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A Critical Review of Public Participation in Environmental Decision Making along the U.S.-Mexican Border: Lessons from Border 2012 and Suggestions for Future Programs

Allyson Siwik, Elaine Hebard, and Celso Jáquez

Abstract

As a direct result of economic development agreements such as the North American Free Trade Agreement (NAFTA), the U.S.-Mexican border region has been, is, and will continue to be confronted by a long list of critical environmental problems to resolve. The U.S.-Mexican border environmental programs—Integrated Border Environmental Plan (IBEP), Border XXI, and Border 2012—in conjunction with the NAFTA institutions of the Border Environment Cooperation Commission (BECC) and North American Development Bank (NADB)—have made significant progress in addressing the region's infrastructure needs for water and wastewater and management of binational air quality, as well as of hazardous and solid wastes. This progression of border programs resulted in a shift from a top-down management approach to a more locally directed one. This paper discusses the evolution of public participation since Border Institute I in 1998. Drawing on years of direct involvement and upon

specific case studies, the authors describe the current status of public participation to summarize what is effective and what is not working. Future climate change impacts, border security, and economic development pressures will impose continued and increasing challenges to the region's environmental sustainability and to its citizenry. It will be critical that binational public participation in decision making related to these problems is ensured and enhanced. The authors recommend specific institutional changes and binational policies to address existing programmatic weaknesses and emerging demands related to public participation.

The Case for Public Participation

Public participation is important to our democracy and to our ability as a society to make sound decisions related to the pressing challenges of our time. Participatory democracy creates opportunities to involve stakeholders potentially affected by a decision.[1] Public participation is important for all sectors of society interested in creating accountability and transparency in the decision-making process in order to develop more effective public service programs and successful solutions to tough societal problems.[2] Table 1 details a spectrum of public participation[3] while Table 2 summarizes core values for public participation.[4]

In the context of environmental decision making, a recent seminal study by the National Academy of Sciences concludes that public participation processes, when done correctly, improve the quality and legitimacy of a decision and build the capacity of all involved to engage in the policy process. Public participation can lead to better results in terms of environmental quality and other social objectives; in addition, public participation can enhance trust and understanding among parties.[5]

Table 1. A Spectrum of Public Participation

	Increasing Level of Public Impact →				
	Inform	Consult	Involve	Collaborate	Empower
Public participation goal	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities, and/or solutions.	To obtain public feedback on analysis, alternatives, and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
Promise to the public	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Table 1. *(continued)*

	Increasing Level of Public Impact				
	Inform	Consult	Involve	Collaborate	Empower
Example techniques	• Fact sheets • Web sites • Open houses	• Public comment • Focus groups • Surveys • Public meetings	• Workshops • Deliberative polling	• Citizen advisory committees • Consensus-building • Participatory decision making	• Citizen juries • Ballots • Delegated decision

Source: International Association for Public Participation 2007.

Table 2. Core Values for Public Participation

The purpose of these core values is to help make better decisions which reflect the interests and concerns of potentially affected people and entities.

1. Public participation is based on the belief that those who are affected by a decision have a right to be involved in the decision-making process.
2. Public participation includes the promise that the public's contribution will influence the decision.
3. Public participation promotes sustainable decisions by recognizing and communicating the needs and interests of all participants, including decision makers.
4. Public participation seeks out and facilitates the involvement of those potentially affected by or interested in a decision.
5. Public participation seeks input from participants in designing how they participate.
6. Public participation provides participants with the information they need to participate in a meaningful way.
7. Public participation communicates to participants how their input affected the decision.

Source: International Association for Public Participation 2007.

The Rio Declaration on Environment and Development of 1992 included public participation in its 27 principles. Principle 10 states that "environmental issues are best handled with participation of all concerned citizens, at the relevant level." The Rio Declaration continues, drawing a close link between access to information and public participation:

> At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.[6]

The United Nations Economic Commission for Europe Aarhus Convention on Access to Information, Public Participation in Decision-making, and Access to Justice in Environmental Matters became effective in 2001.[7] This convention provides for detailed provisions to ensure the public participation rights of individuals and organizations according to three distinct "pillars": access to environmental information; public participation in decisions on specific activities, particularly plans, programs, and policies relating to the environment; and access to justice.[8]

Assuming that public participation is linked to good governance and successful environmental quality outcomes, how can it be evaluated to show improvements? As stated in the National Academies report, "Processes can be seen as more or less participatory along several dimensions, notably breadth (who is involved), timing (how early and at how many points in the overall decision-making process they are involved), intensity (e.g., the amount of time and effort participants spend and the degree of effort made by conveners to keep them involved), and influence."[9] These key measurement areas can help define public participation indicators and evaluate whether or not public participation strategies are working effectively.

Public Participation concerning U.S.-Mexican Border Environmental Issues

With respect to U.S.-Mexican border environmental issues, public participation has been recognized as a necessary ingredient to develop effective binational solutions to transboundary environmental problems. Providing the framework for U.S.-Mexican cooperation on border environmental issues, the La Paz Agreement of 1983 and its associated implementation programs—IBEP, Border XXI, and Border 2012—"deserve to be seen as the first and most important in a series of binational agreements institutionalizing and broadening the opportunities for public participation in transboundary and border area environmental management."[10]

In the early 1990s, the NAFTA institutions—the Border Environment Cooperation Commission (BECC), the North American Development Bank (NADB), and the Commission for Environmental Cooperation (CEC)—were created with significant input from

national nongovernmental organizations (NGOs). The implementation of these programs explicitly requires public participation. For example, local stakeholders, including community groups, citizens, the business sector, universities, and local governments, participate through BECC's public participation procedures for project certification. As Stephen Mumme writes, "Viewed from a historical perspective this enhanced political opportunity for citizen influence in government decisions affecting the border environment is certainly one of the defining achievements in recent times in U.S.-Mexican relations and one that is qualitatively vital for the region's democracy as well as its environment."[11]

In general, public participation in border environmental decision making has been strengthened since the signing of the La Paz Agreement in 1983. A brief summary of the genesis of border environmental cooperation is provided to clarify the evolution of public participation in the U.S.-Mexican border region.

The 1983 La Paz Agreement provided a framework for "developing cooperative environmental efforts to reduce, eliminate or prevent sources of air, water and land pollution."[12] In the early stages of binational cooperation under this agreement, most activities largely occurred between the two federal governments, through agencies responsible for specific environmental issues, such as the U.S. Environmental Protection Agency, Mexico's Secretariat of Urban Development and Ecology (Secretaría de Desarrollo Urbano y Ecología–SEDUE), and the International Boundary and Water Commission (IBWC)/Comisión Internacional de Límites y Aguas (CILA). Established under annexes to the La Paz Agreement, binational workgroups for water, air, hazardous waste, emergency response, enforcement, and pollution prevention were authorized to identify problems and develop joint solutions.[13] Federal agencies were encouraged to work with state and local governments and NGOs, although there was no requirement to do so.[14]

The Integrated Border Environmental Plan (IBEP) for the Mexican-U.S. Border Area was released in early 1992 and was the first "implementation plan" of the La Paz Agreement that laid out how the two governments would cooperate on resolving border environmental issues. Covering a two-year period, the plan was "created under the assumption that increased liberalization of trade would

place additional stress on the environment and human health along the border."[15] It outlined a list of border environmental problems, but left the detailed activities to later programs. The IBEP was developed by a Boston consulting firm[16] and received strong criticism at public meetings by border stakeholders,[17] such as lack of sufficient funding and specificity, avoidance of crucial environmental issues, and incorporation of policies dictated by Washington, D.C., and Mexico City, rather than by the border region.[18] In the words of the U.S. Environmental Protection Agency (EPA), "the lack of formal public input detracted from its public support."[19] The IBEP emphasized capacity-building activities such as information sharing and training assistance, as opposed to enforcement of environmental regulations and joint planning. During this time, the U.S. provided technical assistance and training to Mexico in areas such as the development of environmental regulations, air pollutant emissions inventories, and hazardous waste tracking systems.

