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## Water, Climate, and Energy Security

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# WATER, CLIMATE, AND ENERGY SECURITY

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Elizabeth Burleson\*

## I. INTRODUCTION

*A lily pond, as the French riddle goes, contains a single leaf. Each day the number of leaves doubles - two the second day, four the third, eight the fourth, and so on. If the pond is completely covered in thirty days, when is it half full?*<sup>1</sup>

The answer to the above riddle is the twenty-ninth day. This essay discusses sound energy strategy in light of a shrinking water-resources base due to climate change. It considers how public participation in international decision-making can sustain trust in governments and strengthen the legitimacy of legal decisions. This essay concludes that process and outcome are integral to addressing water, climate, and energy challenges.

## II. SOUND ENERGY STRATEGY IN LIGHT OF A SHRINKING WATER-RESOURCES BASE DUE TO CLIMATE CHANGE

While rainwater harvesting can recharge groundwater, micro-watershed management and operational research by domestic/ academic/ municipal/private sector partnerships are vulnerable to increasingly severe climate volatility.<sup>2</sup> UNICEF points out that, “[f]ierce competition for a shrinking water-resources base is resulting in over-extrac-

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1. Janet Raloff, *Earth Day 1980: The 29th Day*, 117 SCIENCE NEWS 269, 269 (1980).

2. U.N. Econ. & Soc. Council, U.N. Children’s Fund, *UNICEF Water, Sanitation and Hygiene for 2006-2015*, U.N. Doc. E/ICEF/2006/6 (2005), available at [http://www.unicef.org/about/execboard/files/06-6\\_WASH\\_final\\_ODS.pdf](http://www.unicef.org/about/execboard/files/06-6_WASH_final_ODS.pdf) [hereinafter *ECOSOC*]; see also UNICEF U.K., CLIMATE REPORT OF 2008: OUR CLIMATE, OUR CHILDREN, OUR RESPONSIBILITY THE IMPLICATIONS OF CLIMATE CHANGE FOR THE WORLD’S CHILDREN THE UK COMMITTEE FOR UNICEF 2, 10, 2008, available at [www.crin.org/docs/climate-change.pdf](http://www.crin.org/docs/climate-change.pdf) (noting that “[d]rought in southern Africa is closely related to the Indian Ocean warming due to climate change. The Indian Ocean has warmed more than 1°C since 1950. Rather than falling over the land, rain develops in the rising air above the warm ocean. Between 1950 and 1999, there was change. [. . .] Between

tion for industry and agriculture, falling groundwater levels and failing domestic water sources.”<sup>3</sup> The resulting floods and droughts will erode a community’s ability to manage local water resources.

International water law could contribute to establishing a framework with which to build consensus on water, climate and energy use in a coordinated manner. For example, the Draft Convention on the Law of Transboundary Aquifers’ multifactor balancing test could be applied to integrated water, climate change, and energy cooperation. This framework encompasses the following factors with which to build consensus: natural condition; social and economic needs; population; transboundary effects; existing and potential use; development, protection, and conservation; and availability of alternatives.<sup>4</sup> Addressing these varied considerations collectively would aid these groups in reaching accord regarding climate and energy use. Similarly, bridging the successful approaches taken by such international and regional organizations as the International Joint Commission<sup>5</sup> and the new International Renewable Energy Agency (IRENA) could increase international water, energy and climate collaboration.<sup>6</sup> In this way,

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1950 and 1999 there was almost a 20 per cent decline in summer rainfall in southern Africa. Even a 10 per cent drop in rainfall can reduce river flows by 50 per cent or more.”).

3. *ECOSOC*, *supra* note 2, at 14.

