

GLOBAL LAW AND POLICY DEVELOPMENTS

DOI 10.3233/EPL-180068

Haub Prize 2017 Laureate**International Water Law in the Anthropocene**by Stephen C. McCaffrey¹

*Excerpt from the remarks of Liliane Haub in conferring the Elisabeth Haub Award for Environmental Law and Diplomacy:*ⁱⁱ

The Elisabeth Haub Award recognises the innovation, skill and accomplishments in environmental law and diplomacy. Past recipients are lawyers, academics, diplomats, international civil servants and others who work to create the world environmental order. I am so pleased that tonight Professor McCaffrey joins this distinguished group.

This award means a great deal to our family, as it helps recognise the life and legacy of Elisabeth Haub, who was devoted to an appreciation of nature and the sound stewardship and sustainable development of natural resources. She worked tirelessly to promote these ideals and we are so pleased that her legacy and work live on through this honour.

Tonight we recognize Professor Stephen McCaffrey for his life-time of service in the development of international environmental law, and in particular for his work as Special Rapporteur for the International Law Commission. His tireless work on international watercourses resulted in the world's first treaty open to all countries to protect the ecology of international rivers and lakes. Importantly, the treaty also calls for all nations to share fresh water to protect the environmental resources upon which all of us depend.

As the world becomes increasingly interconnected, we must work together to face global challenges such as combating climate change and, building a more sustainable future, this kind of work is critically important.

Professor McCaffrey, it is our privilege to bestow upon you the Elisabeth Haub Award for Environmental Law and Diplomacy.

It is a great honour to have received the Elisabeth Haub Award for Environmental Law and Diplomacy. I am humbled by this recognition and thank the jury for having selected me to receive it. The honoree has traditionally been asked to offer remarks in response. This essay is offered in that vein.

"The Anthropocene" is the name given by scientists to our current geological epoch. It was first proposed by atmospheric chemist and Nobel Laureate Paul J. Crutzen and biologist Eugene F. Stoermer in a paper published in 2000.¹ The term "Anthropocene" refers to the fact that we are now living in the age of humans, that humans are the dominant influence on Earth's climate and therefore our global environment. Though the name is rather new, Crutzen and Stoermer believe the Anthropocene began in the latter part of the 18th century, "when data retrieved from glacial ice cores show the beginning of a growth in the atmospheric concentrations of several 'greenhouse gases', in particular CO₂ and CH₄. [It] also coincides

with James Watt's invention of the steam engine in 1784. About at that time, biotic assemblages in most lakes began to show large changes".² The International Union of Geological Sciences (IUGS) has not yet determined whether the name of the current epoch should be changed from the Holocene to the Anthropocene,³ but the latter will be used in this paper to signal the massive influence humans have had on Earth and its systems, including water systems, an influence that shows no signs of abating.

In its Fifth Assessment Report, the Intergovernmental Panel on Climate Change (IPCC), the most authoritative scientific body on that subject, has described the effects of anthropogenic climate change on the hydrologic cycle and noted the impacts that climate change is having and will likely continue to have on freshwater systems.⁴ The report of the IPCC's Working Group II, whose coverage includes the impacts of climate change, concludes:

Climate change over the 21st century is projected to reduce renewable surface water and groundwater resources significantly in most dry subtropical regions (robust evidence, high agreement), intensifying competition for water among sectors (limited evidence, medium agreement). In presently dry regions, drought frequency will likely increase by the end of the 21st century under RCP8.5 [in the IPCC's RCP 8.5 scenario,

ⁱ 2018 Laureate of the Elisabeth Haub Award for Environmental Law and Diplomacy; 2017 Laureate of the Stockholm Water Prize; Distinguished Professor of Law at the University of the Pacific, McGeorge School of Law, Sacramento CA, US; and Special Rapporteur on the International Law Commission's work on the Law of the Non-navigational Uses of International Watercourses, 1985-1991.

