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INTERNATIONAL ENVIRONMENT: Environmental Infrastructure Needs in the U.S.-Mexican Border Region Remain Unmet

The Honorable John D. Dingell
Ranking Minority Member
Committee on Commerce
House of Representatives

Dear Mr. Dingell:

Communities on both sides of the nearly 2,000-mile U.S.-Mexican border are confronting numerous environmental problems that pose serious risks to human health and the environment. These problems, which have worsened as the border region's economy, industries, and population have rapidly expanded over the last two decades, stem from the wide gap between the increasing domestic and industrial demand for and availability of environmental infrastructure,[1] including systems for drinking water, wastewater collection and treatment, and solid waste disposal. Despite efforts to narrow this gap, many of the border region's environmental infrastructure needs remain unmet, and providing them is estimated to cost nearly $8 billion over the next 10 years.

Recognizing the need to address water and air pollution and other environmental problems on their shared border (particularly because of the region's rapid drive toward industrialization), the United States and Mexico have established an extensive framework of environmental cooperation that dates back to the late-1970s. More recently, in 1993 the United States and Mexico signed a supplemental agreement to the North American Free Trade Agreement (NAFTA) to strengthen existing cooperation and provide funding for long-standing environmental problems along the U.S.-Mexican border. As part of this supplemental agreement, the United States and Mexico established the North American Development Bank (NADBank),[2] and each country committed to providing up to $3 billion in loans and loan guarantees over the next decade through

[1]Environmental infrastructure—as used in this report—refers to the infrastructure designed to protect human health and the environment along the U.S.-Mexican border by preventing and/or reducing the pollution of air, water, and soil.

[2]By agreement, each country will capitalize the NADBank with equal contributions of $225 million of paid-in capital (for a total of $450 million) and $1.275 billion in callable capital (for a total of $2.55 billion) over 4 years. Paid-in capital is the funding provided directly to the Bank. Callable capital is a commitment by the United States and Mexico to provide additional funds in the case of a failure by the NADBank to meet financial obligations on its own bonds. The Bank's capital is used to finance infrastructure projects certified by the BECC (90 percent) and separate domestic community adjustment and investment programs (10 percent). By pledging equal shares of paid-in and callable capital stock, the U.S. and Mexican Treasuries provide a financial commitment that allows the NADBank to have a high credit rating and to raise capital in international financial markets.

this new financial institution. The NADBank will finance border environmental infrastructure projects, with priorities in the areas of drinking water, wastewater treatment, and municipal solid waste. The agreement also establishes the Border Environment Cooperation Commission (BECC) to certify for NADBank financing those infrastructure projects that meet the BECC's technical, financial, environmental, and other criteria. Both organizations have only recently begun operations because capitalization of the NADBank and appropriations for the BECC did not begin until fiscal year 1995.

In response to your concerns about the efforts of both countries to address border environmental problems under the framework of NAFTA's supplemental agreement on environmental cooperation, this report provides information on (1) the U.S.-Mexican border region's current and projected unmet needs for environmental infrastructure, (2) the financial and institutional challenges each country faces in addressing present and future environmental infrastructure needs, and (3) the way in which the Environmental Protection Agency (EPA) has identified and prioritized funding for environmental problems along the U.S.-Mexican border.

Results in Brief

Government officials at the federal, state, and local levels in the United States and Mexico generally agree that on the Mexican side of the border, the basic infrastructure to connect outlying communities to the systems for collecting municipal sewage, treating wastewater, and disposing of solid waste is either insufficient to meet domestic and industrial demand or, in some cases, nonexistent. This problem is more severe in large Mexican communities. For the most part, U.S. border communities have an adequate basic infrastructure to provide drinking water, treat wastewater, and dispose of solid and hazardous waste for their residents. Most environmental needs on the U.S. side relate to colonias[3] or to upgrading and expanding the capacity of the communities' existing infrastructure.

