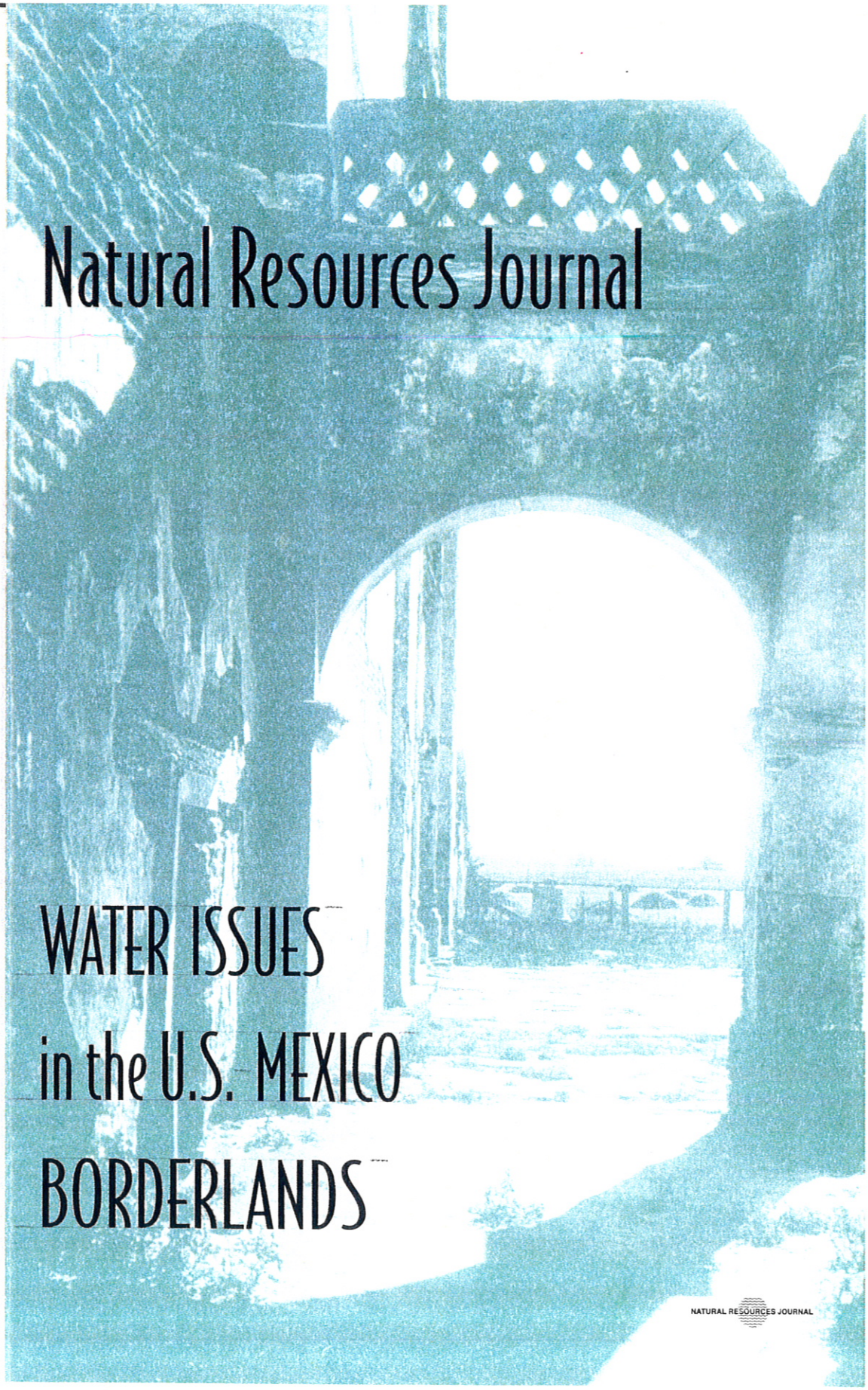

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WATER ISSUES in the U.S. MEXICO BORDERLANDS

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VIVIENNE BENNETT* & LAWRENCE A. HERZOG**

U.S.–Mexico Borderland Water Conflicts and Institutional Change: A Commentary

ABSTRACT

This commentary describes and analyzes important areas of change in the politics of water along the U.S.–Mexico border. First, it focuses on the broader nature of the border region as a way of framing the discussion of water. It then addresses the matter of water policy itself. The commentary provides an overview of recent changes in Mexican water institutions, as well as an overview of new bilateral and trilateral water management agencies and other recent developments in border management. It discusses how each of the three articles in this section of the Journal, "Borderland Water Conflicts and Institutional Change," contributes to thinking about the complexities of water management along the border. The article by Wilder demonstrates the scope and the limitations of the Commission for Environmental Cooperation, while the articles by Michel and by Brown and Mumme suggest new organizational frameworks for addressing conflicts over water management along the border.

