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Border Environment Cooperation Commission and North American Development Bank: Background and Issues

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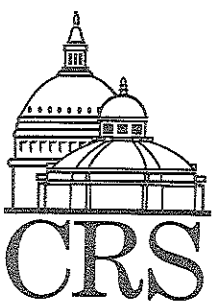

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Border Environment Cooperation Commission and North American Development Bank: Background and Issues

SUMMARY

In October 1993, the United States and Mexico adopted the *Agreement between the Government of the United States of America and the Government of the United Mexican States Concerning the Establishment of a Border Environment Cooperation Commission (BECC) and a North American Development Bank (NADBank).* Both governments anticipated that the North American Free Trade Agreement (NAFTA) would generate increased economic activity in the border region, and that existing environmental conditions would worsen without a targeted, binational effort to address infrastructure needs. For many in Congress, support for NAFTA was partially contingent on the identification of a mechanism for financing border environmental projects.

The Agreement approved the establishment of the BECC and the NADBank to assist border-area communities in meeting environmental infrastructure needs and to provide community adjustment and investment assistance. The BECC is directed to help border States and communities coordinate projects and assemble financing packages. The NADBank's key function is to evaluate the financial feasibility of projects certified by the BECC and to facilitate their financing. The BECC and the NADBank are scheduled to begin operating in FY 1995.

The NADBank is modeled after the multilateral development banks and will be capitalized equally by both the United States and Mexico. Paid-in and callable capital subscriptions will be leveraged to borrow funds from the international bond markets, which will be used to make infrastructure loans. Project financing, mostly loans, will be arranged by the NADBank and include a mixture of government and perhaps private funds. Some concessionary financing (grants) may also be needed.

At least two financial issues may need to be addressed. First, it may be necessary to reconcile sometimes conflicting environmental and financial criteria that will be used to select projects. Second, because the NADBank is in the business of arranging financing for projects, not paying for them outright, project finance options may have to be carefully assessed, with particular attention paid to the amount of concessionary financing (grants) that will likely continue to be needed to support border environmental infrastructure.

Additionally, the BECC and the NADBank are perhaps best viewed as parts of a broader equation for solving border and transboundary environmental problems that are largely associated with trade-related economic growth. Existing conditions in the region derive in varying degrees from policies, actions, and/or inactions involving all levels of government and the private sector. Similarly, effective solutions to these and future problems would likely involve the participation of each of these parties.

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In October 1993, the United States and Mexico adopted the *Agreement between the Government of the United States of America and the Government of the United Mexican States Concerning the Establishment of a Border Environment Cooperation Commission and a North American Development Bank.* (Hereafter referred to as the Border Environment Cooperation Agreement). This Agreement was prompted by the negotiation of the North American Free Trade Agreement (NAFTA) and was the result of efforts by the United States and Mexico to develop a strategy for planning, coordinating, and financing environmental infrastructure projects in the border region.[1]

Both governments anticipated that NAFTA would generate increased commercial and industrial activity in that region, and that existing environmental and public health conditions would worsen without a targeted, binational effort to address infrastructure needs. Although separate from NAFTA, the Border Environment Cooperation Agreement was made contingent on the entry into force of the trade agreement. The two key objectives of this bilateral strategy are: 1) to facilitate control of transboundary pollution; and 2) to capture economies of scale for environmental infrastructure projects that can jointly serve neighboring border communities.

The Border Environment Cooperation Agreement approved the establishment of the Border Environment Cooperation Commission (BECC) and the North American Development Bank (NADBank) primarily to assist border-area communities in meeting environmental infrastructure needs. Additionally, up to ten percent of the NADBank's capital will be reserved for NAFTA-related community adjustment and investment. The BECC is directed to help border States and communities coordinate, design, and mobilize financing for projects and to certify projects for financing. The NADBank's key function is to evaluate the financial feasibility of projects certified by the BECC and to facilitate their financing. Congress authorized U.S. participation in the BECC and NADBank in NAFTA implementing legislation (P.L. 103-182). The BECC and the NADBank begin operating in FY 1995.

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[1] The border region is the area 100 kilometers (62 miles) on each side of the international boundary as defined in Article 4 of the 1983 *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* (the *La Paz* Agreement). The Border Environment Cooperation Agreement reaffirms the goals and objectives of the *La Paz* Agreement.

In May 1994, President Clinton issued an executive order on the Border Agreement which states that it is to be implemented:

> consistent with United States policy for the protection of human, animal or plant life or health, and the environment. The Agreement shall also be implemented to advance sustainable development, pollution prevention, environmental justice, ecosystem protection, and biodiversity preservation and in a manner that promotes transparency and public participation in accordance with the North American Free Trade Agreement and the Agreement.

The executive order designates the Secretary of the Treasury, the Secretary of State, and the Administrator of the Environmental Protection Agency (EPA) as the U.S. Government representatives to the Board of Directors of the NADBank. The U.S. Government members of the BECC Board of Directors are the EPA Administrator and the U.S. Commissioner for the International Boundary and Water Commission (IBWC).

This report explores environmental, economic, and financial issues relating to the BECC and NADBank. Analysis focuses on environmental and health problems associated with economic growth of the border area, economic issues related to these environmental problems, infrastructure needs, preliminary operating characteristics of the BECC and NADBank, and policy issues that may still need to be addressed.

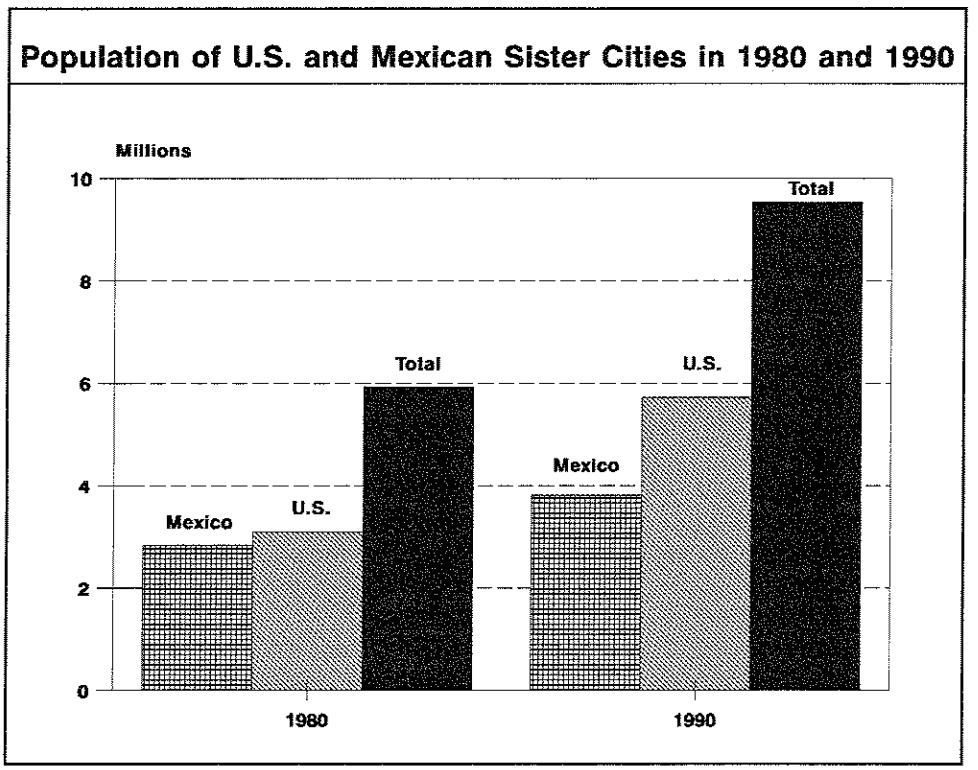
BORDER REGION ECONOMIC AND POPULATION GROWTH

The U.S.-Mexico border runs approximately 2,000 miles from the Gulf of Mexico to the Pacific Ocean (see figure 2 on page 4.) Although much of the region is arid and has limited water supplies, economic development and population growth have proceeded at a rapid pace in recent decades. Between 1980 and 1990 alone, the border-area population increased by more than 60 percent and now exceeds 9.5 million people. More than 80 percent of this population lives in seven of fourteen pairs of rapidly growing "sister" cities: Tijuana, Baja California/San Diego, California; Mexicali, Baja California/Calexico, California; Nogales, Sonora/Nogales, Arizona; Cuidad Juarez, Chihuahua/El Paso, Texas; Nuevo Laredo, Tamaulipas/Laredo, Texas; Reynosa, Tamaulipas/McAllen, Texas; and Matamoros, Tamaulipas/Brownsville, Texas. The U.S.-Mexico border is now the busiest border in the world, averaging 300 million border crossings annually. Population growth in U.S.-Mexican sister cities from 1980 to 1990 is shown in figure 1 on the following page. Populations for the major sister cities are shown in table 4 on page 35.