Communities on both sides of the U.S.-Mexican border face various financial and institutional challenges to constructing or improving their environmental infrastructure. Mexican states and communities are

[3]Although there is no generally agreed-upon definition, the term "colonia" generally refers to a rural, unincorporated subdivision in the United States along the Mexican border in which one or more of the following conditions exist: substandard housing, inadequate roads and drainage, and substandard or no water and sewer facilities. Available data, although limited, indicate that residents of colonias are mostly Mexican-American; many work as seasonal farm laborers and have incomes below the poverty level. See Rural Development: Problems and Progress of Colonia Subdivisions Near Mexico Border (GAO/RCED-91-37, Nov. 5, 1990).

constrained by their heavy dependence on their federal government for financing and by their limited authority to raise capital through local and state taxes and user fees from environmental services. Mexican communities also have limited experience in planning, developing, and managing public works projects. U.S. colonias lack the financial and institutional standing to obtain needed capital because they are unincorporated communities subject to jurisdictional disputes between counties, cities, and providers of environmental services, such as corporations that supply water to rural areas. Although the NADBank offers financing for some of the border region's environmental infrastructure needs, it is unclear whether poorer communities on either side of the border will be able to afford these loans unless they are combined with grants or with low-interest loans from other sources.

Since 1991, EPA has spent approximately $520 million to help meet U.S. obligations with Mexico to address pollution problems along the border. Of this amount, EPA spent approximately $441 million earmarked by the Congress for various projects and programs related to the wastewater infrastructure and about $79 million at its discretion for such border-related, binational environmental activities as training, technical assistance, and data collection. EPA has generally allocated its appropriated funds for these activities on the basis of consultation with binational workgroups established under the 1983 La Paz Agreement,[4] the agency's program and regional offices, state and local governments, and nongovernmental organizations. Although EPA believes that these consultations, combined with its general knowledge of the border region's environmental needs, provide a sound basis to make funding decisions, EPA has neither comprehensively assessed the region's environmental infrastructure needs nor developed a set of agencywide criteria to ensure that its resources target the highest-priority needs. In addition, many of the projects (such as coordinating information exchanges) funded at EPA's discretion are activities with general objectives that are not clearly linked to measurable environmental indicators. In June 1996, EPA released the draft Border XXI Program that details the plans of the agency and other key U.S. and Mexican federal entities for improving environmental conditions in the border region. This program improves upon EPA's past efforts by including plans to organize environmental information, develop environmental indicators, expand public participation, and address environmental health concerns.