INTRODUCTION

The U.S.–Mexico borderland embraces a semi-arid zone of deserts, plains, mountains, and river basins. The essential, defining geographic characteristic of the borderland is its aridity—the scarcity of water. The region has but two main hydrological lifelines: the Rio Grande and the Colorado River, with the latter providing the main water source for the growing borderland population.

Nested within the fragile borderland ecosystem lies a burgeoning population of city dwellers spreading out across the landscape in the form of small, medium, and large cities. Some 12 million people live in the

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* Vivienne Bennett is Associate Professor of Latin American Studies and Department Chair of Liberal Studies at California State University, San Marcos. She is the author of THE POLITICS OF WATER: URBAN PROTEST, GENDER, AND POWER IN MONTERREY, MEXICO (1995).

** Lawrence A. Herzog is Professor, School of Public Administration and Urban Studies, San Diego State University. He is the author of WHERE NORTH MEETS SOUTH: CITIES, SPACE, AND POLITICS ON THE U.S.–MEXICAN BORDER (1990), and FROM AZTEC TO HIGH-TECH: ARCHITECTURE AND LANDSCAPE ACROSS THE MEXICO–UNITED STATES BORDER (1999). Among other publications, he is also the editor of the recently released collection, SHARED SPACE: RETHINKING THE U.S.–MEXICO BORDER ENVIRONMENT (Lawrence A. Herzog ed., 2000).

counties and border *municipios*, and another 20 million reside within functionally connected regions of the larger states surrounding the boundary line. These substantial and growing populations can neither sustain their economic bases, nor physically survive, without water. Conversely, the current water supply will not easily serve the projected numbers of in-migrants or the new populations created by natural growth. Demographers predict that by the year 2020 the combined populations of U.S. border counties and Mexican *municipios* could be as high as 24 million, thus doubling the current size.[1]

The hydrologic ecosystem sprawls across the international boundary between Mexico and the United States creating one of the most challenging regional water management problems in the world. Traditionally all boundary water resources, including groundwater, were formally managed by the International Boundary and Water Commission (IBWC), the longest operating environmental management agency along the border. The IBWC's creation attests to the fact that, as early as 1944, boundary water extraction needed to be regulated by a formal binational authority. However, as many scholars have noted, the IBWC was not mandated to deal with all the conflicts now facing water supply in the borderland, including toxic waste dumping, sewage spills, pesticide contamination, conflicts over groundwater, and the politics of scarce water policy among competing users—farmers, tourism developers, industrialists, residents, and different levels of government.[2] This competition is becoming especially fierce in the most urbanized sub-regions, including San Diego–Tijuana[3] and El Paso–Ciudad Juárez, but will be significantly played out in rural settlements that eventually compete with urban regions over scarce and fragile water resources.

The truth is that the management of water in the U.S.–Mexico borderland has become a much more complex problem than the creators of the IBWC could ever have imagined. The three articles in this section begin the important process of studying key trends and issues for the new millennium and analyzing important areas of change in the politics of water along the U.S.–Mexico border. Our commentary synthesizes some of the vital themes and questions raised in this important new body of inquiry. We begin by focusing on the broader nature of the border region as a way

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1. *See* Paul Ganster et al., *Overview–Findings of Border Institute I*, *in* THE U.S.–MEXICO BORDER ENVIRONMENT: A ROAD MAP TO A SUSTAINABLE 2020, at 1, 1-2 (S.W. Ctr. for Envtl. Research & Policy Monograph Series No. 1, Paul Ganster ed., 2000).

2. *See generally* TOM BARRY & BETH SIMS, THE CHALLENGES OF CROSS BORDER ENVIRONMENTALISM (1994).

3. *See generally* THE U.S.–MEXICO BORDER ENVIRONMENT: A ROAD MAP TO A SUSTAINABLE 2020, *supra* note 1; SUSTAINABLE DEVELOPMENT IN SAN DIEGO-TIJUANA (Mark Spalding ed., 1999).

of framing the discussion of water. We then address the matter of water policy itself.

