

Air Pollution Beyond Boundaries: *Opportunities for Ecological Modernization in Paso del Norte*

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ABSTRACT

Air pollution in Paso del Norte, the region encompassing Sunland Park, New Mexico, El Paso, Texas, and Ciudad Juárez, Chihuahua, is a contentious matter. Grassroots and nongovernmental organizations on both sides of the border have pressed the governments of Mexico and the United States to seek solutions. The La Paz Agreement and the environmental institutions that emerged with the NAFTA entail binational efforts to tackle common concerns. However, several factors have prevented reaching satisfactory outcomes. The lesson is that institutions have internalized the air problem, through “air programs,” and they have not arrived at any solution. Ecological modernization is an alternative to traditional modes of addressing environmental matters. A process of eco-modernization is happening in Paso del Norte, but its success is limited.

Keywords: 1. environment, 2. air pollution, 3. NAFTA, 4. civil society, 5. U.S.-Mexico borderlands.

Contaminación del aire más allá de las fronteras: oportunidad para la modernización ecológica en Paso del Norte

RESUMEN

La contaminación del aire en Paso del Norte es un asunto preocupante. Algunos ciudadanos y organismos no gubernamentales compelen a los gobiernos de México y Estados Unidos a buscar soluciones a este problema binacional. El Acuerdo de La Paz y las instituciones que nacieron junto con el Tratado de Libre Comercio representan esfuerzos para confrontar los problemas ambientales fronterizos; sin embargo, varios factores han impedido alcanzar resultados satisfactorios. La lección es que las instituciones han internalizado el problema a través de “programas de aire” y, por consiguiente, no han arribado a su solución. La modernización ecológica es una alternativa a la gestión ambiental tradicional. En este artículo expongo que en Paso del Norte ocurre un proceso de ecomodernización. Concluyo que aunque la modernización ecológica se presenta en la región, su éxito es limitado.

Palabras claves: 1. medio ambiente, 2. contaminación del aire, 3. TLC, 4. sociedad civil, 5. frontera México-Estados Unidos.

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*INTRODUCTION***

Degradation in air quality is a major concern in the “twin cities” of the Mexico-U.S. border. Compared to other binational problems, this issue is one of the most studied—at least on technical-scientific grounds. Nevertheless, the quantity of information has not generated viable solutions. Technical options for improving air quality already exist, but the related social, economic, and political issues, which appear to outweigh the former in decision-making processes, have been improperly addressed because those working to address these issues have not taken into account the cross-border character of air pollution.

Paso del Norte (PDN)—the area including Sunland Park, New Mexico, El Paso, Texas, and Ciudad Juárez, Chihuahua—is the second most populous twin-city area on the border (1 764 246 inhabitants in 2000), after Tijuana-San Diego. The three cities of PDN share an atmospheric basin, making air pollution a contentious matter.

Knowing that geopolitical arrangements have not taken into account the opinion of the local population nor the basin's physical characteristics, the PDN community has mobilized around the environmental issue to a degree unseen elsewhere. Residents organized and demanded that the authorities seek solutions to common problems. In response, the 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, known as the La Paz Agreement, was signed on August 14, 1983 (Mexico-U.S., 1983). It laid the groundwork for the creation, six years later, of the first binational air work group.

In 1990, amendments to the U.S. Clean Air Act (CAA), which authorized the Environmental Protection Agency (EPA) to negotiate programs with Mexico to set air-quality standards, offered border residents hope for improvement. The Border XXI program of 1996 and Commission for Environmental Cooperation, Border Environment Cooperation Commission, and North America Development Bank—the institutions born along with the North America Free Trade Agreement (EPA)—were further attempts to confront environmental problems. Because of historical, cultural, and economic disparities (that have not

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been fully recognized), Mexico and the United States have had to struggle to construct these binational endeavors.

