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Global Water Issues and Challenges for the New Century: Meeting Basic Human and Ecological Needs [abstract]

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**Global Water Issues and Challenges for the New Century:
Meeting Basic Human and Ecological Needs**

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Notes for a presentation
at the conference on

“Allocating and Managing Water for a Sustainable Future:
Lessons from Around the World”

Natural Resources Law Center
University of Colorado School of Law

June 11 – 14, 2002

Abstract

The nature of water-resources development around the world is changing. This should not be a surprise – efforts to control and manage fresh water have taken many different forms and directions over the past 5000 years. Humans have long sought ways of reducing our vulnerability to the variability of our water resources: we moderate irregular river flows and variable rainfall by moving, storing, and redirecting natural waters.

As the new millennium begins, a distressingly large number of water problems still face us, and the way we think about managing freshwater resources and human demands for water is changing again. Traditional planning approaches and a reliance on physical solutions continue to dominate, but new methods are being developed to use existing infrastructure to meet the demands of growing populations without requiring major new construction or new large-scale water transfers from one region to another. More and more water suppliers and planning agencies are beginning to shift their focus and explore how to improve efficiency, implement options for managing demand, and reallocate water among users to reduce projected gaps and meet future needs. There are new efforts underway to reduce the risks of water related conflicts. And global climate change is forcing a reassessment of water management and planning.

In my talk today I discuss where we are and where we are going. What is the nature of the world's water problems today? What are the critical issues facing us and how might we address them? Enormous opportunities exist. An ethic of sustainability will require fundamental changes in how we think about water, and such changes come about slowly. Rather than endlessly trying to find the water to meet some projection of future desires, it is time to plan for meeting present and future human needs with the water that is available, to determine what desires can be satisfied within the limits of our resources, and to ensure that we preserve the natural ecological cycles that are so integral to human well-being.