ⁱⁱ [Recently the Elisabeth Haub Prize for International Environmental Diplomacy and the Elisabeth Haub Award for International Environmental Law have been combined into a single award. Ed.]

emissions continue to rise throughout the 21st century, leading to high greenhouse gas concentrations] (medium confidence). In contrast, water resources are projected to increase at high latitudes (robust evidence, high agreement).⁵

In simple terms, in the Anthropocene, dry areas are projected to become more arid while wet areas are projected to become wetter. Human civilisation has adapted to water resources availability in different regions over centuries and, in some cases, millennia. The changes wrought by climate change are occurring much more rapidly, challenging the ability of human societies to keep up through adaptation. These changes and the accompanying challenges will, of course, play out not only on the domestic level, but also with regard to internationally-shared freshwater systems.

This paper will comment briefly on the implications of these changes for the peaceful sharing of freshwater resources and on the adequacy of the law to keep pace.

The Importance of Shared Freshwater Resources and their International Legal Regulation

A large portion of the world's freshwater resources is shared by two or more countries. The world's 310 transboundary river basins cover 47.1 percent of the globe's land surface and are home to some 45 percent of the global population.⁶ But much of the world's accessible fresh water is underground. To date, 592 transboundary aquifers have been identified, and this number is likely to increase with the further development of technological capabilities.⁷ Most of these aquifers are recharging, *i.e.*, they are replenished by the infiltration of surface water or precipitation.

The expansion of the global population and the continued development of water resources for such purposes as irrigation and power production place stresses on those resources and, consequently, on the countries relying on them. As early as 1970, the United Nations General Assembly (UNGA) recognised these phenomena in a resolution in which it referred the topic of the law of international watercourses to the International Law Commission (ILC). Among the *desiderata* mentioned in the resolution's preamble are:

Considering that water, owing to the growth of population and the increasing and multiplying needs and demands of mankind, is of growing concern to humanity, that the available fresh water resources of the world are limited and that the preservation and protection of those resources are of great importance to all nations,

Conscious of the importance of legal problems relating to the use

of international watercourses, inter alia with regard to international water resources development,...

Convinced of the necessity to promote ... the work on the progressive development and codification of the law of international watercourses and to concentrate this work within the framework of the United Nations ...⁸

Thus the UNGA, representing the international community, drew a connection between humanity's increasing reliance on fresh water and the need for clarification of the rules of international law governing its sharing by States.

The ILC, whose mission is the codification and progressive development of international law,⁹ after 20 years' work on the "Law of the non-navigational uses of international watercourses", sent a complete set of draft articles on the subject to the UNGA.¹⁰ The Assembly decided that a treaty should be negotiated on the basis of the ILC's draft, resulting ultimately in the adoption of the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses (UN Watercourses Convention).¹¹ It is worthy of note that few changes were made to most of the provisions of the ILC's draft by the States negotiating the Convention, and that the Working Group in which the Convention was negotiated recorded that it had referred to the ILC's commentaries throughout the elaboration of the Convention "to clarify the contents of the [ILC's] articles".¹²

The UN Watercourses Convention entered into force in 2014, but in view of its provenance, as the outcome of an exercise of codification and progressive development, is more significant as a codification of the fundamental rules of international water law than as a treaty. These customary rules are binding on all States, regardless of whether they are Parties to the treaty. The core principle of international water law, set forth in Article 5 of the UN Convention, is that of equitable and reasonable utilisation. This was underscored a mere four



Jason J. Czarniczki, Assoc. Dean of Environmental Law Programs at the Elisabeth Haub School of Law presenting the award and Marvin Krislov, President of Pace University, shaking Prof. McCaffrey's hand
Courtesy: Pace University

months after the conclusion of the Convention by the International Court of Justice in its judgment in the *Gabčíkovo-Nagymaros Project* case.¹³ There the Court cited what it referred to as a State's "basic right to an equitable and reasonable sharing of the resources of an international watercourse".¹⁴

Perhaps the most prominent feature of the principle of equitable and reasonable utilisation is its inherent flexibility. This quality, perhaps more than any other, may have been responsible for the early adoption of equitable utilisation, or allocation, on the domestic level in States with inter-jurisdictional rivers – *i.e.*, those shared by more than one political subdivision of the State in question. It quickly becomes apparent that where water is involved, things change – be the changes natural (the amount of precipitation in a basin, for example) or human-related (population growth, intensified water use for agriculture, urbanisation, *etc.*). Rigid legal rules do not make sense in such a context. Countries with many inter-jurisdictional rivers have learned that and a number have put in place flexible systems well before this was done on the international level. Thus countries with federal systems and freshwater resources that are shared among political subdivisions have functioned as laboratories for the international system.

