INTRODUCTION

The North American Free Trade Agreement (NAFTA) links the economies of the United States, Mexico, and Canada—countries with drastically different levels of wealth. To illustrate, in 1988, the per capita income in Mexico was $4,996, whereas the per capita incomes of both the United States and Canada were in excess of $16,000. As a result of their greater wealth, both Canada and the United States have been able to fund environmental programs at levels that poorer countries, such as Mexico, cannot match. Mexico has instead given priority to economic growth over environmental protection.

NAFTA is expected to create new investment opportunities and to increase industrial activity in Mexico, making it more prosperous. With increased wealth comes an increased concern for the environment, but increased industrial activity generates increased pollution. How NAFTA is implemented will be critical to determining which trend prevails.

This Note focuses on the potential environmental ramifications of NAFTA in Mexico and the states along the U.S.-Mexico border (Texas, New Mexico, Arizona, and California). Part I examines the status of the Mexican environment as well as the statutory and bureaucratic framework designed to protect the environment. Part II discusses the environmental protections incorporated into both NAFTA and its side agreement on the environment. Part III evaluates the potential environmental consequences of NAFTA by considering the effects of free trade on the environment, the institutional mechanisms incorporated into NAFTA and the side agreement, and the environmental impacts of prior bilateral agreements between the United States and Mexico. This Note concludes that economic stimulation under NAFTA, coupled with

the environmental safeguards in the side agreement, will improve the environment of Mexico and the border region. The key to success will be in augmenting the environmental enforcement authority of the institutions charged with implementing NAFTA.

I. CURRENT STATUS OF MEXICAN ENVIRONMENTAL LAWS AND THE MEXICAN ENVIRONMENT

Mexico has been criticized for allocating insufficient resources to environmental protection. As a result, pollutants have degraded Mexico’s air quality and contaminated its surface and groundwaters. Increased economic activity under NAFTA will likely exacerbate these problems. Predicting the impact of NAFTA on Mexico requires a basic understanding of the current structure of Mexico’s government and its approach to environmental protection programs.

A. Government Framework

The Mexican executive branch has significantly more power than its United States or Canadian counterparts. For example, Mexico’s executive branch initiates legislation, and any subsequent changes by the Mexican Congress rarely affect the substance of the legislation. Furthermore, executive agencies are given wide latitude in interpreting the law and may issue regulations without legislative action. Mexico’s president is elected for a six year term of office and cannot seek a second term. Therefore, every six years there is the potential for substantial shifts in policy.

The current government of President Salinas de Gortari began such a shift in 1988 with an ambitious effort to improve Mexico’s environmental program. In January of that year, Mexico passed a comprehensive environmental law, the General Law of Ecological Equilibrium and Environmental Protection. Pursuant to this legislation, Mexico’s Secretaria de Desarrollo Urbano y Ecología (SEDUE) issued new regulations concerning air pollution, solid waste disposal, environmental impact assessment, and automobile emission


8. Id.

9. Although this law was actually passed under President Salinas de Gortari’s predecessor, it was drafted by a close Salinas associate and made a part of the Salinas campaign. Stephen P. Mumme, Cleaning the Air: Environmental Reform in Mexico, ENVIRONMENT, Dec. 1991, at 7, 10.

10. SEDUE, Mexico’s federal environmental agency, was roughly equivalent to the U.S. Environmental Protection Agency. In May 1992, Mexico created a new agency to handle environmental affairs and social development. This new agency, the Secretariat of Social Development (SEDESOL), took over SEDUE’s environmental programs. Jay L. Camillo, North American Free Trade and the Environment, BUS. AMERICA, Oct. 18, 1993, at 38–39.
controls.\textsuperscript{11} Officials in the U.S. Environmental Protection Agency (U.S. EPA) have found the new regulations to be comparable to their United States counterparts.\textsuperscript{12}

For Mexico, the major question is whether it will have the financial resources and the inclination necessary to enforce these new environmental regulations. To supplement enforcement, President Salinas de Gortari has increased the budget of SEDUE from roughly $6 million (U.S. dollars) in 1989, to $36 million in 1991,\textsuperscript{13} and to $77 million in 1993.\textsuperscript{14} In comparison, the U.S. EPA has a total annual budget of approximately $5 billion, and Texas spends $100 million on sewer projects alone.\textsuperscript{15} Thus, while SEDUE's budget has increased dramatically, it still is relatively limited. Total public expenditures on environmental programs in 1993 amounted to $2.5 billion or about one percent of Mexico's gross national product.\textsuperscript{16} Although this budget comparison makes Mexico's expenditures seem small, this is the highest percentage of GNP dedicated to environmental programs for any developing country.\textsuperscript{17}

President Salinas has taken other steps to expand environmental protection. He required additional environmental inspectors nationwide: from 700 in 1989 to 1,200 in 1993.\textsuperscript{18} Similarly, he increased environmental inspections from 1,380 in 1989 to over 9,000 in the first half of 1993 alone.\textsuperscript{19} In addition, the Mexican government announced a three-year, $466 million border environmental protection program as an initiative under the Integrated Border Plan with the United States.\textsuperscript{20} Funds have been allocated for sewage treatment, air pollution monitoring, emergency response, enforcement and training projects.\textsuperscript{21} An additional $1.8 billion World Bank loan will assist Mexico in developing improved methods of wastewater treatment, sanitation and sewerage, and waste management.\textsuperscript{22} Internationally, Mexico was the first country in the world to ratify the Vienna Convention and Montreal Protocol agreements, designed to protect the earth's ozone layer.\textsuperscript{23}

\textsuperscript{11} Fletcher & Tiemann, supra note 5, at 7.
\textsuperscript{12} Id. at 7–8.
\textsuperscript{13} Id. at 8.
\textsuperscript{14} Dennis J. Krumholz, Under NAFTA, Mexico No Safe Haven for Polluters, 133 N.J.L.J. 1264, 1264 (1993).
\textsuperscript{17} Camillo, supra note 10, at 38.
\textsuperscript{18} Id. at 39.
\textsuperscript{19} Id.
\textsuperscript{20} Id. See also notes 133-15 and accompanying text.
\textsuperscript{21} Camillo, supra note 10, at 38.
\textsuperscript{22} Id.
\textsuperscript{23} Id.
B. Air Quality