Globalization and the New Political Geography of Eco-Regions

Water management must be viewed in the context of changing territorial organization in the era of globalization. Prior to the middle of the twentieth century, international boundaries were viewed as buffer zones between nation states—defended edges to be fortified with military infrastructure but carefully avoided as places of production, development, and settlement. Indeed, most of the great cities of the world remained purposefully lodged in their nations' interiors, far from the uncertainties of the international boundary. Since 1950, the scale of national defense has shifted away from land boundaries. Meanwhile, new technologies have led to the globalization of markets, communication, and transportation, and have profoundly changed the way nations organize their territory and understand ecosystems. As the new millenium dawns, we live in, territorially speaking, a very different world, one in which international boundaries pose enormous new opportunities for resource development, production, and urban growth. These opportunities also carry vast new responsibilities for managing ecosystems that transcend international boundaries.[4]

Thus, in a globalizing society, nation states are no longer airtight, closed systems within which all human activity is sealed. The world has become a patchwork of different spatial actors—national governments, global corporations, common markets, etc., all operating at a variety of scales across nation-state boundaries. Indeed, the concept of "sustainability" is grounded in equity and social justice, but also in *transfrontier responsibility*.[5] The nation-state boundary has faded; world ecology now operates within a set of transfrontier parameters.

At the regional level, therefore, nation states must rethink how they manage their shared frontier regions under the new conditions of globalization. Transfrontier responsibility has become a crucial foreign policy framework for nations like the United States and Mexico, who share not only a nearly 2,000 mile long political frontier, but a growing set of cross-border interactive circuits—trade, cross-border labor migration, global manufacturing systems, water, air, and land.

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4. *See generally* SHARED SPACE: RETHINKING THE U.S.-MEXICO BORDER ENVIRONMENT (Lawrence A. Herzog ed., 2000).

5. *See generally* GRAHAM HAUGHTON & COLIN HUNTER, SUSTAINABLE CITIES (Reg'l Studies Ass'n Reg'l Policy & Dev. Series No. 7, 1994).

We now recognize the rise of a new prototype of global regionalism in the next century, called the "transfrontier ecosystem,"[6] where eco-regions housing millions of inhabitants sprawl across international boundaries, most notably in Western Europe and North America. Heavily populated European transfrontier regions can be found on the Swiss-French-German border, the Dutch-German-Belgian border, the Swiss-French border near Geneva, and the French-German border near Strasbourg. In North America, one finds such transfrontier regions along the U.S.–Canada and, of course, along the U.S.–Mexico border. In all of these regions water management and environmental planning are being reinvented.

The Challenge of Cooperation in a Cross-Border Ecosystem

One of the more difficult elements in cross-border resource planning lies in the area of institutional cooperation. Institutional cooperation normally occurs on two levels: formal and informal.[7] Formal cooperation involves agreements between nation states in the form of treaties, presidential meetings with memoranda of agreement, or interparliamentary negotiations. Formal accords can lead to permanent cross-border institutions, including decision-making bodies either with jurisdictional or advisory status. Informal accords include regular meetings among local and higher government authorities, as well as non-binding agreements to cooperate on local matters ranging from criminal justice, pollution control, and firefighting to traffic management. Both formal institutions (such as the Commission for Environmental Cooperation [CEC], the Border Environment Cooperation Commission [BECC], etc.) and informal institutions (such as border water councils, non-governmental organizations [NGOs], etc.) are apparent in the political landscape of water management along the U.S.–Mexico border. This raises two key questions. What combination of institutions will work best? And, what set of enforcement/implementing authorities must exist in order for formal and informal institutions to be effective rather than just window-dressing?

Cross-Border Cooperation in Western Europe

One of the more popular examples of successful cross-border cooperation, which combines both formal and informal agreement, is

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6. *See* LAWRENCE A. HERZOG, WHERE NORTH MEETS SOUTH 189 (1990).

7. *See generally* PLANNING THE INTERNATIONAL BORDER METROPOLIS (Lawrence A. Herzog ed., 1986).

transfrontier planning in Western Europe.[8] Anchored by the European Community, and its social parliamentary cousin, the Council of Europe, this region is blessed with a number of attributes that facilitate transborder cooperation: geographic proximity and historically integrated border regions, a common fate in economy and defense that tends to tie nations together, and relatively similar economic levels across nation state boundaries. This relative homogeneity and sense of common cause has been partly responsible for the proliferation of transfrontier planning programs beginning more than two decades ago.

Especially notable have been cross-border programs of environmental cooperation and economic development along the Swiss-German-French, Swiss-Italian, French-Belgian, Dutch-German-Belgian, Spanish-French, and other European borders.[9] Most of these programs have involved a combination of formal agreements between national governments, often negotiated in the Council of Europe, and informal arrangements across borders between officials and private entrepreneurs who are familiar with one another.