As the second iteration of implementation of the La Paz Agreement covering the period 1996–2000, the Border XXI Program's principal goal was to promote sustainable development "by seeking a balance among social and economic factors and the protection of the environment in border communities and natural areas."[20] The strategies used to accomplish that goal were threefold: (1) ensure public involvement; (2) build capacity and decentralize environmental management; and (3) ensure interagency cooperation.[21] There was recognition that Border XXI was "initiated to build on the experiences of and improve the specific efforts undertaken under the IBEP and earlier environmental agreements."[22] Nine borderwide workgroups were established to address media-specific problems: air quality; contingency planning and emergency response; cooperative enforcement and compliance; environmental health; environmental information resources; hazardous and solid waste; natural resources; pollution prevention; and water. Most of these were a continuation of the La Paz and IBEP workgroups, but Border XXI created three new workgroups based on public input, recognizing the need for binational cooperation on environmental health, environmental information, and natural resources. Geo-specific sub-workgroups were also created at the regional and local levels to address concrete issues.

The comments from border stakeholders on the weaknesses of IBEP helped the U.S. and Mexican governments to recognize the importance of public involvement in the planning and implementation of border environmental initiatives. Therefore, public involvement was identified as one of three strategies to achieve sustainable development in the border region under the Border XXI Program. According to EPA, in 1995–1996, more than 20 public meetings were held in U.S. border cities, regional and state-level meetings were held in Mexico, and three binational public meetings were organized to solicit public input on the Border XXI Program before and after the Framework Document was developed.[23] The addition of three new workgroups was identified by EPA as a structural change to the border program as a result of public comment.[24]

Border XXI also outlined seven public involvement objectives and activities mostly focused on providing information, improving access to environmental information and the border program, public engagement in Border XXI workgroups, and development of additional channels for public input to the border program. Border XXI implementation plans and accomplishments were produced and made available via the internet. Regional and local sub-workgroups were created to engage stakeholders in planning. The Good Neighbor Environmental Board (GNEB) and Mexico's Advisory Councils for Sustainable Development (Consejos Consultivos para el Desarrollo Sustentable–CCDS) provided input on Border XXI implementation. EPA provided financial resources to the Southwest Consortium for Environmental Research and Policy (SCERP), a consortium of 10 U.S. and Mexican universities, to conduct applied research in the border region. EPA also established the San Diego and El Paso Border Liaison Offices to provide information on border environmental issues and to obtain feedback on those issues from the public.[25]

The binational Joint Advisory Committee (JAC) for the Improvement of Air Quality in El Paso, Texas, and Ciudad Juárez, Chihuahua, has been held up as a successful model of public engagement in the Border XXI Program. According to Mumme, "The Committee, which is not only binational, but truly melds federal, state, local, and citizen participation, has indeed contributed to local

capacity for environmental protection and serves as a useful model for developing cooperative, locally supported procedures for environmental protection in sister-city communities along the border."[26]

In addition to the Border XXI Program, public participation is an essential ingredient of the BECC/COCEF program:

> In contrast to IBEP, which built on the ongoing La Paz process, the BECC/NADB initiative created a new and substantial institutional arena for public participation, centered in the BECC. By design, the BECC directly responded to community demand for greater voice in border environmental affairs. Its binational advisory board made of 10 members was composed of federal, state, and local government representatives from each side of the border, as well as one nongovernmental advocacy group representative from Mexico and one from the United States. BECC's procedural rules stressed administrative transparency and access to nonproprietary information. Board meetings were open and available for public comment, and its certification procedures required the formation and input of local public advisory groups for project development and approval. Projects exceeding basic sustainability criteria that included public participation requisites were fast-tracked for Board approval. By incorporating public participation directly in the development and approval of its projects, the BECC substantially broadened the arena and the opportunities for citizen engagement in border area environmental policy, including some of the most substantial projects that could and would be undertaken in the name of public health and environmental improvement.[27]

Border Institute I: Evaluation of Public Participation in Border XXI

Despite the significant gains made in strengthening public participation in the border program, Border Institute I researchers cited a variety of problems and barriers to public participation. Convened in 1998, Border Institute I took place during the Border XXI Program. The Border Institute I survey of binational efforts to address border environmental problems[28] critiqued the Border XXI Program in general:

- Border XXI was not sufficiently transparent, participatory, multimedia, or interdisciplinary in focus.
- City and state governments on both sides of the border often lack the basic resources and information needed to address environmental issues.
- The program is not designed to be proactive and prevent environmental degradation from unsustainable development. Unless radically redesigned or supplemented with a much broader planning and regulatory enforcement structure, it will never do more than treat the symptoms of the disease.
- Border XXI lacks long-range planning and ecosystem planning, and has very little watershed analysis and management.
- The program needs increased participation by the private sector.
- Border XXI should provide a long-term vision for the border in order to incorporate sustainable development policies in planning and implementing border region projects.

During that same time period, some of Border XXI's shortcomings were raised to the U.S. Trade Deficit Reduction Commission: [29]

- The Border XXI process remains a process dominated by federal agencies on both sides of the border whose programs are deployed in an ad-hoc, poorly prioritized fashion.
- Border XXI has, to date, downplayed—some would say neglected—several of its cardinal strategies for promoting sustainable development on the border: fostering public participation in environmental protection and building capacity and decentralizing environmental management on the border. While genuine efforts have been made to disseminate information, improve public access to government officials, and build in greater responsiveness to border constituencies, the decision-making process is still fragmented and indirect. It is instructive that when EPA touts its efforts in public participation, it points to its annual meetings under the La Paz Agreement, new border environment information centers, a few joint advisory boards, the GNEB, the BECC, and to Mexico's efforts to create public forum committees at state and local levels to advise on hydraulic infrastructure development. With the possible exception of the

BECC, these institutions tend to be rather formal, government-dominated arenas whose agendas are difficult to access and, hence, are shaped without much grassroots influence.

- Border XXI's emphasis on environmental policy decentralization and state-local capacity building is tacit acknowledgement of the need to move beyond federal tutelage in building up local participation and administrative capacity for environmental protection in the border area.
- Border XXI can point to few concrete accomplishments by way of enabling local governments and communities to assume greater responsibility in delivering environmental values to their citizens. While a number of Border XXI projects claim to indirectly contribute to local capacity accrual and decentralization, very few aim explicitly at this goal. One remarkable exception to this pattern may very well be the binational Joint Advisory Committee for the Improvement of Air Quality in El Paso, Texas, and Ciudad Juárez, Chihuahua.

The Good Neighbor Environmental Board also provided its assessment of the Border XXI Program.[30] The Border XXI Program "is still heavily focused on federal interaction and has not fully succeeded in building local capacity or in thoroughly fostering public support. It has, however, made the work of the La Paz workgroups more accountable to the public through their individual transparency or failure to work transparently. ...The workgroups should also do more to emphasize environmental education efforts throughout the border region. Investing in future generations and promoting environmental education at all levels will help border communities develop the long-term technical skills, interest and knowledge necessary to address local problems. ...The GNEB hopes to see more rapid decentralization and greater local empowerment as the Border XXI Program continues to mature. This delegation of authority and the need for more local implementation should be accompanied by a commensurate distribution of funding to support the tribal, state and local involvement which is vital to the success of the Program."

