Cf. Schröter, F., 'La délimitation des lacs internationaux: essai d'une typologie', *Annuaire français de droit international*, Vol. 40 (1995), p. 911.

16 Among other examples, see the case of the Great Salt Lake. Cf. Pondaven, supra, note 11, pp. 12–13.

17 Querol, M., 'Rethinking International Rivers and Lakes as Boundaries', *in*, Boisson de Chazournes, L. & Salman, M. A. S. (eds.), *Water Resources and International Law* (The Hague: Hague Academy of International Law & Martinus Nijhoff, 2005), pp. 97–132.

Permanent Court of Arbitration on the subject. In fact, the last few years have witnessed the production by these tribunals of abundant *dicta* where the subject of international river and lake delimitation has been addressed either directly or indirectly.

In addition, this analysis will focus on the influence of human considerations in the field under study and of the legal consequences ensuing therefrom. As a matter of fact, the human factor has been progressively gaining momentum and is nowadays uncontestably instilled within the international legal order. Water is essential to human life and, as such, states have sought to assure its access when delimiting their respective territories. As will be duly noticed, this is also true in cases of state succession.[18] In this respect, in most cases of state succession, the newly created state has taken into consideration access to fresh water when agreeing with its neighbouring states the resulting international boundaries. Hence, the impact of the above-mentioned considerations in international river and lake delimitation must also be addressed. In this respect, the question as to the source of the validity of the international norms regulating the determination of boundaries in international watercourses comes to light. In sum, both the nature and content of the existing norms in the field of international river and lake delimitation will be revisited.

Part 1: An Analysis of Possible Delimitation Methods

I *General Remarks*

Since international rivers flow through the territory of more than one state and international lakes are cut by a boundary between more than one state, the

18 This statement can also be analyzed in the light of state succession. In fact, after the unification of Germany in 1990, this state confirmed its former boundary with Poland at the Oder-Neisse (Treaty of 12 September 1990 between Germany and 'the Four', *Revue générale de droit international public* (1990), pp. 1166–1170). A similar idea was presented after the independence of Namibia on 31 March 1990. The Namibian Constitution foresees the application of the former boundary treaties, which were concluded by Germany as a colonial power. As a result of this, several years ago a controversy arose between Namibia and Botswana on the interpretation of one of these treaties which regulated the boundary between both states. For the development of this case see infra, p. 42. For a further analysis of the recent cases of state succession and their consequences as regards international boundaries, see Márquez Carrasco, M. C., 'Régimes de frontières et autres régimes territoriaux face à la succession d'Etats', *in*, Eisemann, M. & Koskenniemi, M. (eds.), *State Succession: Codification Tested against the Facts* (The Hague: Martinus Nijhoff, 2000), p. 549 et seq.

uses of riparian states in the watercourse in question will definitely have an impact outside their boundaries and within the territory of their fellow co-riparians.[19] The aims of these uses of international rivers and lakes are as numerous as they are diverse. They range primarily from domestic and sanitary—with regard to the human need to have access to fresh water, to irrigation (above all in agricultural practices), navigation for communication and commercial reasons, hydroelectric power and fishing for subsistence purposes—just to name the main ones.[20] Access to international rivers and lakes becomes therefore essential for the well-being of states and their inhabitants.

The purpose of this section is to address the existing systems of delimitation for international rivers and lakes through the lens of the utility and applicability of those systems. These criteria are indeed the guiding elements in the choice by state agents and boundary commissioners of a particular type of boundary line, over other types, to be applied to delimit a certain international watercourse. Indeed, the evaluation of the advantages of the most suitable method of delimitation for a particular international watercourse should be provided by both the natural characteristics of that watercourse and the main uses contemplated by its riparian states.[21]

As a result, the relationship of the rules applicable to freshwater delimitation and those regulating the uses of transboundary watercourses comes to light. As advanced above, international watercourses can serve multiple functions. Indeed, they unite and divide. They can form the international boundaries between two or more states. At the same time, some international watercourses allow for navigational and non-navigational uses, the former being of crucial use for states with no direct access to the sea.

As regards the rules on navigation of international fresh watercourses, passenger and merchandise transport was considered of vital importance during the nineteenth and at the beginning of the twentieth centuries, mainly for commercial and strategic reasons. The Final Act of the Congress of Vienna (15 June 1815), which put an end to the Napoleonic Wars,[22] opened the rivers

19 Cf. Barberis, Julio A., 'Bilan de recherches de la section de langue française du Centre d'Etude et de Recherche de l'Académie', *Droit et obligations des pays riverains des fleuves internationaux*, Centre d'Etude et de Recherche de droit international et de relations internationales (La Haye: Académie de droit international, 1990), pp. 18–20.

