The Hague Academy of International Law

International Law for a Water-Scarce World

Edith Brown Weiss

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by

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List of Acronyms and Abbreviations

CBD	Convention on Biological Diversity
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CESCR	United Nations Committee on Economic, Social and Cultural Rights
CIC Plata	Comité Intergubernamental Coordinador de los Países de la Cuenca del Plata (Intergovernmental Coordinating Committee for the Countries of the Plata Basin)
CRC	Convention on the Rights of the Child
DANIDA	Danish International Development Agency
EU WFD	European Union Water Framework Directive
EU	European Union
GATT	General Agreement on Tariffs and Trade
GEF	Global Environment Facility
GEO	Global Environment Outlook
HRC	United Nations Human Rights Council
IACHR	Inter-American Commission on Human Rights
IBRD	International Bank for Reconstruction and Development
IBWC	International Boundary Water Commission (Mexico—United States)
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
ICJ	International Court of Justice
ICPDR	International Commission for the Protection of the Danube River
ICPR	International Commission for the Protection of the Rhine
IDB	Inter-American Development Bank
IJC	International Joint Commission (Canada-United States)
IKSO	International Commission for the Protection of the Oder River

ILA	International Law Association
ILC	International Law Commission
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for the Conservation of Nature
IWT	International Water Tribunal
MDG	Millennium Development Goals
MEA	Multilateral Environmental Agreement
MERCOSUR	Mercado Común del Sur (Southern Common Market)
MRC	Mekong River Commission
NACEC	North American Commission on Environmental Cooperation
NAFTA	North American Free Trade Agreement
NGO	Non-governmental Organization
OHCHR	Office of the High Commissioner for Human Rights
OKACOM	Okavango River Basin Water Commission
OMVS	Organisation pour la Mise en Valeur du Fleuve Sénégal (Senegal River Basin Organization)
PCA	Permanent Court of Arbitration
PCIJ	Permanent Court of International Justice
PIC	Permanent Indus Commission
SACOSAN	South Asian Conference on Sanitation
SADC	Southern African Development Community
SCM	Subsidies and Countervailing Measures
SIDA	Swedish International Development Cooperation Agency
TBT	Technical Barriers to Trade
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UDHR	Universal Declaration of Human Rights
UN DRIP	United Nations Declaration on the Rights of Indigenous Peoples
UN FAO	United Nations Food and Agriculture Organization
UN Watercourses Convention	United Nations Convention on the Law of Non-Navigational Uses of International Watercourses
UNDP	United Nations Development Programme
UNECE	United Nations Economic Commission for Europe
UNECE Watercourse Convention	United Nations Economic Commission for Europe (UN ECE) Convention on the Protection and Use of Transboundary Watercourses and International Lakes
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly

UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WCD	World Commission on Dams
WHO	World Health Organization
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization

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This book is based upon my lectures at The Hague Academy of International law on *The Evolution of International Water Law.* It is a great honor to deliver a course at the Hague Academy, and I appreciate very much the opportunity to have done so. I am deeply grateful to the Curatorium of the Hague Academy for granting permission to publish this book as part of The Hague Academy's monograph series.

The lectures at The Hague Academy focused on international water law. In selecting this topic, I did so hesitantly, because of the significant contributions that my colleagues and friends have already made. The research presented here is intended to explore the multiple dimensions of international water issues, to identify challenges to international water law, and to contribute to the further development of the field.

Because of the growing importance of international water basins to the integrated management of fresh water resources and to international water law, the book includes a separate chapter on international water institutions. Lydia Slobodian, a lawyer and former research assistant at Georgetown Law, is co-author of this chapter.

Many people deserve my deep appreciation for making the book and the preceding lectures possible. These include my former research assistants at Georgetown Law, who are now or were at the time lawyers: Lauren Gaffney, Jennifer Hurst Hoffpauir, Amanda Johnson, Valentin Jeutner, Dongho Lee, Tanya Karina Lat, Andrew Petracca, Kiran Sahdev, Lori Scheetz, Lydia Slobodian, Benjamin Szilagyi, and Tracy Stitt. I am also grateful to Pierre Kressmann at Covington and Burling for formatting the many figures for the lectures and to Peter Trooboff for making this possible.