Border 2012—Recommendations regarding Public Participation

Border 2012: U.S.-Mexico Environmental Program Mission Statement

As a result of the partnership among federal, state and local governments in the United States and Mexico, and with U.S. border tribes, the mission of the Border 2012 program is:

To protect the environment and public health in the U.S.-Mexico border region, consistent with the principles of sustainable development.[1]

[1] In this program, sustainable development is defined as "conservation-oriented social and economic development that emphasizes the protection and sustainable use of resources, while addressing both current and future needs and present and future impacts of human actions."

Source: EPA-160-R-03-001, May 2003, http://www.epa.gov/usmexicoborder/docs/FrameworkDocument2012-eng.pdf.

The latest La Paz implementation program, Border 2012, was signed in April 2003 and covers a 10-year period to 2012. Addressing some of the issues and concerns raised under Border XXI, this program emphasizes binational partnerships and collaboration as a means to achieving environmental results. The 10 border states and U.S. tribes joined EPA and Mexico's Secretariat of Environment and Natural Resources (Secretaría de Medio Ambiente y Recursos Naturales–SEMARNAT) as full partners in the development and implementation of the program. Leveraging of knowledge, resources, and expertise among partners is a cornerstone of the program's strategy to meeting Border 2012's goals and objectives. Based on border communities' input, the program also reaffirms a commitment to fostering transparency and public participation and improving stakeholder participation.[31]

Some key programmatic changes incorporated in Border 2012 are aimed at improving stakeholder involvement in the program. The program adopts a bottom-up approach for setting priorities and in decision making, such that local stakeholders are included in

identifying priorities and developing and implementing solutions. This represents a major departure from previous implementation programs that were directed from the two federal capitals.

Structurally, the borderwide workgroups and sub-workgroups of Border XXI were reorganized into four regional workgroups covering the entire border, with multiple media-specific and geo-specific task forces within each regional workgroup. Rural areas and tribal communities that were previously ignored were incorporated into the Border 2012 Program. For example, southwestern New Mexico-northwestern Chihuahua and the greater Presidio-Ojinaga area were included as multimedia "rural task forces" within the New Mexico-Texas-Chihuahua Regional Workgroup.

Borderwide workgroups in environmental health, emergency preparedness and response, and cooperative enforcement and compliance, as well as policy forums on air, water, and waste are led by the two federal governments to cover borderwide issues that can only be resolved at the federal government level. Task forces are led by a combination of state and local agencies, community members, and university researchers, depending upon the region.

In order to obtain and maintain stakeholder participation in the program, Border 2012 provides travel reimbursement to task force co-leaders to attend regional workgroup and national coordinators meetings. Financial support from Border 2012 for task force coordination and project implementation varies along the border.

In the words of a San Diego-Tijuana border stakeholder speaking at the 2009 Border 2012 National Coordinators Meeting in Valley Center, California, "The Border 2012 Program has been really useful and productive as a convener, bringing together representatives of two governments and two communities, furthering cross-border collaboration and solidarity. The experience of working together strengthens our confidence in each other, helps transcend differences, builds understanding, and helps ensure transparency." In their experience, she added, "The Program has functioned as a very inclusive structure; local community organizations have been able to participate and benefit, and that aspect should be maintained in the Program. It has also served as a neutral, democratic authority that built consensus."[32]

A university researcher from San Diego expressed that one of the great achievements of Border 2012 has been its capacity for bringing together the main stakeholders on both sides of the border, which has filled a real gap in addressing border environmental issues. For example, when there is a change in administration on either side of the border, Border 2012 remains to remind the incoming administration that it has an obligation to address border environmental issues.[33]

Taken together, these measures have served to strengthen binational relationships at the local level where weak or nonexistent relationships to discuss and deal with environmental issues may have existed before. Have they been sufficient to address the shortcomings noted?

Border 2012 Public Participation

Rural Task Force Example

The authors of this report have been involved with the New Mexico-Chihuahua Rural Task Force since its inception so they have first-hand knowledge of how Border 2012 is being implemented within this rural area of the border. Established in 2005, the Rural Task Force was modeled after the Joint Advisory Committee. The vision was to provide a forum for public engagement in environmental decision making in this region of the border. The first meeting was held in the small town of Janos, Chihuahua. Much to the co-leaders' surprise, approximately 100 people from both sides of the border attended the meeting, representing farmers; local, state, and federal government agencies; universities; local primary and secondary schools; citizens; and NGOs. The meeting featured presentations by local citizens, agencies, and organizations on a range of environmental issues in the Rural Task Force region. Meeting participants created a comprehensive list of environmental issues and then through multivoting (i.e., each participant placed colored dots on his/her top three environmental issues), environmental problems were rank ordered. The top three issues identified through this process were air quality, water quality/quantity, and conservation of the Chihuahua Desert ecosystems.

The Task Force conducted its work over the next 12 months through subcommittees that addressed each of the three priority areas. Working through consensus, a strategic plan was developed that outlined the goals and objectives for each of the priorities along with specific activities or projects to meet each of those objectives by 2012. This strategic plan has continued to guide the work of the Rural Task Force since its completion in 2006. Subgroup meetings continue to be convened to obtain additional input and participation in carrying out various projects. At the Task Force's annual meetings, participants report out on projects and provide an update on progress achieved. Midcourse corrections are made through consensus and the strategic plan is updated annually to reflect completed tasks and new tasks as appropriate.

Activities of the New Mexico-Chihuahua Rural Task Force to date include: performing an inventory of scrap tire piles and cleaning up 6,000 scrap tires from the region; inventorying paved/unpaved roads and disturbed land that cause particulate matter air quality problems in Columbus-Palomas and developing recommendations for dust control; providing workshops on alternatives for dust control and scrap tire management and disposal; establishing a binational water dialogue on Mimbres Basin groundwater issues; holding a binational water tour to identify and discuss shared water problems in the region; supporting environmental fairs; developing an online interactive map as well as a website highlighting activities, hosted by New Mexico State University; developing a Rural Task Force webpage and e-mail distribution system; and developing environmental education (EE) trunks for each of the three priority environmental problems in the region and training teachers to deliver the EE curricula in primary and secondary schools throughout the Task Force region.

Roadmap - A Draft Model for Collaborative Operation of Transboundary Watersheds

The lack of consistent information about the Mimbres transboundary aquifer—shared by Columbus, New Mexico, and Palomas, Chihuahua, as their sole source of water—makes it difficult for residents to make rational choices among proposed uses of water and for government agencies to administer water resources. Many other transboundary basins face similar issues and there are several endeavors under way to address noted deficiencies. The Roadmap was developed by the Rural Task Force's Mimbres Basin Dialogue in an attempt to incorporate ideas on institutions, tools, treaties, agreements, protocols, and coordination into a workable framework to care for a binational basin. To create and sustain the binational water dialogue, the Roadmap includes activities to be accomplished at various levels: (1) local, (2) university, (3) water management agencies, and (4) international. In using it, each basin should assess and take advantage of the experiences and work already under way in that basin in order to address site-specific concerns. Creating a binational water balance as a tool could assist in a better understanding of the regional basin, as well as to assure its longevity.

As the text box highlights, the Rural Task Force's Mimbres Basin Dialogue developed a roadmap to help direct its efforts.[34] Most of these activities have been possible because the key implementers have been successful in obtaining Border 2012 funds to carry out these projects. The Ecological Issues Subcommittee met with SEMARNAT to agree to develop an *ordenamiento ecológico* for the *municipio* of Janos. Ecological Issues Subcommittee members, The Nature Conservancy, and Pronatura announced the acquisition of Rancho El Uno for conservation purposes. These same members facilitated signing a letter of intent to develop an action plan to protect grassland ecosystems in the state of Chihuahua, which was supported by the Task Force. The Subcommittee has also collaborated with the Mimbres-Paquimé Connection, the *municipio* of Janos, and others to promote ecotourism.