Perhaps the most important and successful example of European transfrontier planning is the Regio-Basiliensis, a regional planning entity in the Swiss-German-French border region near Basel, Switzerland.[10] More than two million people live in the tri-national urbanized region surrounding the city of Basel. By 1975, Swiss, French, and German authorities had formally joined in creating a Commission of eight members, with all members appointed by the foreign ministries of the three nations. Regional committees were set up to represent the two ecological sub-regions: the north and south Upper Rhine River areas. Further, a number of smaller, informal committees were set up, including the Upper Rhine Regional Planners.

The Commission and the various regional and informal working committees meet regularly throughout the year. They address several basic planning problems in the region, including the environment. The Regio-Basiliensis, which has become the planning arm of the Commission, has sought to address the difficult problem of nuclear power and water contamination. Before the Regio came into existence, the three nations were concentrating too many nuclear plants in this border region, and they would all need to utilize the Rhine river for cooling, causing irreversible ecological problems for the river. Tri-national planning and coordination

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8. *See generally* Lawrence A. Herzog, *International Boundary Cities: The Debate on Transfrontier Planning in Two Border Regions* 31 NAT. RESOURCES J. 587 (1991).

9. *See generally id.*

10. *See generally* Hans Briner, Regional Planning and Transfrontier Cooperation: The Region Basiliensis, *in* ACROSS BOUNDARIES 45-53. (Oscar J. Martínez ed., 1986).

allowed the local governments to demonstrate the long-term dangers of this trend. The result is that policy changes were put into place by the three nations through the Council of Europe. The changes involved limiting the location of new plants in the region.[11]

Regional leaders in the Swiss-German-French borders will tell you that coordination is easier to achieve at the local level than it is at the national level, and that is one of the great advantages of informal cross-border coordination. It brings nations together over common interests (environment, economy, etc.). The spirit of cooperation in this case is enhanced by the progressive leadership in the Council of Europe, where transborder concerns are given a high priority.

The U.S.–Mexico Border Region

The U.S.–Mexico border region brings together not only a plethora of government agencies at the federal, state, and local levels, but also two very different cultures with distinct values and philosophies about cities, land development, the environment, and politics. Equally important, the border brings together nations at very different stages of economic development. The United States is a world economic power, while Mexico is an industrializing nation with a long history of economic dependence on the United States. At the border, Mexico's dependence is underscored by the two most important border phenomena of our times: immigration and assembly plants (*maquiladoras*). Both are driven by the opportunities the border created, either for undocumented workers crossing to the north, or for cheap labor enclaves along the Mexican side of the border that bring multi-national capital to the region. One must always be aware of these basic economic asymmetries that lie at the core of U.S.–Mexico border relations.[12]

Further, both the United States and Mexico have dramatically different forms of government and notions of politics. As a result, public officials have different perceptions of politics and different priorities. The example of a 1980s political survey of local officials on the California border reveals how cultural differences affect local management. Mexican and U.S. officials expressed divergent concerns over management of the same region—the San Diego–Tijuana urban area. Quality of life and image

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11. *See id.*

12. *See generally* HERZOG, *supra* note 6; LAWRENCE A. HERZOG, FROM AZTEC TO HIGH TECH: ARCHITECTURE AND LANDSCAPE ACROSS THE MEXICO–UNITED STATES BORDER (1999).

concerned U.S. policy makers, while economic and infrastructure development were the higher priorities for their Mexican counterparts.[13]

More recent studies have suggested a number of general and specific barriers to cooperation. General barriers might include language, culture, initiative, and politics.[14] Even when officials do actually speak both languages of the border, there are still problems in understanding the nuances of meaning and tone in face-to-face interaction. Mexican officials have expressed the opinion that their U.S. counterparts do not really understand Mexican culture, and this may cause them to cling to a proud kind of nationalism in dealing across the border. Further, U.S. officials must always be aware of the differences in power, wealth, and development that underscore U.S.–Mexico relations. These differences have in the past led to what many observers called a lack of initiative on both sides in moving beyond informal discussions to real policy making.

Still the biggest differences remain in the area of power, politics, and governance.[15] The United States has traditionally been the more decentralized government. Now Mexico is rapidly moving toward devolution of power to states and municipalities, although this process will take several decades to complete. In government, the United States has favored a civil service, merit-driven organization of managers, while in Mexico the management system was more tied to political affiliations. This too will soon change in the post-NAFTA era and with the inauguration of President Vicente Fox in December 2000, the first president not from the PAN, *Partido de Accion Nacional*, since the 1920s. Meanwhile, both nations have vastly dissimilar legal systems, with the U.S. system derived from British common law, and the Mexican one from Napoleonic codes. The countries' actual laws vary in terms of individual rights, property, land use law, business law, etc. Notions of private rights and "public interest," vital to such areas as land use, property, and environmental law remain distinct on either side of the border.

