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Emerging Boundary Environmental Challenges and Institutional Issues: Mexico and the United States

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INTRODUCTION

Within exactly 10 years, 1963–1973, three important diplomatic events took place in Mexico City that signaled the closing of eight decades of confrontation between Mexico and the United States on boundary issues. The signing of the Convention to Solve the Problem of the Chamizal,[1] the signing of the Treaty to Resolve Pending Boundary Differences and Maintain the Rio Grande and the Colorado River as the International Boundary between the United States and Mexico,[2] and the adoption of Minute 242 of the International Boundary and Water Commission, entitled "Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River,"[3] seemed to finally do away with the most irritating issues disturbing and poisoning the bilateral relations between the two countries at the time. Although Minute 242 may not prove to be as permanent and definitive as its title portrayed it to be, the three instances did show a willingness on the part of the two countries to peacefully overcome their major differences. In this sense, the political will on both sides of the border made it possible to reach such agreements and is a testimony on behalf of a generation of officials and technical experts who proved to be up to the challenge. The question is whether the current and upcoming generations of Mexicans and Americans will be equally prepared and ready to face and defy current and future demands and threats, emerging and looming already in the horizon, and which may hinder the possibility of effectively securing a harmonious and productive coexistence through their common international boundary.

The proliferation of environmental issues in the border area results not only from the very nature and size of growth in the region or from the impact of such growth, but also from other anthropogenic

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1. Aug. 29, 1963, U.S.-Mex., 15 U.S.T. 21.

2. Treaty to Resolve Pending Boundary Differences and Maintain the Rio Grande and the Colorado River as the International Boundary between the United States and Mexico, Nov. 23, 1970, U.S.-Mex., 23 U.S.T. 371.

3. Agreement on Colorado River Salinity, Aug. 30, 1973, U.S.-Mex., 24 U.S.T. 1968.

sources external to the region that have or may have a significant environmental impact in it. This proliferation will immediately put to a significant test the ability, imagination, and political will of the two governments to have the necessary institutional mechanisms in place to deal effectively with current and emerging issues. In view of this panorama, one of the very first things the two governments will necessarily have to ask themselves is if the present institutional mechanisms that they have established for transboundary resource and environmental issues are adequate to deal with the future, or whether they need to be modified or replaced by new ones. The inclusion of Canada in at least some of these endeavors will be indispensable. The purpose of this work is (1) to take stock of current and emerging transboundary resource and environmental issues and (2) to analyze what type of institutions will be necessary to deal with those issues in order to secure the necessary bilateral and even trilateral cooperation.

THE IMMEDIATE BACKGROUND

The decade of the 1980s may have been the worst for the bilateral relationship, certainly since the end of the last United States military intervention in Mexico in 1914. All sorts of disagreements seemed to plague that relationship—commercial disputes, Mexico's foreign debt, and drug trafficking playing dominant roles. In sharp contrast, the only chapter in which the relationship evolved successfully and constructively during that period was in the field of environmental cooperation. The new decade has started under a much different perspective, with a great bilateral rapprochement between the two countries being led by the two current presidents. Great efforts are being undertaken for a more positive and lasting bilateral relationship, mostly under the umbrella of negotiations toward the earliest possible conclusion of a North American Free Trade Agreement. Ironically, natural resources and environmental issues seem to be getting in the way of such an apparently promising future. Environmental concerns have become very important in the free trade negotiations and, coupled with some recent negative episodes, have strained the bilateral relationship.

There is growing concern on both sides of the border that, under a free trade agreement, Mexico may become an ideal paradise where American investors may go to escape the observance of severe and costly environmental regulations in the United States because Mexican environmental regulations are said to be fewer, laxer, and cheaper. For some in the United States, this has to be prevented as it will mean a drain of U.S. industries, businesses, and jobs to Mexico. On the Mexican side, there are those who consider this beneficial as it will mean the arrival of

investments and the creation of new jobs. For others on both sides of the border, the agreement would be detrimental to the preservation of the environment in Mexico, which in turn will also affect the environment in the United States, at least in the border area, because most of those industries will settle in northern Mexico as maquiladoras, which have proved to be an ecological menace.[4] If the two governments lack the vision to foresee new potential disputes in the environmental field and do not put into action an effective program of preventive diplomacy, they may be contributing to a new prolonged era of disagreements, some of which could be large enough to cause endless confrontation.