4. Chusei Yamada, Int’l Law Comm’n, *Third Report on Shared Natural Resources: Transboundary Groundwaters*, Annex, at 19, U.N. Doc. A/CN.4/551 (Feb. 11, 2005); *see also* Gabriel Eckstein, *Commentary on the U.N. International Law Commission’s Draft Articles on the Law of Transboundary Aquifers*, 18 *COLO. J. INT’L ENVTL. L. & POL’Y* 537, 563 (2007). *See also* Gabèikovo-Nagymaros Project (Hung. v. Slov.), 1997 I.C.J. 7 (Sept. 25), 37 I.L.M. 162, 201, ¶ 140 (1998); *see also* The Convention on the Law of Non-Navigational Uses of International Watercourses, G.A. Res. 51/229, at 5, U.N. GAOR, 51st Sess., U.N. Doc. A/RES/51/229 (May 21, 1997), *reprinted in* 36 I.L.M. 700 (1997); *see also* Elizabeth Burleson, *Middle Eastern and North African Hydropolitics: From Eddies of Indecision to Emerging International Law*, 18 *GEO. INT’L ENVTL. L. REV.* 385 (2006); *see also* Elizabeth Burleson, *Equitable and Reasonable Use of Water in the Euphrates-Tigris River Basin*, 35 *ENVTL. L. REP.* 10041 (2005), *available at* [http://works.bepress.com/elizabeth\\_burleson/3/](http://works.bepress.com/elizabeth_burleson/3/).

5. Article 7 of the Treaty Between Great Britain and the United States Relating to Boundary Waters and Boundary Questions states that:

[t]he High Contracting Parties agree to establish and maintain an International Joint Commission of the United States and Canada, composed of six commissioners, three on the part of the United States, appointed by the President thereof, and three on the part of the United Kingdom, appointed by His Majesty on the recommendation of the Governor in Council of the Dominion of Canada.

Treaty Between Great Britain and the United States Relating to Boundary Waters and Boundary Questions, U.S.-Can., Jan. 11, 1909, 36 Stat. 2448; *see also* Treaty between the United States of America and Mexico relating to the utilization of the Waters of the Colorado and Tijuana Rivers and of the Rio Grande, U.S.-Mex., arts. 2, 5-9, 12, 13, 23, 25, Feb. 3 1944, 59 Stat. 1219.

6. Kate Connolly & David Gow, *UK Looks on From Sidelines at Green Energy Summit*, *THE GUARDIAN*, Jan. 26, 2009, <http://www.guardian.co.uk/environment/2009/jan/26/irena-renewable-energy-summit> (noting that Irena will have an initial budget of £25m based upon means-tested membership subscription from 116 member states).

international institutional leadership can facilitate forums and ongoing relationships to address water availability and quality, energy equity, and climate change mitigation and adaptation.

Due to climate change, wet regions will experience wetter conditions and dry regions will experience drier conditions.<sup>7</sup> The US Military Advisory Board explains that,

Climate change acts as a threat multiplier for instability in some of the most volatile regions of the world. Many governments in Asia, Africa, and the Middle East are already on edge in terms of their ability to provide basic needs: food, water, shelter and stability. Projected climate change will exacerbate the problems in these regions and add to the problems of effective governance.<sup>8</sup>

Civil society participation can facilitate sound energy, climate, and water governance.

### III. SUSTAINABLE DEVELOPMENT AND INTERGENERATIONAL EQUITY

Public participation in international decision-making sustains trust in governments and strengthens the legitimacy of legal decisions. There is a dearth of studies that seek to understand participation in international legal forums by such understudied individuals as youth, women, and indigenous people. Preliminary analysis of under-represented members of civil society engaging in international legal negotiations suggests that youth, women, and indigenous people have kept processes transparent. Such involvement has also led to strong environmental provisions being included in international treaty drafting forums.

Sustainable development requires that current economic activity not jeopardize the needs of future generations.<sup>9</sup> Accordingly, implementing environmental safeguards must involve equitable allocation. This is best achieved by including provisions for public participation.

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7. Intergovernmental Panel on Climate Change, *Technical Paper on Climate Change and Water*, at 32, IPCC-XXVIII/Doc.13 (Apr. 9-10, 2008) available at <http://www.ipcc.ch/meetings/session28/doc13.pdf>.

8. U.S. MILITARY ADVISORY BOARD, NATIONAL SECURITY AND THE THREAT OF CLIMATE CHANGE 7 (2007), available at <http://securityandclimate.cna.org/report/National%20Security%20and%20the%20Threat%20of%20Climate%20Change.pdf>.

9. Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Report of the World Commission on Environment and Development, G.A. Res. 42/187, P 2, U.N. GAOR, 42nd Sess., 96th plen. mtg, U.N. Doc. A/RES/42/187 (Dec. 11, 1987). For a recent critique of sustainable development in relation to today's children see Karen E. MacDonald, *Sustaining the Environmental Rights of Children: An Exploratory Critique*, 18 FORDHAM ENVTL. L. REV. 1, 28 (2006).