Past and ongoing trade, economic development, and immigration policies have attracted people and industry to the border area. On the Mexican side, families were drawn to the region in significant numbers during the Bracero program (1942-1960), which permitted Mexican workers to enter the United

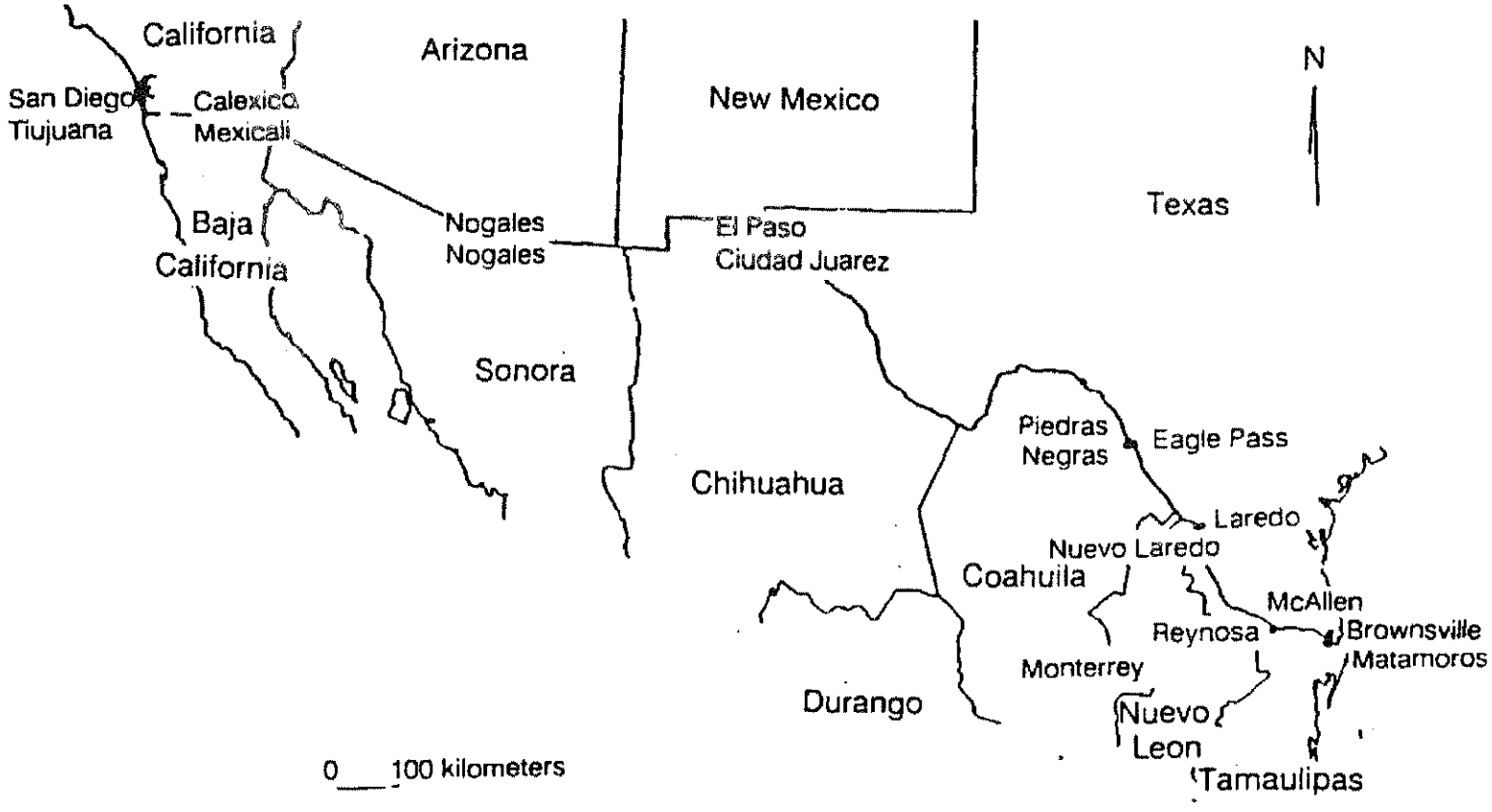
States for seasonal agricultural work.[2] In 1965, the Mexican Government initiated the Border Industrialization Program establishing a quasi free-trade zone in the border region. This program, commonly known as the *maquiladora* program, was created to promote foreign investment in Northern Mexico to foster economic development and provide employment for area residents, including Mexican farm workers who became unemployed with the end of the Bracero program.[3]

Figure 1



[2] Hufbauer, Gary C. and Jeffrey J. Schott. *North American Free Trade: Issues and Recommendations.* Institute for International Economics. 1992. p. 91.

[3] U.S. Library of Congress. Congressional Research Service. *Mexico's Maquiladora Industry,* by M. Angeles Villarreal. CRS Report for Congress 93-1050, December 14, 1993. p. 1.



Source: U.S. Environmental Protection Agency, SEDUE, 1991

Figure 2

The term "*maquiladora*" refers to the labor-intensive, export-oriented processing and assembly plants located in the Mexico border area that use imported materials and inputs and that export intermediate and final products. The program permits 100 percent foreign investment and allows temporary importation of equipment, components, and inputs into Mexico on a duty-free basis. Finished products using U.S. materials typically pay duty when exported to the United States *only* on the value added to the product in Mexico.[4] This program has not only provided employment to residents of Northern Mexico, it also has attracted tens of thousands of families to the border area in search of jobs.[5] These workers and their families account for a large percentage of the population along the border.

Maquiladora industries have proliferated as predominantly U.S. companies located plants in Mexico near the border to take advantage of low labor costs, preferential tariff treatment, and proximity to U.S. suppliers and markets. The number of *maquiladoras* increased from 12 plants employing roughly 3,000 people in 1965 to more than 1,900 plants employing more than 470,000 people in 1991. From 1983 to 1991, the average annual growth rate for the *maquiladoras* in terms of plants and employment was 16 percent.[6] Although the Mexican government has allowed *maquiladoras* to locate throughout Mexico since 1972, nearly 80 percent of the plants are concentrated in six Mexican border cities.[7] By 1991, nearly 380,000 people were employed in the border region by *maquiladoras*, while other industries employed more than 500,000 additional people.[8]

Although industrial growth has not been as vigorous on the U.S. side of the border, many of the same types of industries found on the Mexican side of the border are also present on the U.S. side. In addition, continued economic growth experienced throughout the U.S. sunbelt generally has contributed to the population growth along the U.S. side of the border.

Proliferation of unimproved settlements around the *maquiladoras* in Mexico and, to a lesser but significant degree, in the United States has been an unanticipated result of this rapid, unplanned economic growth. In addition,

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[4] Under NAFTA, the *maquiladora* program eventually is likely to end as the duty advantages of the program cease to exist with the elimination of North American tariffs, and as the Mexican market becomes open to *maquiladora* products.

[5] U.S. Environmental Protection Agency and the Secretaria de Desarrollo Urbano y Ecologia. *Integrated Environmental Plan for the Mexican-U.S. Border Area (First Stage, 1992-1994).* 1992. Summary, p. 11.

[6] *Integrated Environmental Plan for the Mexican-U.S. Border Area,* p. II-9.

[7] Office of the U.S. Trade Representative. *Review of U.S.-Mexico Environmental Issues.* Feb. 1992. p. 75.

[8] *Integrated Environmental Plan for the Mexican-U.S. Border Area,* p. II-9.

established urban areas along the border have experienced overwhelming growth and have become heavily congested.

One projected benefit of NAFTA was that opening Mexico's markets to U.S. goods would reduce the incentive for businesses to concentrate in the border region, and thus reduce border congestion. Even under this scenario, most NAFTA analyses projected that the border area would experience significant additional growth under NAFTA.[9] In a 1994 study of border sanitation issues, the U.S. Army Corps of Engineers projected extensive population growth in Mexico's border cities, estimating that all of these cities would at least double their populations by 2010. (See table 1, below.)

Table 1. Population Projections for Mexican Border Cities in 1990, 2000, and 2010

City	1990	2000	2010	Percentage Increase from 1990 to 2010
Nogales	166,000	250,000	360,000	117
Mexicali	1,050,000	1,700,000	2,790,000	166
Naco	6,700	10,000	15,000	124
Agua Prieta	42,000	62,000	92,000	119
Ciudad Juarez	1,080,000	1,800,000	2,900,000	169
Ojinaga	53,000	80,000	117,000	121
Ciudad Acuna	(1992) 130,000	178,000	263,000	102
Peidras Negras	158,000	230,000	350,000	122
Reynosa	414,000	600,000	910,000	120
Matamoros	414,000	600,000	910,000	120
Tecate	(1992) 160,000	219,000	326,000	104

Source: U.S. Army Corps of Engineers, Fort Worth District, International Boundary and Water Commission. *Sanitation Issues, United States and Mexico. Design and Cost Estimate Report.* Prepared for U.S. Section, IBWC. September 1992. p. 4.

Border Environmental and Health Conditions

Population growth associated with rapid economic development has far outpaced the efforts of Federal, State and local governments on both sides of the border to meet the demand for public environmental services, to ensure industries are meeting pollution control requirements, and to achieve and maintain applicable environmental protection goals and requirements.

Largely because of the lack of environmental services and infrastructure, the United States and Mexico now face a number of environmental and health issues that are to a significant degree transboundary in nature. The U.S. Department of Commerce identified Mexico's past trade liberalization and the

[9] See, for example, *Review of U.S.-Mexico Environmental Issues.* Supra at 6.

establishment of nearly 2,000 manufacturing and assembly facilities primarily in the last 15 years as a key factor contributing to current strain on border region environmental infrastructure.[10]

The Environmental Protection Agency and SEDUE (Mexico's former environment ministry, now SEDESOL) have identified two general problem areas:

- the absence of *municipal* pollution control facilities for a majority of the border population; and
- inadequate *industrial* pollution control facilities to properly manage the wastewater, air pollution, and hazardous wastes being generated.[11]

Implementing legislation for the Border Environment Cooperation Agreement states that the Border Environment Cooperation Commission will give initial priority to the need for municipal pollution control facilities for wastewater, drinking water, and municipal solid waste.[12] Problems in these areas are thought to pose the greatest threats to public health and involve services that are traditionally in the public domain. Needs pertaining to industrial pollution control are predominantly related to regulatory compliance and typically are private sector costs, hence, industrial needs generally are not likely to be addressed by the activities of the BECC and NADBank. (To the extent that industries are included in municipal service areas, they would benefit from public environmental infrastructure projects.)