Despite the Mexican government's recent efforts, its past failure to devote sufficient resources to environmental protection has had lasting effects on that nation's environment. A stark example of the history of Mexican environmental policy may be found in Mexico City, which is frequently cited as having the worst air pollution in the world.\textsuperscript{24} With a population of twenty million people, Mexico City and the immediate vicinity contain nearly one quarter of Mexico's entire population.\textsuperscript{25} Emissions from three million vehicles and 35,000 industrial facilities\textsuperscript{26} have created a massive air quality problem. To make matters worse, the geography of Mexico City makes it highly susceptible to thermal inversions,\textsuperscript{27} the atmospheric condition responsible for smog in Los Angeles. The air pollution problem is so acute that the city exceeded World Health Organization health guidelines on 310 days in 1990,\textsuperscript{28} and atmospheric pollution contributes to hundreds of deaths in Mexico City annually.\textsuperscript{29}

Automobile emissions generate eighty percent of the air pollution in Mexico City.\textsuperscript{30} In response to both internal and external political pressure, the Mexican government initiated a number of measures designed to reduce auto emissions. For example, virtually all city-owned vehicles, buses, and taxis have been modernized to incorporate pollution control devices such as catalytic converters.\textsuperscript{31} Although emissions testing was adopted in 1988, this program has suffered from corruption and a lack of trained personnel.\textsuperscript{32}

In recent years, the Mexican government has stepped up environmental enforcement. For example, in 1991, the government closed one of the largest factories in Mexico City for air pollution violations at a cost of roughly $500 million.\textsuperscript{33} This factory, an oil refinery that comprises seven percent of Mexico's refining capacity,\textsuperscript{34} had been responsible for about four percent of Mexico City's air pollution.\textsuperscript{35}

Air pollution control measures receive popular support. In 1989, for example, the government began the "Hoy no Circula" (no driving day)
program. This program requires drivers to find alternate transportation one day per week. Although business interest groups attempted to discontinue the program in 1990, the government kept it intact because of its strong support among local residents. In addition to local support for specific programs, a growing grassroots environmental movement is beginning to influence the political process. Although the Institutional Revolutionary Party (PRI) dominates Mexican politics, small environmental parties have appeared and the PRI has had to address environmental matters in recent elections.

C. Water Quality

As with air, Mexico's past failure to implement adequate environmental protection has adversely impacted the water quality in Mexico as well as in the United States. Officials in both countries blame most of Mexico's water pollution problems on insufficient sewer systems and wastewater treatment facilities. Mexico's rapid population growth and industrialization have simply overwhelmed its limited infrastructure. Only sixteen percent of Mexico's municipal and industrial wastewater is treated before being released, posing risks to citizens on both sides of the border.

An example of the effect that population and industrialization have on water quality can be seen in the area along the U.S.-Mexico border. This region contains the maquiladoras. Maquiladoras are industrial facilities built in Mexico along the U.S. border to take advantage of favorable tariffs. As a result of this arrangement, the border population exploded. In recent years, the number of maquiladoras has grown at an annual rate of fifteen percent. The area now contains more than 1,600 industrial processing and assembly plants with about 400,000 employees. City populations in this area have multiplied rapidly. For example, Ciudad Juarez grew by 135 percent between

36. Id. at 11.
37. Id.
38. Id. at 28.
39. Id. at 28–29.
40. Carol M. Browner, Color This Trade Pact 'Green', THE HERALD-SUN (Durham N.C.), Sept. 29, 1993, at A11.
41. U.S. GENERAL ACCOUNTING OFFICE, supra note 4, at 4.
42. Id.
44. Products manufactured in this region and exported back into the United States are subject to significantly lower tariffs than products from elsewhere in Mexico. The predominately U.S.-owned companies in the region are attracted by Mexico's low wages, minimal labor standards, and lax environmental laws. NAFTA Commerce Hearings, supra note 15, at 138 (statement of Alex Hittle, Friends of the Earth).
46. Ward & Prickett, supra note 6, at 2.
1975 and 1985 and now has around one million residents. Similarly, Tijuana grew from 200,000 residents in 1960 to between 750,000 and one million today.

Unfortunately, infrastructure in the border region, in particular sewers and wastewater treatment facilities, has not kept pace with the population explosion. The quantity of human waste released untreated into the area has been tremendous. The Council of Scientific Affairs of the American Medical Association estimates that 46 million liters of raw sewage flow each day into the Tijuana River in Baja, California; 76 million liters into the New River at Calexico-Mexicali on the California border; and 84 million liters into the Rio Grande between Texas and Mexico. This sewage threatens both surface water and groundwater sources, many of which are used for drinking water by both Mexicans and Americans. The contamination of drinking water in the border town of San Elizario, Texas, illustrates the magnitude of the problem. Thirty-five percent of the town's children contract Hepatitis A by age eight and ninety percent of adults contract it by age thirty-five.

Industrial waste from the maquiladoras also contaminates the water systems. Researchers from the National Toxics Campaign found serious contamination in every border site sampled, with contamination levels up to 1,000 times higher than both United States and Mexican standards. They also discovered seriously contaminated effluent coming from large U.S.-owned companies. For example, at the General Motors plant in Matamoros, Mexico, the effluent stream pouring directly into an open canal contained nearly 3 million parts per billion of xylene, an organic solvent—more than 6,000 times U.S. drinking water standards. The effluent contained high concentrations of other toxic organic chemicals, including 430 parts per million (ppm) of ethyl benzene, 56 ppm of acetone, 41 ppm of methylene chloride, and 5.7 ppm of benzene. The U.S. EPA's cumulative permissible limit for all toxic organic chemicals discharged from a plant similar to General Motor's is 2.13 ppm. The Mexican regulations parallel the U.S. standards.

Unfortunately, the amount of money needed to improve Mexico's water quality is enormous. A study by the University of Texas at El Paso estimates that $9 billion is necessary to meet the infrastructure needs of the border region.