The goal of these institutions is the achievement of sustainable development, as widely defined by the World Commission on Environment and Development (WCED, 1987:43). They propose to attain sustainable development by balancing social and economic factors in border communities, protecting the environment, and assisting communities in their decision-making processes (U.S.-Mexico, 1996). However, institutions like Border XXI and its air work group have internalized the air-pollution issue by implementing “air-quality programs.” Despite their mission, these institutions have had meager success in solving environmental issues, and the air-quality problem continues (Steinberg, 1997; Hackenberg and Álvarez, 2001:101; Varady *et al.*, 2001:34; Dubal *et al.*, 2001-2002:47). To some extent, this is because these institutions were designed without a proactive, or preventive, capability for tackling environmental degradation (Spalding, 2000:97; Mumme, 2000:103). The declining air quality in Paso del Norte demands new approaches, yet these should be less than radical, in the sense that former achievements must be maintained and realistic goals must prevail.

Ecological Modernization (EM) is a social-scientific and policy-oriented alternative to traditional ways of dealing with environmental matters that focuses on reforms in institutional designs and societal and policy discourses. EM embeds the goal of “sustainability” in its propositions, anticipating that institutions can help to ease the conflictive environment-economy relationship within parameters with which they have normally worked.

This article examines EM propositions. It argues that a process of eco-modernization is happening in PDN with regard to the air-quality issue. Following an overview of the air pollution problem in the region, the article describes the main characteristics of EM and unveils evidence that eco-modernization in PDN is succeeding only to some extent. In conclusion, the article suggests that this limited success is due to factors inherent in EM itself and in the empirical realm in which it is being tested.

AIR POLLUTION: AN OVERVIEW

For decades, deterioration in the quality of breathable air in Paso del Norte has been a matter of great concern. The topographic conditions of its atmo-

spheric basin and the movement of suspended particles back and forth across the border intensify the accumulation of natural and manmade pollutants in the air. The list of pollution sources is long: vehicle emissions, dust from unpaved roads and the surrounding desert, open burning (brick kilns and small-scale industrial sources, and burning of scrap wood and refuse material for home heating and cooking), construction materials and equipment, fuel transport and storage, fugitive solvents, and heavy industry (Hamson, 1996; CERM, 1998; Blackman *et al.*, 2000:3). Pollution emitted into the air disperses slowly in this semiarid region, where temperature inversions occur regularly during the cooler months, which average from 6 degrees centigrade in January to 12.8 degrees centigrade in March (Emerson, 1995:153; Desert USA, 2000).

Local efforts to address the air-quality problem have been ongoing. El Paso has been the most active in attempting to find solutions, mainly after the federal government started pressing local authorities concerning areas that were in noncompliance with national standards.

In 1981, a scholar at the University of Texas at El Paso (UTEP) wrote, with apparent anger, that the EPA had declared the city to be a non-attainment area with regard to carbon monoxide (CO). He argued that UTEP studies had long recognized that although CO was being measured in El Paso, not all of it was being emitted from vehicles under control of local authorities. For classification purposes, UTEP researchers had divided the region's CO emissions into three broad categories: local CO, from vehicles registered in El Paso; federal CO, from vehicles waiting to pass through customs and federally registered vehicles at Fort Bliss; and foreign CO, from Ciudad Juárez. They found that approximately 17% of the CO emitted in the El Paso area came from sources over which El Paso had no jurisdiction. They regarded this figure as conservative. It seems that they were expecting a higher figure bearing in mind that the monitored sites, which were near the Rio Bravo, were "influenced by emissions from Ciudad Juárez and bridge crossings." The scholar concluded that before assigning penalties to El Paso, the EPA regulators "should first set the federal house in order; then they should take into consideration the influx of CO from Mexico." He insisted that by controlling either of those two sources, El Paso could comply with the federal standards (Applegate, 1981:13-14).