Perhaps because this region was not a focus of previous border programs, there has been great interest among local stakeholders in getting involved and providing input on priorities under Border 2012 despite the large distances. The Rural Task Force has had a reasonable degree of success with public involvement in setting the goals and objectives, developing its strategic plan, carrying out various activities, and making significant progress toward reaching the goals and objectives. Given the number and breadth of stakeholders involved, along with striving for consensus on the plan activities, we feel comfortable that the plan reflects the priorities and input of the region.

However, participation has waned since 2008, perhaps due to the rise in narco-violence, change in local government administrations, loss of key stakeholders due to the dire economic situation and violence, and/or the often disjointed nature of program grant funding. In evaluating its activities to ensure that it continues to reflect local stakeholders' perspectives, the Rural Task Force decided that taking this opportunity to provide input into the next iteration of border environmental programs would be appropriate.

Observations from the Field

A number of factors pose challenges to public participation in the border program as the Rural Task Force aims to achieve sustainability in the border region. Drawing from its experiences,[35] it has a number of issues and suggestions, many of which have been raised in Border 2012 Regional and National Coordinators meetings.

While buy-in from the 10 border states raised the level of state agency involvement, the Department of Interior and the Department of Agriculture, which had participated in earlier border environmental programs, chose not to participate in Border 2012. Such an absence left a large void as can be seen by the large umbrella of agencies affected, including the Bureau of Reclamation, Bureau of Indian Affairs, Bureau of Land Management, U.S. Geological Survey, U.S. Fish and Wildlife Service, and the U.S. Forest Service. This absence was felt as the Rural Task Force went about completing activities under the strategic plan, as it was more difficult to address some of the conservation issues raised.

Agency responsibilities do not align across the border. For instance, part of SEMARNAT's jurisdiction is to protect natural areas. It can support activities in Chihuahua under the program while the concomitant U.S. agency may not be able to do likewise under Border 2012, other than through alternative mechanisms. Moreover, because the U.S. Department of Transportation and the U.S. Department of Homeland Security are not part of the Border 2012 Program, the Rural Task Force was not able to facilitate issues related to flooding at the ports of entry and port expansion in Columbus-Palomas, even though these issues were brought up by Mexican participants at some of the Task Force's meetings.

Goals and objectives are necessary to direct actions and measure success. However, universal goals may not be fully consistent with local concerns and thus are difficult to implement in site-specific areas.[36] For instance, the Rural Task Force's priority related to the Chihuahuan Desert ecosystem conservation does not match up with any of the goals of Border 2012, essentially ignoring what the local participants chose to include as a top environmental priority of the region. Similarly, water supply and its scarcity are fundamental to the economic and environmental viability of the Rural Task Force region.[37] Concerns have been repeatedly raised about administration and conservation, which are not specific goals and objectives of Border 2012. As water quantity is fundamentally intertwined with water quality, the Task Force was able to address some of the concerns. However, there is no institutional framework for including the additional necessary agencies in the Border 2012 Program, nor is there funding available to address such concerns.

Media-specific task forces, such as the Border 2012 Water Task Force for the New Mexico-Texas-Chihuahua Region, could provide technical support for geo-specific task forces. Without water supply being a specific goal and many U.S. federal agencies not participating, it is more difficult to obtain such support. Policy forums, such as that for water, could also provide more assistance, but there is no formal structure to obtain it. While such issues have been raised in the regional and national coordinators meetings, no changes have been made.[38] These are critical needs if geo-specific task forces are to address their priorities.

Although public participation-related outputs, such as number of meetings, number of participating stakeholders, number of stakeholders trained, and number of public comments received are tracked by EPA grantees and the program overall, no specific public participation goals have been defined or formal indicators for measurement of public participation developed. As noted by Mumme in 2010, "it is regrettable that Border 2012's recently updated *Strategy for Indicator Development* makes no provision for assessing public participation in Border 2012 programs."[39]

Minimal guidance is given to co-leaders of the task forces and workgroups for public participation in the Border 2012 Program. Task forces and workgroups are required to announce meetings to the public with 30 days notice; solicit public input on task force priorities; disseminate program information to task force participants; and conduct annual reporting. However, no training or guidance is given to co-leaders on how to engage the public on setting priorities and ensuring that all stakeholders are involved in the process. Border partners implementing the program at the local level also need training on how to ensure effective public participation.

Border 2012's emphasis on measurable results is important yet it overlooks the necessary steps of coordination of binational groups and planning related to achieving Border 2012 goals and objectives. Annually, a request is sent out by EPA for proposals to achieve these programmatic goals, but they do not necessarily dovetail with the local ones. Clearly, the strategic plan provided a framework for Rural Task Force activities and a way to show progress and update projects. Border 2012 provided funding to the Rural Task Force to develop its strategic plan; however, this appears to be the exception rather than the rule for most task forces.

Part of meeting the goals of the task forces and regional workgroups is coordination of the group. While this is an activity for which it is hard to measure results, except in the negative, it is a critical ingredient for any effective binational program and for public participation. Coordination is needed to obtain and maintain public involvement in the border program. Co-leaders serve this coordination role and provide information to local stakeholders on projects, organize meetings to obtain public input and participation, notify local stakeholders of grant opportunities and other Border 2012

meetings such as regional workgroup and national coordinators meetings, and oversee the implementation of the task force's strategic plan. With few exceptions, coordination is not a funded task and, therefore, results may vary across the border in terms of keeping groups on track, moving forward to meet goals, and ensuring public participation in the process.

Border 2012 has improved communication among stakeholders, authorities, and the community at large. However, language continues to be a barrier, not only in the discussion of environmental matters but for border communities in Mexico and the U.S. While important to take into account, it is often not possible to count on simultaneous interpretation at each meeting of each task force. BECC provides annual meeting support to task forces that includes interpretation services. For any additional meetings, task forces are on their own to provide this service.

Local government participation from the Mexican side is often difficult. Budgets for local government officials do not allow for investment in public health and the environment, nor is there the expertise at the local level to address such issues. As a result, local officials feel it is a federal government duty to address these needs.

More involvement from the community continues to be a need. Community leaders enter and leave the process over time. There is a constant need to educate communities on the Border 2012 Program, including issues and accomplishments, and on new issues as they emerge.

The presence of border NGOs has significantly declined over the past 15 years and poses a major barrier to public participation. Lack of funding and capacity has reduced NGO involvement in the border program.

Rural Task Force stakeholders have identified the need for more environmental education activities throughout the year and more community-based projects to raise environmental awareness. These projects include activities such as tree planting, community gardens, community trash and scrap tire cleanups, and water conservation fairs.

The impacts of climate variability in the border region pose a major challenge to public participation. As indicated previously, the Border 2012 Program is still too reactive and does not sufficiently plan for the future in the binational context. As climate impacts water availability and shared water resources become more stressed, border communities need institutions that can plan effectively while

ensuring that the public is involved in the decision-making process. It is difficult to get effective public participation when in crisis mode and many of the potential solutions are no longer viable.

The rise in narco-violence has prevented many U.S. federal and state government agencies from participating in border meetings and events that take place on the Mexican side of the border. In the Rural Task Force region, this violence has resulted in the death of at least one border partner and contributed to the relocation of many other active stakeholders from the border region. Violence has a chilling effect on participants, thus affecting implementation. It is difficult or impossible to implement a program at the local level when those involved are fearful and do not feel safe in carrying out projects.

Increased U.S. federal security efforts have neglected to fully involve local stakeholders in homeland security projects because of the waiving of environmental and other laws. The failure to include local input when constructing the border fence has caused distrust between border residents and the U.S. federal government. Border communities are left to bear the environmental impacts of these activities, such as increased emissions from longer wait times at the ports of entry, flooding and other hydrologic problems, or destruction of natural and cultural resources.