47. NAFTA Commerce Hearings, supra note 15, at 176 (submitted by Mary E. Kelly, Texas Center for Policy Studies, and Dick Kamp, Border Ecology Project).
48. Id.
49. Id. at 175.
50. Id.
51. NAFTA Commerce Hearings, supra note 15, at 138 (statement of Alex Hittle, Friends of the Earth).
52. Id. at 111 (statement of Craig Merrilees, National Toxics Campaign).
53. Id.
54. Id.
55. Id.
56. Id.
alone. In one major effort, the Mexican National Water Commission plans to build sewage wastewater treatment facilities in twenty-two major cities throughout Mexico. The facilities will be constructed with the help of World Bank funding and should be able to treat 50 percent of Mexico’s wastewater in four years.

Mexican efforts to control pollution have included hiring new environmental inspectors for the border region and elsewhere. As a consequence of this effort, Mexican inspectors have shut down numerous American-owned maquiladoras for non-compliance. Other facilities have spent millions of dollars over the last few years to comply with Mexico’s new regulations. If, as expected, Mexico becomes more prosperous under NAFTA, both its desire and its ability to improve water quality should increase.

D. Hazardous Waste

Just as with nonhazardous waste, Mexico has an insufficient number of treatment facilities to handle the amount of hazardous waste it generates. Mexico currently generates about 13,000 tons of hazardous waste daily. Yet, only three facilities treat hazardous waste and only ten facilities dispose of it. To increase capacity, Mexico contracted with Chemical Waste Management, a U.S. company, to build an incinerator to handle the 2,500 tons of hazardous waste generated daily in Mexico City. Despite such efforts, much of Mexico’s hazardous waste is still simply released into the sewer systems, effluent flows, or placed in drums to be dumped in deserts or elsewhere. Mexico’s hazardous waste problem is so large that it will require between $5 and 9 billion to clean up the border region alone.

A 1990 SEDUE study of hazardous waste handling by Mexico’s maquiladoras found the following: of the 1,963 facilities, an estimated fifty-two percent,
or 1,020 facilities, generated hazardous waste. Of the hazardous waste generators, only thirty percent complied with Mexican regulations requiring that information on the amount and nature of the hazardous waste be submitted to SEDUE. Mexican law requires that foreign-owned companies recycle hazardous waste or return it to their own country for disposal. The SEDUE study estimated that only nineteen percent of facilities fully complied with this law while another fifteen percent returned their waste without complying with the applicable reporting requirements. Although returning hazardous waste to the foreign country, usually the United States, means that the disposal can be done properly, importing hazardous waste for disposal faces strong opposition within the United States.

II. ENVIRONMENTAL PROTECTIONS IN NAFTA AND THE SIDE AGREEMENT

When negotiating NAFTA, the Administration of President George Bush treated environmental protection and free trade as separate issues. As a result, President Bush's trade negotiators refused to incorporate specific environmental protections into the text of NAFTA. Instead, they relied on broad statements of commitment to environmental protection within the agreement and negotiated separate agreements outside the main NAFTA document to protect the environment. For instance, the Bush Administration directed the U.S. EPA to work with Mexico's SEDUE to develop a separate plan to solve the pollution problems along the U.S.-Mexico border. This border plan includes an increase in the funds spent by the United States and Mexico on enforcement of environmental regulations in the border region. In 1993, President Bill Clinton's Administration adopted Bush's conceptual approach, but negotiated more specific environmental protections through a side agreement to NAFTA. President Clinton also pledged additional funds to help ease NAFTA's environmental impacts on the border region.

A. General Environmental Guarantees in NAFTA

When President Bush preliminarily approved NAFTA on December 17, 1992, proponents argued that NAFTA's broad textual statements of support for environmental protection were adequate to safeguard the environment. For instance, the Preamble clearly states that new employment opportunities must

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68. Id.
69. Id.
70. For example, the state of Louisiana passed legislation expressly banning the importation of hazardous waste. A federal court overturned this law because of trade agreements with Mexico. Chemical Waste Management, Inc. v. Templet, 770 F. Supp. 1142 (M.D. La. 1991), aff'd, 967 F.2d 1058 (5th Cir. 1992), cert. denied, 113 S. Ct. 1048 (1993).
71. FLETCHER & TIEMANN, supra note 5, at 8.
72. Feeley & Knier, supra note 65, at 264–65.
be implemented in “a manner consistent with environmental protection and conservation.”\textsuperscript{73} Parties are committed to “strengthen the development and enforcement of environmental laws and regulations.”\textsuperscript{74} The Assessment of Risk provisions state that “a party may, in pursuing its legitimate objectives, conduct an assessment of risk. In conducting such assessment, a party may consider, among other factors relating to a good or service: . . . (d) environmental conditions.”\textsuperscript{75} Article 906 commits all parties to “work jointly to enhance the level of safety and of protection of human, animal and plant life and health, the environment and consumers.”\textsuperscript{76} Under Article 904, parties have the right to establish their own levels of protection for the environment, if not in conflict with Article 907, which prohibits “arbitrary or unjustifiable discrimination”\textsuperscript{77} or “disguised restriction[s].”\textsuperscript{78} These are the explicit environmental protections incorporated into the text of NAFTA.

The environmental provisions in NAFTA, however, do not create any binding obligations on the parties. NAFTA uses generally permissive language when referring to environmental protection. Although a party may consider the impact on the environment, it is not obligated to do so.\textsuperscript{79} Where the language of the commitments takes on a more definitive posture (for instance, parties shall work jointly to enhance the environment),\textsuperscript{80} the object of the commitment is amorphous at best. This non-binding language conforms with the Bush Administration’s policy to treat environmental issues separately from trade issues.