The two foremost examples of countries that adopted equitable utilisation on the domestic level are the US and Germany, both countries with federal systems. In the US, the Supreme Court in 1907 ruled on a dispute between Kansas and Colorado over the Arkansas River, emphasising the importance of an "equitable apportionment of benefits between the two States resulting from the flow of the river".¹⁵ In Germany, the *Staatsgerichtshof* in 1927 decided the *Donauversinkung* case between the states of Würtemberg and Prussia, on the one hand, and Baden, on the other.¹⁶ The court stated:

*The exercise of sovereign rights by every State in regard to international rivers traversing its territory is limited by the duty not to injure the interests of other members of the international community The application of this principle is governed by the circumstances of each particular case. The interests of the States in question must be weighed in an equitable manner against one another. One must consider not only the absolute injury caused to the neighboring State, but also the relation of the advantage gained by one to the injury caused to the other.*¹⁷

States with federal systems, having had experience in the judicial settlement of differences between political units concerning shared freshwater resources, developed an overarching principle that provides for flexibility. That principle is based on equity, which contemplates a balance of interests of the parties that is fair under the circumstances.

It was not a large step to carry the principle over to the international plane. This the International Law Association (ILA) did in its 1966 Helsinki Rules on the Uses of the Waters of International Rivers.¹⁸ Article IV of the Helsinki Rules provides simply as follows: "Each

basin State is entitled, within its territory, to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin".¹⁹ Like the US Supreme Court, and the German court in *Donauversinkung*, the Helsinki Rules go on to provide that what constitutes a reasonable and equitable share "is to be determined in the light of all the relevant factors in each particular case".²⁰ As already noted, equitable and reasonable utilisation is also the cornerstone of the UN Watercourses Convention. After setting forth that principle in Article 5, the Convention, like the Helsinki Rules, provides in Article 6 that equitable utilisation requires taking into account "all relevant factors and circumstances".²¹ Both the UN Convention and the Helsinki Rules explicitly include the prevailing climate as a factor to take into consideration.²²

International Water Law in the Anthropocene

The question is whether international water law, as reflected generally in the UN Watercourses Convention, is up to the daunting task of dealing with the conditions brought about by global climate change. I believe it is, but with one important *caveat*: those administering and implementing the law, principally States, will in the end determine whether it is or is not a useful tool for the management and protection of shared freshwater resources in the age of the Anthropocene. But it is submitted that international water law as it stands is sufficiently flexible to accommodate the changed conditions and new impacts that will inevitably follow from climate change.

Signs of a recognition that the law will have to accommodate change can already be seen. In the *Kansas v. Colorado* case itself, the US Supreme Court in 1907 denied relief to Kansas, the downstream state, but said that Kansas could bring a new suit if due to "a material increase in the depletion of the waters . . . by Colorado, . . . the substantial interests of Kansas are being injured to the extent of destroying the equitable apportionment of benefits between the two States resulting from the flow of the river".²³ Equitable utilisation is thus essentially a process, requiring that adjustments be made when needed to restore the equitable balance.

And in the landmark *Kishenganga* arbitration between Pakistan and India, the tribunal in its Final Award acknowledged that "a degree of uncertainty is inherent in any attempt to predict environmental responses to changing conditions" and that it "is cognizant that flows in the Kishenganga/Neelum may come to differ, perhaps significantly, from the historical record as a result of factors beyond the control of either Party, including climate change".²⁴ The Court of Arbitration continued:

The Court considers it important not to permit the doctrine of res judicata to extend the life of this Award into circumstances in which its reasoning no longer accords with reality along the Kishenganga/Neelum. The minimum flow will therefore be open to reconsideration as [follows:] If, beginning seven years after the diversion of the Kishenganga/Neelum through the KHEP [the Kishenganga Hydro-Electric Plant], either Party

considers that reconsideration of the Court's determination of the minimum flow is necessary, it will be entitled to seek such reconsideration through the Permanent Indus Commission and the mechanisms of the Treaty.²⁵

Thus the tribunal recognised, *ex ante*, that conditions might change sufficiently that an adjustment of its award would be required. Especially in view of the uncertainties posed by climate change, this "review mechanism"²⁶ established by the tribunal is a blueprint for future judgments and awards in cases involving the non-navigational uses of international watercourses.