During the early 1990s, attention to the border environment increased, primarily because of uncertainty regarding NAFTA's impact on the region (Scharrer, 1990:1A:2A; Hansen-Kuhn, 1997:22; Liverman *et al.*, 1999:621) and also because

U.S. authorities exhibited a lack of trust in their Mexican counterparts. The November 1991 statements of the El Paso city-county supervisor for air-pollution control are evidence of the trust issue. This official, while expressing concern that pollution would arrive far in advance of any solutions, stated that he doubted that Ciudad Juárez even possessed a street sweeper. Similarly, a scholar declared that NAFTA would lead to an environmental disaster along the border because the trade agreement would promote the arrival of more business, people, and cars to the region (Kennedy, 1991:A20).

Studies show that automobiles are the primary source of air-pollution emissions. Michael Kennedy reported that car dealers regularly visited Phoenix, Dallas, and Albuquerque to buy old cars to bring back to El Paso. As a result, vehicles in the area were twice as old as the average in the United States. When these cars became junkers, the next stop was across the border in Juárez, where emission-control devices were often discarded (Kennedy, 1991:A1).

In 1995, the Texas Natural Resource Conservation Commission (TNRCC) released a report on El Paso air quality, which stated that the area was in violation of EPA's National Ambient Air Quality Standards (NAAQS) for airborne particulate matter, ozone, and carbon monoxide. The agency stated its studies and those done by other organizations indicated emissions in Juárez might have significant influence on air pollution levels recorded in El Paso although it was not known "how much pollution is transported across the border from Juárez."

In 1998, Mexican authorities issued a report on air quality in Juárez, which concluded that the city exceeded the Mexican national allowable standards for ozone on about 2% of the days during one year, for carbon monoxide, 7%, and for particulate matter (PM10), 18%. Rather than mentioning specific sources of pollution, the report merely observed that the variation in CO measurements in the city did not appear normal, and that it "may yet be possible that the monitoring stations are not located correctly, and thus they are influenced by nearby emission sources" (Ciudad Juárez, 1998:63-64). Table 1 shows national air standards for Mexico and the United States.

Thus, several aspects come into play: First, federal and local authorities have conflicting interests in regard to the decision-making process; yet, some outside that process would like to be included in it. Second, economic development and environmental protection have long been at odds. Third, some U.S. authorities exhibit scorn and distrust toward the performance of their

Mexican counterparts. And, fourth, there is an acceptable level of technical accuracy in the measurement of air quality, even south of the border.

It is obvious that technical knowledge and command-control schemes do not mean a solution *per se*. For instance, in October 1997, the *El Paso Times* commented on the EPA proposal for raising air-quality standards, by suggesting that tougher standards would inconvenience industries and perhaps even the public. It noted that those El Paso industries identified as major polluters had already complied with federal regulations. Thus, it concluded that the main cause of air pollution was automobile use. It further added that even though Juárez and El Paso had implemented efforts to improve air quality, both cities needed to expand these at a grassroots level (*El Paso Times* 1997, 10A).

TABLE 1. *NAAQS in Mexico and the United States (selected data).*

Pollutant	Threshold values (concentration/average length of exposure)	
	Mexico	United States
Particulate matter (PM10), ozone (O ³), carbon monoxide (CO)	150 µg/m ³ (24 hours) 0.11 ppm (1 hour) 11 ppm (8 hours)	150 µg/m ³ (24 hours) 0.12 ppm (1 hour) 9 ppm (8 hours)

PM10= Particulate matter of 10 microns or less in diameter; µg/m³= micrograms per cubic meter; ppm= parts per million (Ciudad Juárez, 1998:34-5; TNRCC, 1995:GI-185-C).