President Clinton made NAFTA a top priority for his new administration, pushing Congress to adopt the agreement as negotiated by the Bush Administration.\textsuperscript{81} Nonetheless, NAFTA critics attacked the Bush proposal as lacking sufficient clarity to warrant support. When criticizing NAFTA’s health and safety standards, the Sierra Club noted that various terms could be interpreted to undermine domestic environmental laws.\textsuperscript{82} For instance, under the heading of sanitary and phytosanitary standards, NAFTA gives each party to the agreement the right to “adopt, maintain, or apply any sanitary and phytosanitary measure necessary for the protection of human, animal, or plant life or health.”\textsuperscript{83} Opponents argued that if a narrow definition of “necessary” were

\begin{itemize}
  \item \textsuperscript{73} NAFTA, supra note 1, at pmbl., 32 I.L.M. at 297.
  \item \textsuperscript{74} Id. (emphasis in original).
  \item \textsuperscript{75} Id. at art. 907(1), 32 I.L.M. at 387–88.
  \item \textsuperscript{76} Id. at art. 906(1), 32 I.L.M. at 387 (emphasis added).
  \item \textsuperscript{77} Id. at art. 907(2)(a), 32 I.L.M. at 388.
  \item \textsuperscript{78} Id. at art. 907(2)(b), 32 I.L.M. at 388.
  \item \textsuperscript{79} Id. at art. 907(1), 32 I.L.M. at 387–388.
  \item \textsuperscript{80} Id. at art. 906(1), 32 I.L.M. at 387.
  \item \textsuperscript{82} David S. Cloud, \textit{Sound and Fury over NAFTA Overshadows the Debate}, 51 CONG. Q. WKLY REP. 2793 (1993).
  \item \textsuperscript{83} Id. (emphasis added).
\end{itemize}
used, strict environmental and health regulations could be challenged under NAFTA as more protective than necessary. Environmentalists' primary concern about the agreement was that NAFTA would open avenues to challenge stringent health or safety laws on the ground that these laws create unfair trade barriers. Critics warned that state and local laws would be at a particularly high risk of being overturned.

B. Attempts to Strengthen the Environmental Safeguards Under NAFTA Through a Side Agreement

President Clinton demonstrated a willingness to entertain modifications to the agreement. As a result, when seeking Congressional approval of NAFTA under the fast-track process, the Clinton Administration offered Congress NAFTA as negotiated by the Bush Administration, but included three additional side agreements that cover labor and environmental issues.

Although some critics suggest that the side agreements were nothing more than an effort to mute environmental and labor dissenters, evidence indicates that the Clinton Administration was also concerned with the overall impact of lax environmental protection under NAFTA on the U.S. economy. Vice-President Gore stressed the importance of linking trade and the environment in his 1992 book, *Earth in the Balance*:

> It will also be increasingly important to incorporate standards of environmental responsibility in the laws and treaties dealing with international trade. Just as government subsidies of a particular industry are sometimes considered unfair under the trade laws, weak and ineffectual enforcement of pollution control measures should also be included in the definition of unfair trading practices. Especially as the United States attempts to expand free market principles and encourage freer and fairer trade throughout Latin America, environmental standards must be included among the criteria for deciding when to liberalize trading arrangements with each country.

President Clinton brought this mindset to the negotiations with Canada and Mexico over the side agreements.

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84. *Id.*
85. *Id.* at 2795.
86. Under the fast-track process, the President submits the treaty to Congress for a Yes-No vote. Congress cannot alter the treaty; it must either accept or reject it as negotiated.
Unlike NAFTA's broad declarations of support for environmental protection, the North American Agreement on Environmental Cooperation (Side Agreement) takes a more practical approach to addressing environmental issues. Although the Preamble affirms the parties' support for general environmental principles such as "sustainable development," exploitable domestic resources, and "enhanced levels of environmental protection," the Side Agreement is structured to identify the environmental objectives of the parties. Its goals are to increase the information base for environmental issues so that more informed decisions can be made; to clarify how a party's domestic environmental laws are affected; and to provide mechanisms for resolving environmental disputes.

Article One delineates the objectives of the Side Agreement. The parties promise to

foster the protection and improvement of the environment . . . ; promote sustainable development . . . ; increase cooperation between the Parties to better conserve, protect, and enhance the environment, including wild flora and fauna; . . . enhance compliance with, and enforcement of, environmental laws and regulations . . . ; promote transparency and public participation in the development of environmental laws, regulations and policies; promote economically efficient and effective environmental measures; and promote pollution prevention policies and practices.  

Although these objectives appear to be of the same general character as those used in NAFTA, close analysis reveals that they are more specific and that they identify environmental principles not included in NAFTA.

The Obligations section of the Side Agreement requires that the parties take specific steps to increase the level of information available on environmental issues. Article Two requires each party to prepare and publish periodic reports on the state of the environment within their respective territories. Parties are also obligated to promote environmental education, assess environmental impacts, and promote efficient achievement of environmental goals through the use of economic instruments. The parties agree, at a minimum, to consider recommendations developed by the Commission for Environmental Cooperation (CEC), created under Article Eight of the Side Agreement.

90. See Side Agreement, supra note 87.
91. Id. at pmbl.
92. Id. at art. 1(a)-(c), (g)-(j).
93. Id. at arts. 2-7.
94. Id. at art. 2(1)(a).
95. Id. at art. 2(1)(c).
96. Id. at art. 2(1)(e).
97. Id. at art. 2(1)(f). This provision allows flexibility in implementing alternative mechanisms to achieve environmental objectives.
98. Id. at art. 2(2). See infra notes 108-115 and accompanying text for a discussion of the
Article Five of the Side Agreement commits each government to enforcing its domestic environmental laws. Each government, when enforcing its environmental laws and regulations, shall aim to achieve "high levels of environmental protection and compliance." Admittedly, "high levels" is somewhat ambiguous, but there does appear to be a commitment to improving environmental enforcement by requiring parties to hire inspectors, monitor compliance and investigate violations, publicly release noncompliance information, and keep records and reports. In addition, parties must provide judicial remedies and appropriate sanctions. The Side Agreement also requires the parties to ensure that private individuals or groups have access to remedies. These provisions demonstrate a marked increase in specificity for environmental protection over the more general language of NAFTA.

C. Enforcement Mechanisms under the Side Agreement

The Side Agreement's specific environmental protections are meaningless without enforcement mechanisms. The CEC may provide the needed institutional mechanism for enforcement. The CEC's tripartite structure consists of a Council of cabinet-level officials, the Secretariat (composed of newly appointed officials from each country), and Advisory Committees.

The Secretariat has primary responsibility for monitoring compliance with the Side Agreement. It must, for example, issue an annual report detailing the actions taken by each party in connection with its environmental obligations under the Side Agreement, including enforcement efforts. Periodically, the

CEC and its scope of authority.