20 Barberis, J., supra, note 7, p. 15.

21 Cf. Bouchez, L. J., 'The Fixing of Boundaries in International Boundary Rivers', *International & Comparative Law Quarterly*, Vol. 12 (July 1963), p. 797 et seq.

22 Parry, C., *Consolidated Treaty Series*, Vol. 64, p. 67 et seq.

of the state parties to vessels of their respective *pavillions* to freely navigate for commercial purposes.[23] Such rules gradually extended throughout the rest of Europe, ensuring the freedom of navigation to all states—be they riparian or not—along the rivers of the entire continent. Furthermore, this rule on freedom of navigation was transposed to the River Congo (Zaire) by virtue of the 1885 Berlin Congress, and became progressively applied to other African fresh watercourses.

The opening of navigable watercourses of Europe to all nations was definitively guaranteed in the 1919 Versailles Peace Treaty[24] and in the 1921 Barcelona Statute.[25] The consecutive reaffirmation of the principle of freedom of navigation in fresh watercourses in treaties since 1815 has been recognized by international jurisprudence as evidence of the existence of a customary norm in this regard. Along this line, in the *Territorial Jurisdiction of the International Commission of the River Oder* case, the Permanent Court of International Justice refers to international river law and defines it as the law "laid down by the Act of the Congress of Vienna of June 9th, 1815, and applied or developed by subsequent conventions".[26] Inspired by this same principle, the Institute of International Law approved a resolution regulating navigation in international rivers.

The clauses on freedom of navigation in international rivers in the treaties mentioned above possessed a programmatic character.[27] As a result, freedom of navigation could not be imposed as a general rule on every state of the international community unless it so consented.[28] It would only be applicable to European rivers.[29] Precisely, none of the states sharing the large international river basins of Latin America ratified those agreements. In fact, the regulation of navigation in those Latin American river basins has acquired a strictly territorial character.[30] Accordingly, the vessels of a riparian state of an international fresh watercourse can only navigate freely in the section of the

23 See Articles 108 to 117 of this instrument, ibid., p. 490 et seq.

24 Martens, G. F., *Nouveau Recueil Général des Traités*, 3ème, Série, Vol. 11, p. 300 et seq.

25 *League of Nations Treaty Series*, Vol. 7, p. 35 et seq.

26 *P.C.I.J. Reports, Series A, No. 23*, p. 27.

27 Caflisch, supra, note 2, p. 117.

28 Mubiala, M., *L'évolution du droit des cours d'eau internationaux à la lumière de l'expérience africaine, notamment dans le Bassin du Congo/Zaïre* (Paris: Presses Universitaires de France, 1995), p. 31.

29 Cf. Vitanyi, B. K. J., 'Navigation on Rivers and Canals', *Encyclopedia of Public International Law*, Vol. 11, p. 237.

30 Barberis, J., 'Les règles spécifiques du droit international en Amérique Latine', *Recueil des cours de l'Académie de droit international de la Haye*, Vol. 235 (1992-IV), pp. 183–184. See

watercourse lying within its territory. They are impaired from freely navigating along the waters of international watercourses situated within the territory of other states unless these latter so consent through a treaty or by unilateral act. Indeed, this is a particularity of navigation in Latin America.

The particularities of the rules of navigation on international watercourses affect in turn those of boundary delimitation. The prevailing method of delimitation chosen for a certain watercourse may vary according to the region where that watercourse is situated and owing to the importance of navigation for both riparian and non-riparian states. Such a statement especially holds true with regards to Latin American fresh watercourses. Indeed, certain methods of delimitation, such as the line at the single riverbank, result in principle in the complete exclusion of one of the riparian states from accessing the watercourse in question and even from navigating along its waters. Nonetheless, as will be analyzed below, the only remaining case of such a boundary is that of the San Juan River, which lies within Nicaraguan territory. Nonetheless, in this case, Costa Rica, the neighbouring riparian state, has been assured access to its waters by virtue of the boundary treaty. If it had not, this state would be impaired from navigating the waters of the San Juan River unless so authorized by Nicaragua.

As regards non-navigational uses, the particular features of each international watercourse and the diverse uses they can serve have resulted, in practice, in their regulation through bilateral agreements.[31] Irrespective of the particularity of each agreement, the practice of similar clauses of bilateral treaties on the exploitation of international watercourses has resulted in the emergence of a number of general customary norms,[32] which have been expressly incorporated in the 1997 Convention on the Non-Navigational Uses of International Watercourses.[33] The main substantive norms regulating the use

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also Ruiz Fabri, H., 'Règles coutumières générales et droit international fluvial', *Annuaire français de droit international*, Vol. XXXVI (1990), p. 832.