ECOLOGICAL MODERNIZATION

Ecological modernization is a label for a relatively new social-scientific and policy-oriented approach that addresses environmental issues. It proposes to analyze how contemporary societies manage the environmental crisis, focusing on reforms in social practices, institutional designs, and societal and policy discourses in order to protect a society's resource base (Blowers, 1997:846; Mol and Sonnenfeld, 2000:5-6). People define EM in a variety of ways, ranging from a set of concepts loosely connected to theoretical notions (whether in-

dustrial, scientific, technological, or social) through a fully developed theory, with explanative and predictive capabilities. Some define it as a simple strategy for industrial reform—thus a normative framework—the goal of which is to maintain the current trends in development in advanced societies. Some scholars focus more concretely on industrial institutions as a first target, claiming that EM equates to “industrial restructuring for sustainable development” (Simonis, 1989:361) or “ecological restructuring of industrial development” (Jamison, 1997).

EM regards the environmental challenge not as a crisis but as an opportunity, because it assumes that a process of industrial, ecologically guided innovation—encouraged by a market economy and facilitated by an enabling state—will ensure environmental conservation. The process is one of gradual change and institutional adaptation achieved through consensus (Blowers, 1997:847). EM accepts that critical environmental problems exist, which indicate fundamental omissions in the workings of the institutions of modern society. Nevertheless, this does not mean those institutions should be eliminated; the answer, instead, is institutional improvement (transformation) (Hajer, 1995:3; Mol and Spaargaren, 2000:19).

Indeed, eco-modernists presume that the market, the state, and technological innovations, especially in industrial production, play an important role in environmental reform. They acknowledge that it is worthwhile to observe environmental problems from a systems-theoretical and rather evolutionary perspective although they believe it is even better to take into account human agency and social struggles. They also note that analyses should be oriented toward the nation-state level, and that modern institutions can incorporate environmental interests into their daily routines in order to reach a consensus between environmental and economic interests.

EM encompasses several propositions to achieve environmental reforms (Simonis, 1989:361; Cohen, 1997:109; Mol and Sonnenfeld, 2000:6-7):

- conversion of the economy through ecological-structural change, namely “super-industrialization;”
- re-orientation of environmental policy toward prevention;
- replacement of current economic policy with policies that have an ecological orientation;
- implementation of government regulations to promote innovation in environmental technology;

- reassessment of the role of science and technology;
- placing increased importance on market dynamics and economic agents;
- transformation of the role of the nation-state (political modernization);
- modification of the position, role, and ideology of social movements;
- alteration of discursive practices of social actors and promotion of the emergence of new ideologies.

As either a theory or a social-scientific and policy-oriented strategy, EM has yet to be thoroughly tested. On theoretical grounds, it must still answer several criticisms. For example, is it merely a technocratic approach, a way of continuing business as usual (cf. Hajer, 1995:32-33; Jamison, 1997)? Does it avoid incorporating conflict as complementary to cooperation (Ottersen, 2000)? As a strategy, it needs to be tested in a greater number of empirical undertakings, for example, in governmental agendas.

It is worth noting that although EM was born in response to the problems of industrial societies, its extension to developing countries is feasible. Until its appearance in PDN, EM had not been tested in two scenarios: a binational sphere and an intersecting arena of developed-developing countries. The Mexico-U.S. border region offers both these challenges. To determine the extent to which EM is working in PDN, I next examine the specificities of the air-quality issue.

ECOLOGICAL MODERNIZATION MEETS PASO DEL NORTE

Regulations and Techniques

In PDN, environmental policy in the industrial sector is strongly biased to a command-control scheme. This is nothing new. Since 1973, when a U.S. court ordered the Asarco Company to reduce its emissions of toxic lead dust, the federal government has sketched a strategy of pollution reduction (Simons, 1977:A29). By 1997, Asarco and other industries identified as major polluters (Chevron, El Paso Electric, and Jobe Enterprises) had already spent millions of dollars to comply with federal regulations (*El Paso Times*, 1997:10A). (Asarco suspended its activities in February 1998, alleging market failures [*Diario digital*, 1999].)