The downturn in the economy underscores the tension between the short-term need to earn a living and the long-term need to ensure sustainability for the future. The drive for a new and green economy cannot ignore potential impacts across the border. Consistent with the goals of Border 2012 to promote sustainable development in the border region, economic development needs to be balanced with environmental and social considerations. No mechanism for achieving this exists in the border region. If a project is conducted with BECC or NADB funds, then an assessment of the project's environmental impacts is required. However, there is no requirement for assessment of transboundary environmental impacts of projects outside of this BECC-NADB process. Thus, projects can be constructed in the border region without assessment of transboundary impacts, as well as without public input from the affected communities on the other side of the border.[40]

A number of border projects and programs currently exists that lack obvious coordination.[41] For instance, in September 2009, the Ten States Border Governors adopted "Guidelines for the Competitive and Sustainable Development of the U.S.-Mexico Transborder Region."[42] While the guidelines state that "an important goal of this Border Governors Conference is to successfully build on past efforts and to sustain and lend continuity to earlier achievements," no mention is made of the Border 2012 Program, which was not only agreed to by EPA and SEMARNAT but by all 10 border states.[43] Public participation is not clearly developed in the guidelines, setting up potential conflicts in programs and expectations.[44] The U.S. Department of Transportation's Federal Highway Administration interacts with the Mexican Secretariat of Communications and Transportation (Secretaría de Comunicaciones y Transportes–SCT) in the U.S.-Mexico Joint Working Committee (JWC), a binational group whose primary focus is to cooperate on land transportation planning and the facilitation of efficient, safe, and economical cross-border transportation movements. While state transportation agencies are represented in the group, it is not clear if there are processes in place for further public engagement.[45]

Examples to Consider

The aforementioned observations are meant to call attention to some of the disconnects between the Border 2012 Program as written and/or as implemented, and some of the deficiencies in the program as it strives to create a robust public participation program and achieve its mission. We do not want to leave the impression that only problems exist. As with the New Mexico-Chihuahua Rural Task Force, within and without Border 2012, there are numerous examples of how public participation is resulting in improved binational environmental discussions and actions. The following are presented as potential examples to consider when designing the next version of the U.S.-Mexico border environmentl program.

The handbook, *Environmental Enforcement in the U.S.-Mexico Border Region*,[46] suggests how a community might utilize the current Border 2012 Program, as indicated in the text box:

Community Participation in Border 2012 Enforcement Activities

Border 2012 emphasizes a "bottom-up approach." It is one possible mechanism for community residents to address their concerns about environmental enforcement generally, or about a specific polluting facility. As with any of the strategies discussed in this handbook, however, it is important to consider the *limitations of the process*. Border 2012 will not be an effective vehicle for addressing every individual environmental justice problem. Results may be hard to achieve because of: (1) the limited resources of the Border 2012 Program to address an enormous array of border environmental problems; (2) the confidential and politically-sensitive nature of cross-border enforcement actions; and (3) the large amount of time and resources that community residents may need to invest to pursue action under Border 2012.

Nevertheless, the formal Guiding Principles of the Border 2012 Program—founded in the La Paz Agreement—emphasize community participation and include the following:

- Improve stakeholder participation and ensure broad-based representation from the environmental, public health, and other relevant sectors;
- Foster transparency, public participation, and open dialogue through provision of accessible, accurate, and timely information;
- Strengthen capacity of local community residents and other stakeholders to manage environmental and environmentally-related public health issues.[14]

As with all processes described in this handbook, if the community is well organized, the chances of being effective are much greater. As part of their broader organizing activities, community residents may want to learn more about current Border 2012 activities, provide input about those activities, and raise new issues for the program to address. For example, if a community is concerned about a particular facility that may be violating the law and endangering public health, residents may want to raise the matter with the Regional Task Force that deals with enforcement in that particular part of the border. Following are some of the ways that community residents can try to become involved in the Border 2012 Program.

[14] U.S.-Mexico Border 2012 Framework, *available at*: http://www.epa.gov/border2012/intro.htm

Source: Environmental Law Institute and Southwest Network for Environmental and Economic Justice 2007, pp. 92, 94, http://www.elistore.org/Data/products/d17_11.pdf.

The *Metales y Derivados* cleanup is one of the best examples of the importance of community-based pressure to resolve local environmental problems.[47] The following text box describes the process through 2009. Since then, work on the site has been completed and a community recreation site has been built there.

Border 2012 and the Cleanup of *Metales y Derivados**

Metales y Derivados was a secondary lead smelter and battery recycling facility located in Tijuana. In 1994, the Mexican government ordered the facility closed for environmental violations. The U.S. owner abandoned the site and fled back to the United States, leaving behind thousands of tons of soil contaminated with lead and other heavy metals. It has been widely recognized that these abandoned hazardous wastes pose an ongoing threat to the health of neighbors in the Colonia Chilpancingo. The CEC recognized these problems in its 2002 Factual Record, described in the preceding section. Since the time the facility was abandoned, residents of the Colonia and other activists have organized and advocated for the governments to take action to clean up the site.

Finally, after many years of pressure from the environmental justice community on both sides of the border, and years of binational discussions, there has been significant progress. In 2004, several Mexican government agencies—federal, state and local—signed an Agreement of Coordination for the cleanup of the Metales site. The Agreement, consistent with Border 2012's goal of "Reducing Land Contamination," established a four-phase remediation program: (1) risk reduction; (2) site characterization and risk assessment; (3) alternative analysis and selection of remedy; and (4) carrying out the selected remedy.

This Agreement was not the only one signed by the government in 2004. At the same time, the federal and state environmental agencies signed a landmark Agreement of Collaboration *with community residents*. The Agreement established the participation of the community in the *Metales* cleanup project by creating a Workgroup. In addition to federal and state officials,

the Workgroup includes the Environmental Health Coalition of San Diego and its Tijuana affiliate, the *Colectivo Chilpancingo Pro Justicia Ambiental,* whose members are residents of [the] Colonia. This is the first time that a Mexican border community has been formally included in a technical workgroup responsible for overseeing the planning and cleanup of a site. An important aspect of the Workgroup is that it operates by consensus. The Workgroup has held some of its formal sessions in the Colonia itself.

The cleanup project is to be completed by 2009. So far, Phases One and Two are complete, and approximately 2,000 tons of waste have been removed from the site. The Mexican government has contributed about $750,000 toward the cleanup. The U.S. government provided $85,000 for initial, short-term actions to address the highest risks, as well as additional funds for technical consultants. The workgroup is currently working on Phase Three—selecting the remedy—before moving on to the Phase Four remediation.

Sources: Environmental Health Coalition: www.environmentalhealth.org
Border 2012 Program Regional Workgroup Newsletter: http://www.epa.gov/border2012/pdf/ca_baja_news2_eng.pdf

Sources: Environmental Law Institute and Southwest Network for Environmental and Economic Justice 2007, p. 93, http://www.elistore.org/Data/products/d17_11.pdf

The National Coalition for Dialogue and Deliberation (NCDD) provides guidelines for moving along the public participation spectrum toward public engagement, as their Core Principles illustrate:[48]

Core Principles for Public Engagement

1. Careful Planning and Preparation
   Through adequate and inclusive planning, ensure that the design, organization, and convening of the process serve both a clearly defined purpose and the needs of the participants.
2. Inclusion and Demographic Diversity
   Equitably incorporate diverse people, voices, ideas, and information to lay the groundwork for quality outcomes and democratic legitimacy.
3. Collaboration and Shared Purpose
   Support and encourage participants, government and community institutions, and others to work together to advance the common good.[1]
4. Openness and Learning
   Help all involved listen to each other, explore new ideas unconstrained by predetermined outcomes, learn and apply information in ways that generate new options, and rigorously evaluate public engagement activities for effectiveness.
5. Transparency and Trust
   Be clear and open about the process, and provide a public record of the organizers, sponsors, outcomes, and range of views and ideas expressed.
6. Impact and Action
   Ensure each participatory effort has real potential to make a difference, and that participants are aware of that potential.
7. Sustained Engagement and Participatory Culture
   Promote a culture of participation with programs and institutions that support ongoing quality public engagement.