Conclusion

Much as the leadership of some countries may wish to deny it, global climate change is with us and is here to stay, perhaps for hundreds of years, even if we halted all greenhouse gas emissions now.²⁷ The law, being designed to create certainty and predictability in human affairs, is generally ill-equipped to accommodate the rapidly-developing impacts of climate change, responses to which require flexibility. This essay submits that such flexibility is built into the law of international watercourses. The question for humanity now is whether the same humans who caused climate change will administer the law in a sufficiently flexible way to permit adjustment and adaptation to its impacts and avoid, or at least mitigate, the seemingly inevitable dislocation and disruption it will cause.

Notes

- 1 Crutzen, P.J. and Stoermer, E.F. 2000. "The 'Anthropocene'", *Global Change Newsletter* 41: 17-18. See also Crutzen, P.J. 2002. "Geology of Mankind". *Nature* 415: 23. Stoermer, at least, had been using the term since the 1980s.
- 2 *Ibid.*, Crutzen and Stoermer.
- 3 Its Working Group on the "Anthropocene" (AWG), however, has voted in favour of recommending that the IUGS adopt the Anthropocene as the new geological epoch. See <http://www2.le.ac.uk/offices/press/press-releases/2016/august/media-note-anthropocene-working-group-awg>.

- 4 See IPCC, Fifth Assessment Report (AR5) (2014), available at <https://www.ipcc.ch/report/ar5/>. Impacts of climate change, including on freshwater resources, are dealt with in the report of Working Group II. See IPCC. 2014. *Climate Change 2014, Impacts, Adaptation and Vulnerability*. Cambridge: Cambridge University Press. Available at <https://www.ipcc.ch/report/ar5/wg2/>.
- 5 *Ibid.*, IPCC, *Climate Change 2014, Summary for Policymakers*, at 14.
- 6 McCracken, M. 2017. *Measuring transboundary water cooperation: options for Sustainable Development Goal Target 6.5*. TEC Background Papers No. 23. Stockholm: Global Water Partnership Technical Committee (TEC). Available at https://www.gwp.org/globalassets/global/toolbox/publications/background-papers/gwp-tec_23_measuring-transboundary-water-cooperation.pdf.
- 7 A breakthrough in the mapping of groundwater resources was the launching of the GRACE (Gravity Recovery and Climate Experiment) project by NASA. See https://www.nasa.gov/mission_pages/grace/index.html. GRACE has revealed precipitous declines in important groundwater resources.
- 8 UNGA Res. 2669 (XXV), 8 December 1970.
- 9 Statute of the International Law Commission, UN Doc. A/CN.4/4/Rev. 2, Article 1(1).
- 10 For the ILC's final set of articles, see 1994 Y.B. ILC, vol. 2, pt. 2, p. 89.
- 11 UNGA Res. 51/229, 21 May 1997.
- 12 Statements of Understanding regarding certain provisions of the UN Convention, Report of the Sixth Committee convening as the Working Group of the Whole, UN Doc. A/51/869, 11 April 1997.
- 13 *Gabčíkovo-Nagymaros Project* (Hungary/Slovakia), 1997 ICJ Rep. 7.
- 14 *Ibid.*, at 54, para. 78.
- 15 *Kansas v. Colorado*, 206 U.S. 46, at 118 (1907).
- 16 *Württemberg and Prussia v. Baden (the Donauversinkung Case)*. See Greenwood, C.J., Lauterpacht, H. and McNair, A.D. (Eds) *Annual Digest of Public International Law Cases 1927-1928*, at 128.
- 17 *Ibid.*, at 131.
- 18 Adopted by the ILA at the fifty-second conference, held at Helsinki, August 1966. Available at <http://www.colsan.edu.mx/investigacion/aguaysociedad/proyectorfrontera/Helsinki%20Rules%201966.pdf>.
- 19 *Ibid.*
- 20 *Ibid.*, Article V, providing an indicative list of potentially-applicable factors.
- 21 UN Watercourses Convention, *supra*, note 11, Article 6.
- 22 *Ibid.*, Article 6(1)(a); and *supra*, note 18, Article V(2)(c).
- 23 206 U.S., p. 118.
- 24 Indus Waters Kishenganga Arbitration, Final Award, para. 117 (2013). Available at <https://pcacases.com/web/sendAttach/48>. The river involved is called the Kishenganga in India and the Neelum in Pakistan.
- 25 *Ibid.*, paras 118-119.
- 26 "Review Mechanism" is the title of the section of the Final Award in which the passages quoted above are found.
- 27 The mean residence time of carbon dioxide in the atmosphere is estimated to be around 100 years, but like other greenhouse gases, it fades away rather than disappearing immediately after a given period of time. See http://www.climate-change-knowledge.org/ghgs_greenhouse_effect.html.

