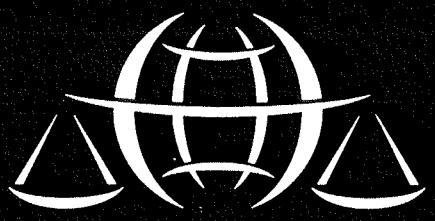

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WATER: CHALLENGES FOR INTERNATIONAL LAW AND POLICY

This panel was convened at 10:45 am, Friday, April 11, by its moderator, Joseph Dellapenna of Villanova University School of Law, who introduced the speakers: Laurence Boisson de Chazournes of the University of Geneva; Gabriel Eckstein of Texas A&M University School of Law; Georgia Kayser of Gillings School of Public Health, the University of North Carolina at Chapel Hill; and Stephen C. McCaffrey of the University of the Pacific McGeorge School of Law.*

THE NOTION OF ENVIRONMENTAL FLOWS AND THE LAW APPLICABLE TO INTERNATIONAL WATERCOURSES

By Laurence Boisson de Chazournes†

INTRODUCTION

A recent award, rendered in the context of a dispute between Pakistan and India, the so-called *Kishenganga* arbitration,[1] has shed light on a concept that had received little attention in state practice or in judicial practice. This is the concept of environmental minimum flow.

Pakistan's claim, in which it sought to preserve downstream flows, referred to the notion of minimum flow in order to prevent India's hydroelectric plant from diverting a quantity of the Neelum River's downstream flow that would affect Pakistan's agricultural and hydroelectric uses. India, for its part, stated that there would be a minimum environmental flow downstream of the planned plant at all times and that it would be of a certain amount.[2]

The Tribunal addressed the issue of environmental minimum flow on the basis of the 1960 Indus Treaty, to which India and Pakistan are state parties, and on the basis of customary international law by way of interpretation.[3] The Tribunal considered the concept of minimum flow in an environmental context, speaking of the notion of minimum environmental flow.[4] It also spoke of the requirement of "the maintenance of a minimum flow downstream of the [concerned hydroelectric project] in response to considerations of environmental protection."[5] While doing so, the Tribunal took into account the various uses at stake, as well as the requirement to protect the environment. In these brief remarks, I will attempt to contextualize the notions of minimum flow and environmental minimum flow within the framework of the law applicable to international watercourses. I will then make a few suggestions as to their meaning in practice, especially in light of the *Kishenganga* award.[6]

* Professors Eckstein and Kayser did not contribute remarks for the *Proceedings*.

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[1] Indus Waters Kishenganga Arbitration (Pakistan v. India), *at* http://pca-cpa.org/showpage.asp?pag_id=1392. The Tribunal's final award of December 20, 2013 [hereinafter Kishenganga Final Award] followed from its partial award of February 18, 2013 [hereinafter Kishenganga Partial Award].

[2] Kishenganga Partial Award, para. 453.

[3] Reference was made to paragraph 29 of Annex 6 to the treaty, as well as to Article 31(3)(c) of the Vienna Convention on the Law of Treaties. Kishenganga Partial Award, para. 447.

[4] Kishenganga Partial Award, para. 453.

[5] *Id.* para. 455.

[6] The award has rightly been qualified as "skillfully crafted." *See* John R. Crook, *In re* Indus Waters Kishenganga Arbitration (Pakistan v. India), 108 AJIL 308 (2014).

The Various Uses of International Watercourses and the Notions of Minimum Flow and Environmental Minimum Flow

Since the end of the nineteenth century, watercourses have increasingly been used for irrigation and energy production. These processes involve "planned measures."[7] According to the definition of the International Law Commission (ILC), planned measures are to be understood in a broad sense, including new projects and programs, as well as changes in the existing uses of a transboundary watercourse.[8] This category covers physical infrastructure and installations that are required for an industrial economy, such as dams, water supply pipes, and locks.