Political Responses to Border Environmental Problems

Water conflicts arise along the border for multiple reasons. Rivers, aquifers, and watersheds straddle and traverse the border independent of the boundary line. As a result, issues of water usage, availability, and

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13. *See* Lawrence A. Herzog, *Cross Border Planning and Cooperation, in* THE U.S.–MEXICAN BORDER ENVIRONMENT: A ROADMAP TO A SUSTAINABLE 2020, *supra* note 1, at 149.

14. *See generally* Michelle A. Saint-Germaine, Problems and Opportunities for Cooperation Among Public Managers on the U.S.–Mexico Border, (unpublished paper presented at the Southwestern Social Science Association Meetings, Mar. 30 to Apr. 2, 1994, on file with author).

15. *See generally* HERZOG, *supra* note 6; JOHN WILLIAM HOUSE, FRONTIER ON THE RIO GRANDE (1982).

quality do not stop at the border. Water management issues along the border can be separated into two types. The first is quantity or allocational conflicts. For example, a serious dispute over water allocation between urban users in Nuevo León and agricultural users in Tamaulipas pitted the two Mexican states against one another in a vicious political battle[16] that was in part due to outdated water apportionment formulas dictated by the 1944 "Treaty Between the United States and Mexico Regarding the Utilization of the Colorado and Tijuana Rivers and of the Waters of the Rio Grande." In a second example of an allocational conflict, a plan to line the All-American Canal in Arizona would increase water availability for U.S. users while robbing Mexican border farmers of water they have been getting via seepage out of the unlined canal.

The second type of transborder water issue is quality or environmental protection conflicts. One example of a water quality conflict is the negative impact of the increasing salinization of Colorado River water (as it progresses southward in the United States) for Mexican farmers who can no longer use the polluted water for irrigation. A second example is found in Tijuana's inadequate water treatment facilities and sewerage capacity, leading to Tijuana sewage spills being carried into San Diego by the binational Tijuana River and discharged into the Pacific Ocean at San Diego.[17]

Thus, just as rivers, aquifers, and watersheds cross the border, so do water-related problems. And so, therefore, must the resolution of those problems. Water problems that may seem localized on one side of the border turn out to have binational implications and require transfrontier solutions. Problem solving has, therefore, come to involve municipal, state, and federal agencies within Mexico and the United States, as well as new binational/trilateral environmental agencies. During the 1990s, there were significant changes in the institutional framework within which cross-border environmental problems are addressed. These changes occurred primarily on two levels: within Mexico itself, and on the binational and trilateral level with new agencies created jointly by the United States and Mexico, and by the United States, Mexico, and Canada.

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16. *See generally* Howard Harry Donnell, The Politics of Water Provision in Northeastern Mexico, 1989-1996, at 105-09 (1997) (unpublished Master's thesis report, University of Texas (Austin)) (on file with author); Stephen Mumme, *Managing Acute Water Scarcity on the U.S.–Mexico Border; Institutional Issues Raised by the 1990s Drought*, 39 NAT. RESOURCES J. 149 (1999).

17. *See generally* Lori Saldaña, *Tijuana's Toxic Waste*, NACLA REP. ON AM., Nov.–Dec. 1999, at 31.

Institutional Changes in Mexico

In the last decade, Mexico has engaged in a deep restructuring of its water management bureaucracy along with the most significant revision of the regulatory framework for water management since the 1917 Constitution was written. In 1989, a new federal water commission, *Comisión Nacional de Aguas* (CNA), was created both to provide and to regulate water use in Mexico (the CNA is a decentralized institution under the Secretariat of Environment, Natural Resources and Fisheries). In addition, the National Water Law (*Ley de Aguas Nacionales*), which lays out the legal framework for all water usage and hence all water policy in Mexico, was substantially revised. The new law, effective December 1992, for the first time set the basis for market mechanisms for circulating water rights. It conceptualizes the consumer as a customer acting within a context of economic rationality, rather than as a citizen with a fundamental right to water.

New Bilateral and Trilateral Agencies

Simultaneous to the changes within Mexico, the bilateral and trilateral framework for addressing environmental issues that involve Mexico, the United States, and Canada has also changed dramatically. Most significant has been the creation of four new transborder institutions in response to the environmental provisions of NAFTA. The purpose of these new agencies is to facilitate cooperation between the United States, Mexico, and Canada on water, wastewater, and other environmental issues of concern.