THE ISSUES

A. Water

In November 1945, after almost 50 years of negotiations, Mexico and the United States finally put into force the Treaty Relating to the Utilization of Water of the Colorado and Tijuana Rivers and of the Rio Grande.[5] During the next 45 years no major water allocation disputes disturbed the successful operation of the Treaty, and its only major challenge was the dispute over the quality of the deliveries, the so-called Colorado River salinity controversy.[6] In large measure, the successful history of the Treaty so far is due to the achievements of its institutional mechanism, the International Boundary and Water Commission. Emerging, more than pending or traditional, bilateral water issues, however, definitely constitute the most prominent part of the future bilateral agenda and, because of their alarming potential gravity, may soon be at the very top of that agenda, even above the political, economic, and commercial issues. These emerging issues may be divided into three categories: (1) transboundary groundwater allocations, management, and conservation; (2) transboundary water availability in general; and (3) transboundary water quality.

1. Transboundary Groundwater Issues

There are highly significant transboundary groundwater deposits crossing the boundary that will play a pivotal role in the development and even in the survival of the border area. The three most significant aquifers include the Hueco Bolson in the Juarez–El Paso region, extending to about 3,000 square miles, the Mesilla Bolson between Chihuahua and New Mexico, measuring about 7,450 square miles, and the Mesa de San Luis aquifer

4. *Piden los Cien que se Estudie el Impacto Ecologico del TLC*, La Jornada, Mexico City, Mar. 5, 1991.
5. Feb. 3, 1944, U.S.-Mex., 59 Stat. 1219.
6. *See International Symposium on the Salinity of the Colorado River*, 15 Nat. Res. J. (1975).

in the Baja California–Sonora and California-Arizona region, with an extension of approximately 3,000 square miles.[7] Despite the fact that transboundary groundwater deposits in the United States–Mexico border have been the subject of a great deal of scientific and academic attention already, it is quite amazing that the two governments have not yet commenced, or even planned, bilateral negotiations to agree on rules that will govern their utilization. Moreover, such inaction may be the first important symptom of the inability of the International Boundary and Water Commission to deal with the new issues at hand.

The most critical of these aquifers is the Hueco Bolson, which is located 80 percent under United States territory and 20 percent under Mexico's. The overexploitation of the aquifer is leading to a severe shortage in its supply and to the consequent deterioration in its water quality, mostly through salt contamination. Urban and industrial growth and existing surface water shortage in the El Paso–Juarez region have already created significant problems. A lack of action to adequately manage and conserve the Hueco Bolson to prevent its total depletion can only lead to mounting problems, some of which may soon be impossible to solve.

The Mesa de San Luis aquifer is about 60 percent in the Mexican side, and no current supply or contamination problems yet exist. However, the complications can already be envisioned, since the United States has, without a timely prior consultation with Mexico, initiated work to put a concrete lining on the bottom of the All-American Canal, which will eliminate a source of recharge water for the aquifer. This has been done in contravention of the 1973 Minute 242 of the IBWC. Item 6 of the Minute calls for consultation between the two governments "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." Thus, Mexico has a claim against the United States for this action, which may not be conducive to the necessary speedy negotiations on groundwater deposits. On the other hand, water scarcity in the southwestern United States, and the current prolonged drought (especially in California), will put increasing pressure on the aquifer to divert from it greater volumes of water, as has been done already with Colorado River water, via federal and state systems of dams, aqueducts, and pumping stations. The All-American Canal itself is not alien to such projects. In short, all of the work to be done jointly by Mexico and the United States on their transboundary groundwater resources remains to be commenced.

7. A. Utton, *International Groundwater Management: The Case of the U.S.-Mexican Frontier*, 57 Neb. L. Rev. 641 (1978); A. Utton & R. Hayton, *Transboundary Groundwaters: The Bellagio Draft Treaty*, 29 Nat. Res. J. 663 (1989); A. Szekely, *Contexto Juridico Internacional en el que se Enmarcarian las Negociaciones Bilaterales sobre Uso y Conservacion de Mantos Acuiferos Subterraneos Transfronterizos*, Primera Reunion de Analisis sobre Uso y Conservacion de las Aguas Subterraneas Transfronterizas (1987).