These uses may, at times, compete with one another and thereby generate disputes among riparian states. International law appears to have endorsed a rather neutral position by avoiding the privileging of any such uses, except when it is necessary to take into account vital human needs, as stipulated by Article 10 of the 1997 Convention on the Law of the Non-navigational Uses of International Watercourses (UN Watercourses Convention).[9] Riparian states should seek a mutually agreed solution and, in doing so, they should be guided by the principles of equitable and reasonable utilization, participation, and the obligation not to cause significant harm. In so doing, there has been a growing concern that environmental protection be taken into account.[10]

The concepts of minimum flow and environmental flow are found in the context of the uses of watercourses and their associated legal obligations.[11] They are developing in international practice in the context of sustainable management of natural resources. While there is no specific definition of these notions, treaty practice provides some insights as to their meaning. They relate to the maintenance of a quantity of water in the main channel of a watercourse, as referred to in the Treaty on the Lesotho Highlands Water Project,[12] or more specifically, to an obligation to control water flow.

The allowance may be seasonal, as in the case of the 1995 Mekong River Agreement,[13] or perennial, as in the Treaty on the Cooperative Development of Water Resources of the Columbia River Basin (1961).[14] The notion of minimum flow can be linked to the need to

[7] UN Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 11, May 21, 1997, ILM 36 (1997) [hereinafter UN Watercourses Convention].

[8] *See* Commentary to Article 11 of the Draft Articles (which later became the UN Watercourses Convention), *in* Report of the International Law Commission—Forty-Sixth Session, UN Doc. A/49/10, 111 (1994) [hereinafter ILC Report].

[9] The ILC has explained that in case of conflict among different uses:

> . . . in deciding upon the manner in which such a conflict is to be resolved, watercourse States are to have 'special regard . . . to the requirements of vital human needs'. That is, special attention is to be paid to providing sufficient water to sustain human life, including both drinking water and water required for the production of food in order to prevent starvation. This criterion is an accentuated form of the factor contained in article 6, paragraph 1 *(b)*, which refers to the 'social and economic needs of the watercourse States concerned'.

For further details, see ILC Report, *supra* note 8, at 110.

[10] Laurence Boisson de Chazournes, Fresh Water in International Law 119–23 (2013).

[11] *Id.* at 24–25.

[12] Treaty on the Lesotho Highlands Water Project Between the Government of the Kingdom of Lesotho and the Government of the Republic of South Africa, art. 6(9), Oct. 24, 1986, *at* http://www.fao.org/docrep/W7414B/w7414b0w.htm.

[13] Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin, art. II(3), Apr. 5, 1995, ILM 34 (1995).

[14] *Id.* art. II(1).

ensure the availability of water for the needs of a downstream state, or for human and animal health considerations, as foreseen in the Water Charter of the River Niger Basin.[15]

The notion of environmental flow has been referred to in some treaties. The parties to the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention) adopted a resolution in 2002 stating that environmental "flows should normally follow the natural regime as closely as possible to maintain the natural ecology"[16] and recommended the undertaking of environmental flow assessments to mitigate socioeconomic and ecological impacts of large dams on wetlands. The Treaty Concerning the Integrated Development of the Mahakali River provides: "India shall maintain a flow of not less than 10 m^3/s (350 cusecs) downstream of the Sarada Barrage in the Mahakali River to maintain and preserve the river eco-system."[17]

International jurisdictions have on some occasions alluded to the notion of minimum flow. In the *Lake Lanoux* case, the minimum flow was considered in terms of the volume guaranteed for the downstream riparian population.[18]

In *Gabčíkovo-Nagymaros*, the International Court of Justice (ICJ) seems to have endorsed an approach that links the concept of human needs with the concept of minimum flow.[19] Hungary, in support of its claims concerning an ecological state of necessity, had argued that the risk of a reduced flow in the channel of the Danube (due to the installations in question) would be harmful to the aquatic ecosystem.[20] The Court stated: "With regard to the lowering of the riverbed downstream of the Nagymaros dam, the danger could have appeared at once more serious and more pressing, in so far as it was the supply of drinking water to the city of Budapest which would have been affected."[21]

When linked to the satisfaction of human needs, the minimum flow can be understood as a tool to ensure the fulfilment of such needs. When linked to environmental considerations, it can be understood as a tool to ensure sound environmental protection of transboundary watercourses.