By the late 1990s, Mexican law enforcement officials were also following the command-control principle. The federal attorney for the environment promised the Mexican government's commitment to improving surveillance of in-

dustrial plants in Juárez. To that end, the local government should have approved environmental-contingency programs similar to those of central Mexico, where the law mandates a reduction in industrial activity when there is an increase in levels of ozone and suspended particles (Ruiz and Salas, 1996:25A). Similarly, in the United States, the EPA wanted to reduce smog by reducing allowable ozone from 0.12 ppm over the course of one hour to 0.8 ppm over the course of eight hours (Gregor, 1997:1B).

The command-control scheme has appealed not only to governments: The nonprofit Paso del Norte Clean Cities Coalition tried to promote a smog-control program, which would have asked residents to limit their use of automobiles, lawn mowers, charcoal grills, solvent-based paints, and other items on days when smog was prevalent. The program would have required residents on both sides of the border to take action to diminish levels of smog concentration in the greater metropolitan areas of El Paso and Juárez. Those residents who were willing to car-pool on smoggy days welcomed the proposal (Gregor, 1997:1B).

The command-control approach, however, clashes with economic and political interests. In trying to capitalize political support from the business community, politicians fight for the abatement of regulatory measures. The case of a Republican senator is illustrative. In October 1997, he sponsored legislation to postpone for five years the implementation of the new and stricter air-quality standards in Texas. He argued that new rules regulating ozone—or smog—and airborne particles would restrict businesses and family life in El Paso. The senator argued the EPA regulations would deter businesses from moving into El Paso and even drive away some existing businesses (Gregor, 1997:1B).

The political considerations inherent in local or federal agendas become obstacles to solving the air pollution problem. Thus, it is not uncommon to learn of middle-of-the-road solutions. For example, before encountering legislative opposition, the EPA had intended to create an intermediary standard for cities, such as El Paso, that abut regions, such as Juárez, where pollution regulations may be less stringent or entirely nonexistent. Although this type of intermediary standard would ease the city into the stricter regulations (Gregor, 1997:4B), it would also place El Paso in the less stringently regulated group.

The technical side of the air-pollution issue is relatively well known. Since 1989, both Mexican and U.S. authorities have implemented ongoing monitoring

on the border to expand scientific knowledge about pollutants and introduce appropriate measures to reduce emissions to safe levels. In August 1996, environmental scientists from both countries launched a U.S.\$2 million study that used state-of-the-art equipment to determine the amounts and sources of ozone pollution in the Juárez-El Paso area (*Cambio*, 1996:22). Then, in November, the Joint Advisory Committee on air quality improvement (JAC), a team established six months earlier by governmental and nongovernmental representatives of both countries, met in El Paso to announce the establishment of a common index for measurement of pollutants and the creation of a binational emissions inventory (*Excelsior*, 1996:S5A).

Binational Cooperation and Environment-Economy Linkages

Over time, binational cooperation in addressing environmental problems has increased. The 1989 binational accord for studying air quality along the border derived from Annex v to the La Paz Agreement; it sought a better understanding of the problem through an inventory of emission sources, air-quality monitoring, and modeling. The studies conducted thereafter were foundational for the next step—a coordinated transboundary management strategy to improve air quality in the region.

In 1990, when the U.S. Congress amended the CAA, it gave the executive branch authority to negotiate with Mexico on air-quality programs in the region. The CAA made it possible for the EPA to provide personnel, equipment, and direct funding for air-quality monitoring and improvement projects (Emerson and Wallace, 1991:6). By June, El Paso and Juárez were engaged in a program to control air pollution. This was the first time health officials in Juárez were cooperating by monitoring pollution there. To that end, two full-time technicians in Juárez—trained and paid by the El Paso Health District using EPA financial support—were checking data gathered by atmospheric monitoring equipment. According to the supervisor of the air-pollution division of the City-County Health District, El Paso lent Juárez equipment on a permanent basis because the Mexican government could not afford to buy and maintain it (Ivey, 1990:1A:2A).