Contributed Papers Session Schedule

Time	Room 103	Room 241	Room 157	Room 104
	Transboundary and Transbasin	Management Strategies from Local Institutions to National Plans	Balancing Water for People and the Environment	Market Mechanisms and Modeling
	Conceptual & Global Perspectives Moderator: Lakshman Guruswamy	Institutions Moderator: Peter Nichols	Using and Conserving Water Moderator: Sarah Krakoff	Market Mechanisms Moderator: Larry MacDonnell
10:30	Bonnie G. Colby University of Arizona U.S.A. <i>Negotiated Agreements as a Tool for Resolving Transboundary Water Conflicts</i>	Katherine Scott and Timothy Downs Clark University U.S.A. <i>Comparative Survey of Integrated Watershed Management Potential in Several Continents: Preliminary Results</i>	Susan Stover, Thomas L. Huntzinger, Brownie Wilson State of Kansas U.S.A. <i>Towards Sustainable Management of the Ogallala High Plains Aquifer</i>	Sarah Michaels and Doug Kenney University of Waterloo and University of Colorado CANADA and U.S.A. <i>International Water Marketing: Perspectives from North America</i>
10:50	Melodie Kertis Florida State University U.S.A. <i>Rivers at Risk for International Violent Conflict</i>	John H. Gerstle Hydrosphere Resource Consultants U.S.A. <i>Water Allocation Without Institutions, Markets or Policies: Observations from Projects in East Africa and Asia</i>	Bart Miller The Land and Water Fund of the Rockies U.S.A. <i>Water Gets a Big Squeeze: The Hidden Cost of Urban Growth</i>	Carl J. Bauer Resources for the Future U.S.A. <i>Twenty Years after Chile's Free Market Water Code: National and International Lessons about Water Law Reforms</i>
11:10	Richard Kyle Paisley University of British Columbia CANADA <i>Turning Adversaries into Partners: Lessons from the Columbia, the Mekong, and International Rivers Between Nepal and India</i>	David M. Freeman Colorado State University U.S.A. <i>Designing Local Irrigation Organizations for Democratic, Equitable, and Ecological Sustainable Social Development: Theory and Two Cases in Nepal</i>	Raphael J. Moses Moses, Wittemyer, Harrison and Woodruff, P.C. U.S.A. <i>Legal Aspects of Sustainable Water Resources Management</i>	Poh-Ling Tan Queensland University of Technology AUSTRALIA <i>Allocating Tradeable Rights in Water: Lessons from Australia's Recent Experience in Water Law Reform</i>
11:30	Roger S. Pulwarty NOAA and University of Colorado Robert Varady and Leah Stauber, Udall Center for Studies in Public Policy U.S.A. <i>Transboundary Watersheds: Changing Environments and Streams of Thought</i>	Roopali Phadke University of California at Santa Cruz U.S.A. <i>Defining Equity at the River Basin Scale: Promoting Cooperation and Negotiation Between Government Agencies and Civil Society in India</i>	Deborah L. Hathaway S.S. Papadopoulos & Associates, Inc. U.S.A. <i>Myths of Sustainable Water Management: A Hydrologist's Perspective</i>	Gail Achterman Bend Oregon U.S.A. <i>Deschutes Water Exchange</i>
11:50	Eugene Z. Stakhiv U.S. Army Corps of Engineers U.S.A. <i>Shared Vision Planning for Transboundary Water Resources Management</i>	Brooke Ann Zanetell Cornell University U.S.A. <i>Global and Local Visions of Collaboration in Water Resources Management</i>	Roberto Méndez Torrico and Anne MacKinnon Programa Manejo Integral de Cuencas BOLIVIA <i>Integrated Watershed Management in a Growing Urban Area: Cochabamba, Bolivia</i>	Andrew Purkey Oregon Water Trust U.S.A. <i>The Oregon Water Trust</i>
12:10	Chris Sneddon and Colleen Fox Dartmouth College U.S.A. <i>Understanding Transboundary Water Conflicts and Cooperation: Contributions From Political Ecology and Critical Geopolitics</i>	Dan Tarlock and Lora A. Lucero Chicago-Kent University and American Planning Association U.S.A. <i>Disconnects Between Water and Land Use Resource Management</i>		Teri Etchells, Hector Malano and Thomas A. McMahon University of Melbourne AUSTRALIA <i>Overcoming Third Party Effects from Water Trading</i>
12:30 Lunch				

Time	Room 103	Room 241	Room 157	Room 104
	Lessons from the U.S./Mexico Border Moderator: David Getches	National Management Systems Moderator: Macon Cowles	Water for the Environment Moderator: Dan Luecke	Market Mechanisms Moderator: Gary Bryner
2:00	Mary E. Kelly Texas Center for Policy Studies U.S.A. <i>Water Management in the Binational Texas/Mexico Rio Grande/Rio Bravo Basin</i>	Ayaz Latif Palijo Sindh Research Council PAKISTAN <i>Large Dams and Irrigation Management in Indus Region</i>	Michael Gheleta El Paso Energy Law Fellow, Natural Resources Law Center & U.S. Department of Justice U.S.A. <i>Protecting Biodiversity in the Relicensing of Non-Federal Hydroelectric Projects in the United States: Consultation and Coordination Between FERC and Fish, Wildlife and Water Quality Agencies and the Role of the Endangered Species Act</i>	Henning Bjornlund University of South Australia AUSTRALIA <i>Water Exchanges – Australian Experiences</i>
2:20	Robert Varady and Anne Browning-Aiken University of Arizona U.S.A. <i>The Birth of a Watershed Alliance in the San Pedro Basin of the U.S. - Mexico Border Region</i>	Carla Mooney University of Wollongong AUSTRALIA <i>Water Law in New South Wales, Australia: An Analysis of the Water Management Act, 2000</i>	Fernando Pérez Monteagudo Center for Hydraulic Research CUBA <i>Water in Cuba's System of Environmental Policies and Laws</i>	Gregory M. Ellis Edwards Aquifer Authority U.S.A. <i>From the Rule of Capture to Marketing Groundwater Rights: The Story of the Edwards Aquifer Authority</i>
2:40	Duane Mecham Interior Dept. Office of Solicitor U.S.A. <i>Consideration of the Role of the U.S. Bureau of Reclamation in Transboundary Water Resource Conflict Resolution</i>	John R. Pasch CH2M Hill, Inc. ISRAEL <i>National Water Resources Management and Planning in Palestine</i>	Wayne Gumley Monash University-Caulfield Campus AUSTRALIA <i>Environmental Flow Versus Private Water Rights: Lessons from the Snowy River</i>	Doris Cordero Camacho Empresa de Servicios Publicos de Heredia (ESPH) COSTA RICA <i>Procuencas, A Water Environmental Service Payment Scheme</i>
3:00	Jennifer Pitt and Daniel F. Luecke Environmental Defense U.S.A. <i>It Takes at Least a Minute to Protect and Restore the Colorado River Delta</i>	Amos Nascimento Universidade Metodista de Piracicaba (UNIMEP) BRAZIL <i>A Conceptual Framework for Sustainable Water Management: The Case of the Piracicaba River Basin, Brazil</i>		
3:20	Rudy Verner University of Colorado U.S.A. <i>Short Term Solutions, Interim Surplus Guidelines, and the Future of the Colorado River Delta</i>	Axel Klaphake Technical University Berlin GERMANY <i>Horizontal and Vertical Coordination in River Basin Management: German Experiences and New Challenges</i>		