Law can play a crucial role in facilitating minority involvement, keeping government participatory and allocating resources equitably. Discrimination of under represented groups is one of the first signs that widespread abuse of human rights and civil liberties is occurring. It is crucial, therefore, to analyze legal methods of exclusion and the ethical rationales upon which they are based. Economics involves the study of limited resources. Law can provide a framework for allocating such resources. Together, law and economics can contribute to the resolution of disputes. To be sustainable, however, such resolution must also be equitable. Legal frameworks can increase or decrease sustainable development.

High transaction costs hinder the formation of bilateral, regional, and global treaties. While it is clear that population rates are increasing as water availability decreases, there is a dearth of reliable information regarding water quality and quantity. Unfortunately, when interdisciplinary expertise is needed to understand and determine optimal use efforts to find a solution often stall. The codification of procedural international law has owed its development to countries' willingness to submit off shore oil boundary disputes to the International Court of Justice. Oil and water share a capacity to enrich or impoverish. Generally, management reform does not begin in earnest until a resource is on the verge of collapse. Often a stakeholder's first step is to block new entry. Only then do participants devise rules to divide rights.

Understanding the role that civil society participation can play in achieving equitable international agreement in keeping with scientific climate consensus can facilitate effective decision-making. Further multilateral coordination can develop a framework for climate stabilization. Meaningful action that establishes collective standards together with individual country implementation can address global climate change. Resolving both equity and efficiency aspects of regulation, tradable permits, tax/subsidies, and environmentally sound technology transfer we can achieve sustainable development.<sup>10</sup>

#### IV. CONCLUSION

Since the Earth Summit in 1992, we have had global conferences on human rights, indigenous people, population, social development,

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10. Elizabeth Burleson, *Multilateral Climate Change Mitigation*, 41 U.S.F. L. REV. 373, 375 (2007).

and women.<sup>11</sup> Yet, we often are unable to cooperate, to innovate, or to transcend rhetoric. How do we move from conference conversation to measurable implementation? An important approach is to involve youth, since sustainable development must be seen with an integrated, long-term perspective. Robert Penn Warren's *All The King's Men* tells the story of Willie Stark and his compromise of process for product. Stark states that good is made from bad – “[i]t's dirt that makes the grass grow . . . It all depends on what you do with dirt.”<sup>12</sup> The only way to keep one's hands clean is not to touch the dirt, without which buildings cannot be built. When asked how does one recognize the good from the bad, Stark claims that it has to be made up as it has been throughout history.<sup>13</sup> While youth have the innovative capacity and incentive to make substantial contributions to integrated and long-term environmental policy, no single generation is likely to bring the requisite insight to international climate decision-making. Aldo Leopold touched on this needed perspective in his essay *Thinking Like a Mountain*.

I now suspect that just as a deer herd lives in mortal fear of its wolves, so does a mountain live in mortal fear of its deer . . . The cowman who cleans his range of wolves does not realize he is taking over the wolf's job of trimming the herd to fit the range. He has not learned to think like a mountain. Hence we have dustbowls, and rivers washing the future into the sea.<sup>14</sup>

For Leopold, “thinking like a mountain” meant understanding the interdependence of life. Such wisdom is based on an ability to see connections.

The world population has grown from less than three billion to more than 6 billion people since the establishment of the United Nations in 1945. Natural resources disputes fuel conflicts around the globe. Sustainable development requires integrated environmental and human rights protection.

Binding international law is to a large degree comprised of multilateral treaties that come into being through a series of international legal forums. Organized, transparent, international forums facilitate inclusive decision-making. This is important since the means often are the ends. How one makes a decision effects the substantive provision

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11. See generally, *Past Conferences, Meetings, and Events*, UNITED NATIONS, <http://www.un.org/en/events/archives.shtml> (last visited May 19, 2009).

12. ROBERT PENN WARREN, *ALL THE KINGS MEN* 49 (Harcourt Brace Jonovich, Inc., 2d ed. 1974).

13. *Id.* at 257.

14. ALDO LEOPOLD, *SAND COUNTY ALMANAC* 140 (Sierra Club 1970).

enacted. We stand at a historic crossroad in committing to a sound energy policy with which to stabilize political, economic, and environmental viability. Both process and outcome are crucial.