1. The Border XXI Framework

The Border XXI Framework, which expands on the La Paz Agreement of 1983 and the Integrated Border Environment Plan of 1992, is a binational effort between the United States and Mexico to engage in sustainable socio-economic development while protecting the environment. Border XXI operates mainly on the federal level, with five-year plans for the border environment that are supposed to stress public involvement, decentralization, and improved communication. To date, the strategy of improved communication has been somewhat successful; however, Border XXI has not yet succeeded in fostering greater public participation among local or state institutions.[18]

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18. *See* Mark J. Spalding, *The NAFTA Environmental Institutions and Sustainable Development on the U.S.–Mexico Border*, *in* SHARED SPACE: RETHINKING THE U.S.–MEXICO BORDER ENVIRONMENT, *supra* note 4, at 75, 89.

2. The Border Environment Cooperation Commission (BECC) and the North American Development Bank (NADBank)

The BECC was created in November 1993 to "assist local communities and other sponsors in developing and implementing environmental infrastructure projects, and to certify projects for financing consideration by the NADBank or other sources....The NADBank is capitalized in equal shares by the United States and Mexico..."[19] Both BECC and NADBank address environmental problems specifically along the U.S.–Mexico border.

The BECC/NADBank structure constitutes a new approach to dealing with localized border environmental problems. First, because the NADBank is financed in equal parts by the United States and Mexico, and because the countries have equal votes in both agencies, the stage is set for more balanced power sharing in the decision-making process. Second, the public works that BECC/NADBank are intended to support have an explicit goal of improving the quality of life in poor communities while also supporting infrastructure to help reduce poverty. While BECC/NADBank have done a lot to foster public participation, they tend to operate on a narrow project-by-project basis without a long-term perspective. In addition, the funding for the NADBank and for BECC-certified projects has fallen short of expectations along the border. It appears that these two agencies do not yet have the wholehearted support of the U.S. and Mexican governments.[20]

3. The Commission for Environmental Cooperation (CEC)

The CEC was created in 1994 as part of the overall NAFTA package, as a trilateral agency to develop a long term approach "to address regional environmental concerns, help prevent potential trade and environmental conflicts, and promote effective enforcement of environmental law."[21] The article by Wilder in this section of the *Journal* is a case study of the CEC in action. It also provides an example of the second type of water conflict described above: water quality and environmental protection conflict. In 1996, poor farmers in the Magdalena River Valley in northern Sonora were refused planting permits by the National Water Commission in Mexico because the water they used for irrigation had become too contaminated by municipal sewage to be used on crops. In a remarkable example of the

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19. *See id.* at 92.

20. *See id.* at 92-93; Stephen P. Mumme, *Sustainable Development and Environmental Decentralization on the Border: Insights from Sonora*, *in* SHARED SPACE: RETHINKING THE U.S.–MEXICO BORDER ENVIRONMENT, *supra* note 4, at 101, 104.

21. *See* Spalding, *supra* note 18, at 90.

globalization of environmental politics, the farmers eventually submitted a complaint to the CEC citing the Mexican government for its failure to treat municipal wastewater in conformance with Mexican law before the wastewater was discharged into the Magdalena River. What is remarkable about this action is that the existence of the CEC allowed poor peasant farmers to bypass traditional, ineffective channels of complaint within the Mexican government bureaucracy itself, and take their case to a presumably neutral, non-corrupt, and non-Mexican agency. With the new CEC structure in place, poor farmers can legitimately create themselves as the plaintiffs in a case against the government.

Wilder's case study also provides evidence that the CEC structure, headquartered in Montreal, may reach to the lowest level of its presumed constituents. The CEC requested a response to the complaint from the Mexican government. The government's three tiered response first claimed that the complaint itself was invalid because the problem predated the period that the CEC is allowed to address; next the government claimed that it was budgeting funds to address the problem; and finally, it claimed to have insufficient resources to fully restore the water quality of the Magdalena River.

However, once the case was accepted by the CEC, the two parties to the complaint were certainly not on equal footing. The Mexican government was in a far stronger position to defend itself than the peasants were to pursue justice. In proceeding through the CEC process, the Mexican government benefits from availability of legal, financial, and human resources, while the peasants, of course, have no resources. The government also benefits from the lines of communication that exist because it holds one of the three commissioner positions on the CEC (not to mention that the peasants don't even all have telephones, let alone computers and access to the CEC website...). When the federal government of Mexico, the United States, or Canada is named in a complaint to the CEC, it has an automatic advantage because the CEC represents the federal governments of the three countries.

This is not to say that a complaint cannot be resolved in favor of the complainant. It is to say that the lower the level of the complainant, the more disadvantageous the process is for the complainant. There are no structures in place (such as legal support, on-site assessment, on-going support services, etc.) to redress this imbalance. As Wilder points out, there is reason to think that the CEC could terminate the case without further action, leaving the Magdalena River farmers no better off than when they filed the complaint.