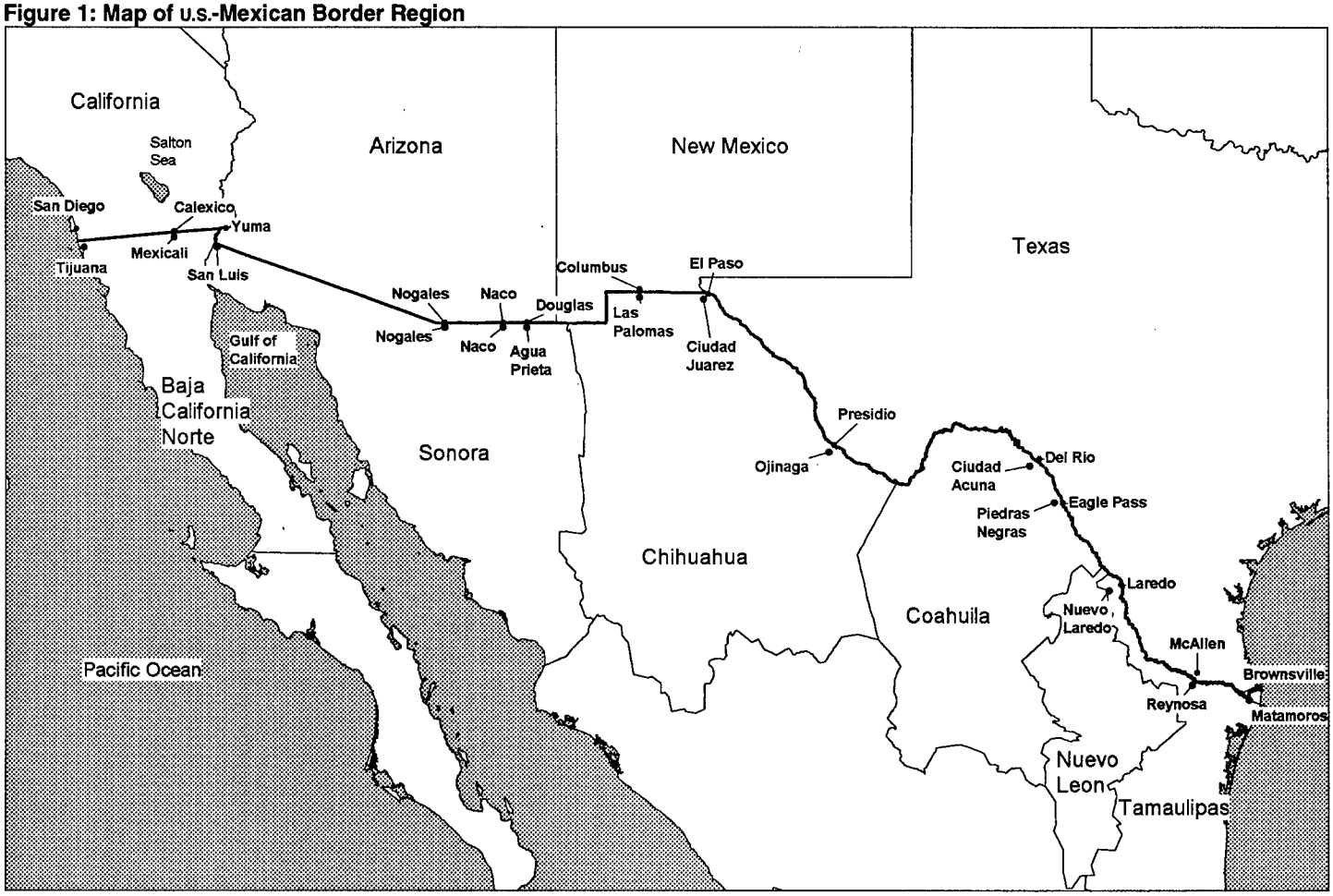
[4]This agreement and its several annexes commits the United States and Mexico to cooperatively address environmental issues in the border region.

Background

The United States and Mexico share a nearly 2,000-mile border that stretches from the Pacific Ocean to the Gulf of Mexico. Although more than half of this boundary is delineated by the Rio Grande, communities on both sides of the border are affected by the region's air quality as well as such common natural resources as groundwater, aquifers, rivers, and watersheds. For example, several communities in and bordering Texas depend on the Rio Grande for drinking water, domestic and industrial uses, and discharging wastewater. The cities of San Diego and Tijuana use the Pacific coastal waters for recreation, fishing, and wastewater discharge. Because of the transboundary character of the border region's ecosystem and the need to address pollution problems binationally, the United States and Mexico signed the 1983 La Paz Agreement, which defines the border region for purposes of environmental cooperation as the area within 100 kilometers (62 miles) of either side of their international boundary.

In the last two decades, border communities have experienced significant population growth. Between 1980 and 1996, the total population of border communities has grown from over 4 million to almost 10 million people. Most of the population is concentrated in 14 pairs of neighboring cities that are distributed across four U.S. and six Mexican states. (See fig. 1.) Almost one-third of the population in the border region lives in the San Diego/Tijuana metropolitan area, while another third is distributed among the following four large metropolitan areas along the Rio Grande in Texas: El Paso/Ciudad Juarez, Laredo/Nuevo Laredo, McAllen/Reynosa, and Brownsville/Matamoros. Most of the remaining population in the border region is scattered among the other nine pairs of neighboring cities.

Figure 1: Map of U.S.-Mexican Border Region



The rapid growth in this region is generally attributed to the potential of northern Mexican communities to provide economic opportunities that cannot be found in Mexico's interior because of adverse economic conditions. Northern border communities also offer potential access to the U.S. job market. The availability of jobs with maquiladoras—companies located in Mexico's northern border region that use imported materials to produce finished goods for export—has been a key factor in attracting Mexican workers to migrate to that border.[5] Many of these migrants tend to cluster in and around suburban areas where housing is affordable but basic environmental services (such as trash collection, sewage connections, and a potable water supply) are limited or not available.