31 Caponera favours the conclusion of particular agreements due to the specificity of each watercourse. Caponera, D., 'Patterns of Cooperation in International Water Law: Principles and Institutions', *in*, Utton, A. E. & Teclaff, L. A. (eds.), *Transboundary Resources Law* (Boulder: Westview Press, 1987), p. 25.

32 Cf. Wolfrom, M. & Rousseau, Ch., *L'utilisation à des fins autres que la navigation des eaux des fleuves, des lacs et canaux internationaux* (Paris: Pedone, 1964), p. 142. Hayton, R. D., 'The Formation of the Customary Rules of International Drainage Basins', *in*, Garretson, A. H. et al. (eds.), *The Law of International Drainage Basins* (New York: Oceana Publications, 1967), p. 834 et seq.

33 Salman argues that there are five main contentions justifying the former reluctance of states to ratify this Convention during the first years following its adoption. First, there

of an international watercourse are the prohibition to cause significant harm to another state and the equitable and reasonable utilization of its waters.[34]

The activities of a riparian state on an international watercourse can alter the latter's quality, quantity or level. Whereas these alterations generally affect downstream states, they may well affect the upper riparian states also,[35] if the downstream riparian state dams a river, for instance.[36] Hence, the effects of the activities of a riparian state on any of the different elements of an international watercourse—its course, water level, volume or quality of its water—may be detrimental to another riparian.

Water pollution is a particular way of causing significant harm to another riparian state. Thus, the prohibition against polluting international watercourses amounts to a special application of the general customary norm prohibiting the causing of significant harm to another state.[37] States are

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is the relationship between the principle of equitable and reasonable utilization and the obligation not to cause harm. Second, upper riparians argue that the notification process gives downstream riparians a veto power over their projects. Third, existing agreements would not be appropriately addressed or fully recognized. In addition, there is a weak dispute settlement mechanism with no established binding compulsory method. Finally, the broad definition of the term 'watercourse state' as including regional economic integration organizations is regarded as recognizing their international legal personality. Salman, S. M. A., 'The United Nations Watercourses Convention Ten Years Later: Why Has Its Entry into Force Proven Difficult?', *Water International*, Vol. 31 (2007), pp. 8–11.

34 International case law is another fertile field for finding such general norms. The resolutions of international organs, such as the United Nations General Assembly and ECOSOC, and scientific institutions, inasmuch as they prove existing *opinio juris* in this area of international law, are also relevant, particularly the 1966 Helsinki Rules on the Uses of the Waters of International Rivers and the Berlin Rules on Water Resources of the International Law Association. Cf. Helsinki Rules on the Uses of International Rivers, *International Law Association*, Vol. 52 (1967), pp. 447–533. For the Berlin Rules, see http://www.ila-hq.org/en/committees/index.cfm/cid/32. Accessed on 2 April 2016.

35 This possibility is specifically foreseen in Annex II of the Tripartite Agreement on the Itaipú Dam of 19 October 1979 between Argentina, Brazil and Paraguay, *International Legal Materials*, Vol. 19 (1980), p. 617.

36 This is the case of the construction of the Libby dam in the Kootenay River, a tributary of the Columbia River. Johnson, R. W., 'The Columbia Basin', *in*, Garretson, supra, note 32, pp. 198–200.

37 This view is confirmed by the arbitral award in the *Trail Smelter* case: "[U]nder the principles of international law, as well as the law of the United States, 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 or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence". *United Nations Reports of International Arbitral Awards*, Vol. III, p. 1905, at p. 1965. The same idea

also obliged under general international law to prevent with due diligence the occurrence of a serious level of harm by pollution of international watercourses.[38] In its advisory opinion on the *Legality of the Threat or Use of Nuclear Weapons*, the International Court of Justice declared that:

> [t]he existence of the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control is now part of the corpus of international law relating to the environment.[39]

The obligation not to cause significant harm to another riparian state is a particular application of the prohibition of abuse of rights in neighbourly relations among states. This principle is embodied in the Roman maxim *sic utere tuo ut alienum non laedas* (use what is yours in such a manner that you do not harm others).[40]

No change in a watercourse is illegal in itself unless it causes 'significant' harm to another state.[41] The arbitral award of 16 November 1957 in the *Lac Lanoux* case between France and Spain stated that there is a principle