2. Transboundary Water Availability

The United States and Mexico began formally allocating their transboundary surface water in 1889, essentially completed with the signing of the 1944 Treaty for the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande.[8] The International Boundary and Water Commission was the main force behind these successes, handling their work independently of political considerations. In the Rio Grande and Colorado River basins, total consumption is already more than 40 percent of renewable supply. The Colorado River Compact of 1922, the 1963 United States Supreme Court decision in *Arizona v. California*, the treaties with Mexico, and other commitments and agreements allocate Colorado River water to seven states and Mexico. The upper Colorado River, though fully allocated, is not yet fully appropriated by those users. This water is currently being used in the lower basin, but studies indicate that the upper basin will use its full allocation by 2000, reducing water hitherto available to the lower basin. The Colorado River has huge reservoir storage, but demand already exceeds supply in the lower half of the basin. Ordinarily, all of the Colorado River's water is consumed before it reaches the Gulf of California in Mexico. Climate change will only make matters worse than they are already projected to become.

The next era of water relations between Mexico and the United States will have to adopt additional schemes of cooperation to cope with the potential effects of global climate warming and the availability, distribution, management, and conservation of both surface and groundwater transboundary resources. One of the greatest anxieties provoked by the potential dimensions of global warming is its negative effects on water resources and the chain reaction that could be triggered by such effects.[9] Higher temperatures would result in greater evaporation and earlier spring melting of permafrost and snowpack. Because much of the border region relies on snowpack, early melting will have a serious impact on these users. Inevitably there will be consequential effects of climate change on transboundary waters in the region.[10]

Some studies have already been undertaken on specific effects of global climate change. According to Revelle and Waggoner,[11] warmer air temperatures and a slight decrease in precipitation would severely reduce both the quantity and quality of water resources in the western United States. The impact would be harsh on seven water regions, including the

8. Feb. 3, 1944, U.S.-Mex., 59 Stat. 1219, with supplementary protocol signed Nov. 14, 1944.

9. J. Matter & J. Feddema, *Hydrologic Consequences of Increases in Trace Gases and CO_2 in the Atmosphere, in* Greenhouse Effect and Sea Level Rise: The Challenge for this Generation 251 (J. Titus ed., 1984).

10. J. Bandyoppadhyay, *The Ecology of Drought and Water Scarcity*, 18 Ecologist 88 (1988).

11. R. Revelle & P. Waggoner, *Effects of a Carbon Dioxide-Induced Climate Change on Water Supplies in the Western United States, in* The Challenge of Global Warming 151 (E. Abrahamson ed., 1989).

drainage basins of the Rio Grande and Colorado River, the rivers draining into the Gulf of Mexico from the northern two-thirds of Texas, and the rivers of California.[12] Supplies would be greatly diminished, starting from almost a 76 percent reduction in the Rio Grande region to nearly 40 percent in the Upper Colorado. These are alarming forecasts that derive from the 1979 Stockton and Boggess model based on a two degree Celsius temperature increase and a 10 percent precipitation decrease.[13] The predictions of this model have received widespread acceptance; the United States Environmental Protection Agency quotes it in a study on the potential effects of climate change on the United States.[14]

The 1944 Water Treaty failed to resolve two important problems: (1) the quality of water to be delivered to Mexico and (2) the possibility of long-term reductions in water availability. The "extraordinary drought" provision in article 10 provides that the water allocated to Mexico is to be reduced in the same proportion as consumptive uses of water in the United States are reduced. "Extraordinary drought," however, is not defined in the treaty, and the ambiguity has yet to be resolved. If a severe and persistent 10-year drought occurs, major disruptions of water use practices and water deliveries will result, and the full deliveries to Mexico will be regularly threatened. Waiting until serious pressures develop on the water resources of the Colorado River will only increase the difficulty of resolving these issues. Therefore, negotiations should begin as soon as possible to clarify "extraordinary drought" by defining it, identifying the onset of such an event, and determining allocations of subsequent shortages through clear formulas.

The 1944 Treaty was concluded on the assumption that the average water availability in the Colorado River Basin will continue to be the same in the future. Climatic changes will greatly complicate planning, especially for large-scale water transfers. While long-term droughts tend to be localized, global climatic changes caused by the greenhouse effect are likely to be widespread and persistent. This would produce shortages not only in the border, but also in neighboring regions that might otherwise have surplus water. In addition, uncertainties about details of specific regions' climatic changes may take decades to resolve. The uncertainties will increase the economic and political costs of large-scale transfers.

Such is the magnitude of the transboundary water availability agenda that Mexico and the United States will have to face. Bilateral work has to be started with absolutely no delay—nature may already be running ahead of both awareness and political will to respond to the challenge.