On the one hand, the existence of a trilateral agency such as the CEC changes state-society relations in each of the participating nations because it provides citizens with a new venue for taking on their respective governments. On the other hand, unless the resource imbalance can be

addressed, it will be extremely difficult for grassroots groups to successfully follow through on any complaints they lodge with the CEC. The CEC should consider developing a support system to allow for fair use of its complaint process by all constituents.

Other Recent Developments in Border Management that Could Impact Water Politics

1. Innovative Public Sector Border Alliances

Many experts recognize that border decision making has not functioned well when it is either restricted to foreign policy circles at national levels or informal dialogue at the local level. Recently, concerned policy makers have searched for a balanced mechanism that brings together various institutional levels into cross-border alliances, with an emphasis on self-government, economic development, and border management. Several examples can be cited; not all examples involve water policy, but they give evidence of new ways of thinking about all transborder policymaking.

a. *Border Liaison Mechanism* (BLM) is a product of the U.S. State Department, and seeks to bring local, state, and federal officials from both sides of the border together to deal with common border problems. Through a series of task forces, key officials engage in frank discussions and seek to integrate their dialogue into the larger formal decision-making processes.

b. *Consultative Mechanism* is a Mexican initiative that brings Mexican consuls in U.S. border cities together with local officials. The idea is to get federal officials together with local and regional actors.

c. *State Alliances* are agreements between bordering U.S. and Mexican states to commit to long-term economic development by creating a binational regional strategic plan at the twin-state level.

d. *The U.S.–Mexico Border Counties Coalition* was created in 1998 by the 24 border counties on the U.S. side as a way of increasing their political visibility and effectiveness in getting the attention of higher governments to address border issues. The counties wanted a unified voice nationally to address the varied and growing list of problems within their jurisdiction—including indigent health care, housing illegal border crossers, fire suppression, criminal justice costs, and "patient dumping" by federal agents (border patrol) into county health care facilities. The idea is to get all of the counties working together to create good border policy making. This group has not yet brought in its county partners on the Mexican side, but the idea is promising.

e. *Empowerment Zones.* The Clinton Administration continues to promote the idea of creating poles of development in less advantaged areas of the United States, and supporting these with federal monies to strategically jolt the local economy. Vice President Gore's office declared the

Lower Rio Grande Valley as an empowerment zone in 1998, with some $40 million being directed toward long-term regional economic development planning. Probably the biggest contribution the empowerment zones can make is in addressing the huge problem of border *colonias*, unplanned construction of makeshift homes, often without services, in rural zones on the edges of metropolitan areas in Texas and New Mexico, as well as more sporadically in California and Arizona.

f. *Councils of Government* (COG) are coalitions of border counties on the U.S. side of the border that band together to address regional planning issues. An example would be the Lower Rio Grande Development Council, which seeks to create a master plan for the lower Rio Grande region.

2. *Local Border Planning*

In general, on both sides of the border there have been developments toward strengthening local and community-based planning. In the United States, community planning boards now have more power than ever before. Communities are learning to align themselves with NGOs to protect their environment and quality of life. In Mexico, the political transition toward democracy and decentralization of power is strengthening municipal government, giving communities more voice along the border. Formal examples of local border planning include the following:

a. *Twin-city cross-border plans*. For a variety of reasons (such as history, geography, politics), some twin city regions have managed to create better cross-border liaisons than others. Laredo–Nuevo Laredo on the Texas border, for example, is known for its strong local planning history, which includes the creation of a recent Binational Environmental Management Plan.[22]

b. *Instituto Municipal de Investigacion y Planeacion* (IMIP in Ciudad Juarez, INPlan in Tijuana). Mexico has a long history of centralized urban planning and administration. Local governments have traditionally been weak and underfunded, while the power over municipal planning and financing of infrastructure lie at the state and federal levels. Since the early 1990s, Mexico has been rapidly moving toward a decentralized political system, with the power to tax and spend shifted to municipal governments. The creation of IMIPs and IMPlans represents an attempt to have independent city planning agencies that function without direct connection to the political party that controls the local and state government. These agencies receive their own funding and carry out research and planning

22. *See generally* Stephen R. Gibson, Binational Planning: Los Dos Laredos (Mar. 12, 1998) (unpublished report, on file with author).

autonomously. The intention is to link their planning decisions to municipal law.

c. *Community-based ecology*. Many communities are controlling their destiny by organizing locally based environmental planning entities. For example, The Sonoran Institute, which became the Udall Center in 1998, is an example of a small initiative linked to The University of Arizona that promotes community response to the environment. It is involved in projects that include repair of riparian ecosystems, development of ecotourism programs, and community workshops in rural areas.

d. *Binational Watershed Councils*. The article by Brown and Mumme in this section of the *Journal* explores the potential of binational watershed councils to handle issues of water allocation and quality arising within binational watersheds. The idea of a watershed council comes from *la Ley de Aguas Nacionales*, the Mexican National Water Law of 1992, which stipulates the formation of watershed councils for every watershed in Mexico wherein all water users within a watershed would have a voice.