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lies at the basis of the *Corfu Channel* case, where the International Court of Justice named among certain general well-recognized principles "every State's obligation not to allow knowingly its territory to be used for acts contrary to the rights of other States". *Corfu Channel case (United Kingdom v. Albania), Merits, Judgment of 9th April 1949, I.C.J. Reports 1949*, p. 4, at p. 22. This is consistent with Principle 21 of the Stockholm Declaration on the Human Environment adopted on 16 June 1972. United Nations Document A/CONF.48/14. For an opposite view, see Sette-Camara, J., 'Pollution of International Rivers', *Recueil des cours de l'Académie de droit international de la Haye*, Vol. 186 (1984-III), p. 163.

38 Yasuhiro, Sh., 'Some Reflections on the Relationship Between the Principle of Equitable Utilization of International Watercourses and the Obligation Not to Cause Transfrontier Pollution Harm', *Asian Yearbook of International Law*, Vol. 9 (2004), pp. 148–150.

39 *Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996*, p. 226, at pp. 241–242.

40 Caflisch states that this rule is applicable to international watercourses, land and maritime territory and the aerial space of states. Caflisch, L., 'Sic utere tuo ut alienum non laedas: Règle prioritaire ou élément servant à mesurer le droit de participation équitable et raisonnable à l'utilisation d'un cours d'eau international ?', *in*, Von Ziegler, A. & Burckhardt, Th. (eds.), *Internationales Recht auf See und Binnengewässern : Festschrift für Walter Müller* (Zürich: Schulthess, 1993), p. 28.

41 Andrassy, J., 'L'utilisation des eaux des basins fluviaux internationaux', *Revue Égyptienne de Droit International*, Vol. 16 (1960), p. 37 and Colliard, C.-A., 'Évolution et aspects actuels du régime juridique des fleuves internationaux', *Recueil des cours de l'Académie de droit international de la Haye*, Vol. 125 (1968-III), p. 378 et seq.

prohibiting the upstream riparian state to alter the waters of a river in any way that seriously harms the downstream riparian state.[42]

The prohibition to cause significant harm only comprises injuries caused by human acts. Therefore, states are not obliged to modify the natural conditions of an international watercourse or to prevent the natural alterations it may suffer.[43] Whilst Article 7 of the UN Watercourses Convention contains a prohibition to cause significant harm, it does not provide a definition of that notion.[44] Significant harm is not so much qualified as harm on a considerable scale, but what is considered objectively assessable damage. The word 'significant' qualifies harm by raising the level of tolerance in the exploitation of international watercourses.[45]

The right of states to an equitable and reasonable use of international watercourses is the logical consequence of the prohibition to cause significant harm.[46] States generally try to use the waters of their international watercourses to obtain the maximum benefit with the least inconvenience. States have the same right of access to the benefits that may be gained from the

42 *United Nations Reports of International Arbitral Awards*, Vol. XII, p. 304, at p. 308. In its memorial in the *Pulp Mills* case, Argentina claimed a violation of the general obligation prohibiting significant harm in the use of an international watercourse by the construction and operation of a pulp mill on the border of the Uruguay River. Cf. paragraph 8.19 of the Memorial at www.icj-cij.org. Accessed on 2 January 2016.

43 Cf. Barberis, supra, note 19, p. 34.

44 Article 7 prescribes: "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 (on equitable and reasonable utilisation), in consultation with the affected State, to eliminate or mitigate such harm and, where appropriate, to discuss the question of compensation".

45 Pannatier, S., 'La protection des eaux douces', *in, Le droit international face à l'éthique et à la politique de l'environnement* (Genève: Georg Éditeur, 1996), p. 63.

46 Barberis, J., Armas Pfirter, F. & Querol, M., 'Aplicación de principios de derecho internacional en la administración de ríos compartidos. Argentina con Paraguay y Uruguay', *in, El derecho de aguas en Ibeoramérica y España: Cambio y modernización en el inicio del tercer milenio* (Madrid: Civitas, 2002), Vol. 2, p. 77. Fitzmaurice refers to the 'holistic approach' that both general norms reflect concerning the use of international waterways. Fitzmaurice, M., 'General Principles Governing the Cooperation Between States in Relation to Non-Navigational Uses of International Watercourses', *Yearbook of International Environmental Law*, Vol. 14 (2003), p. 44; Vitányi, B., *The International Regime of River Navigation* (Alphen aan den Rijn: Sitjhoff & Noordhoff, 1979), pp. 345–346.