12. J. Knox & R. Buddemeir, Lawrence Livermore Laboratory, Impacts of Climate Change on California Water Resources ( ).

13. C. Stockton & W. Boggess, Geohydrological Implications of Climate Change on Water Resource Development (1979).

14. Environmental Protection Agency, The Potential Effects of Global Climate Change on the United States (1989).

3. Transboundary Water Quality

The lesser the volume of water available in a drainage basin or in a groundwater aquifer, the greater the chances of salt contamination because less water is left to dilute the natural saline conditions so typical of basins in the Mexico–United States boundary. As the climate warms and water supplies decline, rivers and aquifers will become saline—possibly to the point that it will be unusable. Even without global warming, predicted population growth rates and future appropriations of allocated waters, in addition to quantification of Indian water rights, will decrease water supplies and increase salinity. The United States, as the upper riparian country in most instances along the border, may fulfill its treaty obligations with Mexico by keeping the best water and delivering the more saline volumes. Thus, salinity may once again become a major controversy between Mexico and the United States.

B. Flora and Fauna Issues

In the field of the international regulation for the utilization and conservation of flora and fauna, Mexico and the United States have cooperated not only through some multilateral instruments, but also through bilateral agreements. The challenge of effectively protecting wildlife resources throughout the two countries, however, is much bigger than any actions taken so far. The biodiversity of the region, the variety of living things within it, is at stake. It is widely accepted that the biosphere comprises extremely complex and interrelated systems; a change in even one element of a system creates impacts on other elements and could even affect the entire planet. The interrelatedness is therefore a very important factor to be taken into account in the management of various ecosystems, including any regional ecosystem.

There are eleven multilateral instruments on international flora and fauna resources. Of those, both Mexico and the United States are bound to only four,[15] the United States is a signatory to four more,[16] and Mexico has signed one more.[17] The participation of Mexico and the United States in the multilateral conventions is extremely important

15. International Plant Protection Convention, Dec. 6, 1951, 23 U.S.T. 2767; Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Feb. 2, 1971, T.I.A.S. No. 11,08411, *reprinted in* I.L.M. 963; the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere, Oct. 12, 1940, 56 Stat. 1354; UNESCO Convention Concerning the Protection of World Cultural Heritage, Nov. 23, 1972, 27 U.S.T. 37.

16. Convention on International Trade in Endangered Species of Wild Fauna and Flora, Mar. 6, 1973, 27 U.S.T. 1087; International Convention for the Protection of New Varieties of Plants, Oct. 23, 1978, 33 U.S.T. 2703; Convention Placing the International Poplar Commission within the Framework of the Food and Agriculture Organization of the United Nations, Nov. 19, 1959, T.I.A.S. No. 6952; and the International Tropical Timber Agreement, Nov. 18, 1983, 29 U.S.T. 55790.

17. Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, Mar. 24, 1983, 22 I.L.M. 221.

because they avoid negotiating separate bilateral treaties or agreements, which takes time and can be quite costly. Where there already exist international rules to govern the utilization and conservation of these resources, joining such conventions represents a very attractive shortcut.

On the bilateral front, the spectrum of cooperation has been quite rich. Mexico and the United States signed the Convention for the Protection of Migratory Birds and Game Mammals in 1936[18] and supplemented it in 1972 with a further agreement.[19] These two conventional instruments constitute the seed of the now long-established tradition of bilateral cooperation for the protection of transboundary flora and fauna between the two countries. In December 1954, the two countries established the Mexico–United States Joint Committee for the Conservation of Wildlife, a body composed of the Mexican Flora and Fauna Division of the Secretariat of Urban Development and Ecology and of the United States Department of the Interior's Fish and Wildlife Service. The committee adopted two cooperative agreements in 1987. The first addresses the control of traffic in wild species of flora and fauna; the other concerns research, studies, and scientific collection of territorial and aquatic species of wild flora and fauna. In 1988, the Joint Committee further identified and classified four categories of cooperative projects in this field: protected areas, endangered species, migratory bird management, and administration and law enforcement. Finally, on November 30, 1988, the United States and Mexico signed a Memorandum of Understanding on Cooperation in the Management and Protection of National Parks and other Protected Natural and Cultural Heritage.

During the 54 years of Mexico–United States cooperation in this field, they have put into operation successful programs of bilateral action pertaining to a large number of species that migrate through their respective territories and jurisdictions.