99. Id. at art. 5(1).
100. Id.
101. Id. at art. 5(1)(a).
102. Id. at art. 5(1)(b).
103. Id. at art. 5(1)(d).
104. Id. at art. 5(1)(g).
105. Id. at art. 5(2).
106. Id. at art. 5(3).
107. Id. at art. 6; see also id. at art. 14(1). These are particularly important provisions for environmental interest groups. These groups can independently monitor compliance with the agreement and request that a government take action. If such a group has a legally recognized interest, Article 6(2) grants that group "appropriate access to administrative, quasi-judicial or judicial proceeding for the enforcement of the Party's environmental laws and regulations." Id. at art. 6(2). In other words, Articles 6 and 14 specifically protect the power of public interest groups to act as watchdogs.
108. Id. at art. 8.
109. Id. at art. 9(1).
110. Id. at art. 11.
111. Id. at art. 16–18.
112. Id. at art. 12(2)(e).
The report must address the "state of the environment" in each country. The Secretariat is also empowered to consider properly submitted complaints that a party is failing to "effectively enforce its environmental law" and to request a response from the breaching party. This process pressures parties to comply with their own environmental standards.

D. Financing Environmental Improvements along the U.S.-Mexico Border

In negotiations in the Fall of 1993, U.S. Trade Representative Mickey Kantor and Mexican Secretary of Trade and Industrial Development Jaime Serra recognized that environmental problems along the U.S.-Mexico border are issues of mutual concern. The two officials identified a significant need to coordinate and fund infrastructure projects along the border. On the basis of this need, the Clinton Administration, prior to the NAFTA vote in Congress, agreed to fund infrastructure improvements along the border to stem environmental degradation. The Administration established what will be the North American Development Bank, a $450 million fund to issue $3 billion in federally guaranteed bonds. The money is to be used to fund community economic development and environmental cleanup along the border.

The Administration’s willingness to fund such projects indicates two things. First, the Administration recognizes that NAFTA will have some adverse environmental impacts on the U.S.-Mexico border unless growth is accompanied by infrastructure improvements. Second, the Clinton Administration seems willing to take steps designed to minimize these impacts.

III. POTENTIAL IMPACTS OF NAFTA ON THE ENVIRONMENT

The success or failure of NAFTA in protecting the environment will depend largely on the thoroughness with which the three parties address the complex issues covered by NAFTA and their commitment to solving the inevitable problems and disputes. This part analyzes the potential economic and environmental consequences of free trade under NAFTA.

A. Links Between Free Trade and Environmental Protection

NAFTA integrates the economies of the United States, Canada, and Mexico by providing greater access to markets. This access should result in a more sophisticated Mexican economy. As investment in Mexico increases, its

113. Id. at art. 12(3).
114. Id. at art. 14(1).
115. Id. at art. 14(2).
infrastructure, income, and education levels should also improve. The Bush Administration estimated, based on three economic studies, that all three countries will enjoy increased trade and incomes due to NAFTA.\textsuperscript{119}

The biggest economic gains will likely accrue in Mexico because the Mexican economy has the most ground to gain relative to the economies of Canada and the United States. For instance, Mexican productivity levels are about twenty percent of those in the United States, and income levels are only ten percent of U.S. workers'.\textsuperscript{120} This gap in productivity and income levels should close as North American corporations combine capital with Mexican labor and organize that labor more efficiently.\textsuperscript{121}

A 1991 study by Gene M. Grossman and Alan B. Krueger analyzed income data and its relationship to air pollution.\textsuperscript{122} This cross-country sample of comparable measures of pollution\textsuperscript{123} found that increases in air pollution\textsuperscript{124} correlate with a rise in the Gross Domestic Product\textsuperscript{125} (GDP) for countries with low levels of individual income. The air pollution levels, however, tend to decrease as GDP increases in countries with higher per capita incomes. According to this study, the income threshold lies somewhere between $4,000 and $5,000 per capita, measured in 1985 U.S. dollars. Once per capita income surpasses the threshold level, per capita air pollution levels should begin to decrease.\textsuperscript{126} Grossman and Krueger theorized that Mexico's rise in per capita income to $4,996 in 1988\textsuperscript{127} explained its recent attempts to address environmental problems, including reducing the lead content of gasoline, requiring catalytic converters in automobiles, using natural gas rather than fuel oil in power plants, and shutting down major sources of pollution in Mexico City.\textsuperscript{128}

Grossman and Krueger speculate that under a trade liberalization plan such as NAFTA, several factors would help reduce pollution levels. First, public concern for the environment should increase as individual incomes rise and standards of living improve. Second, as restrictions on foreign investment are

\textsuperscript{120} RONALD J. WONNACOTT, THE ECONOMICS OF OVERLAPPING FREE TRADE AREAS AND THE MEXICAN CHALLENGE 49 (Canadian-American Committee 1991).
\textsuperscript{121} Id. at 50.
\textsuperscript{122} GROSSMAN & KRUEGER, supra note 3, at 5.
\textsuperscript{123} The air pollution data were collected starting in 1976 through a joint project of the World Health Organization and the United Nations Environment Programme, which operates the Global Environmental Monitoring System (GEMS). The goal of the project was to monitor concentrations of several air pollutants. Id. at 7.
\textsuperscript{124} Defined in terms of sulfur dioxide and dark matter suspended in the air. Id. at 8.
\textsuperscript{125} A country's gross domestic product is the total market value of goods and services produced within a country during a given period, excluding income derived from investments abroad. THE AMERICAN HERITAGE ILLUSTRATED ENCYCLOPEDIC DICTIONARY 742 (1987).
\textsuperscript{126} GROSSMAN & KRUEGER, supra note 3, at 7-20.
\textsuperscript{127} Id. at 20.
\textsuperscript{128} Id.
relaxed, foreign producers from within the trade area will transfer cleaner, more modern technologies to the local economy. Third, increased income levels that tend to coincide with augmented trade will give people greater ability to "demand a cleaner environment as an expression of their national wealth." Mexicans will pressure their government to ensure that environmental protections are more prominent in the legislative agenda. Finally, increased economic activity and income levels will generate larger tax revenues, providing the Mexican government with additional resources for environmental enforcement and other domestic agendas. Given the strong evidence that incomes in Mexico will rise under a free trade agreement and that higher incomes lead to corresponding reductions in air pollution levels, NAFTA would seem to be a positive factor for the Mexican environment.