In developing binational solutions to the border region's environmental problems, policymakers in both countries face unique challenges because of the transboundary nature of the border environment, differing approaches to addressing problems in public policy, and a substantial lack of financial and technical resources. To address these problems, the United States and Mexico have established several mechanisms; in 1993, both governments signed a supplemental agreement to NAFTA to establish the BECC and the NADBank, which were created to complement existing funding to improve the border region's environmental infrastructure and to strengthen cooperation on addressing the region's environmental problems. The BECC's purpose is to certify environmental infrastructure projects—primarily for drinking water, wastewater treatment, and municipal solid waste—for subsequent financing by the NADBank in the form of loans and loan guarantees at market interest rates with flexible repayment terms. The agreement encourages the private sector to invest in projects that are operated and maintained through user fees paid by polluters and the border communities benefiting from these projects. Because of the low income levels of border communities, both countries have recognized that the ongoing availability of grant funds and low-interest loans from both sides of the border that could be combined with NADBank funds was essential to make environmental infrastructure projects financially viable.

The BECC and the NADBank complement an existing binational framework of environmental cooperation dating back to the late-1970s. As border

[5]The Mexican government initiated the maquiladora program in 1965 to attract labor-intensive industries to Mexico. Mexican law allows maquiladoras to bring materials into Mexico without paying import duties, provided they use these materials to make goods for export and ship any hazardous waste generated during production to the country from which they obtained their source materials. See Hazardous Waste: Management of Maquiladoras' Waste Hampered by Lack of Information (GAO/RCED-92-102, Feb. 27, 1992).

communities grappled with an array of pollution problems linked to the rapid population and industrial expansion at that time, the International Boundary and Water Commission[6] developed recommendations for addressing sanitation issues in the border region. The Commission now plans, constructs, and operates several wastewater treatment plants and projects on both sides of the border. In 1983, the La Paz Agreement, signed by the presidents of the United States and Mexico, established binational workgroups to address various problems with air, soil, and water quality as well as hazardous waste in the border region. In 1990, both governments agreed to implement action plans to bolster efforts undertaken under the La Paz Agreement to respond to various media-specific pollution problems, which appeared to have worsened with the region's rapid population and economic growth.

Many Infrastructure Needs to Protect the Border Region's Environment Remain Unmet

Although the United States and Mexico have expanded efforts in recent years to address environmental problems in the border region, many environmental infrastructure needs remain unmet and continue to pose serious threats to human health and the environment on both sides of the border. These unmet needs are particularly acute on the Mexican side of the border, where the basic infrastructure is generally insufficient and sometimes nonexistent for connecting outlying communities to services for municipal sewage collection, wastewater treatment, and solid waste disposal. Most U.S. border communities have an adequate basic infrastructure to provide drinking water, wastewater treatment, and solid and hazardous waste disposal. The colonias, however, have many unmet environmental infrastructure needs, and some other communities need to expand or upgrade the capacity of their existing infrastructure to meet the ever-increasing demand from population and industrial growth.

Water Pollution Problems

EPA believes that insufficient infrastructure on the Mexican side, coupled with rapid population and economic growth, has contributed significantly to severe water pollution problems in the border region on both sides of the border and poses significant threats to human health and the environment. According to Mexico's National Water Commission, the government agency responsible for national water policy, the Mexican border region has the capacity to treat only about 34 percent of the

[6]The Commission, in its current form, was established as a result of a 1944 treaty to apportion water resources shared by the United States and Mexico. It consists of U.S. and Mexican sections, each headed by a commissioner appointed by his or her country. The Commission decides how to apply a treaty provision or settle a boundary dispute in the form of Minutes, which become binding obligations of both governments.