Trilateral action on flora and fauna in North America began in 1960 with the creation of the North American Forestry Commission of the United Nations Food and Agriculture Organization. In 1976, the three countries signed an agreement to protect plants and to create the North American Plant Protection Organization. Finally, in March 1988, Mexico, the United States, and Canada adopted a Memorandum of Understanding to exchange information, to cooperate on wetlands and migratory bird refuges, and to establish a Tripartite Committee to develop a strategy for the conservation of migratory birds and their habitats through a Management Coordination Plan.

If the climate changes as drastically and as rapidly as is predicted, the flora and fauna are likely to be devastated. While climate has changed

18. Feb. 7, 1936, U.S.-Mex., 50 Stat. 1311.
19. Mar. 10, 1972, U.S.-Mex., 23 U.S.T. 260.

in the past, these changes have occurred slowly, giving plants and animals time to adapt or to move to more appropriate climes. However, the changes predicted now will occur within less than one human generation—not nearly enough time for adaptation or migration. The countries of North America must begin discussing options to preserve their abundant resources in the event of global climate change.

The richness of the work accomplished so far merely gives an indication of the enormous job still to be done to rescue what, for centuries, was deteriorated by human activities. In addition, given potential future changes such as global climate change, the agenda is not an easy one. There is a considerable proportion of this work that has to be implemented in the border area, and, if the past and current trends of cooperative effort are continued, there certainly is well-founded hope in this area that the future will be positive.

C. The Atmosphere

The superjacent atmosphere of North America is itself a transboundary natural resource. One of the many functions of the atmosphere in its intimate and reciprocal relationship with virtually all other elements of any ecosystem is its ability to serve as a carrier of pollutants.[20]

Great transboundary atmospheric interferences do occur in North America. The long-range transport of air pollutants does not only occur bilaterally, but from one end of the North American region to the other. Its worst version is perhaps acid deposition of pollutants such as sulfur dioxide emitted from fossil fuel–burning plants and nitrogen oxides produced by motor vehicles. Because of acidic deposition, some susceptible lakes in North America can no longer support aquatic life. Half of the 700,000 lakes in the six eastern provinces of Canada are extremely acid sensitive, as are many in the northern United States.[21]

Concern is growing about DDT entering the Great Lakes, and recent studies suggest that it is being transported through the atmosphere for thousands of kilometers from Mexico and Central America, where the pesticide is still in widespread use. Its long-range transport is facilitated by the general circulation pattern that brings moisture from the Gulf of Mexico into the United States, as well as by anticyclonic airflow sweeping across the eastern seaboard. In Mexico, DDT is still manufactured and used in the south for mosquito control.[22]

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20. C. Flinterman et al., *Transboundary Air Pollution: International Legal Aspects of the Cooperation of States*, 12 Air Law 112 (1987).

21. M. Dudley, *Acid Rain and U.S.-Canadian Environmental Relations: Looking Beyond National Solutions to Transboundary Pollution*, 5 Kansainoikeus Ius Gentium 86 (1988).

22. S. Eisenreich, *Toxic Fallout in the Great Lakes, in* Issues in Science and Technology 71 (Fall 1987); R. Rappaport, *New DDT Inputs to North America: Atmospheric Deposition*, 14 Chemisphere 1167 (1985).

Another very serious atmospheric problem is the depletion of the earth's protective ozone layer, a problem that affects not only North America, but the entire planet. Of ozone-depleting substances, 35 percent of all chlorofluorocarbons (CFCs) in the world are consumed in the United States and Canada, while only one percent is consumed in Mexico, and an additional two percent in the rest of Latin America.[23] Mexico, the United States, and Canada are parties to the 1984 Vienna Convention on the Protection of the Ozone Layer,[24] as well as of its 1986 Montreal Protocol.[25] Mexico was the first country to ratify the Montreal Protocol and has committed itself to reducing the use of controlled substances by 1993 in the case of CFCs, and by 1996 in the case of halons, that is 17 and 14 years ahead of the schedule set by the Protocol.

Both Mexico and Canada were quite active in the negotiations leading to the adoption of Amendments to the Montreal Protocol, at the Second Meeting of the Parties to it, on Ozone Depletion Substances.[26] Mexico's participation was instrumental in securing the establishment of a Multilateral Fund to finance the incremental costs involved for developing countries in substituting the use of the substances that deplete the ozone layer, that is CFCs, halons, carbon tetrachloride, methylchloroform, and HCFCs. This was accomplished despite lack of enthusiasm on the part of the United States, especially on the rules for the operation of the Fund. The same was the case for the provisions on the transfer of technologies to the developing countries.