Economic growth, however, can have negative impacts on the environment too. Although the transfer of modern technologies may result in the use of cleaner technologies, economic growth could offset the environmental gains by increasing the overall demand for pollution-generating products. For instance, with respect to automobiles, NAFTA is expected to increase the total number of cars in Mexico as Mexicans become wealthier and as their infrastructure accommodates greater mobility. Additionally, eliminating trade barriers such as tariffs and quotas will make American automobiles less expensive for Mexicans.

Other aspects of Mexico's pollution problems will also be affected by NAFTA. The increased economic activity will increase the amount of industrial activity in Mexico. Although new industrial plants will be cleaner than old plants as foreign technology is imported into Mexico, it is not clear whether the decrease in pollution due to the greater availability and cost-effectiveness of pollution control technology will offset the increased emissions of new plants. One area in which new technology may provide solutions is in hazardous waste treatment and disposal. Trade liberalization should make waste treatment technologies more available and affordable in Mexico. Without stronger regulations and enforcement, new technology alone cannot solve Mexico's hazardous waste disposal problem.

B. Environmental Dispute Resolution under NAFTA

This section describes the mechanisms and institutions under NAFTA and the Side Agreement that can be used to protect the environment in Mexico and in the border region. If institutions approach implementation with a purely trade-based philosophy, such as that of the General Agreement on Tariffs and Trade (GATT), the environment will likely suffer. If, however, the institutions

129. Id. at 4–5.
130. NAFTA Foreign Affairs Hearings, supra note 61, at 6 (statement of Jim Kolbe, Congressional Representative from Arizona).
131. OFFICE OF THE U.S. TRADE REPRESENTATIVE, supra note 119, at 70.
also address the environmental ramifications of trade, NAFTA will provide a means through which environmental protection is more easily and effectively achieved. As discussed below in Section III(B)(3), the International Boundary and Water Commission (IBWC) exemplifies this latter, more integrated approach to environmental dispute resolution.

1. Institutional Framework for Dispute Resolution Under NAFTA and the Side Agreement

NAFTA contains dispute resolution provisions that can be used to protect the environment. The Free Trade Commission (FTC) created in Article 2001 establishes the basis for dispute settlement. The FTC has responsibility for implementing and interpreting NAFTA and the authority to settle disputes. The FTC is empowered to create a Secretariat which will establish permanent offices to provide technical and administrative assistance.132 If the FTC cannot resolve a dispute through mediation, it may establish a panel and submit the matter to arbitration.133 As environmental/trade disputes erupt under NAFTA, these dispute resolution mechanisms become critical to resolving conflicts.

The Side Agreement provides additional environmental dispute resolution mechanisms. Within the CEC,134 the Council establishes a forum for discussing "environmental matters within the scope of [NAFTA];"135 for reviewing "questions and differences" of interpretation or application,136 and for promoting cooperation among the parties.137 The Side Agreement authorizes the CEC Council to consider the following: data on environmental matters,138 recommendations regarding pollution prevention techniques,139 scientific research and technology development,140 conservation and protection of wild flora and fauna and their habitat,141 environmental emergency preparedness and response activities,142 environmental implications of goods throughout their life cycles,143 exchange of environmental scientists,144 and eco-

132. NAFTA at art. 2002; 32 I.L.M. at 693-94. Unlike the Secretariat created under the Side Agreement, see supra notes 107-112 and accompanying text, the role of the Secretariat under the FTC is only generally described. See id. at art. 2002(3); 32 I.L.M. at 693-94.
133. Id. at art. 2008; 32 I.L.M. at 695.
134. See supra notes 109-112 and accompanying text.
135. Side Agreement, supra note 88, at art. 10(1)(a).
136. Id. at art. 10(1)(d).
137. Id. at art. 10(1)(f).
138. Id. at art. 10(2)(a).
139. Id. at art. 10(2)(b).
140. Id. at art. 10(2)(e).
141. Id. at art. 10(2)(i).
142. Id. at art. 10(2)(k).
143. Id. at art. 10(2)(m).
144. Id. at art. 10(2)(o).
labeling. The Council's responsibilities also include strengthening environmental laws and regulations by promoting the exchange of information and developing compatible environmental technical standards, as long as those standards do not reduce levels of environmental protection. The Council is directed to facilitate dispute resolution by working with the FTC and by identifying experts who can provide information or technical advice to NAFTA committees or working groups. Finally, the Council's powers include assessing the environmental impacts of proposed projects with transboundary effects and recommending steps to mitigate those impacts.

The Side Agreement also establishes a procedure under which any of the three parties can criticize another's failure to enforce domestic environmental laws. The complaining party initially must request a consultation with the "offending party" to determine whether a pattern of persistent failure to enforce environmental laws or regulations is evidenced. If a mutually satisfactory resolution is not reached within sixty days, the aggrieved party may initiate procedures before the CEC Council. If the Council does not resolve the matter, it shall, on written request, convene a panel to arbitrate the dispute. Other member countries with substantial interests may join the action at this point. Based on the information presented and any additional expert advice, the panel will determine whether "there has been a persistent pattern of failure by the Party complained against to effectively enforce its environmental law." If the panel makes an affirmative determination, then the non-complying party is obligated to adopt and implement a remedial action plan. The Side Agreement provides additional mechanisms for enforcing the remedy, but ultimately enforcement is left in the hands of the party violating its own environmental standards. As with most treaties, the benefits of remaining a member of NAFTA compel the parties to abide by its provisions and the decisions of its institutional bodies.

145. Id. at art. 10(2)(r).
146. Id. at art. 10(3).
147. Id. at art. 10(6)(c).
148. Id. at art. 10(7).
149. Id. at art. 22(1).
150. Id.
151. Id. at art. 23(1).
152. Id. at art. 24.
153. Id. at art. 24(2); see also id. at art. 29. If NAFTA expands to include more countries, the right of other interested members to participate in dispute resolution proceedings will become increasingly important.
154. Id. at art. 31(2)(b).
155. Id. at art. 33.
156. Id. at art. 33–36.
157. Id. at art. 37.
Environmental dispute settlement under GATT provides lessons for implementing NAFTA. The dispute between Mexico and the United States over tuna imports exemplifies a successful arbitration under GATT that could be used as a model for dispute resolution under NAFTA. The outcome of the case, however, illustrates the dangers that a trade agreement can pose for efforts to protect the environment. International trade agreements can undermine domestic environmental laws if these laws are viewed as a restraint on free trade.