Currently, many urban and rural areas in the border region lack basic public health and sanitation facilities, including sewage collection and treatment systems, drinking water supply systems, and municipal solid waste collection services. These conditions are most severe on the Mexican side of the border. A joint 1992 report by the environmental agencies of Mexico and the United States concluded that:

> the increased population along the border, particularly in Mexico, has brought about serious problems due to the uncontrolled urban growth and unplanned land use. Although significant investments have been made to resolve existing problems, they have been insufficient thus far

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[10] U.S. Department of Commerce, International Trade Administration. *Proceedings of the U.S.-Mexico Border Infrastructure Conference.* San Antonio, Texas. July 15-16, 1993.

[11] *Integrated Environmental Plan for the Mexican-U.S. Border Area.* Summary, p. 11.

[12] North American Free Trade Agreement, Texts of Agreement, Implementing Bill Statement of Administrative Action, and Required Supporting Statements. Message from the President of the United States. 103rd Congress, 1st Session. H. Doc. 103-159, v. 1, Nov. 4. 1993. p. 230.

> to compensate for the current deficits in infrastructure and urban services. . . . In addition, the lack of preparation of land suitable for housing has resulted in unplanned settlements lacking in basic services, including wastewater treatment, public transportation facilities, and adequate means to manage and dispose of municipal solid waste.[13]

A major concern for the United States is the daily flow of untreated industrial wastewater and domestic sewage into the United States from Mexico in the areas of Tijuana, Mexicali, and Nogales and into the Rio Grande River all along the Mexico-Texas border. Tijuana's wastewater collection and treatment system is inadequate, and each day, approximately 14 million gallons of raw sewage flow into the Tijuana River and across the border into San Diego.[14] Ciudad Juarez has a population of roughly 1 million people, but no sewage treatment plant, and approximately 45 million gallons per day of wastewater and irrigation water are discharged untreated into an open ditch and used to irrigate field crops. Nuevo Laredo has a limited sewage collection system and no wastewater treatment facilities, and each day 27 million gallons of untreated wastewater flow into the Rio Bravo/Rio Grande.[15] Other communities along the border face similar situations.

Wastewater treatment capacity has been exceeded in many border communities for more than a decade. Untreated sewage and industrial wastewaters have contaminated drinking water supplies in numerous locations in the region. Transboundary aquifers (the primary source of water supply for a significant portion of border residents and industries) are threatened both with contamination and depletion.

The absence of environmental infrastructure for sewage treatment and drinking water supplies poses serious health risks for residents. Incidents of hepatitis, intestinal infections, stomach disorders, skin rashes, and tuberculosis are increasing along the border. In 1990, the Council on Scientific Affairs of the American Medical Association reviewed border environmental health conditions and concluded that "the border area is a virtual cesspool and breeding ground

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[13] Integrated Environmental Plan for the U.S.-Mexico Border Area, p. II-6.

[14] Through the International Boundary and Water Commission and with the participation of Federal, State, and local governments, the United States and Mexico are jointly constructing an international wastewater treatment plant in the United States to treat Tijuana sewage. Groundbreaking ceremonies were held in July 1994. Congress authorized appropriations for this project under section 510 of the Water Quality Act of 1987. Through FY 1995, Congress has appropriated $234.7 million for the Tijuana project, approaching the $239.4 million cap imposed in FY 1993 appropriations (P.L. 102-389). The current total cost estimate for the project is $383 million.

[15] Integrated Environmental Plan for the U.S.-Mexico Border Area, p. III-8.

for infectious disease."[16] In 1993, in certain areas within El Paso County, Texas, 90 percent of the population was infected with hepatitis.[17] Health officials in both countries are concerned about the approach of cholera in the region and are monitoring the occurrence of this disease.

The absence of municipal solid waste collection and disposal systems in Mexico also creates transboundary health problems. Although the figures are imprecise, EPA and SEDUE estimated that on the Mexican side of the border, roughly 2,980 tons of municipal solid waste are generated each day, but only one half of that amount is collected.[18] Consequently, almost 1,500 tons of solid waste are left uncollected each day. Of the amount collected, approximately 65 percent is disposed of in open air dumps. Most communities lack sanitary landfills, incineration facilities, and recycling programs. Although the daily waste generation rate is higher for U.S. border communities (approximately 5,800 tons per day), municipal waste collection and management systems are generally well established.

On the U.S. side of the border, municipal environmental services and facilities are generally in place in the major cities. There is, however, a pressing need for environmental infrastructure among the hundreds of unincorporated communities, or *colonias*, that have sprung up around established urban areas. *Colonias* have been described as substandard, typically rural unincorporated communities or housing developments that lack some or all basic infrastructure including plumbing, public water and sewer, garbage collection, paved streets, and sometimes electricity.[19]

Texas and New Mexico officials estimate that nearly 300,000 people live in *colonias* in those two States. The prevalence of houses lacking sewer and water facilities is particularly serious in Texas, which has an estimated 1,200 *colonias*. State officials estimate that roughly 25 percent of residents in these *colonias* have no indoor plumbing; more than 20 percent lack an adequate drinking water source, and nearly all lack sewage treatment.[20]

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[16] Committee on Scientific Affairs. A Permanent U.S.-Mexican Border Environmental Health Commission. *Journal of the American Medical Association*, June 27, 1990, p. 3320.

[17] U.S. Congress. Senate. Committee on Energy and Natural Resources. *Water Supply Needs of the Colonia in Texas*. Hearings, 103rd Cong., 2d Sess. May 10, 1994. U.S. Govt. Print. Off., 1994. p. 46.

[18] Integrated Environmental Plan for the U.S.-Mexico Border Area. p. III-23.

[19] *Hearings on Water Supply Needs of the Colonia in Texas*, p. 35.

[20] Ibid, p. 21.

At a 1994 hearing before the Senate Committee on Energy and Natural Resources, a representative of the Office of the Governor of Texas explained the causes of the problem as follows:

> *Colonias* [in Texas] came into existence due to a combination of circumstances: a lack of affordable housing, unscrupulous developers, and weak subdivision rules in Texas. Developers sold families small, unimproved lots with the promise that water, sewer, and other services would soon follow. . . . [T]he situation continued for decades, leaving Texas with the reality of over 1,200 *colonias* and nearly 280,000 residents.[21]

Since 1989, Texas has enacted legislation and taken other actions to improve conditions in *colonias* and to prevent future illegal subdivisions. Voters approved $250 million in State-issued bonds for *colonia* water and wastewater projects, and legislation created model subdivision rules that counties must adopt to receive *colonia* funding. In addition, the State Attorney General has filed a series of lawsuits against *colonia* developers to hold them accountable for basic infrastructure improvements that were promised to *colonia* residents.[22]

A substantial portion of environmental infrastructure needs identified for the U.S side of the border are for *colonias*. Overall, EPA estimates that U.S. *colonia* needs (primarily for wastewater treatment) total approximately $721 million. This includes $696 million in needs reported by Texas, and roughly $25 million reported by New Mexico. (A broader discussion of border infrastructure needs and funding is provided below.)

ECONOMIC DEVELOPMENT AND BORDER ENVIRONMENTAL PROBLEMS

Historically, economic development has frequently been at odds with environmental concerns, often causing unintentional environmental side effects.[23] Current thinking, however, has made room for an expanded concept of economic development, which the World Bank defines as "a sustainable increase in living standards that encompass material consumption, education,

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[21] Testimony for the Office of the Governor, State of Texas, *Hearings on Water Supply Needs of the Colonia in Texas*, p. 35.

[22] Ibid, p. 35-36.

[23] For a discussion of environmental problems and development programs see: Schwartzman, Stephan. *Bankrolling Disasters: International Development Banks and the Global Environment*. Washington, D.C., Sierra Club, 1986 and U.S. Library of Congress. Congressional Research Service. *International Financial Institutions and Environment: Multilateral Development Banks and the Global Environment Facility*. Report No. 943-173 ENR, by Susan R. Fletcher and Betsy A. Cody. February 25, 1994.

health, and *environmental protection*."[24] This relatively new emphasis on environmental protection surfaced again as a point of vigorous debate in the passage of NAFTA, leading to, among other measures, creation of the BECC and the NADBank.

In the U.S.-Mexico border region, unplanned economic growth stems from the largely unfettered workings of industrial development and cross-border trade and, as discussed above, has led to at least two environmental concerns. First, Mexico's lax regulatory requirements and enforcement allowed high levels of industrial pollution.[25] Transboundary effects of pollution compound the problem when, for example, Mexican emissions and discharges can keep U.S. communities from meeting Federal environmental standards. In addition to the environmental effects of pollution, differences in environmental law and enforcement between Mexico and the United States become trade issues when economic benefits may be reaped by businesses having a choice to operate in two unequal regulatory environments.[26] To a degree, these particular problems are addressed in the NAFTA environmental side agreement dealing with legal, regulatory, and enforcement issues.

Second, and more closely related to potential BECC/NADBank solutions, public health concerns have arisen over inadequate infrastructure investment in drinking water, solid waste disposal, and wastewater treatment facilities. These public capital deficiencies have both industrial and residential implications in the border communities, including the *colonias* in the United States. Together, these two environmental and economic concerns define the additional policy parameters that many groups felt had to be addressed for NAFTA to be a success.

An Economic Rationale for a Binational Solution

An economic analysis of these environmental problems would suggest that they are linked to at least two significant market failures: the existence of negative externalities in the form of excessive pollution, and inadequate attention to public goods investment. Each can be addressed by government action, but because local, State, and national governing bodies have so far failed to meet these environmental challenges, proponents of a NAFTA-related

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[24] *World Development Report 1991: The Challenge of Development.* New York, Oxford University Press, June 1991. p. 31.

[25] U.S. Library of Congress. Congressional Research Service. *North American Free Trade Agreement: Environmental Issues*, by Mary Tiemann. Issue brief 93049, archived. p. 10.