[1] In addition to reflecting democratic ideals of liberty, justice, and freedom for everyone, "common good" refers to that which benefits all, like a traffic light in a dangerous intersection or a cleaned-up water supply.

An example of public participation is the group working with the U.S.-Mexico Transboundary Aquifer Assessment Program (TAPP) in Arizona, as indicated in the following Fact Sheet:[49]

FACT SHEET: U.S.-Mexico Transboundary Aquifer Assessment Program - Arizona (TAAP-A/S)

Aquifers shared by Arizona and Sonora
Version: November 2, 2010

Progress and Future Activities

- Definition of TAAP-A/S work plan among binational stakeholders
- Public engagement/awareness of the TAAP-A/S through presentations at conferences and community meetings.
- Compilation of scientific and other published materials in a searchable, online, bilingual database on groundwater resources within the binational Santa Cruz and San Pedro valleys.
- Initial stages of contaminant transport modeling and building of hydrogeologic framework model in the Santa Cruz
- Initial recharge / runoff monitoring and modeling in the San Pedro.

TAAP-A/S Collaborating Partners

- Mexico: Comisión Nacional del Agua; Comisión Estatal del Agua-Sonora (Unidad Cananea); OOMAPAS-Nogales; Universidad de Sonora; Colegio de Sonora; Instituto Tecnológico de Sonora
- United States: Bureau of Reclamation; Arizona Department of Water Resources; City of Nogales, Arizona; Friends of the Santa Cruz River, Upper San Pedro Partnership
- Binational: International Boundary and Water Commission; Water Committee of the Arizona-Mexico Commission

Timeline and Selected Accomplishments

- August 19, 2009 - U.S. and Mexico Commissioners of IBWC formally approved Joint Report of the Principal Engineers regarding the Joint Cooperative Process United States-Mexico for the Transboundary Aquifer Assessment Program.
- November 3-4, 2009 - TAAP-A/S sponsored workshop "Developing a Work Plan for the Assessment of the Santa Cruz and San Pedro Aquifers" held in Tucson, Arizona. [Presentations can be found at http://www.cals.arizona.edu/azwater/taap/]

Recommendations

As many astute observers have noted, Border 2012 represents a quantum leap forward from the top-down arrangements of the past. As the next iteration of border programs are being discussed, public participation should be expanded. Mumme has pointed out, however, that the opposite is occurring.

> Clearly, the gains of the 1990s are no basis for complacency where citizen participation in border environmental governance is concerned. In my view it is time for a renewed scholarly effort to appraise these developments. Scholars need to identify obstacles to improved public participation and support NGO's and civil society's efforts to make participation more inclusive, more effective, and more meaningful in border environmental management.[50]

Baja California Environmental Secretary Sócrates Bastida Hernández also raised relevant comments and questions regarding the future of Border 2012 at the National Coordinators meeting in 2009:

> It would be advisable to put on the agenda of the succeeding program, goals and indicators designed to fulfill the legitimate aspiration of this binational and transborder region of achieving environmental sustainability at the same time and in the same order of importance as it achieves social and economic development. ... What role should the succeeding program play as regard to a green or conservation agenda? ... Which are the principles, objectives and goals that must be included in the succeeding program in order to meet Border 2012's mission as regard to social and economic development that conserves and uses resources in a sustainable manner?... Additionally, we should ask ourselves, what is the role of the state governments going to be? ... Another important aspect is Border 2012's structure, operability and communications. In this regard, we believe that it is necessary to pay attention to developing a program agenda with transversal objectives, which would have to undergo a review as to the intercommunication within the workgroups, whether they are regional, borderwide, or local. ... We end this presentation with the certainty that the analysis and construction of the succeeding program must be conducive to strengthening the management

> capacity of local governments, who will have to take on more of a leadership role in managing and planning actions that will have the greatest impact in reducing the border's problems.[51]

As potential remedies for the issues discussed previously, we have several recommendations of possible ways to bolster public participation in a border environmental program. These are:

Establish indicators of public participation for the Border 2012 Program. The Border 2012 Program does not formally evaluate public participation and thus it is difficult to determine the effectiveness of public participation efforts within the task forces, workgroups, and policy forums. The only way to measure success of the program regarding public participation and to track progress toward this goal is to develop indicators. The Border 2012 Indicators Group should establish indicators of public participation for the border program.

Formally evaluate public participation in Border 2012 and assess the needs for grassroots participation. EPA and SEMARNAT should collect and analyze available public participation data, as well as conduct surveys of co-leaders and stakeholders alike to determine what may be needed to improve public participation.

Transition more fully from public outreach and involvement to public collaboration and engagement and establish public engagement guidelines in the Border 2012 Program. In order to have full public participation in the border program, we suggest that EPA and SEMARNAT pursue implementation of models of public collaboration and engagement. Border 2012 envisions local stakeholders participating in environmental priority setting and developing solutions to these issues. This is more of a public collaboration and engagement activity as opposed to public involvement (see Table 2). EPA and SEMARNAT should formalize guidelines for task forces, workgroups, and policy forums to follow in order to standardize public engagement throughout the border region.

Local task force support. Local task force coordinators should be supported with funding in order to ensure that the public participation objectives of the border program are carried out. Task force co-leaders should be trained in public participation and provided with guidelines on how to ensure public participation in the border program.

Community outreach and education. Border stakeholders have indicated that more community outreach and education are needed, especially on emerging issues. One stakeholder has suggested that the program experiment with the *promotora* model as a means to more broadly educate border communities on important issues. Outreach to local government officials in some areas is needed to obtain their participation in the border program.

Structural recommendations. In order to more effectively address the goals and objectives of the border program at the local level, more formal connections and definition of roles and responsibilities among workgroups and task forces need to occur. Borderwide workgroups and policy forums need to provide technical assistance to local task forces that do not always have the technical expertise to deal with a particular issue or that require federal-level involvement.

The next iteration of the border program should include ecological goals and objectives and involve the relevant U.S. federal agencies (i.e., DOI, USDA) that cover land management issues.

By incorporating Department of Homeland Security into the Border 2012 Program, security infrastructure planning can be folded into the border program to ensure that potential environmental and other impacts are dealt with and mitigated in a more comprehensive fashion.

Because environmental concerns need to be balanced with social and economic issues to achieve sustainability in the border region, the border programs should consider integration with economic development efforts. For example, ecotourism holds promise as a vehicle to achieve ecological conservation while at the same time providing economic development to local communities. Also, educating local communities and officials about the connections between environmental quality and economic development is an important step. The Border Governors have outlined some goals and objectives for economic development in the areas of energy efficiency and green chemistry that may offer opportunities for collaboration with the border program.

Using the JAC as a model, appointing to task forces representatives from various sectors may formalize participation from stakeholders and thus ensure representation from a cross section of the community.

Planning recommendations. Border 2012 has still not become a proactive rather than reactive program. Developing joint, geo-specific and/or media-specific strategic plans is one way to fully involve the public in priority setting and development of solutions. The plans are also a useful tool to track progress to meeting goals and objectives and as a framework for public engagement in the work of the task force or workgroup. Strategic plans are a means to define with community participation a vision for sustainable development at the local level and determine the steps that need to be taken to achieve that vision. Climate adaptation related to water supply is an area in which border communities must engage in joint planning. The BECC has been working on this and we encourage development of joint planning methodologies.

A transboundary environmental impact assessment (TEIA) is critical to ensuring that border communities have input in border projects with the potential for transborder impacts. Passage of TEIA should be a priority for the U.S., Mexico, and Canada.

