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NEW CHALLENGES IN AN ERA OF GLOBAL WATER SCARCITY

by David Hunter*

The first observers in space called Earth the “blue marble” and reflected on how much of the planet was covered by water. Of course, 97% of that water is salt water and largely unavailable for human consumption. To much of humanity scratching out a living on the Earth’s surface, the Earth is certainly not a blue planet. Access to fresh water has become one of our most serious issues, as by recent estimates more than half of all available fresh water is already being used. Yet, one

billion people lack access to adequate water supplies and 2.4 billion require access to improved sanitation.¹ At the same time, freshwater ecosystems are now among the most stressed of all habitats on the planet, with some estimates claiming nearly one-third of freshwater fish to be threatened with extinction.

The growing demand for water and the increased awareness that fresh water is a finite resource inspired the United Nations to declare 2003 “The International Year of Fresh Water.”² Although largely symbolic, the declaration aimed to highlight the serious fresh water shortages facing ever-growing regions of the world and build political support for the sustainable stewardship of our water resources.

The International Year was also designed to raise the profile of other more tangible efforts by the United Nations. In particular, the first *World Water Development Report* was released in March 2003.³ That report is the first in what is expected to be a regular, international assessment of the state of the world’s water resources. It provides baseline information for the galvanization of broad international action in securing global access to water.

Perhaps most importantly, the United Nations recognized the importance of freshwater to poverty and development when the international community pledged in the U.N. Millennium Declaration of 2000 “to halve by 2015 the proportion of people who are unable to reach, or to afford, safe drinking water” and “. . . to stop the unsustainable exploitation of water resources, by developing water management strategies at the regional, national and local levels, which promote both equitable access and adequate supplies.”⁴ Two years later at the World Summit on Sustainable Development (“WSSD”), the world’s governments repeated this pledge and added another goal in the WSSD Plan of Action: “to halve, by the year 2015 . . . the proportion of people who do not have access to basic sanitation.”⁵ Achieving the above targets will require far greater commitment and cooperation than the international community has yet achieved. Improvements in existing water supply systems must be made for 100 million people each year until 2015 (approximately 274,000 per day), and in existing sanitation systems for an estimated 125 million people per year (342,000 per day).

These global perspectives are important for raising awareness, organizing international cooperation, and acknowledging the enormity of the task at hand, but they can also mask even more interesting and difficult challenges of sustainable water

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management—challenges that occur on the ground between countries, between users, and between social priorities. It is these conflicts and their resolution that will determine whether humanity successfully meets the ambitious Millennium Development or WSSD goals or more generally meets the imperative of sustainable development. And it is to highlight these conflicts, and their resolution, that this edition of *Sustainable Development Law and Policy* is dedicated.

Fresh water serves many different and critical roles. Ecologically, water is what makes a river a river, and a lake a lake. Water provides habitat for fish, amphibians, reptiles, and a host of invertebrates. Water also shapes the land through flooding, erosion, and similar processes, and provides nutrients to the coastal areas and oceans.

But water is also an economic resource. In the American West and in many economies still today the primary use of water has been agriculture. Irrigation can make a desert or a Great Plains bloom. Approximately 70% of all available water use is used for irrigation. Water is also increasingly important for modern industry, with many sectors requiring large amounts of water. By 2025, industrial uses are expected to represent about 24% of total freshwater withdrawal. Industrial use of water resources includes not only withdrawals but also discharges as “dilution” is often still used in lieu of pollution control. Indeed, in developing countries, an estimated 70% of industrial wastes are dumped untreated into waters where they pollute the usable water supply. Furthermore, hydropower is a critical source of energy, providing the promise of renewable energy with little or no impact on the global climate. Today, hydropower produces 19% of the world’s total electricity. Canada is the largest producer of hydroelectricity, followed by the United States and Brazil. Some estimates indicate that economically feasible hydropower sites could provide three times as much electricity as current levels, with much of the untapped potential in Latin America, Central Africa, India, and China.

The conflict between water’s economic and ecological roles has been clear and well documented.⁶ To serve its ecological roles, water must stay put – but water is only economically valued when it is diverted, dammed, channeled, diked, or otherwise controlled. “Beneficial use” in the U.S. western states, for example, always requires the diversion of water, leaving little room for the protection of water’s ecological services. The United States has built more than 75,000 large dams (nearly one every day since the Declaration of Independence). The ecological impact of our approach to water has been devastating and increasingly today we are engaged in high-profile restoration efforts such as the re-plumbing of the Everglades and removal of the Edwards Dam on the Kennebec River.⁷

Simply viewing water scarcity as a conflict between ecological and economic uses misses much of the important context for future challenges in water management. In the future, conflicts will increasingly be between different uses with regional or international implications.