[26] To the extent that firms operating in Mexico do not pay the costs of pollution abatement that they would in the United States, they enjoy a production cost subsidy. Conversely, Mexico has argued that heavier environmental regulations in the United States are tantamount to a nontariff barrier if they inhibit the movement of Mexican goods across the border.

solution argued that a binational approach was required to ensure that greater economic activity associated with NAFTA would not worsen already serious environmental problems.[27]

Inherent in recognizing that environmental problems are a direct result of economic activity is the idea that undeterred polluting is the sign of a market economy not fully incorporating the "social costs" of conducting business. Economists refer to such social costs as externalities precisely because they are "external" to the market place and hence are not reflected in the price of goods produced. In theory, externalities are market failures that can be remedied by government intervention, which is appropriate when it appears unlikely that the private sector will "internalize" external costs, as with pollution in this case.[28] Without government intervention, society as a whole must bear the cost of pollution and the social cost of production remains higher than the private cost incurred by business, leading to relatively higher levels of output and pollution, as readily observed in the border region.[29]

Pollution is often cited as a textbook case of a negative externality and may be addressed by two fundamental public policy solutions that, until the passage of NAFTA, have failed to materialize in any meaningful way on the Mexican side of border area. Governments may: (1) regulate pollution, health, and safety standards or, (2) tax businesses to reflect the cost of pollution. Theoretically, each provides a way to ensure that firms account for both the marginal social and private costs of production, thereby leading to a more efficient level of output as well as an abatement of environmental problems.[30]

Governments may also entice firms to adopt pollution controls by subsidizing their cost. Although this approach results in a reduction in pollution, it shifts the burden of cost away from those who purchase goods from the polluting firm to the general taxpayer. It also fails to promote the socially optimal level of production because the firm has not absorbed the entire

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[27] Hinojosa-Ojeda, Raul. The North American Development Bank: Forging New Directions in Regional Integration Policy. *Journal of the American Planning Association*. Summer 1994, p. 302.

[28] See: Stiglitz, Joseph E. *Economics of the Public Sector*. New York, W. W. Norton & Company, 1986. p. 179-81.

[29] A related argument holds that in two otherwise identical countries, trade between one with "ill-defined" environmental "property rights" and another with well-defined environmental "property rights" results in the overuse and misallocation of environmental resources in the production process of the first country. This outcome leads to inefficient trade patterns of "environmentally intense goods" and compounds the social cost problem experienced by developing economies that are induced to specialize in so-called "dirty industries." See: Chichilnisky, Graciela. North-South Trade and the Global Environment. *American Economic Review*, September 1994. p. 851-52.

[30] Stiglitz, Joseph E. *Economics of the Public Sector*, p. 184-92.

marginal social cost of production. Because of the inefficiencies this option introduces, economists tend to advise against it.

In a separate but related issue, the public health problems associated with population increases in the *colonias* and Mexican border towns point to the need for environmental infrastructure to support essential services such as drinking water, wastewater treatment, and solid waste disposal. Such infrastructure may be thought of in economic terms as a public good because the benefits are widely shared and the infrastructure will not be provided in sufficient quantity if left to the private sector. Unlike the provision of private goods, the allocation of which is generally left to the market, the appropriate level of public good production requires government action, which has been inadequate in the border region.

From an economic perspective, the NAFTA environmental side agreement and the Border Environment Cooperation Agreement may be viewed as the culmination of negotiated solutions designed to account for the external costs of border development as well as to meet the immediate and emerging need for public goods in border communities. With respect to the external costs of pollution, the two corrective policy options mentioned above have been adopted, although they do not directly relate to BECC and NADBank operations. First, in the NAFTA side agreement, countries commit to enforcing their domestic industrial environmental regulations that require producers to meet health, safety, and environmental standards. Second, the dispute settlement process includes provisions for use of fines and sanctions in trade-related cases of unresolved nonenforcement.[31] Because governments are obliged and compelled by these provisions to enforce environmental laws, business is likely to be under greater pressure to comply, and thus, to absorb the added costs of production. Albeit indirectly, these solutions are commensurate with the "polluter-pay" principle advocated by most public policy analysts, including economists.

As to the issue of public goods, the BECC and the NADBank provide the third solution of helping finance infrastructure by providing low-cost funds to environmental projects. The agreement emphasizes assistance for municipal services infrastructure that provides clean drinking water, wastewater treatment, and solid waste disposal. Much like industrial pollution control costs, however, beneficiaries of these environmental services, both commercial and residential, are ultimately expected to pay for most of them through a user-fee system.

The NADBank will also play a small role in helping communities adjust to problems that arise from a more liberalized trade relationship between the two countries. This assistance amounts to a subsidy to those communities that may have businesses that are unable to adjust quickly, or at all, to increased competition. Although the benefits of free trade, such as reducing costs of many goods, may be national in scope, the costs, such as business movements or closures, may be localized in cases where communities in one country are heavily

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[31] Tiemann, *North American Free Trade Agreement: Environmental Issues*, p. 6-7.

dependent on businesses that have direct competitive counterparts in the other. NADBank adjustment assistance is expected to ameliorate specific potential short-term economic disruptions.

Balancing Costs and Benefits

These new institutions can only be undertaken at some cost to the Federal Governments of Mexico and the United States. Direct costs include the administrative expenses of operating the two organizations and $450 million in paid-in capital needed to fund the NADBank. Cost was a pivotal issue for some Members of the House Appropriations Committee who appeared before the House Banking Committee. They recognized that given existing budget constraints, including arrearages in U.S. commitments to other international financial institutions, NADBank funding could only be done at the expense of other programs.[32]

The Federal Government, however, has already committed funding for assisting the *colonias* and other border communities with their environmental problems, as well as for helping Mexico directly and through the International Boundary and Water Commission (IBWC). In this light, the BECC/NADBank alternative may be viewed as a possible option for reducing future Federal outlays by facilitating the use of alternative financial resources. Nonetheless, the question raised repeatedly in congressional hearings was whether the costs resulted in sufficient benefits.

In addition to direct costs, from an economic perspective, it is important to recognize that there are opportunity costs to governments from influencing credit market decisions. To the extent that the NADBank directs or subsidizes capital flows to border infrastructure projects, other uses, which may have higher private returns to capital, are being forgone. This approach suggests that the Federal governments of the United States and Mexico implicitly assume that the social rate of return for the NADBank project equals or exceeds the difference in private rates of return between the NADBank project and the project forgone.

The benefits associated with NAFTA and BECC/NADBank costs are, on one level, diffuse. That is, the resulting improved trade should benefit many sectors and regions of the U.S. economy. Benefits of correcting regional market failures may also show up as national economic efficiency gains. In addition, because pollution can affect communities across international borders, investments in Mexico may have positive spillover effects in the United States. To the extent that these benefits and costs are both national in scope and that a public policy

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[32] U.S. Congress. House. Committee on Banking, Finance, and Urban Affairs. Subcommittee on International Development, Finance, Trade, and Monetary Policy. *United States-Mexican Border Environment Agreement*. Hearings, 103d Cong., 2d Sess. Oct. 27, 1993. Washington, U.S. Govt. Print. Off., 1993. p. 2 and 3. (Hereafter cited as *Border Environment Hearings*.)

response is warranted, it is appropriate for the Federal Government to be involved.

On another level, however, direct infrastructure investment may benefit the border region most. The national costs, in this case, represent a subsidy to the State and local governments, businesses, and communities of the border area. The Border Agreement recognizes that special government assistance and subsidies are required to meet these goals on the border, at least on a selective basis, because the region has not been compelled to meet environmental guidelines and is apparently unable to generate sufficient funds from local resources to finance the social capital spending necessary to improve working and living conditions.

The BECC/NADBank, then, have three specific goals of financing construction of environmental infrastructure, accelerating the process of putting this infrastructure in place, and providing limited community adjustment assistance. It is hoped that these policy directives will help solve immediate environmental and public health problems and perhaps allow the border area to proceed along a more progressive course of "sustainable" economic and social development.

BORDER INFRASTRUCTURE NEEDS ASSESSMENTS

Two issues dominated the debate on the BECC/NADBank: specific environmental needs of the border area and the reasons for their not having been met by private capital markets and local governments.

By design, the BECC/NADBank will give priority to infrastructure that, in the United States, is typically provided at the municipal level and usually involves some type of user fee as the financing mechanism. NAFTA left the regulatory process to deal with other environmental concerns, such as industrial pollution and hazardous waste, which do not readily lend themselves to user-fee solutions. Figure 3 displays two series of infrastructure estimates. The first is provided by the U.S. Council of Mexico-U.S. Business Committee, a subgroup of the Council of the Americas sponsored by business interests in both countries. The second estimate comes from the Sierra Club, an environmental group. The data were developed for a ten-year time period with total needs estimated to be between $5.8 and $8.7 billion. In addition, the U.S. Department of the Treasury is on record as citing an $8 billion figure in congressional testimony.[33]

As figure 3 indicates, the Sierra Club estimate for the three infrastructure categories is over 50 percent higher than that of the U.S. Council of Mexico-U.S.

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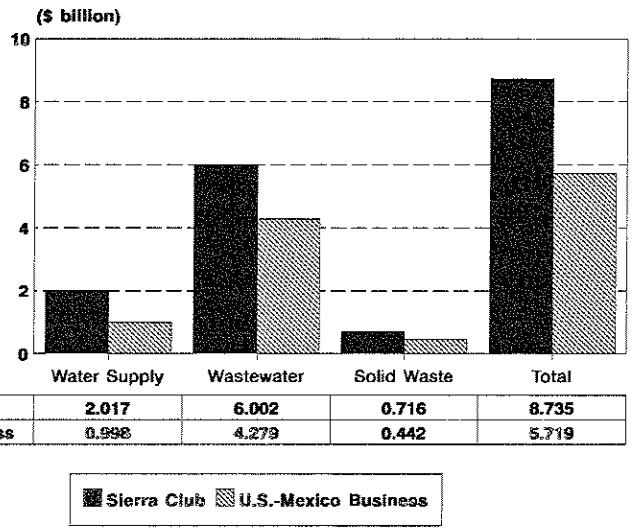
[33] Ibid, p. 8 and 141.