Conclusion

Under the La Paz Agreement, the United States and Mexico agreed to protect, conserve, and improve the environment of the border region. The agreement created a framework for the two governments to resolve environmental issues along the border. The Border 2012 Program is the current iteration, but contemplation as to what might be changed in the next version is timely.

Public participation in border environmental decision making has been strengthened since the signing of the La Paz Agreement in 1983. Incorporating input from border stakeholders, the latest implementation program—Border 2012 Program—reflects partnerships with border states and tribes and is based on priority setting and implementation at the local level. While moving in the right direction toward creating a sustainable future, there are several disconnects, some of which have been addressed.

Despite these improvements to involve border stakeholders, the program warrants improving as EPA, SEMARNAT, and their border partners contemplate the next iteration of the program. EPA and SEMARNAT should establish indicators and guidelines for public

participation and train co-leaders in how to facilitate public participation in task force implementation. The border program needs to support more community outreach and education, make some structural changes to more closely align goals and objectives from the programmatic level to the task force level, and include agencies that have not participated in Border 2012 but are integral to achieving sustainability in the border region. These agencies include the Department of Transportation, Department of Homeland Security, Department of Agriculture, and Department of the Interior. Finally, strategic planning at the local level is needed to ensure public participation in priority setting and development of solutions to the border's environmental concerns.

Endnotes

[1] *Participatory Governance and the Millennium Development Goals (MDGs)*. Publication based on the Expert Group Meeting on Engaged Governance: Citizen Participation in the Implementation of the Developmental Goals including the Millennium Development Goals (MDGs) 1–2 November 2006. New York. http://unpan1.un.org/intradoc/groups/public/documents/UN/UNPAN028359.pdf.

[2] http://www.peopleandparticipation.net/display/Involve/Home.

[3] International Association for Public Participation, 2007. http://www.iap2.org/associations/4748/files/IAP2%20Spectrum_vertical.pdf.

[4] International Association for Public Participation. http://www.iap2.org/displaycommon.cfm?an=4-.

[5] Dietz, Thomas, and Paul C. Stern, editors, *Public Participation in Environmental Assessment and Decision Making*, 2008, Washington, D.C.: The National Academies Press. http://www.nap.edu/catalog.php?record_id=12434. "Until now there have been few attempts to synthesize this diverse literature (on public participation) and draw out conclusions and recommendations for practice. To provide such a synthesis was the objective of the U.S. National Research Council convened Panel on Public Participation in Environmental Assessment and Decision Making. In their book *Public Participation in Environmental Assessment and Decision-Making*, edited by Thomas Dietz and Paul Stern, the Panel presents the outcomes of an extensive

process of research and consultation involving a series of workshops, meetings, and working papers bringing together academic and practitioner expertise pertaining to public participation. *Public Participation* is the culmination of this process and, as such, is perhaps the most comprehensive review to date of this field." Lorraine Whitmarsh, November 2009, *Environmental Science & Policy* 12 (7): 1069–1072, http://www.sciencedirect.com.

[6] http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=78&ArticleID=1163.

[7] http://www.unece.org/env/pp/documents/cep43e.pdf.

[8] Enserink, B., M. Patel, N. Kranz, and J. Maestu. 2007. "Cultural Factors as Co-Determinants of Participation in River Basin Management." *Ecology and Society* 12 (2): 24; http://www.ecologyandsociety.org/vol12/iss2/art24/.

[9] Dietz and Stern, p. 76.

[10] Mumme, Stephen P. 2010. "Reflections on Public Participation in Environmental Protection Policy on the U.S.-Mexico Border." In *Retos ambientales y de desarrollo urbano en la frontera México-Estados Unidos*, Roberto García Ortega, Elizabeth Méndez Mungaray, Ma. Eugenia González Avila, Juan Manuel Rodríguez Esteves, Ricardo V. Santes Alvarez, Christopher Brown, and Stephen P. Mumme, eds. Tijuana, B.C.: El Colegio de la Frontera Norte.

[11] Mumme, 2010.

[12] *U.S.-Mexico Border XXI Program: Progress Report 1996–2000*. EPA 160/R/00/001 p. 2. Published by EPA and SEMARNAP.

[13] Barry, Thomas, and B. Sims. *The Challenges of Cross-Border Environmentalism*, p. 74.

[14] Barry and Sims, p. 74.

[15] *U.S.-Mexico Border XXI Program: Progress Report 1996–2000*. EPA 160/R/00/001 p. 2. Published by EPA and SEMARNAP.

[16] Mumme, 2010.

[17] Barry, p. 76.

[18] Spaulding, Mark. 2000. "Addressing Border Environmental Problems Now and in the Future: Border XXI and Related Efforts." Pp. 105–137 in *The U.S.-Mexican Border Environment: A Road Map to a Sustainable 2020*. SCERP Monograph Series 1, Paul Ganster, ed. San Diego, CA: SDSU Press.

[19] *U.S.-Mexico Border XXI Program: Progress Report 1996–2000*. EPA 160/R/00/001 p. 9. Published by EPA and SEMARNAP.
[20] EPA and SEMARNAP, p. 7.
[21] EPA and SEMARNAP, p. 2.
[22] EPA and SEMARNAP, p. 3.
[23] EPA and SEMARNAP, p. 10.
[24] EPA and SEMARNAP, p. 10.
[25] EPA and SEMARNAP, p. 13.
[26] Mumme, Stephen P. NAFTA and the Border Environment: Institutional Aspects. Testimony submitted to the U.S. Trade Deficit Reduction Commission, Dallas, Texas, January 21, 2000.
[27] Mumme, 2010.
[28] Spaulding, 2000.
[29] Mumme, 2000.
[30] Good Neighbor Environmental Board, Assessment of the Border XXI Program. Addendum 1 to the U.S.-Mexico Border XXI Program: Progress Report 1996–2000.
[31] U.S.-Mexico Environmental Program: Border 2012 Implementation and Mid-Term Report: 2007.
[32] Sixth Meeting of the National Coordinators, Minutes of the Future Binational Program Discussion Session. October 28, 2009, Valley Center, CA, EPA Region 9.
[33] Sixth Meeting of the National Coordinators, October 28, 2009.
[34] Presented at the Border Institute VIII, "Discovering Means and Mechanisms for Collaborative Planning and Operation of Transboundary Watersheds." Rio Rico, AZ, May 22–24, 2006. www.scerp.org/bi/bi-viii/Mimbres%20Roadmap%20short.ppt The current version can be found at http://border.nmsu.edu/rtf_documents/Roadmap_Proposal_updated.doc.
[35] While the authors are responsible for these recommendations, they are enhanced by comments from participants and responses to a survey of Border 2012 Task Force members about their experiences with Border 2012. The survey was done in January 2010 by the authors and although the responses were few, the input was valuable and is included along with comments from participants in the text.
[36] "If there is one thing that we have learned after over a decade of transborder work, it's that local solutions to local problems are usually better than one size fits all, top-down prescriptions." Rick

Van Schoik and Erik Lee, *The Border Governors Conference: (Still) Only Part of the Solution*, September 1, 2009. http://nacts.asu.edu/border-governors-conference-still-only-part-solution.

[37] "Water scarcity is undoubtedly the greatest single environmental peril in the U.S.-Mexico transborder region. It threatens our quality of life, endangers water-sensitive ecosystems and the wildlife they support, puts at risk economic growth, and strains diplomatic relations between the two nations." Ten States Border Governors recently adopted Guidelines for the Competitive and Sustainable Development of the U.S.-Mexico Transborder Region.