The international nature of water conflicts has been reflected in a growing international law of water. International

law has developed primarily to reduce conflict over the development of water resources and encourage its “equitable utilization,” while taking into account concerns of national security and sovereignty. International law has historically addressed lakes and rivers, with recent examples being Slovakia’s unilateral construction of the Gabčíkovo dam on the Danube and the allocation of scarce water in the Rio Grande.⁸

Relatively under-represented in international law has been the status of ground water resources. In this regard, Gabriel Eckstein’s article discusses the International Law Commission’s initiative to extend and develop transboundary rules of law to ground water resources, a much-needed recognition of the ecological interconnectedness of the hydrosphere and of the increasing value of ground water resources.⁹

Nowhere is the potential for transboundary water conflicts more acute nor more worrisome than in the Middle East. Fears abound that water scarcity could serve as a future flashpoint in an already tense region of the world. Two articles address a frequently overlooked aspect of the Middle Eastern water issue – how Palestine’s status as an occupied territory potentially complicates Palestinian access to water. Ms. Niehuss’s article addresses the limitations of international and regional cooperation in addressing Palestinian access to water,¹⁰ and Jonah Schein highlights an important non-governmental effort to depoliticize the water issue and provide water at the local level.¹¹

State sovereignty over water releases is now not the only source of international water disputes; recently water’s role as a private good subject to international investment or trade policies has been the source of international concern. Ms. Gerbasi’s article highlights how U.S. limitations on interbasin water transfers and sales, intended to allow for local management of water resources, may increasingly come into conflict with international trade rules ensuring the free flow of goods across borders.¹² Given all of the economic and policy trends, international challenges to state and local regulation of water resources seem almost inevitable.

The internationalization of the water industry has also given rise to significant questions over the fairness and efficiency of privatizing local water supplies and provisions. Major conflicts have arisen over privatization of water, frequently pitting multinational corporate investors and international development organizations against local communities concerned over the increased costs of water.¹³ Erin Webreck’s case study on Swedish firms involved in international privatizations¹⁴ and the Vivendi-Argentina Water Dispute litigation update¹⁵ both address issues arising from international investment in the context of water privatization.

At root in many of the current conflicts over privatizing water are issues of distributive justice and of individual or community rights and interests in access to water. The role of the public in participating in and benefiting from the use of water resources has taken on new urgency in this time of water scarcity. A major challenge for effective water management today is how to balance the interests of multiple stakeholders and respect

principles of public participation and local decisionmaking critical to concepts of sustainable development. Karin Krchnak discusses how enhancing public access to information and public participation can improve water governance generally.¹⁶ Two other articles discuss public participation in a specific context: first, Ayako Sato describes public participation issues in the implementation of agricultural regulations under the U.S. Clean Water Act,¹⁷ and, second, Jonathan Brown, Ayse Kudat, and Kristen McGeeney show through a case study on an Uzbekistan water project how social assessments can be used to enhance public input and improve water management decisions.¹⁸

Recognizing and respecting the public's procedural rights in water resources are critical but in recent years a new dimension has emerged in rights-based discourse over conflicts of water use—that of a substantive human right to water. The evolution of a human right to water has recently been documented in Salman Salman and Siobhan McInerney-Landford's new book, *A Human Right to Water*, which shows the growing recognition of such a right.¹⁹ As suggested by the reviewers, still unclear are the practical implications of that right. Anna Welch explores the obligations inherent in South Africa's Constitution, perhaps the most important national level example of a human

right to water.²⁰ To be sure, such a human right would seem to tilt the balance even further away from protecting water's ecological role, but in practice, a right to water may present more of a challenge to large-scale diversions and privatization of water. A human right to water would seem to be most important in prioritizing uses in times and for regions of water scarcity. It also will ensure that concerns of distributive justice and fairness will not be lost in the increasingly acrimonious and critical debates over water resources.

As illustrated by the articles in this volume, the clash over shrinking water resources takes place from the international to the community level and involves aspects of environmental protection, national security, economic growth, and distributive justice. To be successful in husbanding our water resources wisely and fairly, society must be successful on all these levels and balance all these concerns, while necessarily operating under the planet's ecological constraints. For water, although renewable over time, is finite in any given time or region. We cannot change that fact, but through smarter and more equitable policies, we can achieve the ecologically sustainable development of our water resources and fulfill every person's need (and right) to have access to water.