Time	Room 103		Room 157	Room 104
	Cases from Around the World Moderator: James Corbridge, Jr.		Protecting Cultural Values Moderator: Charles Wilkinson	Modeling Moderator: Doug Kenney
4:00	Tuire Taina Helsinki University FINLAND <i>EC Water Legislation and European Agreements on Transboundary Watercourses</i>		Kate A. Berry University of Nevada, Reno U.S.A. <i>The Ahupua'a and Water Allocation: A Study of Cultural Values and Water Law</i>	Katharine Jacobs and Roger Pulwarty National Oceanic and Atmospheric Administration U.S.A. <i>Lessons Learned: Bridging the Gap Between Science and Water Management</i>
4:20	Aysegul Kibaroglu Southeastern Anatolia Project Regional Development Administration TURKEY <i>A Cooperative Model for Effective Management and Allocation of the Water Resources in the Euphrates-Tigris River Basin</i>		Pamela Emsden University of Colorado U.S.A. <i>Cultural History on the Vanguard for a Sustainable Future: Acequia Communities in Northern New Mexico</i>	Kevin Wheeler, Tim Magee, Terrance Fulp, and Edith Zagona Center for Advanced Decision Support for Water and Environmental Systems, University of Colorado U.S.A. <i>Alternative Policies on the Colorado River</i>
4:40	Mohan V. Katarki Advocate, Supreme Court of India INDIA <i>Equitable Management and Allocation of Trans-Boundary Waters in India</i>		Morihiro Ichikawa Natural Resources Law Center, University of Colorado U.S.A. and JAPAN <i>Protection of Ecological and Cultural Values of Watersheds under the Convention on Biological Diversity and the International Covenant on Civil and Political Rights</i>	Felino P. Lansigan and Bancha A. Kwanyuen International Water Management Institute-Southeast Asia and Kasetsart University Thailand <i>Exploratory Analysis of Multiple Use Options for Water Resources Management: The Case of the Mae Klong River Basin, Thailand</i>
5:00	Gabriel Eckstein and Yoram Eckstein Washington D.C. and Kent State University U.S.A. <i>A Hydrogeological Approach to the Status of Transboundary Ground Water Resources Under International Law</i>		John D. Wiener University of Colorado U.S.A. <i>Destroying (by not integrating) Culture and Environment: The Legal Implications of the Common Property Movement</i>	José Luis Minjares and Zohrab Samani, Comisión Nacional del Agua MEXICO and New Mexico State University U.S.A. <i>Optimal Operation and Sustainability of the Multiple Reservoir System in the Yaqui Valley in Sonora, Mexico</i>