In the context of global warming negotiations, through the Intergovernmental Panel on Climate Change (IPCC), established by the United Nations Environment Programme and the World Meteorological Organization, the three countries of the region have been quite active and have played leading roles, albeit not necessarily in the same direction. In contrast with his announced intention to be the "President of the Environment," George Bush and his administration have been labeled as being opposed to the immediate adoption of concrete national and international actions, to respond effectively to climate change sources and consequences. Mexico, on the other hand, has become one of the most active and constructive developing countries in the IPCC process and has been outstanding for its detailed proposals on dealing with the problem. It has championed the so-called "precautionary principle," the establishment of an international trust fund to cover the incremental costs to be incurred by

23. UNEP Technical Options Report, Technical Progress in Protecting the Ozone Layer, Refrigeration, Air Conditioning and Heat Pumps (June 30, 1989).

24. Montreal Protocol for the Protection of the Ozone Layer, *opened for signature* Mar. 22, 1985, U.N. Doc. UNEP/1G.53/5/Rev. 1, *reprinted in* 26 I.L.M. 1529 (1987).

25. 1987 Montreal Protocol on Substances that Deplete the Ozone Layer, *opened for signature* Sept. 16, 1987, 26 I.L.M. 1541.

26. United Nations Environmental Programme Report of the Second Meeting, U.N. Doc. UNEP/OZL. PRO. 2/3 (1990).

developing countries, and the transfer of technologies on a preferential and noncommercial basis. In fact, the United States has detracted from such an immediate course of action, calling instead for more research and information before undertaking any specific legal commitments. What is already known about the phenomenon has been regarded as sufficient to trigger an unprecedented amount of international consultations, mostly through the IPCC process. A lot of time and human and financial resources have been devoted internationally since 1984 to taking precautionary measures to handle this formidable challenge.

Once the 1983 La Paz Agreement between Mexico and the United States on Cooperation for the Protection and Improvement of the Environment in the Border Region came into force, (47) the National Coordinators appointed by the two parties established a Working Group of Technical Experts on Air Quality. Eventually, successful negotiations led to the adoption of two important annexes. Annex IV, containing the Agreement of Cooperation between Mexico and the United States Regarding the Transboundary Air Pollution Caused by Copper Smelters along Their Common Border, (48) was signed after a very difficult but positive negotiation. As a result of this agreement, a grave problem of transboundary air pollution, originating in the triangle of copper smelters formed by the Phelps Dodge (Arizona), Nacozari and Cananea (Sonora) plants, was effectively dealt with. (49) The first plant was closed, the second committed to operate with the utilization of a high efficiency plant to be constructed for the processing of sulfur dioxide into sulfuric acid, and production at Cananea was frozen at its then current capacity.

Annex V to the La Paz Agreement, containing the Agreement between Mexico and the United States on the International Transport of Urban Air Pollution, was signed in 1989. This instrument was specifically negotiated to combat air pollution problems in the Ciudad Juarez–El Paso region. The provisions of the agreement, however, fall short of concrete action, and more such agreements with action-oriented clauses will be needed in other urban areas along the border.[27] The agreement does in fact allow for further transboundary cooperation for other twin cities that may require it.[28]

D. Environmental Cooperation

Almost any observer of international work on environmental cooperation would agree that Mexico, the United States, and Canada have always been individually and, at times, jointly at the forefront of all multilateral endeavors in environmental protection, irrespective of the fora or

27. C. Bath & Rodriguez, *Comparative and Binational Air Pollution Policy: El Paso, Texas and Ciudad Juarez, Chihuahua*, 6 Borderlands J. 171 (1983).

28. E. Jauregui, Center for Atmospheric Studies, Local Winds and Air Pollution in the Tijuana/San Diego Air Basin (1981).

the subject. Their presence was strongly felt in the international arena, almost always as positive contributors, be it at the 1972 United Nations Conference on the Human Environment or at the multitude of international meetings that ensued for almost two decades throughout the United Nations system, including those sponsored by the United Nations Environment Programme (UNEP). The same seems to be the case for the 1992 United Nations Conference on the Environment and Development.