A Few Comments in Light of the *Kishenganga* Award

The *Kishenganga* award is the first international judicial decision to deal in an in-depth manner with the concept of minimum flow. It linked this concept to the sound environmental protection of shared water resources. In doing so, the Tribunal referred to the concept of environmental minimum flow through interpretative tools, such as to "the customary international principles for the protection of the environment in force today."[22]

[15] Water Charter of the River Niger Basin, art. 11(1) (2008). *See* discussion in Christina Leb, Cooperation in the Law of Transboundary Water Resources 172–74 (2013).

[16] Resolution VIII.1, Guidelines for the Allocation and Management of Water for Maintaining the Ecological Functions of Wetlands, para. 28 (Nov. 18–26, 2002).

[17] *See* Treaty Concerning the Integrated Development of the Mahakali River, art. 1(2), Feb. 12, 1996, ILM 36 (1996).

[18] Lake Lanoux Case (France v. Spain), § 6 at 19, 12 R.I.A.A. 281; 24 I.L.R. 101 (1957):

> none of the guaranteed users will suffer in his enjoyment of the waters (this is not the subject of any claim founded on Article 9); at the lowest water level, the volume of the surplus waters of the Carol, at the boundary, will at no time suffer a diminution; it may even, by virtue of the minimum guarantee given by France, benefit by an increase in volume assured by the waters of the Ariege flowing naturally to the Atlantic.

[19] Gabčíkovo-Nagymaros Project (Slovakia/Hungary), 1997 ICJ Rep. 7, para. 55.

[20] *Id.* para. 40.

[21] *Id.* para. 55.

[22] Kishenganga Partial Award, para. 452.

The Tribunal first recalled that the notion of environmental minimum flow is legally enshrined in the principles and rules of international environmental law. This entailed that the planning and conduct of international watercourse measures and projects comply with environmental requirements. In other words, prevention, due diligence, and vigilance require a certain amount of minimum flow. This minimum flow was qualified by the Tribunal as a condition of "environmental sustainability" for the protection of shared water resources.[23]

The Tribunal then referred to the *Pulp Mills* case, in which the International Court of Justice stated that "due diligence, and the duty of vigilance and prevention which it implies, would not be considered to have been exercised, if a party planning works liable to affect the regime of the river or the quality of its waters did not undertake an environmental impact assessment."[24] For the Tribunal, this dictated that the notion of minimum flow should be considered in the context of an environmental impact assessment.[25] The latter also translates the principle of sustainable development, which should be taken into account in the context of planned measures. According to the Tribunal, "a series of conventions, declarations, and judicial and arbitral decisions have addressed the need to manage natural resources in a *sustainable* manner."[26] Moreover, "applied to large-scale construction projects, the principle of sustainable development, translates, as the International Court of Justice recently put it in *Pulp Mills*, into 'a requirement under general international law to undertake an environmental impact assessment.'"[27]

In planning a measure, neither irrigation nor energy purposes have priority in the uses of an international watercourse. The principle of sustainable development, reconciling "economic development with protection of the environment,"[28] was used as a tool to leverage contrasting claims advanced by the two riparian states. The Tribunal stressed that "hydro-electric projects . . . must be planned, built and operated with environmental sustainability in mind."[29] After consideration of written submissions by the parties concerning appropriate minimum flow, the determination was made in a final award.[30] Interestingly, while focusing on environmental impacts, the Tribunal also took into account the various uses at stake as invoked by the parties.[31]

In the *Kishenganga* dispute, the notion of environmental minimum flow was raised from an upstream/downstream perspective. One should stress that this notion may also be examined from a downstream/upstream perspective. As Stephen McCaffrey has said with respect to the no-harm rule, the notion of environmental minimum flow is a two-way operational concept.[32] In the final analysis, the notion requires that environmental protection be ensured, and that there is an "appropriate" minimum flow in light of environmental protection

[23] *Id.* para. 454.