Brown and Mumme explore the usefulness of developing such councils for binational watersheds. As they point out, the Mexican councils have some serious flaws. Environmental and water quality concerns are absent from the watershed council mandate. It is not clear that true public participation is encouraged. In addition, Brown and Mumme assert that "creation of a binational [council] would require considerable changes in position, boundary, scope and authority rules at the top most policy level where these organizations would be created...as well as major changes of rules at the implementation and operational level." Brown and Mumme explore the Border Water Council (BWC) for Tijuana/San Diego, created in 1997, as an instance of a binational watershed council. While the BWC can be considered a de facto binational watershed council—it addresses water management issues within a binational watershed—it does not address environmental and water quality issues, it is not effective at including public participation, and most importantly, it was not conceptualized as a *watershed* council but as a *water* council. The BWC, as described by Brown and Mumme, is not really a model of a binational watershed council, but a precursor. Brown and Mumme signal a number of barriers to the formation of binational watershed councils along the border, and regional planners would be wise to address these barriers explicitly.

3. Hydrocommons-based governance

The article by Michel in this section of the *Journal* suggests a hydrocommons approach to water quality management along the border based on a theoretical concept that defines the problem region and the solution region for a water management issue. The usefulness of this new approach lies in its conceptualization of the geographical region that a water quality problem encompasses, and the subsequent definition of key

players in the problem-solving process based on the level of administrative aggregation. Hydrocommons governance recognizes the linkages between the region that exports water and the region that imports it. Furthermore, a hydrocommons approach recognizes that water transfers can cause environmental problems in both the exporting and importing regions, and that these problems are linked. In consequence, solutions must be broadened to encompass both the importing and exporting regions. Successful water quality management then involves local and state agencies in both regions, the public in both regions, environmental groups in both regions, and so on.

Michel discusses the CALFED hydrocommons process in Northern California and concludes by suggesting that such a process be considered for the U.S.–Mexico border region. How would a hydrocommons approach differ from all the existing structures and processes? First, adopting a hydrocommons approach means making explicit the understanding that water quality problems will not be satisfactorily resolved unless a wider range of actors is involved in the solution process. CALFED is making a deep attempt at managing a very unwieldy process, one with many actors at the table and many players competing for voice. The benefits to broadening the problem-shed are better solutions that last into the long-term, with buy-in from all affected parties.

There is at present no hydrocommons type of approach to water management in the border region. However, there are pieces in place. Many of the existing agencies and smaller cross-border initiatives can serve as precursors to a hydrocommons governance structure because they already bring together key local, state, and federal government actors. What is missing is greater participation by the public and by environmental groups. A regional hydrocommons authority could bring together the currently fragmented pieces and organize them under one overarching structure. Needless to say, the hydrocommons would not be the whole border itself. Instead, hydrocommons would be identified for each major water-related problem, and hydrocommons governance would be developed as appropriate for each problem. Of course, hydrocommons would ultimately be transfrontier organizations, thus facing many of the cultural and political obstacles discussed earlier in this commentary.

CONCLUSION

The challenge of borderland water management is partly about geography, but mostly about power and politics. Notwithstanding the "harmonious" future implied by NAFTA, the U.S.–Mexico border region continues to embrace a landscape of environmental conflict.

However, one *can* find international examples of binational cooperation. The Swiss-German-French case reviewed earlier in this

commentary suggests that cooperation may be easier to achieve at the *local* level than at the national level. Certainly, the work of both Michel and of Brown and Mumme argues for the power of local/regional cooperation. The work of Wilder raises serious questions about the ability of trilateral agencies like the CEC, which operate at the international and national levels, to represent their constituents at the local level, and to effectively address and resolve grassroots water problems. At the same time, we must underscore that Switzerland, Germany, and France do not face the asymmetries faced by the United States and Mexico. Cooperation along the U.S.–Mexico border must overcome the obstacles of two different cultures, two different political systems, two different legal systems, and two different levels of economic development. In the face of such differences it is perhaps remarkable that the many instances of cooperation described in this commentary actually exist.