August 14, 1983, is an important date for Mexico–United States transboundary cooperation because the presidents signed the La Paz Agreement on Cooperation for the Protection and Improvement of the Environment in the Border Area.[29] Mexico and the United States agreed to cooperate to prevent, reduce, and eliminate pollution sources in their respective territories that may affect the border area (defined as an area 100 kilometers to each side of both the land and the maritime boundaries of the two countries). Given the dimensions of such boundaries, the area of application of the agreement comprises an impressive portion of territory and ocean space, larger than the territory of many countries of the world. The agreement provides for the conclusion of special or ad hoc arrangements to deal with specific common border environmental problems. The agreement is applicable to all possible environmental issues.

At the beginning of the 1980s, the two countries were experiencing some severe environmental problems on their border. Facing them on an isolated, case-by-case, or ad hoc basis was highly difficult; it was all too easy to get bogged down or entangled in the solution of just one, effectively canceling the possibilities of moving to the others. Instead, the two countries chose to agree on a general framework of environmental cooperation that would then serve as a vehicle or platform to face the specific challenges. The strategy has proved to be correct so far. Still leaving water sanitation problems basically in the hands of the IBWC, the agreement created a new bilateral institutional mechanism in order to deal with environmental cooperation matters. National Coordinators were designated to coordinate and monitor the implementation of the agreement and its annexes, make recommendations to the parties, and organize annual meetings. In the case of Mexico, the National Coordinator is the Secretaria de Desarrollo Urbano y Ecologia, and in the case of the United States, its Environmental Protection Agency. In March 1984, the First Annual Meeting of the National Coordinators took place in Tijuana, where they agreed to establish working groups on air, water, and soil quality.

By the end of the 1980s, the United States and Mexico agreed on five annexes, creating concrete schemes for cooperation on:

29. Agreement Between the United States of America and the United Mexican States on Cooperation for the Protection and Improvement of the Environment in the Border Area, U.S.-Mex., Aug. 14, 1983, T.I.A.S. 10827.

1. a terrible water sanitation problem coming from the sewages of Tijuana to San Diego and its adjoining bay;[30]
2. an increasing discharge of dangerous substances in the border rivers;
3. an increasing illegal movement of hazardous wastes and substances from the United States to Mexico;
4. an alarming case of air pollution by a triangle of copper smelters in the border; and
5. a growing and worrisome case of urban air pollution in the Cuidad–El Paso region.

As a result of these annexes, sanitation plants and facilities have been and are being built; a similar project is being approved for a water sanitation treatment plant in the Laredo–Nuevo Laredo area, and more should be expected in other twin cities as they grow; copper smelters have been either closed down, frozen at their current capacities, or modified with processing installations. Monitoring devices are now common at both sides of the border, more stringent environmental regulations have been adopted for the area by the two countries, and the exchange of data and training of personnel is now commonplace. There should be no doubt that new environmental challenges, especially the potential effects of global warming, will present the La Paz process with a large working agenda, and the National Coordinators will be subject to increasing demands for effectiveness.

The recently finalized Integral Binational Plan for the Improvement and Protection of the Environment in the Border Area, which involves both the International Boundary and Water Commission and the La Paz National Coordinators, is an additional mechanism involved in environmental protection in the border region and constitutes the most significant promise for the future in the bilateral environmental relationship.

THE INSTITUTIONAL CHALLENGES

The enormity of the task to be undertaken by Mexico and the United States, and even by Canada, should be sufficient to create anxiety over the type of institutional mechanisms that will be required to do the job. The existing mechanisms are currently separate and independent; only the foreign ministries exercise some sort of general supervisory role of their work. Soon, however, the countries will have to start rethinking

30. C. Metzner, *Transboundary Sewage Problems: Tijuana/San Diego/New River/Imperial Valley*, 2 Transboundary Res. Rep. 5 (1986); N. Glickman, *Keep Your Pollution to Yourself: Institutions for Regulating Transboundary Pollution and the United States–Mexico Approach*, 25 Va. J. Int'l L. 693 (1985).

their current structure and the creation of a North American or even a global institution may be possible or necessary. A trilateral organization should be entrusted with supervising the work of its members and coordinating the endeavors of their bilateral institutions in a coherent and compatible manner. There are many questions to answer in order to effectively deal with the future environmental problems, and the answers must be considered soon in order to provide successful solutions. All efforts should be exercised to make the North American community an integrated ecological region within its institutions, as it is already in reality.