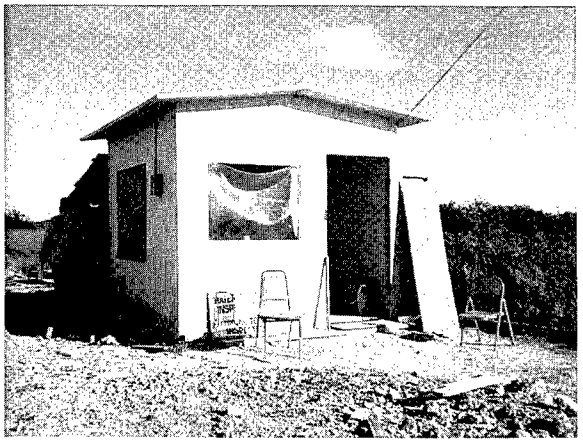
wastewater it generates, and most treatment plants are also underfinanced and poorly maintained and operated. For example, the municipal sewage connections of Matamoros and Ciudad Juarez reach only about 56 percent and 84 percent of their residents, respectively, and both cities lack wastewater treatment facilities.

According to EPA, other sister cities experience similar problems with water pollution that is mostly caused by inadequate wastewater treatment capacity and problems with sewage collection. The sister cities of Mexicali and Calexico have contributed to severe pollution of the New River, which flows from Mexicali and drains into the Salton Sea in California. The domestic and industrial waste generated by Mexicali's population of nearly 700,000 and its more than 200 industrial facilities exceeds the capacity of that city's two wastewater treatment plants. As a result, raw and inadequately treated wastewater is routinely discharged into the New River. In Imperial County, California, agricultural runoff and irrigation return flows also pollute the New River.

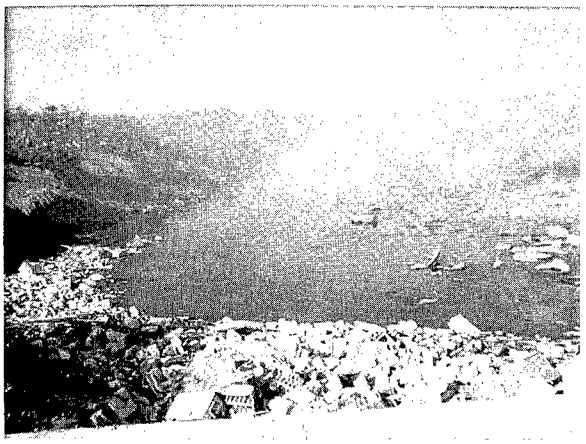
Solid Waste Disposal Problems

Several border communities, particularly in Mexico, lack the capacity to collect and dispose of the domestic and industrial solid wastes they generate. In such cities as Matamoros and Reynosa, municipal garbage collection trucks are in poor condition and too few in number to meet the needs. Both cities also have problems with their solid waste disposal facilities. According to the city official responsible for environmental control, because the entrance to the municipal solid waste disposal facility for Matamoros is generally unguarded, the site is vulnerable to illegal disposal of hazardous and/or dangerous industrial wastes that threaten the quality of groundwater. Furthermore, several families live at or near the site and rummage through its waste in search of items that can be used or sold. About 1 mile from the facility's entrance, waste that is incinerated in the open produces a thick, dark cloud of smoke that impairs visibility and the area's air quality. In addition, an open canal carrying the city's untreated sewage passes through the site. This official told us that the overall conditions at the Matamoros municipal solid waste disposal facility threaten the health of the area's residents and the environment. (See fig. 2.)

Figure 2: Conditions at the Matamoros Municipal Solid Waste Disposal Facility



When the entrance is unguarded, the site is vulnerable to illegal disposal of hazardous and dangerous industrial wastes.



Raw sewage flowing in an open canal poses a health threat to area residents.

Open incineration of waste produces smoke that impairs the area's air quality.

Reynosa also suffers from an inadequate capacity for solid waste collection and disposal. While the city has one municipal dump, it also has 17 large illegal dumps and hundreds of vacant lots used as dumps. According to the Mayor of Reynosa, the inadequacy of the municipality's domestic waste collection service has prompted the emergence of approximately 700 illegal trash collectors who use horse-drawn wagons and usually dispose of trash illegally, including dumping it into the Rio Grande.