Many tuna fishermen in the Eastern Tropical Pacific Ocean set their purse-seine nets around dolphins, because the dolphins tend to swim with yellowfin tuna. The fishermen thus trap dolphins along with tuna in their nets. As the nets are drawn tighter, the dolphins suffocate or are mutilated. The fishermen then discard the dolphins. This fishing practice has killed over six million dolphins in the past thirty years.158

Environmentalists in the United States pressured Congress to reduce the number of dolphins killed as a consequence of tuna fishing. Congress passed the Marine Mammal Protection Act of 1972 (MMPA),159 which establishes a national protection policy for marine mammals. The MMPA requires foreign countries importing into the United States tuna harvested using purse-seines to (1) develop a similar regulatory scheme to that used in the United States; (2) limit the number of dolphins killed to no more than 1.25 times the U.S rate; and (3) comply with U.S. dolphin mortality limits for two species of dolphins.160

Congress also passed the Dolphin Protection Consumer Information Act of 1990 (DPCIA),161 establishing labeling standards for the retail sale of tuna and tuna products. The DPCIA delineates standards that must be met before a can of tuna or tuna products may bear the label “dolphin safe” or any similar designation. The Act specifically identifies purse-seine nets in the Eastern Tropical Pacific as failing to meet the labeling standards.162

In 1990, pursuant to the DPCIA and MMPA, the United States imposed an embargo on imports of commercial yellowfin tuna harvested with purse-seine nets in the Eastern Tropical Pacific. This embargo included yellowfin tuna caught by the Mexican fishing fleet. Mexico requested consultations with the United States regarding the embargo. In early 1991, Mexico brought an action

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under GATT to establish a dispute panel to settle its conflict with the United States. Specifically, Mexico complained that the "embargo provisions in MMPA... were inconsistent with [GATT's] general prohibition of quantitative restrictions" and that the "implementing regulations established discriminatory specific conditions for a specific geographic area." Mexico also argued that the DPCIA conflicted with GATT, because it established a discriminatory condition for a particular geographic area. The United States denied Mexico's allegations and asserted arguendo that any inconsistencies with other GATT provisions fell within exemptions outlined in the agreement. The Dispute Panel ruled in favor of Mexico with regard to the MMPA and held that "a contracting party may not restrict imports of a product merely because it originates in a country with environmental policies different from its own." The panel, however, did not find that the labeling provisions of the DPCIA violated the provisions of GATT.

The Dispute Panel decision provides insight for evaluating NAFTA. First, it demonstrates that disputes arising under a trade agreement can be adjudicated in a relatively short period of time. This decision took less than nine months from the time Mexico requested a panel review. This suggests that NAFTA, which contains similar dispute resolution procedures, will enable parties to resolve disputes efficiently. Second, the decision regarding the DPCIA indicates that labeling standards, such as preconditions for labels identifying "green" products, do not conflict with free trade principles.

The Dispute Panel's decision, however, raises troubling questions about the relationship between international trade accords and efforts to protect the environment. In passing the MMPA, Congress sought to protect dolphins against needless slaughter by prohibiting the importation of tuna not caught in accordance with the MMPA guidelines. Although the action by the Dispute Panel did not overturn the effect of the MMPA with respect to the U.S. fishing fleet, the precedent essentially prevents the U.S. law from having any legally binding effect on foreign environmental conduct, thereby undermining the purpose of the law. Foreign fishing fleets may catch tuna in direct violation of MMPA provisions, and the United States is unable to prevent importation of this tuna due to GATT provisions against trade discrimination. In other words, the international trade accord allows other countries to

163. Id.
164. Id. at 8.
165. Id.
166. Id. at 50. Although Mexico won the decision by the Dispute Panel, it ultimately modified its fishing practices to encourage the passage of NAFTA and to preserve good relations with the United States. See FLETCHER & TIEMANN, supra note 5, at 4.
167. GENERAL AGREEMENT ON TARIFFS AND TRADE, supra note 162, at 51.
168. Note that the process would have taken longer if the United States had appealed the decision.
circumvent U.S. domestic environmental law, because the environmental protection is seen as a restraint on free trade.

Enforcing U.S. environmental regulations against only domestic fishermen puts them at a competitive disadvantage. Mexican fishermen who do not have to bear these compliance costs will be able to undercut U.S. prices. The competitive pressures on domestic industries may undermine efforts to protect the environment. By preventing a party to the trade agreement from enforcing its domestic environmental regulations against other parties, the trade agreement discourages parties from passing strong environmental regulations.

3. An Integrated Approach to Environmental Dispute Resolution: The International Boundary and Water Commission

The IBWC provides insights into the possible ways in which the FTC and the CEC might address environmental concerns in Mexico and the United States. The IBWC is an international agency with recognized expertise and autonomy in affairs along the border between the United States and Mexico. The agency is charged with investigating and settling all disputes related to the "interpretation and application" of the 1944 Water Treaty,\textsuperscript{170} the 1963 Chazimal Treaty,\textsuperscript{171} and the 1970 Boundary Treaty.\textsuperscript{172} Since its establishment in 1889, the IBWC has been the architect of six major treaties that fix and regulate the U.S.-Mexico border. In addition to this diplomatic role, the IBWC operates three major dams, two hydroelectric power plants, flood control projects, and several sewage treatment facilities. These successful operations illustrate that the IBWC is an effective vehicle for addressing a narrow spectrum of environmental concerns in the border region.\textsuperscript{173}

The sewage crisis dispute between Tijuana and San Diego provides a good example of how the IBWC has helped resolve environmental disputes along the U.S.-Mexico border. Due to tremendous increases in the population in and around Tijuana, the Mexican city found itself unable to treat the vast amount of sewage generated by the burgeoning population. During wet weather or failure of the sewage treatment plant, sewage from Tijuana would flow into the Pacific Ocean and wash up on the San Diego beaches. Interim solutions were not successful, and tension on both sides of the border mounted.\textsuperscript{174}


\textsuperscript{174} John Altomare, \textit{Stemming the Flow: The Tijuana-San Diego Sewage Treatment Crisis},
In 1990, with the help of the IBWC, San Diego and Tijuana signed a joint agreement to develop a wastewater treatment plant to be constructed, operated, and maintained by the IBWC. The IBWC used its influence and expertise to bring the parties together over a difficult issue. The fact that the new plant falls under the authority of the IBWC will add to the commission's long-term stature and authority.