The strategy of monitoring, learning, controlling, and improving within a scheme of binational coordination reflects an attempt to put aside past mutual

recriminations. However, benefits of the strategy went beyond the aim of binational cooperation to tackle air pollution. The city of El Paso would certainly benefit from the CAA amendments, which (overlooking the possibility that air-pollution problems might be transborder in origin) mandated that a state showing itself to be in compliance with national standards could be exempt from some of the penalties and provisions that would otherwise apply (Emerson and Wallace, 1991:6).

In 1992, the PDN Air Quality Task Force (PDNAQTF), a binational group of business leaders, regulators, scientists, environmentalists, and elected officials, formed to work for cleaner air (*BorderLines*, 1996; Ogden-Tamez, 1996). The November 1993 proposal to create the El Paso/Juárez International Air Quality Management District (IAQMD) evidenced the environment-economy linkage. The idea of a district arose from a board created by the State of Texas, whose mission was to find “ways of cleaning the shared El Paso and Juárez air.” The Clinton administration and other NAFTA supporters pointed to the IAQMD as an example of environmental cooperation that “could be expanded if NAFTA is approved.” In a letter to Texas Governor Ann Richards, former President Bill Clinton praised the district as the “kind of innovative approach our country needs in order to promote regional environmental protection” (Negron, 1993:2A).

Despite the predominance of economic interests over the environmental issues in the initiative to create the IAQMD, it proved to be a step in the right direction. With the goal of building “official ties that make cooperation easier,” it would have comprised appointees of local, state, and federal governments from El Paso, Doña Ana County, and Juárez. The district would have developed an air-emissions inventory, using the results to formulate control-measure alternatives, identify ways to work together, make proposals to the governments of both nations, promote technology sharing, educate the public, establish communication procedures, and encourage citizen participation (Negron, 1993:1A).

Bureaucratic Arrangements and Nongovernmental Actors

Members of the binational air-quality work group, which had formed in 1989, met in El Paso from March 26-29, 1996. During the meeting, they agreed on a preliminary designation for the International Air Basin and the creation of the

JAC to tackle the air-pollution problem. Each country would appoint 10 people to the committee, of whom half would represent local non-governmental sectors, four would represent local governments, and one would represent federal governments. Among the federal and state authorities representing the two nations would be individuals from the Mexican Ministry for the Environment, the EPA, and the TNRCC. Local nongovernmental participants could include business owners, economic leaders, Environmental Defense Fund (EDF) members, environmental scientists, and other private groups. Members of the PDNAQTF were on the inside track for appointment to the committee (*BorderLines*, 1996; Ogden-Tamez, 1996).

The JAC was the first group whose goal was to help the community to clean the air. It pursued efforts to remove the major obstacle to clean air—multiple jurisdictions. The region has three city governments as well as county/municipality, state, and federal governments. This fragmentation of power often made communication difficult. At times, the multiple government bureaucracies duplicated efforts or initiatives simply got bogged down in the bureaucratic apparatuses. The board did not have decision-making or enforcement authority, but it did represent a new effort to give local officials and citizens a leadership role on a binational issue (*BorderLines*, 1996; Ogden-Tamez, 1996). The JAC became official in May 1996, and in October, the Mexican branch was established in Juárez (Silva, 1996:10).

The role of nongovernmental actors in Paso del Norte deserves deeper attention. Although the creation of the PDNAQTF recognized the locals' wish to participate in decision-making processes, the JAC represented a more developed effort to gather together as many stakeholders as possible.

The JAC, nonetheless, had limited influence over the decision-making processes. According to the EDF, in the end, the governments rejected the proposal from the locals that an air-quality management district be created as an annex to the La Paz Agreement. This would have given a district the status of a La Paz work group and would have enabled it to make recommendations directly to cabinet ministers. Instead, the governments agreed to include the committee as Appendix 1 of the existing Annex V on cross-border air-quality issues. The JAC would thus make recommendations to the border-wide air work group, which could then pass them to the federal governments. It might also be given a role in implementing an approved strategy (*BorderLines*, 1996; *Excelsior*, 1996:5A).