Business Committee.[34] Most of the discrepancy can be explained in terms of the different scope of needs defined rather than methodological inconsistencies. Under these circumstances, the estimates are closer than might appear at first glance.

Figure 3

Border Environmental Infrastructure Needs (1993-2003) Estimated by the Sierra Club and the U.S. Council of Mexico-U.S. Business Committee



	Water Supply	Wastewater	Solid Waste	Total
Sierra Club	2.017	6.002	0.716	8.735
U.S.-Mexico Business	0.998	4.279	0.442	5.719

Hs. Bank Com., 10/27/93, pp. 105 and 141.

To explain these differences, the Sierra Club argues that for water supply infrastructure, it relied more heavily on Texas State data than on data provided by Mexico and included a larger sample of needs in Texas than only those of the *colonias*. With wastewater, both estimates borrowed heavily from studies done by the U.S. Army Corps of Engineers, but the Sierra Club added operations, maintenance, and new service costs associated with sewer hookups in Mexico. For solid waste, the Sierra Club included estimates for collection and clean-up costs in addition to future landfill needs, which were part of both estimates.[35]

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[34] Needs estimates developed by the U.S. Council of U.S.-Mexico Business Committee and the Sierra Club rely heavily on a number of estimates made by the following organizations: the Texas Water Development Board; U.S. Environmental Protection Agency; San Diego Clean Water Program; Southwest Border Infrastructure Initiative; U.S. Army Corps of Engineers; and the Mexican Secretariat of Social Development.

[35] House Committee on Banking, Finance, and Urban Affairs, *Border Environment Hearings*, Oct, 27, 1993. p. 121.

As may be seen from table 2 below, there is a difference in the estimated needs between the two countries because, in some respects, Mexico lags behind the United States in developing infrastructure. Many water supply and distribution facilities in Mexican border cities are not up to the same standards as those in U.S. border cities and many Mexican households remain unserved. Wastewater treatment, which in Mexico is by far the need category with the greatest dollar discrepancy compared to the U.S., is required for both residential and commercial use. These services are currently provided by municipal authorities and cover much of the residential needs, but commercial needs, especially those of the *maquiladoras*, have not been well documented, but are expected to be costly. Finally, Mexico needs to upgrade its facilities for solid waste disposal and also institute charges for residential users who have been given free access to landfills (including garbage collection).[36]

Table 2. Border Environmental Infrastructure Needs Estimates (1993-2003) by Category and Country ($ millions)

Need	U.S. (Bus)	U.S. (SC)	Mexico (BUS)	Mexico (SC)
Water Supply	501	1,073	497	944
Wastewater Treatment	1,475	1,680	2,804	4,322
Solid Waste Disposal	120	187	322	529
Total	**2,096**	**2,940**	**3,623**	**5,795**

Source: Congressional Hearings, Oct. p. 105 & 141.
Bus = Council of Mexico-U.S. Business Committee estimate.
SC = Sierra Club estimate.

To date, Mexican border infrastructure projects have been financed primarily by the national government and the IBWC. Additional loans have been made by various multilateral development banks. Demand, however, outstrips supply of financing resources for the projects needed to address longstanding environmental problems.

Further, until 1992, Mexico did not have a legal structure in place that allowed for local governments or independent agencies to provide environmental services that could leverage user fees into borrowings for public capital projects. Changes, however, are underway in the regulatory and financial market environments. The National Water Law, passed in December 1992, put in place a legal framework that allows for the creation of local autonomous agencies with the authority to promote self-financing infrastructure projects based on user fees

[36] Ibid, p. 151-58.

being collected commensurate with service costs. The law also expresses the desire to access, where feasible, the private sector infrastructure financing market in Mexico, which has also grown dramatically (although not without problems) in recent years.[37] The NADBank eventually is also expected to utilize this fledgling private capital market to further its goal of leveraging bank funds for environmental infrastructure projects.

In the United States, border cities will need to expand many of their environmental facilities to handle new growth and meet backlogged needs. In general, the primary concern in border cities is not over a lack of aggregate funds to meet infrastructure needs; most needs are being met because of the more highly developed regulatory environment and capital markets. The *colonias* are the exception in all cases. Environmental capital spending is needed most in these areas where per capita incomes are insufficient to cover debt service necessary to support municipal bonds or to meet financial matching requirements of Federal assistance programs.[38]

Responsibility for U.S. environmental infrastructure financing usually falls to State and local governments, which have the authority to issue tax-exempt bonds. The Federal Government assists through the State Revolving Fund (SRF) program operated out of the Environmental Protection Agency (EPA), the U.S. Department of Agriculture's (USDA) Water and Waste Disposal Grant Program, and the Department of Housing and Urban Development's Community Development Block Grant (CDBG) program. The SRFs, because they usually support projects that are 100 percent debt financed, are not well suited to meet the needs of the *colonias*, where low income levels cannot support user fees sufficiently to guarantee regular servicing of debt payments.[39]

The Administration has recognized this problem and, for a number of years, has requested appropriations for grants for border infrastructure projects. For each of FY 1994 and FY 1995, the Administration requested $150 million for border-area sewage treatment projects, including continued funding for the Tijuana-South Bay (San Diego) international wastewater treatment plant, a joint U.S.-Mexico project supported by the United States and California because of cross-boundary pollution problems. Additional funding was requested specifically for *colonias*.

Congress too has responded to this problem by authorizing EPA to issue direct grants for border infrastructure projects from the "hardship communities" funds. In FY 1994, $50 million and $10 million were appropriated to assist Texas and New Mexico *colonias*, respectively. In addition, $58 million was appropriated for the Tijuana-South Bay international treatment plant near San Diego for treating Tijuana sewage.

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[37] Ibid, p. 152.

[38] Ibid, p. 144.

[39] Ibid, p. 154-55.

FY1995 EPA appropriations provided an additional $52.5 million for the Tijuana-South Bay international treatment plant and $47.5 million for wastewater facilities in Nogales, AZ and Mexicali, Mexico, part of which will be used for planning and design of other higher priority facilities in the border areas to control municipal wastewater from Mexico. Also in FY1995, Congress appropriated another $50 million for improving wastewater treatment in the Texas *colonias*, $8.2 million for expansion of water and sewer infrastructure in Laredo, TX, $3.5 million for wastewater treatment in Dona Ana County, NM, and $5 million for a regional water quality research project in Pima County, AZ.

In addition to EPA grants, for fiscal years 1993, 1994, and 1995 the USDA program targeted $25 million of its loan and grant funds specifically to meet the needs of the *colonias*, which are being used for construction of water supply and wastewater plants and to subsidize plumbing installation in individual houses. A portion of border States' CDBG funds have also been targeted for *colonias*. Notwithstanding recent appropriations, the overall financing picture is complicated by the tentative nature of Federal spending to subsidize the needs of *colonias* and the unlikely prospect that alternative financing resources can be attracted.[40]

Although needs estimates may be challenged, the primary argument for a BECC/NADBank rests on the assumption that Mexico is unable to generate sufficient public resources to meet environmental standards in the border area and that low per capita incomes in the *colonias* are insufficient to support a full-cost, user-fee financing system necessary to access the tax-exempt or private bond markets. The combined "financing gap" between expected needs and resources was estimated by the U.S. Council of the U.S.-Mexico Business Committee to be $1.9 billion for both Mexico and the United States.[41] The role of the NADBank is to finance BECC-approved projects directly or provide the assurances necessary to reduce risk so that financing packages can be created to address unmet needs. The NADBank, in short, is expected to act as a catalyst to bring other financing sources to the border area and thereby perhaps reduce the amount of Federal grants that would otherwise be needed.

To reach the Administration's estimated $8 billion "needs" level assumes that NADBank resources can be combined with current financing resources discussed above and private capital. Specifically, the U.S. Treasury has identified the following funding sources for meeting estimated border infrastructure needs over the next decade:

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[40] U.S. General Accounting Office. *Water and Waste Disposal Grant Program*; Letter of June 6, 1994. RCED-94-229R. Washington, 1994. p. 4.

[41] House Committee on Banking, Finance, and Urban Affairs, *Border Environment Hearings*, Oct, 27, 1993. p. 143.

- private financing; and as needed,
- up to $2 billion from existing State and local programs, including State revolving funds, municipal revenue bonds, and the *colonias* program for projects on the U.S. side of the border;
- $2 billion in new funding from the World Bank and Inter-American Development Bank, offered as loans to Mexico;
- approximately $1.4 billion in U.S. and Mexican grants (half from the United States); and
- some $2 billion in loans or guarantees for environmental infrastructure projects from the NADBank.[42]

Although State and Federal governments have already assumed much of the financing burden, it is easy to overstate the likely participation of private financing, particularly given that user-fee based infrastructure financing has only recently been developed in Mexico.

Under the best of circumstances, privatizing infrastructure projects requires the participation of many parties to diversify risk. Privatization efforts in Mexico, however, have met with only limited success. Privatization projects for road building and water supply have been scaled back because returns to capital have not met with expectations. The World Bank has criticized Mexican privatization efforts for lacking organization and management, which may further slow the process of developing a viable private capital market for environmental infrastructure projects.[43] Part of the NADBank's mission is to help arrange financing during an admittedly long transition period where regional growth should lead to greater economic self-sufficiency and rising incomes that eventually will be able to support more traditional user-fee based financing schemes.

BORDER ENVIRONMENT COOPERATION COMMISSION

The NAFTA debate focused an unprecedented amount of attention on the worsening environmental conditions in the border region. Although in recent years the United States and Mexico had increased their cooperation on border environmental matters, NAFTA proponents and opponents agreed that a commitment to cooperate was insufficient to address already major border environmental problems. As the debate progressed, consensus emerged that existing efforts needed to be supplemented by a bilateral mechanism for

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[42] Ibid, p. 32.