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Introduction: The Fresh Water Crisis

The fresh water crisis is the new environmental crisis of the 21st century. By 2030 global water requirements are expected to nearly double those in 2005, and to exceed current accessible and reliable supply levels by 40%.[1] By 2050, 993 million people are projected to live in cities with perennial water shortages; 3.1 billion will confront seasonal water shortages within their urban areas.[2] Many countries will be water stressed. Droughts will mean that people in some regions will not have enough water to grow food crops, especially grains. Some may lack water even to satisfy basic human needs for drinking, bathing and sanitation. And the lack of fresh water may devastate ecosystems on which people depend for sustenance and livelihoods. While desalination may help some, it is still energy intensive and limited, and has environmental consequences. Fresh water has become a pressing global concern.

Fresh water is one substance that we must have to survive and for which there is no known substitute. Technically, water does not disappear; it only changes form by means of the hydrological cycle. The hydrological cycle includes the atmosphere and clouds, fresh water, and marine water. Fresh water constitutes only about 2.5% of the water on the planet. Of this 2.5%, 0.4% lies in surface waters (rivers, lakes and swamps); 0.8% in permafrost; 68.7% in glaciers and ice caps; and 30.1% in ground water.[3] Ground water aquifers are often poorly identified and mapped. While most aquifers are theoretically rechargeable, many are being pumped in excess of their recharge rate, which can eventually deplete them. Other large and important aquifers are not rechargeable and may be millions of years old, so extracting the water depletes the aquifer.

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1 2030 Water Resources Group, *Charting Our Water Future*, 2009, at p. 5.

2 Robert L. McDonald, Pamela Green, Deborah Balazx M. Fekete, Carmen Revenga, Megan Todd, and Mark Montgomery, "Urban Growth, Climate Change, and Freshwater Availability," *Proceedings National Academy of Sciences*, Vol. 108 (2011), pp. 6312-6317, at p. 6313, available at http://www.pnas.org/content/108/15/6312.full (last visited October 31, 2012).

3 United Nations Environment Programme (UNEP), *Global Environment Outlook 4*, Nairobi, UNEP, 2007, p.118.

Most attention to fresh water has focused on problems of water supply. Will sufficient fresh water be available to meet demand and will it be of the quality needed? How will the supply be allocated and used? The focus on the supply of water has been at the expense of focusing on the demand for fresh water. Demand is the other side of water supply. The demand side has been neglected internationally, within countries, and at the community level. This needs to change.

In a similar vein, fresh water has frequently been discussed only in terms of rivers, streams, aquifers, and lakes. But fresh surface water and aquifers linked to rivers and/or lakes exist within the broader context of a basin ecosystem, in which the quantity and quality of fresh water is affected by land use and by disposal of pollutants, including into the atmosphere. Thus, fresh water needs an integrated analysis as a resource within water basin ecosystems.

Fresh water must also be viewed as an element of the climate system. The best climate models predict that climate change will result in more droughts, floods, sea level rise, melting of glaciers, and more frequent and more severe storms.[4] Moreover, recent scientific research indicates that the hydrological cycle itself may be intensifying and accelerating, which means that the rate at which water evaporates from the oceans, returns as precipitation, runs into lakes and marine bodies or evaporates from land is increasing.[5] Climate change is expected to make this more pronounced. These changes in the hydrological cycle are expected to decrease the availability of fresh water and to increase the frequency and severity of storms and other water related events. Such developments could have profound effects on the well-being of both present and future generations.

Moreover, some scientists have recently concluded that we are entering a new epoch: the Anthropocene.[6] In the Anthropocene, human beings are the major force of change. This means that we have attained a status equivalent to the great forces of nature, with the power to transform the globe dramatically. The speeding up of the hydrological cycle is only one example. There is also evidence that human beings are responsible for changes in the nitrogen and carbon cycles and for unprecedented rates of species extinction.[7] Human activities may even

4 *See* Byron Bates, Zbigniew W. Kundzewica, Shaohong Wu, Jean Palutikof, eds., *Climate Change and Water*, (IPCC Technical Paper no. VI), Geneva, Intergovernmental Panel on Climate Change, 2008.

5 James S. Famiglietti, Written Testimony, Hearing on Perspectives on California Water Supply: Challenges and Opportunities, Subcommittee on Water and Power, Committee on Natural Resources, U.S. House of Representatives, January 25, 2010, available at http://naturalresources.house.gov/calendar/eventsingle.EventID=166294; World Bank, *Water and Climate Change: Understanding the Risks and Making Climate-Smart Investment Decisions*, 2009, at p. 4.

6 *E.g.*, Will Steffen, Paul J. Crutzen, John R. McNeill, "The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature," *Ambio: A Journal of the Human Environment*, Vol. 36 (2007), pp. 614-621.

7 *Ibid.* at p. 617.