Climate Change

DOI 10.3233/EPL-180069

Children's Rights and Climate-Change Policy: Addressing the Concerns of Children and Future Generations

by Deva Prasad Mⁱ and Suchithra Menon Cⁱⁱ

The 1992 United Nations Framework Convention on Climate Change (UNFCCC) is a major achievement for the international community from a policy formulation perspective. Tackling the problem of climate change requires pertinent law and policy formulation grounded in science and evidence-based studies. Based on the reports of the United Nations Children's Fund (UNICEF), the impact of climate change on children and the future generations of mankind would be quite severe.¹ The survival needs and developmental needs of children and

future generations are pertinent issues that usually receive insufficient attention at the policy deliberation stage.

Adopting a human-rights-based approach to climate-change policy is a significant measure which could reduce the acute impact of climate change on human lives. In the rapidly evolving arena of climate-change policy, the fact that the protection and realisation of human rights could be threatened by the impacts of climate change has slowly begun to gain recognition, and such concerns have started to be addressed within the UNFCCC regime. It is in this context that the need for a deeper understanding regarding children's rights and climate-change policy emerges.

ⁱ Assistant Professor of Law, Indian Institute of Management, Kozhikode, India.
ⁱⁱ Assistant Professor of Law, National Law School of India University, Bangalore, India.



ENVIRONMENTAL POLICY AND LAW

This international journal has been created to encourage and develop the exchange of information and experience on all legal, administrative and policy matters relevant to the natural environment and sustainable development. It is concerned in the widest sense with legal and policy aspects of air, water, soil and noise pollution; the protection of flora and fauna; solid waste management; protected areas and landuse control; and development and conservation of the world's non-renewable resources.

Executive Staff

Founding Editor:

Wolfgang E. Burhenne

Honorary Editor:

Achim Steiner

Managing Editor:

Tomme R. Young (TRY)
PO Box 4962
Paso Robles, CA 93447, USA
E-mail: tomme.young@gmail.com

Editorial Board

Bagher Asadi
Milena Bellini
Benjamin Boer
Antonio Herman Benjamin
Michael Bothe
Edith Brown Weiss
Bharat H. Desai
Stephane Doumbe-Bille
Ian Fry
Parvez Hassan
Marlene Jahnke
Mireille Jardin
Eduardo Astorga Jorquera
Donald W. Kaniaru
Veit Koester
Koh Kheng Lian

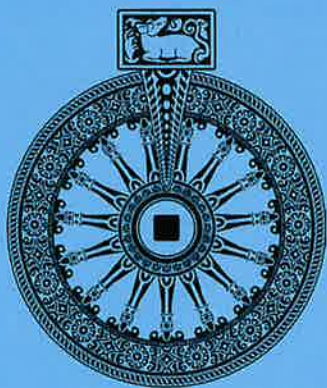
Daniel Barstow Magraw
Stephen McCaffrey
Mohamed Ali Mekouar
Patricia Moore
Charles di Leva
Malcolm Forster
David Freestone
Charles Odidi Okidi
Michel Prieur
Ann Powers
Ekhard Reh binder
Nicholas Robinson
Tullio Scovazzi
Dinah Shelton
Milena Sheppard
Christina Voigt
Rüdiger Wolfrum