[24] Pulp Mills on the River Uruguay (Argentina v. Uruguay), 2010 ICJ REP. 83.

[25] Kishenganga Partial Award, para. 450.

[26] *Id.* para. 449.

[27] *Id.* para. 450.

[28] Gabčíkovo-Nagymaros Project (Hungary/Slovakia), 1997 ICJ REP. 7, 78.

[29] Kishenganga Partial Award, para. 454.

[30] Kishenganga Final Award, part. V, p. 43.

[31] *Id.* paras. 104–14.

[32] Stephen C. McCaffrey, *Some Developments in the Law of International Watercourses, in* PROMOTING JUSTICE, HUMAN RIGHTS AND CONFLICT RESOLUTION THROUGH INTERNATIONAL LAW: LIBER AMICORUM LUCIUS CAFLISCH 785 (Marcelo G. Kohen ed., 2007).

considerations.[33] The necessity of environmental protection is not dependent on any particular geographical inter-state relationship.

Water Scarcity and Security Issues in the Middle East

By Stephen C. McCaffrey[*]

I have been asked to address water scarcity and security issues, with a particular focus on the Middle East. Since this topic remains quite broad even when so narrowed, I will focus on two case studies: the Nile, and water issues between Palestine and Israel.

First, it is well to recall that issues of water scarcity and security must be analyzed in the context of climate change. The Intergovernmental Panel on Climate Change (IPCC) has told us that this phenomenon will result in greater aridity in areas that are already dry. This is a recipe for conflict—not only within countries, but also between countries, as more and more is asked of ever-dwindling freshwater supplies, both absolutely and in relation to growing human populations.

The Nile

The Middle East is notoriously water-short. But like other regions, the water that does exist is not evenly distributed: some countries have more, some less. Thus it is with the Nile Basin, whose upstream riparians—the Equatorial Lakes states on the White Nile and Ethiopia on the Blue Nile—generally have plenty of water, or at least access to it. Egypt, on the other hand, is almost completely dependent on the Nile. Thus it has long been the case that "water security" for Egypt means no development of Nile water resources by any other Nile Basin country in a way that might adversely affect Egypt.

This is in essence the regime provided for in two colonial-era treaties: the 1902 treaty between the United Kingdom and Ethiopia and the 1929 Nile Waters Agreement between the UK and Egypt. Both of the agreements give Egypt a right of prior consent to any works on the Nile that could adversely affect that country. While Egypt maintains that these treaties continue to be binding on the UK's successors on the White Nile and on Ethiopia on the Blue Nile, those successor states dispute this.

This was the background for the first effort to prepare a treaty governing the entire Nile Basin, an effort that resulted in an instrument called the Nile River Basin Cooperative Framework Agreement. This is a modern treaty, negotiated over a period of some five years by nine of the now eleven states in the Nile River Basin (Burundi, Democratic Republic of Congo, Egypt, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, and Uganda). While the current text was adopted by seven of the nine negotiating states on May 22, 2009, at an extraordinary meeting of the Nile Council of Ministers, the treaty has yet to enter into force. The sticking point? Water security.

Specifically, Egypt and Sudan on one hand, and the other seven Nile negotiating states on the other, could not agree on the fate of the 1902 and 1929 treaties. The general rule of treaty law, as reflected in Article 20(3) of the Vienna Convention, is, of course, that the provisions of an earlier treaty will apply only to the extent that they are compatible with the terms of a later treaty between the same parties. The right of prior consent given to Egypt

[33] Kishenganga Partial Award, para. 455.

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