[43] Public Works Financing. *Salinas' Infrastructure Goals Undone By Lack of New Capital*. September 1993, p. 26 and *World Bank Blasts Mexican Concessions*. Feb. 1994, p. 26.

financing border environmental infrastructure. Of the various funding options considered, the NADBank proposal prevailed.

A second issue concerned the view that previous efforts to address border problems had not adequately involved State and local officials or the public, and had not been sufficiently coordinated with interested parties. Out of this debate emerged the proposal for the Border Environment Cooperation Commission, an organization separate from the NADBank that would work with State and local governments, the private sector, and public interest groups to identify, develop, and coordinate environmental projects. A key feature of the BECC is that it is structured to be open, accessible, and responsive to local concerns.

BECC Operations

The stated purpose of the BECC is "to help preserve, protect and enhance the environment of the border region in order to advance the well-being of the people of the United States and Mexico." In carrying out its purpose, the BECC is directed to cooperate with the NADBank, other national and international institutions, and private sources supplying investment capital for environmental infrastructure projects in the border region.

The BECC is primarily a coordinating agency that will help border States and communities design and arrange financing for environmental infrastructure projects, and oversee the use of project funds. Specifically, the BECC may assist border States and communities, other public entities and private investors by performing any or all of the following functions:

- coordinating environmental infrastructure projects in the border region;
- preparing, developing, implementing, and overseeing projects, including the design, siting and other technical aspects of projects;
- analyzing the financial feasibility and/or environmental aspects of the projects;
- evaluating social and economic benefits of the projects;
- organizing, developing and arranging public and private financing for projects; and
- certifying applications for project financing for submission to the NADBank or other financing sources.[44]

[44] Article I, Section 2. The Border Environment Cooperation Agreement authorizes the BECC to set fees or other charges for its assistance, including the processing of applications for certification (Article II, Section 5).

The BECC is directed to mobilize sources of financing for projects from a variety of sources including the NADBank, the private sector, and Federal, State and local governments.

Certification for Project Financing

A primary activity of the BECC is to certify projects as eligible for funding by the NADBank. The Commission may accept project applications from States, localities, other public investors and private investors.[45] To be eligible for certification, a project must meet or agree to meet the technical, financial, environmental, or other criteria established by the BECC. A project also must be able to meet any environmental laws in effect in the area in which the project is to be located. For projects having significant environmental effects, an environmental assessment must be presented with the application, and the BECC Board of Directors must examine potential environmental benefits, risks, and costs, available alternatives, and environmental standards and objectives of the area. The Board, in consultation with States and localities, must also determine that the project will provide a high level of environmental protection for the affected area.

The BECC's guidance for selecting among qualified projects is provided in more general terms. The Statement of Administrative Action accompanying NAFTA and BECC/NADBank implementing legislation states that "the BECC will initially give preference to waste water, water treatment, and solid waste projects. . . . Such facilities will be important to improve environmental conditions in the border area and to ensure that increased trade generated by the NAFTA does not adversely affect environmental quality in that region."[46]

Organization and Management

The BECC, located in Ciudad Juarez, has a binational Board of Directors comprised of five members from each country. The members for each country include: 1) the senior environmental official; 2) the commissioner of the International Boundary and Water Commission; 3) a representative from a border State; 4) a representative from a locality in the border region; and 5) a member of the public from the border region.

In July 1994, President Clinton named the State, local, and public members of the BECC Board of Directors for the United States. The members are the Chair of the Texas State Parks and Wildlife Commission, the Deputy Director of the City of San Diego Division of Water Utilities, and the Director of the

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[45] Article II, Section 3.

[46] North American Free Trade Agreement, Texts of Agreement, Implementing Bill Statement of Administrative Action, and Required Supporting Statements. Message from the President of the United States. 103rd Congress, 1st Session. H. Doc 103-159, v. 1, Nov. 4. 1993. p. 679.

Radiation, Toxics, and Health Project, Southwest Research and Information Center in Albuquerque.

The BECC Board is required to hold regular quarterly sessions and may hold other special sessions as well. During each regular session, the Board must hold at least one public meeting.[47] The first public meeting was held on November 17, 1994, in Ciudad Juarez, Mexico, with more than 60 organizations attending.

Transparency

The Border Environment Cooperation Commission is designed to be transparent in its operations and open to interested parties. The Border Environment Cooperation Agreement provides opportunities for public involvement in the BECC through public representation on the Board of Directors that governs the BECC (the majority of members are from the border area), and on the 18-member advisory council which is composed entirely of border State and public representatives. Also, the public is to be notified of, and permitted to comment on, proposed projects. The Agreement directs the BECC to establish procedures that will:

- ensure, to the extent possible, project documents are available to the public;
- provide that notice is given and comments taken on guidelines established by the BECC for environmental infrastructure projects and on applications for certification received by the BECC; and
- enable the Board of Directors to receive complaints from groups affected by projects.[48]

The transparent structure of the BECC may present an administrative challenge for members. The unusually high level of public representation and anticipated public participation is not customary for Mexican governmental organizations. Consequently, it may take some time for the BECC to become proficient in communicating and coordinating its activities with interested members of the public.

Relationship to Bilateral Agreements

The BECC joins two existing bilateral arrangements aimed at addressing U.S.-Mexico border resource and environmental issues: the International Boundary and Water Commission (IBWC) and the 1983 *Agreement to Cooperate in the Solution of Environmental Problems in the Border Area* (the *La Paz* Agreement). Despite the potential for overlap in missions, BECC advocates

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[47] Article III, Section 3.

[48] Article II, Section 4.

during deliberations on the Border Environment Cooperation Agreement argued that a separate bilateral entity was needed to focus specifically on the extensive environmental protection and cleanup needs in the border region.

The International Boundary and Water Commission

The IBWC was established by the *1944 Treaty between the United States and Mexico Relating to Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande.*[49] The IBWC is headed by a U.S. and a Mexican Commissioner and is entrusted by treaties and laws with a range of responsibilities for solving water and boundary problems along the U.S.-Mexico border. The IBWC has responsibility for the distribution of the waters of the Rio Grande and Colorado River between the two countries, the joint operation of international dams on the Rio Grande, the joint flood control works along the boundary rivers, the solution of transboundary water quality problems, and the solution of problems relating to changes in the river boundaries. Although, the IBWC's treaty mandate primarily involves water utilization and flood control matters, the Commission has been increasingly involved in developing wastewater treatment projects. (For example, the IBWC will build, own, and operate the Tijuana wastewater treatment plant.)

The Border Environment Cooperation Agreement recognizes the partial overlap in mission between the BECC and the IBWC, and includes language aimed at clarifying the relationship between the two organizations. The Agreement reaffirms the role of the IBWC in preserving "the health and vitality of the river waters of the border region" and provides the United States and Mexico can direct the BECC and the IBWC to cooperate in planning, developing, and carrying out border sanitation and other environmental activities.[50] The Agreement authorizes the IBWC to provide assistance for projects outside the border region if a project would remedy a transboundary environmental or health problem.[51]

The 1983 La Paz Agreement

This Agreement, with its five annexes, provides a framework for cooperation between Mexico and the United States on addressing pollution in the border region and for coordinating activities of the U.S. and Mexican environmental agencies. Under the aegis of the Agreement, the two agencies jointly issued the *Integrated Environmental Plan for the Mexican-U.S. Border Area (First Stage, 1992-1994).* The plan identified ways to improve bilateral coordination and cooperation, with the goal of solving the problems of air, soil, and water quality and hazardous wastes in the border region. The U.S. EPA

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[49] With the Water Treaty of 1944, the United States and Mexico replaced the International Boundary Commission, established in 1889, with the IBWC.

[50] Chapter I, Article III.

[51] Border Environment Cooperation Agreement. Chapter I, Article I.

and Mexico's Secretaria de Desarrollo Urbano Y Ecologia (SEDESOL) have established six work groups to address specific border environmental issues (water, air, hazardous waste, enforcement, joint emergency response, and pollution prevention) and are currently developing an expanded program, the Border 2000 Plan, that will extend bilateral cooperative efforts in the region. Notwithstanding these initiatives, the EPA and SEDESOL are generally viewed as over-taxed to address existing mandates and environmental issues within each country. Moreover, their authority and resources for bilateral efforts are limited. The Border Environment Cooperation Agreement reaffirms the goals and objectives of the *La Paz* Agreement while noting the specialized functions of the BECC.[52]

THE NORTH AMERICAN DEVELOPMENT BANK

As the sister agency to the Border Environment Cooperation Commission (BECC), the North American Development Bank (NADBank) was established to meet critical public capital needs by facilitating financing of BECC-approved environmental infrastructure projects. It will also devote approximately 10 percent of its resources to community adjustment and investment assistance in areas, not necessarily on the border, that are adversely affected by NAFTA.

The NADBank, headquartered in San Antonio, Texas, is scheduled to begin operations in fiscal year 1995, pending appointment of management staff. The community adjustment office for the United States is located in Los Angeles, California.[53] The Board of the NADBank comprises three members from both the United States and Mexico. For the United States, they are the Secretary of the Treasury, the Secretary of State, and the Administrator of the EPA. For Mexico, they are the Secretary of Finance, the Secretary of Trade and Industry, and the Secretary of Social Development. The board is charged with defining bank policies.

NADBank Operations

The NADBank is modeled after the multilateral development banks (e.g. World Bank or Inter-American Development Bank) and shares some features with the State Revolving Funds used to finance environmental infrastructure in the United States. Both the United States and Mexico commit a given amount of financial resources to capitalize the bank. These commitments in turn are used as a reserve against which bonds are sold in the international markets. The bond proceeds become the bank's primary source of capital and are used to make loans in support of individual projects. When a project is finished and begins to generate revenue, loaned or guaranteed funds are repaid

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[52] Upon opening EPA border offices in El Paso and San Diego, EPA Administrator Carol Browner (a BECC board member) noted that the border offices will interact with the BECC and the NADBank regarding EPA funding of BECC-certified projects.