Most communities on the U.S. side have an adequate capacity for solid waste collection and disposal. According to officials from the Texas Natural Resource Conservation Commission, most border communities in Texas have adequate capacity to meet their solid waste disposal needs for at least the next 10 years. However, these officials cautioned that this capacity may be reduced as stricter enforcement curbs illegal dumping and solid waste collection service is extended to colonias, where it has often been inconsistent and inadequate. In addition, as Mexico increases its enforcement of solid waste laws, the return of additional maquiladora waste to the United States will reduce the years of landfill capacity that are currently projected.

Progress in Responding to Some Border Environmental Infrastructure Needs

Several communities on both sides of the border have made progress in responding to some of their most severe environmental problems. Prior to the International Boundary and Water Commission's decision in 1990 to construct an international treatment plant for Tijuana's wastewater, the uncontrolled flows of untreated sewage crossing the international boundary reached a peak of 13 million gallons per day. As a result of improved sewage collection in Tijuana, the uncontrolled flow has been reduced to between 1 million and 2 million gallons per day. Furthermore, a sewage treatment facility in Nuevo Laredo is nearing completion and undergoing testing and will soon begin treating the city's domestic and industrial wastewater, which currently drains into the Rio Grande untreated, thereby endangering human health and the environment on both sides of the border. Ciudad Juarez plans to construct wastewater treatment plants and has submitted proposals to the BECC for certification. To reduce pollution of the New River, the U.S. Congress has appropriated funds for wastewater infrastructure improvements in Mexicali. These improvements include planning and designing facilities and such short-term projects as "quick fixes" to upgrade aging and overwhelmed sewage collection and treatment systems. To address solid waste problems, the municipality of Nuevo Laredo granted a concession to a

private sector investor for the city's solid waste collection and disposal systems. Furthermore, the community opened a new solid waste landfill (with a guarded entrance) in 1993 and started patrolling illegal dump sites throughout the city. According to the Mayor of Reynosa, the municipal government has similar plans to grant a solid waste concession to private investors. In the meantime, the Ecological Commission of Reynosa, a nonprofit citizens' group, has organized trash collection drives and has been educating horse-drawn trash collectors about environmentally sound waste disposal practices.

Border Communities Have a Limited Financial and Administrative Capacity to Finance Needed Infrastructure Projects

Mexican border communities and U.S. colonias face the most immediate and basic environmental infrastructure needs in the border region, primarily because of financial and institutional obstacles. In Mexico, these obstacles center on the communities' lack of financial autonomy from the federal and state governments. For example, the Mexican Constitution prohibits its states and municipalities from incurring financial obligations in foreign currencies and with foreign creditors. U.S. colonias are similarly dependent upon financial assistance from the federal and state governments as well as local government entities for this assistance to meet their environmental infrastructure needs. Communities on both sides of the border often lack the experience in planning, constructing, and operating public works projects as well as the financial and administrative ability to raise capital and to repay debt.[7] To address these obstacles, the NADBank—in coordination with the BECC and responsible U.S. and Mexican government agencies (such as EPA) and border communities—plans to assemble innovative financing packages to make infrastructure projects financially viable and self-supporting.

Border Communities Rely Heavily on Federal Resources for Project Financing and Administration

Both Mexican communities and U.S. colonias face financial and institutional obstacles to obtaining funds for environmental infrastructure projects. To finance these projects, Mexican states and communities rely heavily on the revenues they receive under a revenue-sharing system supported by a federal tax. These revenues may be used either for direct financing or as leverage for loans from domestic commercial or development banks.[8]

[7]Although Mexico's National Water Commission has developed master plans for all its priority projects to assist Mexican communities in the border region with their infrastructure needs, Commission officials told us that these plans need to be updated to reflect current economic conditions.

[8]Both the U.S. and Mexican governments also have committed to providing grant funding to assist with environmental infrastructure projects in the border region, as discussed later.