[38] As air and water are ignorant of political boundaries, binational policies are needed to address their protection. Each country has enforcement measures, but they are unilateral. The Joint Advisory Committee, created to address air quality in the Paso del Norte region, provides a good example of how policies might be developed to address noted problems. The IBWC/CILA works together on surface waters by implementing treaties, but has thus far been reluctant to take on a similar role with respect to groundwater, perhaps due to the lack of a treaty. Potentially, IBWC/CILA has jurisdiction over groundwaters close to the international limit under Section 6 of Minute 242 (1973): "With the objective of avoiding future problems, the United States and Mexico shall consult with each other prior to undertaking any new development of either the surface or the groundwater resources, or undertaking substantial modifications of present developments, in its own territory in the border area that might adversely affect the other country."

[39] Mumme, 2010.

[40] A recent example: as a part of the Integrated Biorefinery Program, Sapphire Energy has been awarded a $50 million grant and $54.5 million loan to construct and operate a full scale algal biofuels production center approximately ten miles from Columbus, NM, and less than a mile north of the border. Many concerns have been raised about the viability of algal biofuels (see for example, "Environmental Life Cycle Comparison of Algae to Other Bioenergy," Andres F. Clarens, Eleazer P. Resurreccion, Mark A. White, and Lisa M. Colosi, University of Virginia, January 2010, http://pubs.acs.org/doi/pdfplus/10.1021/es902838n). In addition to concerns as to the project's environmental footprint and water usage, no consultation has to date

occurred with Mexican officials or the public in the region. Given the proximity to the border, would Section 6 of IBWC's Minute 242 require such? How do such projects fit within the Border 2012 framework?

[41] "A multitude of plans and programs exists that should be implemented to advance the region's infrastructure, as well as the institutional and social changes proposed in these Strategic Guidelines. In preparing the report, several federal, regional, state, and local plans and programs surfaced, all promoting economic integration through more secure trade, sustainability, and a better quality of life. There are also numerous efforts led by private-sector organizations that support the same principles and strategies embraced by the Strategic Guidelines. All these plans and programs, public and private, short term and long term, should be implemented because they contribute directly to the strengthening of the transborder region." 5.1. Implementing the Strategic Guidelines through Existing Development Plans and Programs, Strategic Guidelines for the Competitive and Sustainable Development of the U.S.-Mexico Transborder Region (nonbinding document), September 2009, http://bordergovernors.org/en/pdf/Strategic_Guidelines_ENG.pdf.

[42] Implementing the Strategic Guidelines through Existing Development Plans and Programs, Strategic Guidelines for the Competitive and Sustainable Development of the U.S.-Mexico Transborder Region (nonbinding document), September 2009. During this year's XXVIII Border Governors Conference (BGC) held in Monterrey, Nuevo León, an important border policy vision was developed and unveiled to create a framework on how to conduct business in the border region. The Strategic Guidelines delivered policy initiatives under four key policy areas: Competitiveness, Sustainability, Security, and Quality of Life. The 13 BGC Work Tables will be tasked in developing substantial policy actions under these four policy areas. Noteworthy is that the Border Legislative Conference is also working on similar issues, but is not necessarily coordinating with the BGC, although as set out in their Resolution from the November 2009 meeting, the aim is to do so, as well as to coordinate with Border 2012 efforts on scrap tires. http://www.borderlegislators.org.

[43] As an interesting aside, the Ten States "ironically gelled out of concerns about being excluded from the Border XXI Program." Good Neighbor Environmental Board, Assessment of the Border XXI Program. Addendum 1 to the U.S.-Mexico Border XXI Program: Progress Report 1996–2000.

[44] "Transborder development requires coordinated action among various actors on both sides of the border. Traditionally, transborder government was conceived of as intergovernmental principally among federal agencies in order to solve shared security, health, and environmental problems. Currently, fiscal problems and the lack of effectiveness of traditional tools to confront complex border problems have overwhelmed the region's state and local governments. In the context of the growing binational interdependence between Mexico and the United States, we cannot regulate the issues of security or environmental protection only at the national level or through traditional intergovernmental cooperation. Several key characteristics distinguish the government structure's current reality and are needed for the implementation of the Strategic Guidelines:

- Flexible and integrated networks, including public-private associations and citizen coalitions. These networks must complement government action and, on occasion, occupy spaces where the government cannot effectively intervene.
- Public and private universities must play a significant role in establishing these networks and maintaining a position of leadership in their functioning.
- We must recognize the role that NGOs and other citizen initiatives play in noting when issues arise and advocating for government intervention and action at the earliest stages of these problems.

Since the Strategic Guidelines largely encompass innovative policies and actions, the participation of nongovernmental networks during their implementation is broadly recommended. In the context of a global strategy, these networks can exercise at least three key functions:

- They can convene and bring to the table all the actors, mobilizing key districts and offering a forum for exchange of points of view. The universities on both sides of the border have demonstrated success in playing this role.

- They can act as neutral third parties during the policymaking process, particularly during the negotiation of controversial issues, such as sharing natural resources and land-use administration.
- They can act as transborder advocates, pressuring governments to incorporate transborder aspects into their planning and policies." 5.4.3. Civil Society Organizations working toward a competitive and sustainable transborder region, Strategic Guidelines for the Competitive and Sustainable Development of the U.S.-Mexico Transborder Region (nonbinding document), September 2009, http://bordergovernors.org/en/pdf/Strategic_Guidelines_ENG.pdf.

[45] http://www.borderplanning.fhwa.dot.gov. Another way for public members to become confused is when apparent overlaps exist. See for instance, "The Greening of the Border" conference of the JWC (U.S.-Mexico Joint Working Committee [JWC] Meeting Minutes Santa Fe, NM, July 13–15, 2009," and the "Greening Borders: Cooperation, Security and Diplomacy," University of San Diego, November 18–20. 2009. http://www.sandiego.edu/peacestudies/documents/ksps/english_agenda.pdf.

[46] *Environmental Enforcement in the U.S./Mexico Border Region: A Community Guide to Enforcement in Texas and Chihuahua*, August 2007. Download this report for free. http://www.elistore.org. Community Environmental Law Initiative, a joint effort between the Environmental Law Institute and the Southwest Network for Environmental and Economic Justice. The preparation and publication of this handbook was supported by the U.S. Environmental Protection Agency Region 6. "The handbook provides practical information about the tools for community participation in environmental enforcement, describing legal tools in the U.S. and Mexico, as well as binational mechanisms for promoting effective enforcement. The handbook focuses on the states of Texas and Chihuahua, but provides information about environmental agencies, laws and processes that can be useful to communities throughout the border region. The handbook is available in English and Spanish."

[47] *Environmental Enforcement in the U.S./Mexico Border Region: A Community Guide to Enforcement in Texas and Chihuahua*, August 2007, http://www.elistore.org.

[48] National Coalition for Dialogue and Deliberation, May 1, 2009, http://www.thataway.org/files/Core_Principles_of_Public_Engagement.pdf.

[49] "The TAAP originates from U.S. Public Law 109-448, signed into law by the President on December 22, 2006, as the Transboundary Aquifer Assessment Act. The Act applies to the states of Texas, New Mexico, and Arizona where four transboundary aquifers have been designated for priority assessment; those being the Hueco Bolson and Mesilla Basin aquifers in the greater El Paso/Ciudad Juárez region, and the Santa Cruz and San Pedro aquifers across the Arizona-Sonora border. TAAP is designated to operate for 10 years, with $50 million authorized for appropriation over that time period. Appropriations to date include $500,000 each for fiscal years 2008 and 2009." http://udallcenter.arizona.edu/wrpg/pubs2010/TAAP_factsheet_Nov10.pdf.

[50] Mumme, 2010.

[51] Secretary of the Environmental Protection Department of the State of Baja California to the Border 2012, Plenary Session, Environmental Program's Sixth National Coordinators Meeting, October 29, 2009.