ENDNOTES: New Challenges in an Era of Global Water Scarcity

¹ U.N. Comprehensive Assessment of the Freshwater Resources of the World, U.N. Doc. E/CN.17/1997/9 (Feb. 4, 1997).

² G.A. Res., U.N. Doc. A/RES/55/196 (Feb. 1, 2001).

³ U.N. WORLD WATER ASSESSMENT PROGRAMME, WATER FOR PEOPLE, WATER FOR LIFE: THE UNITED NATIONS WORLD WATER DEVELOPMENT REPORT (2003).

⁴ U.N. Millennium Declaration, U.N. Doc. A/Res/55/2, ¶¶ 19, 23 (Sept. 18, 2000).

⁵ UNITED NATIONS, REPORT OF THE WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT, U.N. Doc. A/Conf.199/20, Annex (Plan of Implementation of the World Summit on Sustainable Development), ¶ 8 (2002).

⁶ See, e.g., DONALD WORSTER, RIVERS OF EMPIRE: WATER, ARIDITY AND THE GROWTH OF THE AMERICAN WEST (1985); MARC REISNER, CADILLAC DESERT: THE AMERICAN WEST AND ITS DISAPPEARING WATER (1986); PATRICK McCULLY, SILENCED RIVERS: THE ECOLOGY AND POLITICS OF LARGE DAMS (1996).

⁷ See, e.g., American Rivers, Frequently Asked Questions about Dam Removal, <http://www.amrivers.org> (last visited Dec. 14, 2004); Comprehensive Everglades Restoration Plan, <http://www.everglades-plan.org> (last visited Dec. 14, 2004).

⁸ See, e.g., Case Concerning the Gabcikovo-Nagymaros Project (Hungary v. Slovakia), 1997 I.C.J. 92 (Sept. 25); U.S. Water News Online, *Perry considers withholding water from Mexico in treaty dispute* (Sept. 2003).

⁹ Gabriel Eckstein, *Protecting A Hidden Treasure: The U.N. International Law Commission and the International Law of Transboundary Ground Water Resources*, *infra* p. 5.

¹⁰ Juliette Niehuss, *The Legal Implications of the Israeli-Palestinian Water Crisis*, *infra* p. 13.

¹¹ Jonah Schein, *The Role of NGOs in Addressing Water Access in Israel and the Palestinian Authority*, *infra* p. 19.

¹² Jennifer C. Gerbasi, *The Next Privatization of Public Assets: Domestic and Trade Implications Related to Water Right and Land Acquisition*, *infra* p. 23.

¹³ See, e.g., *Bolivia's War Over Water*, The Democracy Center On-Line, <http://www.democracyctr.org/waterwar> (last visited Dec. 14, 2004) (a series of accounts of the dispute over Bolivia's privatization of water in Cochabamba).

¹⁴ Erin Webreck, *The Challenge of Battling Privatization: A Case Study of Swedish Water Companies*, *infra* p. 30.

¹⁵ Malissa Khumprakob, *Litigation Update: The Vivendi-Argentina Water Dispute: ICSID Creates New Arbitration Tribunal to Hear the Longest Running Case on its Docket*, *infra* p. 68.

¹⁶ Karin Krchnak, *Improving Water Governance Through Increased Public Access to Information and Participation*, *infra* p. 34.

¹⁷ Ayako Sato, *Public Participation and Access to Clean Water: An Analysis of the CAFO Rule*, *infra* p. 40.

¹⁸ Jonathan Brown, Ayse Kudat, and Kristen McGeeney, *Improving Legislation Through Social Analysis: A Case Study in Methodology from the Water Sector in Uzbekistan*, *infra* p. 49.

¹⁹ Kristen McGeeney and Melanie Nakagawa, *Book Review*, *infra* p. 68 (reviewing SALMAN SALMAN AND SIOBHAN MCINERNEY-LANKFORD, THE HUMAN RIGHT TO WATER: LEGAL AND POLICY DIMENSIONS (2004)).

²⁰ Anna Welch, *Obligations of State and Non-state Actors Regarding the Human Right to Water under the South African Constitution*, *infra* p. 58; see also Rachael Moshman, *The Constitutional Right to Water in Uruguay*, *infra* p. 65.