Mexican states generally have the power to decide the share that communities will receive, either by laws that have established allocation formulas or legislative decree. Communities in states with allocation formulas have reliable revenue streams, which provide the best guarantee that loans to them will be repaid in a timely manner. These communities tend to use their share of the tax as collateral for loans provided by commercial and federal government banks. If a municipal borrower defaults on a loan, creditors can inform the Mexican Treasury (the agency that administers the tax), which has the authority to make the loan payment from the revenue share of the delinquent municipality. However, the revenue available to most communities is uncertain because it is dependent upon allocations made annually by legislative decree. Such uncertainty deters these communities from investing in infrastructure development.

For many environmental infrastructure projects, communities turn to Mexico's National Bank of Public Works and Services, known as BANOBRAS, as a major source of credit. BANOBRAS lends to states and communities in Mexican pesos at a few points above the Mexican Treasury rate, which currently stands at about 26 percent. BANOBRAS levies additional interest rates to reduce the risk of losses from currency devaluations, which have occurred repeatedly in the last decade.[9] BANOBRAS also administers loans from the World Bank, which in 1994 extended a $368 million line of credit to support environmental infrastructure projects under Mexico's Northern Border Environment Project.[10] BANOBRAS relends these funds to border communities in Mexican pesos and at higher interest rates to (1) construct solid waste, hazardous waste, and urban transportation infrastructure projects and (2) improve the ability of states and communities to administer environmental programs. According to officials of BANOBRAS and border communities, because these communities often cannot afford to borrow at the high interest rates BANOBRAS sets, to the extent possible, they use loans from commercial banks that offer lower rates. However, the lack of investors' confidence in the ability of these communities to repay debt limits their access to commercial loans and makes competing with other borrowers difficult.

[9]Mexico's Financial Crisis: Origins, Awareness, Assistance, and Initial Efforts to Recover (GAO/GGD-96-56, Feb. 26, 1996).

[10]According to a World Bank official, this line of credit was reduced to about $208 million in May 1996 at the request of the Mexican government. This reduction was partially due to the devaluation of the peso and the high interest rates BANOBRAS charges to use these funds.

U.S. colonias face financial and institutional obstacles similar to those of their neighboring communities in Mexico. Because colonias are unincorporated settlements, they lack the basic financial and institutional mechanisms available to U.S. cities with operating governments and tax bases. To expand their revenue base from property taxes and fees for basic public services, some U.S. cities have expressed interest in incorporating nearby colonias. However, ongoing jurisdictional disputes about service areas among counties, cities, and corporations that supply water to rural areas have left many colonias without an environmental infrastructure to meet their basic needs. This situation is compounded by the fact that border counties in Texas and New Mexico, which are usually responsible for providing basic services for areas outside a city's jurisdiction, have a limited ability, in comparison to cities, to provide the needed environmental infrastructure and services because traditionally they have not provided these services. As a result, these border counties often lack the necessary technical, financial, and personnel resources to assist colonias with meeting their infrastructure needs.

Mexican States and Communities Lack Administrative Experience and the Ability to Borrow Funds

The strong dependence of border communities on the Mexican federal government has prevented them from gaining the experience necessary to plan, develop, and manage public works projects. As a part of federal efforts to decentralize decision-making, states and communities have only recently assumed responsibility for planning and providing key public services to their residents. Municipal officials therefore have limited experience in conducting thorough economic and fiscal analyses of proposed environmental infrastructure projects. According to a BANOBRAS official, although Mexican communities have invested substantial effort to develop their administrative capabilities, they have not yet reached the point at which they can issue debt. For example, recent plans to finance an $8 million wastewater treatment plant in Ensenada, Baja California, were delayed when the NADBank's and the State of Baja California's analyses showed that the project needed technical revisions to meet the Bank's loan requirements. For example, the site selected for the plant and the plant's capacity to treat wastewater were inadequate.