[53] *North American Free Trade Agreement Implementation Act*, P.L. 103-182.

or freed up, at which point they are added to capital and used to repay international borrowing or reloaned to other infrastructure projects.

Source of Funds

The NADBank is tasked with providing between $2 and $3 billion in financial resources, over four years, to government agencies and other entities of the United States and Mexico. The key to supplying development finance of this magnitude is the concept of *leveraging*. To accomplish this, the United States and Mexico will each take out a $1.5 billion subscription of capital stock.[54] Only 15 percent of the total capital ($450 million), however, will actually be appropriated funds or *paid-in capital*. The remaining shares ($2.55 billion), referred to as *callable capital*, will be backed by the financial resources of the two countries and provide a guarantee against which the bank may borrow in the international capital markets at relatively low interest rates.

As shown in table 3 on the following page, the United States and Mexico will make four equal installments in fiscal years 1995-1998 totaling $450 million in paid-in capital and $2.55 billion of callable capital, pending future appropriations. Because of the guarantee implied by the callable capital provisions, the $450 million of paid-in capital can be leveraged to generate over 6.5 times its value in infrastructure investment, or $3 billion. Callable capital represents a commitment by the two countries to provide additional capital in the future should the bank require it to meet losses from project defaults, or other obligations to creditors that might otherwise exceed bank resources. Callable capital is a contingent liability on the Federal budget, scored as zero appropriations, unless used. All multilateral and regional development banks are supported by callable capital and to date the United States has not been required to appropriate funds to meet any contingent requirements for such capital.[55]

The NADBank will secure funds in two ways. First, and foremost, it will sell bonds in the international capital markets that are backed by the subscribed capital of the bank.[56] The ratio at which funds are borrowed will be 1:1. That is, the bank may borrow one dollar for every dollar of subscribed capital it has on its books. The bank may eventually finance at least $3 billion worth or projects based on paid-in and callable capital accounts. The bank's working

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[54] Each country will subscribe to 150,000 shares of stock with each share having a par value of $10,000, for a total capitalization of $3 billion.

[55] Unlike government loan guarantee programs, which require an appropriation to cover estimated losses for credit reform purposes, callable capital is treated in the Federal budget as zero appropriations because the implied guarantee covering any project defaults is covered by paid-in-capital.

[56] Current plans call for the NADBank to enter into agreement with the Inter-American Development Bank to handle its borrowing and investment responsibilities.

capital will consist of paid-in subscriptions, borrowed funds, and any revenue the bank may generate.

Table 3. NADBank Financial Commitments from the United States and Mexico (in $ millions)

Country	Paid-in Capital	Callable Capital	Total Subscribed Capital
United States	225	1,275	1,500
Mexico	225	1,275	1,500
Total	**450**	**2,550**	**3,000**

Source: *North American Free Trade Agreement Implementation Act*, P.L. 103-182, sec. 541.

In this way, projects can be financed from loaned funds that are indirectly backed by the United States and Mexico.[57] The bank reserves and implicit backing of the national governments act as a credit enhancement, which reduces the cost of borrowing for the projects.[58] All bond issues are required to have the highest (AAA) safety rating and therefore will carry the lowest possible interest rate.[59] Because these projects would be considered high-risk propositions by the investment community, without NADBank participation, they would have to provide significantly, if not prohibitively, higher rates of return to prospective investors.[60]

The second option for securing project financing is to use the bank's subscribed capital to leverage local government and private sector funds.

[57] Although the two countries financially support the NADBank, the securities it issues are not obligations of either government.

[58] The low-cost financing may be particularly useful in Mexico because it does not have a tax-exempt municipal bond market to support local infrastructure. Mexican real interest rates have been as high as 10 percent for capital projects, precluding many of them from being built. See: U.S. Congress. House. Committee on Banking, Finance, and Urban Affairs. Subcommittee on International development, Finance, Trade, and Monetary Policy. Hearings, 103d Cong., 2d Sess., July 22, 1993. Washington. U.S. Govt. Print. Off., 1993. p. 29. (Hereafter cited as *NADBank Hearings*.)

[59] U.S. Department of the Treasury. Office of Public Affairs. *Treasury News*. Treasury Secretary Lloyd Bentsen Statement on NADBank. May 16, 1994.

[60] *NADBank Hearings*, p. 22.

Because NADBank resources can serve as a guarantee, they will reduce the project finance risk to other investors. The extent to which a public-private venture is possible again depends on the riskiness of the project and how much of the risk is taken on by the NADBank.[61]

Bond rating agencies, local governments, and private participants will look to the project's ability to repay the loans when determining whether and how much to invest. Most environmental public works operated in the United States are financed on a user-fee basis. Privatization projects in Mexico also rely heavily on tolls and user fees. Should the expected revenue streams of the proposed projects be sufficient to cover all or part of the debt payments, it is possible that investors may be interested in border projects, given NADBank participation. State and local governments may also wish to participate more fully, even if the plants may not cover the full cost of debt, for the purpose of subsidizing the infrastructure costs of poor or developing communities under their jurisdiction. It is anticipated that, in many cases, NADBank financing will also include some Federal grant funds.

Once NADBank operations are underway, theoretically cash flow will be generated from three sources: interest and fees earned on loans and services provided; interest earned on invested capital; and repaid borrowings. This flow of funds, some of which will add to the bank's working capital, will presumably allow the bank to operate at a profit over the long run. As working capital grows, the bank should be able to increase its reserves (retained capital and loan loss reserves), which in turn will allow for increased project lending. The NADBank would, therefore, ideally establish itself as a financially self-sufficient organization able to absorb periodic losses with income generated from operations. Operating goals assume that the bank succeeds at minimizing defaults on projects and that income exceeds operating and borrowing costs.

Use of Funds

The agreement between the United States and Mexico clearly sets out the two express purposes of NADBank funds: to facilitate financing of environmental infrastructure projects and to provide community adjustment assistance to trade-impacted communities (up to ten percent of capital).

Environmental Infrastructure Projects. The NADBank will assist in the development of infrastructure projects by coordinating financing commitments from private lenders, governments, and capital from the NADBank. Only projects that have been certified as eligible by the BECC will be considered for assistance. The bank is, however, encouraged to provide financial technical assistance to projects that pass the environmental assessment stage. In this way, the bank should serve as an institution that can pull together diverse

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[61] For more on the problems of private financing of infrastructure see: U.S. Library of Congress. Congressional Research Service. *Highway Privatization and ISTEA: Economic Policy and Financing Issues*. Report No. 92-883 E, by J. F. Hornbeck. December 1, 1992. p. 21-23.

financial resources and provide sufficient assurance against losses to help move projects forward that otherwise would probably be infeasible from a financing perspective.

The NADBank can theoretically take a number of roles in putting a financing package together. First, it may lend funds directly. In this capacity, the bank may act as the long-term, high-risk project lender (take on a subordinated debt position) to attract private sector and local government financing. Second, it may guarantee loans made by other parties to reduce project financial risk. Third, the bank may take on the entire financial risk alone, should a project prove unable to attract other financial commitments. Equity participation and grants are not available for infrastructure projects. The mechanisms actually used will be a matter of bank policy.

Loans and guarantees will only be made for BECC-approved projects provided they have been evaluated for:

- their ability to secure loans from private sources on "reasonable terms";
- the ability of the borrower and other guarantors involved to meet their obligations under the loan agreement;
- appropriateness of proposed interest rate and payment schedules;
- appropriateness of risk compensation for guaranteeing a third party loan (a guarantee fee) and;
- financial feasibility or the likelihood that the project will provide an adequate revenue stream from user fees or other sources to repay outstanding obligations.

Despite the attention paid to the user-pay concept, it is not reasonable to assume that these projects will be able to produce the revenue necessary to repay fully the total project cost. Some type of concessionary financing, such as Federal or State grants, will be necessary in many cases. In the United States, EPA and USDA are already providing Federal assistance that could be used to support NADBank projects. In Mexico, all levels of government are becoming involved in supporting border projects through a process know as *backstop financing*. In this arrangement, municipal, state, and federal governments agree to pay an agreed upon amount for environmental services supplied by a given project. These funding commitments are called upon in a predetermined order to the extent that user fees fall short of the revenue stream needed to repay project debt. The critical financing aspect of the arrangements made in both the United States and Mexico is that direct government assistance will still be needed to diversify the project risk sufficiently to attract other financial

resources to NADBank projects.[62] The U.S. Treasury estimates that $1.4 billion would be required in grants from the U.S. and Mexican governments over ten years.

Community Development and Investment. The NADBank is also charged with helping communities that are adversely affected by the liberalized trade agreement between Mexico and the United States through the Community Adjustment and Investment Program (CAIP). These "trade impacted" communities, which need not be located within the border region, presumably can show that they have in some way been economically hurt by changing trade arrangements. This might include the closing or movement of plants, redirecting of trade travel patterns, or some other effect that can be related to NAFTA.

If a community qualifies for adjustment assistance and investment funds and the proposed project is endorsed by the country in which it would reside, the NADBank may approach a proposed project in the same way it does environmental infrastructure and provide direct loans or guarantees. In addition, separate provisions allow for grants to be made for community assistance. In the United States, the community adjustment and investment program will use these grants to cover the additional subsidy costs of existing Federal credit or guarantee programs. These might include programs operated by the Small Business Administration (SBA), the Rural Development Administration, and the Economic Development Administration.

For example, if $1 million of SBA loan guarantees is provided to trade-impacted areas with a budget cost estimate scored at $25,000 (in line with SBA's 2.5 percent default rate), the funds can be provided by the NADBank and transferred directly to an SBA account. In this way, no existing Federal program funds are diverted from other uses to support NAFTA trade adjustment projects.

