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Transboundary Groundwater on the U.S.–Mexico Border: Is the Glass Half Full, Half Empty, or Even on the Table?

The rapid depletion of quantity and deterioration of quality of transboundary water are among the growing number of global environmental problems in which effective action continues to lag behind the increasing magnitude of the challenge. Internationally, an extraordinary range of transboundary groundwater disputes is becoming ever more critical to the survival and well-being of the human settlements and ecosystems dependent upon these waters. Yet, recent developments in the international law of managing international watercourses do not adequately address the scope or urgency of this environmental problem. The shared aquifers on the U.S.–Mexico border are a particularly disturbing example within a region of dramatic and unsustainable population growth.

This special issue of the *Natural Resources Journal* consists of papers presented at the 1999 Binational Conference on Groundwater Management jointly sponsored by the School of Social Ecology at the University of California at Irvine, the International Transboundary Resource Center at the University of New Mexico, and the Udall Center for Studies in Public Policy at the University of Arizona, with funding from the Ford Foundation. While the papers contained in this special issue express varied degrees of optimism regarding the future of groundwater governance in the twenty-first century, none express satisfaction with the extent of progress made since 1973, when the United States and Mexico jointly committed to addressing the issue of overuse and the need for dispute resolution.

Population growth and groundwater extraction along the border have increased exponentially in the last decade. However, as Al Utton was fond of reminding us, all economic development recipes contain “add water” in the instructions. The current high-level bilateral agenda between the United States and Mexico fails to address this critical issue. This is not to suggest that discussions and data exchange are not taking place. However, a comprehensive settlement that sufficiently addresses with specificity the eighteen different transboundary water problems

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summarized by Professor Stephen Mumme in his paper does not appear on the horizon.

Part of the difficulty in addressing transboundary groundwater use adheres to the nature of groundwater itself. It is hard for an environmental issue to gain high level diplomatic attention when the resource is, in essence, invisible. Unlike shared surface waters, there is no immediate evidence of transboundary groundwater depletion, such as dry stream-beds, to warn of the periodic droughts in the arid borderlands. Visible emergencies (fires and floods, or even Medfly migrations) can foster immediate political consent for action, but the slow attrition of groundwater is a crisis unseen.

Further impediments to resolving the bilateral groundwater issues are the evolving perceptions of water as a resource and changing modes of policy-making in both countries. Increasingly, water is conceived of as an economic product that is subject to market transfers. As Alfonso Cortez-Lara and Maria Garcia-Acevedo observe in their article, both the United States and Mexico are creating the opportunity for lease or sale of agricultural water to rapidly growing urban communities along the border. This economically motivated relocation of water creates the illusion of new water sources. As their article states, however, the environment and rural populations are not sufficiently built into this market calculus. Moreover, water marketing only encourages the growth of urban populations along the border, populations that are ultimately unsustainable. While it is painful to dismantle the agricultural economies when aquifers run out, the human cost of shrinking desert cities is beyond contemplation. Yet, as Octavio Chavez' article asserts, there may be no reasonable alternatives for cities like Ciudad Juárez unless significant preventive binational action is taken immediately. Additionally, as the articles by Hector Arias, Maria de Lourdes Murgia-Ruiz, and Gina Pearson and Charles Conner show, biologically sensitive and significant places like the *El Pinacate Biosphere Reserve*, Organ Pipe Cactus National Monument, and the Upper San Pedro River Basin will soon experience irreplaceable habitat and species loss unless growth is abated or offset by water conservation.

As the problem of transboundary water depletion is not monolithic but consists of a complex and varied set of circumstances, attempts to resolve it are, understandably, discrete. In his essay, Stephen Mumme provides examples of groundwater issues that are relatively tractable, such as the Hueco Bolson, as well as other issues, such as the lining of the All-American Canal, which are extremely difficult to resolve in a manner that is mutually beneficial to affected parties. Accordingly, Mumme suggests that our attention and effort should be devoted to the most promising cases first. While this is sensible and sound advice, it is my hope that concerted effort also will be directed at the difficult problems that are not yet ripe for resolution. For example, not nearly enough resources have been devoted

to understanding the quantity and quality of shared groundwater resources. What little information is available is not as widely shared between nations and among the public as is necessary for informed, democratic, binational decision making. Lack of attention to the tough issues, along with this dearth of information, helps keep groundwater issues off the table at international negotiations. It is well known that environmental issues take a back seat to discussions about drug and immigration policy. Additionally, among environmental issues, groundwater is the most likely to be overlooked due to its invisibility.

Trust among governmental officials at all levels and between residents along the border is critical to progress in resolving groundwater disputes. Along with the sharing of information, the convening of common forums or venues for discussion is essential in order to dispel damaging doubts. Presently, better institutional arrangements are being constructed which bring people together. In the Upper San Pedro Basin case, Hector Arias makes the argument that the Council on Environmental Quality provided a broad forum in which various alternatives were considered. Meanwhile, in the Columbus/La Paloma shared aquifer case no riparian habitat of international importance is at stake that might attract high level governmental or media attention. What loci for discussion that do emerge are binational community festivals and celebrations that focus on shared history, geography, and resources. Thus, ceremony and people-to-people exchanges are critical to building binational trust.

Adequate funding and personnel are essential for agencies to gather the necessary information and to monitor and protect shared groundwater resources. Maria de Lourdes Ruiz notes the extent to which these resources are stretched very thin in *la Reserva de la Biosfera Pinacate y Gran Desierto de Altar*. Binational meetings among agency officials can not take place when there is insufficient support. Additionally, the distribution of agency resources and expertise is very uneven along the U.S.–Mexico Border. While some urban areas are well staffed, many rural areas, including small groundwater-fed streams and *charcos* with critically important endangered species, are poorly tended. Moreover, drug trafficking and illegal immigration, as well as the defense against these acts, often inflict damage to the environment, which park officials on both sides of the border are unable to prevent.

In the post North American Free Trade era, more and more institutions are positioned to address transboundary groundwater resource issues. Today there is a web of international organizations including the Council on Environmental Quality, the Border Environmental Cooperation Commission, and the International Boundary Water Commission/*Comision de Limites y Agua* as well as the environmental, internal affairs, and park ministries and agencies in each country that could potentially become involved in resolving the U.S.–Mexico transboundary groundwater issues.

Today, important issues are now less likely to go unaddressed; one institution's inaction may be cured by another institution's attempt to take up the slack.

Whether or not the conditions for coming to innovative and comprehensive transboundary agreements on groundwater are present at this time or not, the contributors in this volume are not dissuaded from making a number of recommendations. When the time for action eventually comes, as it surely must, their contributions will undoubtedly provide a number of promising avenues for positive change. In the meantime, this collection provides the most comprehensive assessment of the state of the groundwater dilemma on the U.S.-Mexico border currently available to scholars, students, and policy makers.