Subscriptions

Environmental Policy and Law (ISSN 0378-777X) is published in one volume of six issues a year. The subscription prices for 2018 (Volume 48) are EUR 615 for online-only subscription, EUR 681 for print-only subscription, and EUR 804 (US\$1026) for a combined print and online subscription. Our p. p.h. (postage, package and handling) charge includes airmail delivery of all issues to countries outside Europe. *Personal subscription rates* are available upon request. The Euro price is definitive; the currency equivalents are for your guidance only. *Claims for missing issues* will be honoured free of charge within three months after publication of the issue.

Publisher

IOS Press
Nieuwe Hemweg 6B
1013 BG Amsterdam, The Netherlands
Tel.: +31 20 688 33 55
Fax: +31 20 620 34 19
Subscription Department: order@iospress.nl
Advertising Department: market@iospress.nl
Desk editorial Department: editorial@iospress.nl
www.iospress.nl or www.iospress.com



ENVIRONMENTAL POLICY AND LAW

Abstracted/Indexed: Academic Source Complete; Business Source Complete (EBSCO); CAB Abstracts; CSA Illumina; Database WasteInfo; EBSCO Databases; Ecolex; EMBIO; Environment Abstracts; Environment Complete; GEOBASE; Google Scholar; Linkages Update; MasterFILE; Microsoft Academic Search; PAIS International; Scopus; SD-Cite; Ulrich's Periodicals Directory; Water Resources Abstracts; Wildlife Review Abstracts

Vol. 48, No. 3-4, 2018

CONTENTS

Editorial	153	
<hr/>		
GLOBAL LAW AND POLICY DEVELOPMENTS		
<hr/>		
Haub Prize 2017 Laureate		
– International Water Law in the Anthropocene (Stephen C. McCaffrey)	154	
Climate Change		
– Children's Rights and Climate-Change Policy: Addressing the Concerns of Children and Future Generations (Deva Prasad M and Suchithra Menon C)	157	
– Fragmentation and Synergies in the International Climate-Change Regime (Maryna Medvedieva, Iryna Sopilko, Arif Guliev, Sergiy Bilotsky, Liliia Nevara, Anton Lovin and Dmytro Sirokha)	160	
UNEA		
– Expert Group Identifies Barriers and Response Options on Marine Litter and Microplastics (Efstathia Laina)	168	
UNFF		
– Moving Forward on Forest Protection Through Global Cooperation	171	
SAICM		
– Challenges for the 2020 Chemicals Target	176	
IPBES		
– Panel Adopts Assessment on Land Degradation and Restoration and Considers Future Plans	178	
ILC		
– Seventy Years of the International Law Commission: Drawing a (Sustainable) Balance for the Future (Eduardo Valencia-Ospina)	181	
		<hr/>
		INTERNATIONAL APPEAL, ADJUDICATION AND COMPLIANCE PROCESSES
		<hr/>
		Nagoya Protocol Compliance Committee
		– Start-up Challenges 183
		<hr/>
		NATIONAL LAW AND POLICY DEVELOPMENTS
		<hr/>
		Bangladesh
		– The Precautionary Principle in Biodiversity and Natural Resource Management: Institutional and Policy Challenges for a Sustainable Future (Shawkat Alam and Sheikh Noor Mohammad) 187
		Bangladesh
		– An Evaluation of Inland Water Pollution Control (Daud Hassan and Biplob Kumar Saha) 203
		India
		– The Evolution of the Compensatory Afforestation Fund Act: A Critique (Madhuri Parikh) 216
		Indonesia
		– Green Banking: The Model and Its Implementation (Tarsisius Murwadji and Imamulhadi) 219
		Indonesia
		– Improving Legal Awareness and Business Ethics Regarding Forest Burning (Arrisman) 226
		Iran
		– Evolution of the National Oil and Gas Legal Framework (Mahmoud Fard Kardel) 233

Cover photo: Tillage agriculture (a major contributor to climate change) and wind power (a climate-friendly alternative)
Courtesy: Environment and Climate Change Canada (<https://www.ec.gc.ca/?lang=En>)