The total amount of loans, guarantees, and grants used for community adjustment and investment in either country is limited to 10 percent of the sum of the country's actual paid-in capital and *unqualified* or budgeted subscription of callable shares.[63] In addition, the total grants plus 15 percent of loans and guarantees made for community adjustment for each country must not exceed 10 percent of the country's paid-in capital. The U.S. Treasury estimates that NADbank funds can be leveraged to create at least $200 million in community

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[62] Discussion with William A. Schall, U.S. Department of the Treasury, November 22, 1994.

[63] Unqualified callable capital is formally recognized in the Federal budget. *Border Environment Cooperation Agreement*, Chapter II, Article III, section 4.

adjustment assistance in the United States, if used to support projects through existing Federal programs.[64]

Miscellaneous Powers and Provisions

There are a number of miscellaneous powers and provisions that govern the NADBank's operations including: prohibiting restrictions on use of currencies for bank transactions or repayments of loans from borrowed funds; allowing for the investment of funds not needed for bank operations; guaranteeing securities in its portfolio to facilitate their sale; and distributing or transferring net profits as deemed appropriate.[65]

In addition, the NADBank may terminate its liability for interest payments for guarantee contracts if, upon default, the bank offers to purchase the bonds at a price equal to their par value plus interest accrued to date. The bank may also require a third party guarantee from a public institution if a loan is to be made to a nongovernment entity.

The bank is also subject to various limitations on how much of its resources can be committed. The total amount of outstanding loans and guarantees is restricted to the amount of "unimpaired" subscribed capital, reserves, surpluses, and other income the bank may assign to its reserves. The bank must also maintain adequate loan loss reserves. Although the bank charter does not stipulate which projects, if any, may be exempt from assistance, it does require that funds be used for the express purposes outlined in the project proposal.

IMPLEMENTATION AND POLICY ISSUES

Although many facets of the BECC and the NADBank were defined in the supplemental NAFTA trade negotiations, as new institutions, they may encounter some problems that might be anticipated and further debated as detailed regulations are being considered.

Mitigating Future Environmental Problems

Existing environment and health problems in the border region derive in varying degrees from policies and actions, or lack thereof, involving all levels of government and the private sector. Similarly, effective solutions to these and future problems will depend on the involvement of each of these parties.

The Border Environment Cooperation Agreement, in establishing the NADBank and the BECC, has created a mechanism for facilitating the development of environmental infrastructure in the border region. Federal and

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[64] House Committee on Banking, Finance, and Urban Affairs, *Border Environment Hearings*, Oct, 27, 1993. p. 34.

[65] *Border Environment Cooperation Agreement*, Chapter II, Article V.

State appropriations also contribute to solving border health and environmental problems. Arguably, an element of equal or greater importance in any strategy to address border environmental issues involves the existence of legal authority and institutional capacity to prevent or mitigate the continued growth of such problems.

Currently, efforts to mitigate future problems are being taken at the Federal, State, and local government levels in the United States and Mexico, both independently and cooperatively. Examples of preventive measures include the ongoing efforts of the Mexican Government to adopt and enforce new pollution control regulations, and actions by the State of Texas to stem the growth of *colonias*. In addition, the private sector, including the *maquiladora* industries, has begun to increase investments in pollution control technologies.

A second element of a successful strategy for sustainable economic development in the border region would appear to involve the enhancement of local government authority and capacity in Mexico for enforcing environmental laws, financing public infrastructure, and planning industrial and urban development.

A regional study prepared by Baylor University for the Joint Economic Committee concluded that,

> [e]xplosive growth on both sides of the border, propelled by a U.S.-Mexican free trade agreement, will severely tax the water systems and add to air and soil pollution problems. Growth must be planned along with the installation of environmental projects to reduce pollution, and to prevent transborder negative environmental impacts.[66]

Under Mexico's General Law for Ecological Balance and Protection of the Environment (effective 1988), Mexico has begun to decentralize environmental regulation and enforcement and to give more responsibility and authority to State and local government. The 1992 National Water Law also increases local government authority for water planning and management. The water law also provides for the creation of local autonomous agencies with the authority to promote self-financing infrastructure projects based on user fees. Although it remains early in the implementation phase, these innovations represent important elements of Mexico's effort to improve the ability of local governments to provide environmental infrastructure and services.

Project Selection

Each proposed environmental project will go through at least a two-stage evaluation process. First, all projects must be assessed by the Border Environment Cooperation Commission for their ability to address the identified

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[66] U.S. Congress. Joint Economic Committee. Subcommittee on Economic Growth, Trade and Taxes. *Free Trade and the United States-Mexico Borderlands.* A Regional Report by Baylor University. 102d Cong., 1st Sess. July 1, 1991. p. 78.

environmental problem and to meet technical criteria and environmental laws and regulations. Project proposals that do not pass this test will not be forwarded to the NADBank for financial consideration. The BECC, however, is also tasked with providing technical assistance to communities to help them develop cost-effective and technologically sound proposals to mitigate perceived problems.

Assuming that the BECC approves a proposal to support a particular project, it must then be evaluated at the NADBank for financial feasibility.[67] In some cases, the NADBank may not be able to support projects that are incapable of generating sufficient revenue to repay long-term debt incurred. The NADBank is in the business of arranging financing for the projects, not paying for them outright. Although there may be numerous creative ways to construct a financing package, if the NADBank views the project as too risky or unlikely to meet its future financial obligations, it may not be approved.

This possibility raises the fundamental question of what happens to projects where high social rates of return may be in conflict with low economic rates of return? Will financial criteria overrule environmental criteria, or will there be alternatives for pushing forward on needed projects that may have trouble generating sufficient revenue?

Project Finance and Risk Management

As mentioned above, all financing arrangements hinge on the development of projects that will be driven by a user-fee system. In practice, charges should be sufficient to cover the operating costs of the plant as well as any repayment of long-term debt. Because of low per capita income in targeted areas on both sides of the border, user fees may be a limited revenue source from which to finance long-term capital investment. NADBank documents, however, advocate the almost paradoxical conclusion that such user fees are expected to be the primary source of revenue backing most projects.

Border infrastructure projects are inherently risky investments for potential lenders and investors. The fact that many of these projects have not yet been built suggests that the financial risk may be exceedingly high, thereby requiring NADBank to take on much of the risk or subsidize others for doing so. In particular, given Mexico's struggle with private market financing of infrastructure projects, reducing project finance risk to a point where public and private partnerships can be created may prove to be a difficult goal to achieve, perhaps requiring more concessionary financing arrangements. Although this point is recognized by many officials, it is not well developed in the NADBank documents. It should be understood that government financial assistance probably will be needed to consummate most project deals and this assistance could be more extensive and costly than initially anticipated.

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[67] The BECC charter states that it will also have some role in overseeing the financial feasibility of projects. This duplication of effort is an issue that will have to be resolved as the BECC and NADBank develop operating procedures.

Capitalization and Expectations

Finally, it may be easy to oversell the capabilities of the NADBank, which are currently defined very narrowly. Without changes to its charter and additional funding, the NADBank should not be viewed as a broadly focused regional development bank with resources available to develop businesses or address more costly environmental problems such as toxic waste cleanup. Nonetheless, many NADBank proponents may wish to expand the scope of the bank and should future legislative proposals be considered, they may wish to revisit the cost-benefit structure of these institutions.

Table 4. Populations of the Metropolitan Areas and/or Counties of U.S. and Mexican Sister Cities in 1980 and 1990

Sister Cities	1990 Metropolitan Area and/or County	1980 Metropolitan Area	Percentage Increase or Decrease from 1980 to 1990
Tijuana, Baja California	742,686	461,257	61
San Diego, California	2,498,016	1,861,846	34
Tecate, B.C. [d]	51,946	30,540	70
Mexicali, Baja California	602,390	510,664	18
Calexico, California	109,303	14,412	658
Ensenada, B.C. [d]	260,905	175,425	49
San Luis Rio Colorado, Sonora	111,508	92,790	20
Yuma, Arizona	106,895	62,550	71
Nogales, Sonora	107,119	68,076	57
Nogales, Arizona	29,676	15,680	89
Agua Prieta, Sonora	39,045	34,380	14
Douglas, Arizona	97,624 [e]	13,058	N/C [f]
Naco, Sonora	4,636	4,441	4
Naco, Arizona	97,624 [e]	768	N/C [f]
Las Palomas, Chihuahua	16,565	11,985	38
Columbus, New Mexico	18,110	414	4,274
Ciudad Juarez, Chihuahua	797,679	567,365	41
El Paso, Texas	591,610	479,899	23
Ojinaga, Chihuahua	23,947	26,421	- 9
Presidio, Texas	6,637	1,723	285
Ciudad Acuna, Coahuila	56,750	41,948	35
Del Rio, Texas	138,721	30,034	362
Piedras Negras, Coahuila	98,177	80,290	22
Eagle Pass, Texas	36,378	21,407	70
Nuevo Laredo, Tamaulipas [a]	219,468	203,286	8
Laredo, Texas	133,239	99,285	34
Reynosa, Tamaulipas	376,676	294,934	28
McAllen, Texas [b]	383,545	283,229	35
Matamoros, Tamaulipas	303,392	238,840	27
Brownsville, Texas [c]	260,120	209,727	24
U.S. County Non-Sister City Total	1,312,820	N/A	N/A
Mexican Total	3,812,889	2,842,642	34
U.S. Total	5,722,694	3,094,032	85
Total U.S. and Mexican	9,535,583	5,936,674	61

[a] Total includes population data for the City of Rio Bravo
[b] Includes Edinburg and Mission, Texas
[c] Includes Harlingen, Texas
[d] Not included among fourteen sister city pairs
[e] 1990 population data are for Cochise County, Arizona, which includes the cities of Naco and Douglas.
[f] Percentage increases in population are not comparable because 1980 data reflected only the population of each metropolitan area and not of the entire county.
N/A = not available, N/C = not comparable

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