The experience of the IBWC provides several valuable lessons for the CEC and the FTC. First, for NAFTA to be effective at resolving environmental disputes, the FTC and the CEC will need to develop the type of autonomy that the IBWC developed. This will take time. Second, the CEC needs to use the projects being financed by the North American Trade Bank as a mechanism for developing prestige and support, much like the IBWC did. Third, the CEC must recruit experts who can advise the parties and in whom the parties will develop a sense of trust for unbiased advice. Fourth, the FTC and the CEC must assert an ability to interpret NAFTA and the Side Agreement. This authority will enable them to build the necessary power base for enforcing environmental standards.

IV. CONCLUSION

NAFTA will improve environmental conditions indirectly as a result of increases in income levels. Under the Grossman and Krueger theory, as the incomes of Mexicans escalate, citizen concern over environmental quality will also increase, and they will demand stronger environmental protection. Mexico's expanding economy will also generate additional revenue that can finance environmental protection and reclamation. Environmental protection, however, depends on more than economic expansion, as evidenced by the continued environmental problems in the United States and Canada despite their highly developed economies.

Trade agreements have created tension between efforts to improve free trade and to improve the environment. The U.S.-Mexico tuna dispute

175. Id. at 376–90 (detailing events leading to sewage agreement).
176. Id. at 388–90. But see id. at 390–92 (criticizing bureaucratic handling of situation by IBWC).
177. NAFTA poses unique enforcement problems because the FTC and the CEC will be attempting to force parties to comply with their own environmental regulations. This differs from the IBWC's ability to interpret an international agreement. This could create tension between the parties and the NAFTA institutions.
178. Under the Canada-U.S. Free Trade Agreement (CFTA), trade in goods and services has increased about 35 percent from 1987 levels. America's investment in Canada is up 24.6 percent, and Canadian investment in the United States has increased 50 percent. Although this does not reflect a direct increase in personal income as analyzed by Grossman and Krueger, the economic activity under CFTA does suggest a pattern that would lead to increased income levels. See OFFICE OF THE U.S. TRADE REPRESENTATIVE, 1992 TRADE POLICY AGENDA AND 1991 ANNUAL REPORT 61–62 (1992).
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illustrates how a trade agreement can be used to undermine environmental protections by favoring unrestricted trade over the environmental consequences of that trade. If, in implementing NAFTA and the Side Agreement, the FTC and CEC only consider trade issues, then environmental standards in Mexico may never be enforced, because new environmental initiatives could be interpreted as inhibiting free trade.

The Side Agreement protects domestic environmental regulations from adverse trade rulings and has the same binding effect on the parties as NAFTA. The Side Agreement, however, has not removed the tension between trade and the environment. This tension is evident in Article One of the Side Agreement, which requires parties to “increase cooperation . . . to better conserve, protect, and enhance the environment,”179 and to “avoid creating trade distortions or new trade barriers.”180 The agreement does not specify how these distinct interests are to be harmonized.

Three major concerns remain about the effect of NAFTA on the environment. First, neither NAFTA nor the Side Agreement incorporates language to protect against an outcome like that reached by the GATT Dispute Panel in the tuna case. Therefore, measures designed to protect domestic industries, subject to environmental regulations, from unregulated foreign competition will probably fail. Second, NAFTA does not create environmental parity between parties to the agreement. More stringent environmental protection laws and enforcement mechanisms in the United States create incentives for companies to produce goods in Mexico, where laws are less cumbersome and not strictly enforced. Third, the Clinton Administration is already discussing the expansion of NAFTA to include Central and South America.181 The Administration, however, has not enunciated an environmental policy for expansion nor has it established the framework for adding parties to NAFTA and the Side Agreement.

Empowering the FTC and the CEC to develop strict environmental protocols for protecting the environment represents a crucial step in making NAFTA an environmentally friendly agreement. In their current configuration, the FTC and the CEC resemble the original form of the IBWC. Unlike the IBWC, however, the FTC and the CEC currently lack the ability to develop projects of the type initiated by the IBWC. Because problems similar to the San Diego-Tijuana sewage crisis will inevitably arise, the FTC and the CEC must have a stronger basis of authority. The Natural Resources Defense Council recognized this when it proposed the formation of a North American Commission on Trade and the Environment to “ensure that trade and economic integration arising from this agreement throughout the region protects natural

179. Side Agreement, supra note 87, at art. 1(c).
180. Id. at art. 1(e).
181. Administration officials are drafting plans to create a Western Hemisphere free trade zone within the next ten to fifteen years and have proposed adding Chile to NAFTA late next year. See Steven Greenhouse, U.S. Plans Expanded Trade Zone, N.Y. TIMES, Feb. 4, 1994, at D1.
resources and improves environmental quality as well as the health and safety of citizens in all three countries.\footnote{182} Ostensibly, the FTC and the CEC could pursue this course of action, but they will need to have independent power to interpret the agreement, raise revenues to finance projects, and monitor or enforce compliance with environmental standards.

The parties to NAFTA need to recognize that inadequate environmental protection subsidizes businesses operating under one country's lower environmental standards and penalizes businesses attempting to comply with another country's higher standards. Uniform environmental protection is needed to create the level playing field that free trade agreements propose. Only through stringent, uniform standards can the environment be protected and the artificial subsidy to polluting countries be eliminated. If the FTC and the CEC are given the authority to adjudicate disputes and enforce higher environmental standards, NAFTA could help break down the tension between free trade and environmental protection. This is the best way to protect the environment of all three countries.

\footnote{182. NATURAL RESOURCES DEFENSE COUNCIL, ENV'TL SAFEGUARDS FOR THE NORTH AMERICAN FREE TRADE AGREEMENT 2 (June 1992).}