Despite its lack of decision-making or enforcement authority, the JAC received praise. A member of the U.S. State Department's Office of Environmental Policy, which negotiated the agreement, exclaimed: "It's local empowerment [...] It's re-inventing government. It's power to the people" (*BorderLines*, 1996, n.p.).

The creators of the JAC had a goal of decentralization; they hoped to build the most cost effective and efficient way to clean local air by placing the money and control of clean-air projects at the lowest possible governmental level. Local officials and private citizens, who were living in and breathing the polluted air, were preferred over federal government officials, who were living in far-away capital cities. The group would not require additional funds from the treasuries of the two nations. Instead, it would allow local leaders to meet and discuss the problems and the ways to best use already existing funds (Ogden-Tamez, 1996).

Consumption Practices

An important factor in the failure to improve air quality in PDN relates to individuals' unwillingness to change their ways. Some sectors of civil society have shown positive attitudes in the face of the air-pollution threat in PDN. On September 11, 1990, the nongovernmental Citizens Environmental Advisory Committee presented several recommendations and ideas to help El Paso control its air-pollution problem. However, the committee's chairman said the city was powerless unless individual residents did their part, and after the meeting, he noted that individuals are unwilling to make personal sacrifices in order to control the problem. The board recommended government officials and citizens work together to move from using gasoline-powered automobiles to using those running on compressed natural gas; to promote the use of mass transportation; to ban wood burning during periods of air stagnation or inversions; to pave roads; and to identify sources of respiratory-disease-producing pollen (Pérez, 1990:1B).

Two years later, to reduce the high levels of pollution generated daily, service stations in Juárez were beginning to test private vehicles for emissions-standards compliance. The mayor of Juárez said that city officials were appealing to drivers' morality by asking them to participate in the emission-testing program (Bezick, 1992:1B).

The problem continued nevertheless. By October 1997, *El Paso Times* questioned the Republican senator's proposal to delay the implementation of the recently approved EPA standards, which would be in force for five years. Suggesting that standards should be realistic, the newspaper commented that, since most of El Paso's big industries had already complied with national regulations, the main cause of air pollution must be automobile use. But here was the crux of the issue: It was easy to point to the "big guys" (industries) or across the border (blaming Juárez), but "it's harder to individually forsake the independence of always being able to drive our own cars" (*El Paso Times*, 1997:10A).

CONCLUSION

Most approaches present sustainable development along the Mexico-U.S. border as either a theoretical aim or a programmatic guideline. However, scholars increasingly agree that environmental institutions are failing to reach this goal. Thoughtfulness is needed.

Approaching the air pollution issue in Paso del Norte through the lens of EM offered the opportunity to examine it from a different perspective, as well as to challenge the theoretic approach of EM in itself. Three factors suggested that the EM proposition needed to be tested further, under different conditions. First, EM presupposes that the "environmental crisis" is something that can be solved within the workings of current institutions, thus implying a nonradical break with established social practices. Second, EM calls for the building of social consensus, under the assumption that a higher commitment to environmental aims would translate into lessened social conflict. Third, EM attempts to reconcile economic and ecological objectives, claiming that both can be achieved simultaneously. Indeed, EM endorses studies that move beyond apocalyptic visions, to see environmental problems as challenges for social, technical, and economic reform.

Assessing the air-pollution issue and the possibility that a process of ecomodernization might succeed in the region sheds light on several scenarios. First, on the ground, the issue is better approached from a regulatory and technical stance than from a social or political perspective. To a great extent, the causes, symptoms, and consequences of air pollution in PDN are known, but

despite publicized efforts to halt the problem, air quality in the region continues to decline. Obstacles to the resolution of the transborder air-pollution problem exist in all areas except the technical arena. In this situation, EM is in trouble. On the U.S. side, the argument that uncontrolled pollution comes from abroad promotes the relaxation of enforcement measures. On the Mexican side, scarcity of human and material resources allows for lax law enforcement as well.

The EM assumption that lack of strict regulation will help promote innovation in environmental technology has yet to be demonstrated. It seems that the process of monitoring, learning, controlling, and improving remains stuck in the first phase in resolving the air, though it is reasonable to claim that the technical-scientific aspects of atmospheric pollution are now better known and managed. On a wider scale, however, national-level legislation on the implementation of emission-control devices in automobiles represents a step ahead in the abatement of pollution in PDN.

A second scenario is that the air problem appears linked to economic interests in such a way that a solution is unconceivable without a direct challenge to these interests. The PDNAQTF and the IAQMD exemplify the linkage between economic interests and environmental affairs. The debate over the likely consequences of the NAFTA catalyzed the creation of the former and the publicized initiative to establish the latter. Both circumstances created an opportunity to focus public attention on the air-pollution issue. The proposal to build up the IAQMD was tied to a series of adjustments that local and national governments in both nations made in order to advance the NAFTA approval process. The district was heralded as an example of the future binational arrangements that would help to improve the border environment if NAFTA passed. Once the trade agreement passed, the initiative to establish the IAQMD vanished. Similarly, after several years, the main commitment of the task force has faded, casting doubt on the EM promise that economic and environmental interests can be reconciled.

In a third scenario, forces outside the environmental field, strictly construed, condition bureaucratic arrangements and environmental reforms. Plainly, the JAC is an example of the EM vision for a transformation in the role of the nation-state that would allow for attempts to decentralize environmental processes while increasing public participation. However, the JAC's limited empowerment is an obstacle for the fulfillment of EM goals. Taking into account the

limited devolution and delegation of bureaucratic authority in Mexico (cf. Mumme, 2000:101-27), compared to public administration procedures in the United States, the objectives of EM are far from being accomplished.

The JAC reveals other EM goals. On one hand, its creation acknowledges the increasing importance of market dynamics and economic agents in the process of change. It fits the EM assumption that the more stakeholders there are in the process of environmental restructuring, the more successful the measures may be. On the other, nongovernmental and grassroots organizations, instead of being limited to the periphery of the policy stream of environmental reform, participate in the drafting of agreements within official channels. Nevertheless, it is worth noting that not all of the stakeholders surf on the wave of change. Even though they have much to say with regard to the state of the environment, significant numbers of grassroots and nongovernmental groups are left out because they lack of enough empowerment.

The air-quality issue shows that the road to ecological modernization in Paso del Norte is still in the preliminary stages. In spite of the appeals to morality, the lack of social will to change intermingled with economic and political interests lie at the root of the inability to solve environmental problems. Knowing the complexity of the matter, governments prefer the technical and command-control scheme alternative.

Environmental reform at the level of technology, industry, or government is not enough. If a better environment truly is a desired goal, politicians and interest groups will soon have to face the need to assess consumption patterns on a local as well as on a wider scale.

In terms of the spectrum of its propositions that are sound, EM has shown weakness in conflict-of-interest scenarios. Indeed, EM anticipates that institutions can alleviate the environment-economy duality within a framework of cooperation and consensus, but it does not acknowledge that conflict is more likely to occur when there is duality. Furthermore, EM does not include in its equation the role of conflict resolution, often portrayed as the heart of politics and an element required for a policy-oriented approach to succeed (Heywood, 2000:33-34; cf. Ottersen, 2000).

All in all, efforts to introduce EM in PDN aim to demonstrate that the way to enhance and consolidate the potential of ecological modernization is to do research in new geographic-thematic scenarios. Many such scenarios can be found along the Mexico-U.S. border.

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