The Mexican Constitution prohibits states and municipalities from incurring financial obligations in foreign currencies and/or with foreign creditors, which prevents them from raising capital outside of Mexico's domestic market. Consequently, according to BANOBRAS officials, although a Mexican community can negotiate a line of credit, it cannot

borrow directly from the NADBank. Instead, Mexico's Treasury serves as the recipient of funds for borrowers and then forwards those funds to BANOBRAS, which relends them to the borrowers that had requested loans for specific projects. NADBank funds are loaned to Mexico's Treasury in dollars but are repaid by Mexican borrowers through user fees in pesos, resulting in a foreign exchange risk. According to NADBank officials, the Mexican government is funding a new "hedging mechanism" to provide insurance against currency devaluations for both the NADBank and its Mexican borrowers. With this protection, the NADBank will be more willing to loan funds to Mexican communities because the Bank will have greater certainty that loans will be repaid.

The NADBank Could Help Overcome Financing Barriers

To supplement existing funding for environmental infrastructure projects (particularly for drinking water, wastewater treatment, and municipal solid waste), the NADBank has begun to facilitate developing and financing environmental infrastructure projects in the U.S.-Mexican border region.[11] According to the NADBank's Chief Operating Officer, the Bank plans to provide between $6 billion and $9 billion for investing in border environmental infrastructure projects over the next 10 years by using loans, loan guarantees, and joint arrangements with other sources of financing. The Bank also intends to provide financial advisory services to border communities that are developing projects, a key ingredient to making those projects financially viable. In providing these services, the Bank intends to play a role similar to that of an investment bank by "acting to secure needed equity, grants, and/or other sources of financing from a variety of public and private sources on a project-by-project basis."[12] According to officials from the NADBank and the U.S. Treasury, the Bank's investment-banking role is intended to encourage border communities to depend less on grant-financing (until recently the predominant form of funding) and more on loans to be repaid through user fees or other dedicated sources of revenue. Providing loans to projects whose financial and technical elements have received the BECC's certification is intended to help border communities build the financial and technical capability to operate and maintain environmental infrastructure projects through their useful lifetimes.

[11]The agreement establishing the NADBank also stipulates that 10 percent of the Bank's capital may be used for U.S. and Mexican community adjustment and investment programs that support NAFTA. According to a U.S. Treasury Department official, this provision was included to address economic and employment dislocations throughout the United States and Mexico that may occur from increased trade.

[12]Loan and Guaranty Policies and Operational Procedures for Projects Certified by the Border Environment Cooperation Commission, North American Development Bank, Dec. 18, 1995.

Because most U.S. border cities and counties (with the exception of colonias) are rated by Moody's[13] as investment grade, they have the financial standing to qualify for market rate loans, such as those offered by the NADBank. However, it is unclear whether U.S. border cities and counties will turn to the NADBank for financial assistance. The Bank's credit guidelines stipulate that for direct lending in U.S. dollars, the bank will charge an interest rate of at least 1 percent above U.S. Treasury rates for securities having comparable maturity dates. U.S. state and local officials told us that U.S. border communities have cheaper sources of capital for infrastructure financing at their disposal, such as state revolving funds[14] and tax-exempt municipal bonds. However, NADBank officials point out that the Bank will complement existing financing to help communities that cannot meet their infrastructure needs solely through existing financing arrangements. For example, the NADBank is reviewing a $25 million potable water treatment project the BECC has certified for the City of Brawley, California. Brawley has requested the NADBank's assistance to develop a financing package to access about $17 million in private sector financing, with the remaining balance coming from state and federal grants ($3.85 million) and a state loan ($5 million).

Because Mexico lacks a mechanism similar to state revolving loans, NADBank loans are an attractive alternative for Mexican communities that are able to incur and repay debt, provided they do not have to obtain those loans through BANOBRAS at a significantly higher interest rate. Most Mexican communities, however, have yet to achieve the financial standing in capital markets to meet the NADBank's high standards for creditworthiness. According to BANOBRAS officials, the Mexican federal government will likely continue to play a significant role in providing financial backing to its border communities. This assistance will be provided either through BANOBRAS or through financial guarantees provided by the Mexican Treasury's federal tax and revenue-sharing system. However, raising capital in foreign markets is difficult because

[13]Moody's Investors Service provides global bond-rating services that evaluate credit risks in the world's capital markets.

[14]State revolving funds were established by the Water Quality Act of 1987 as a primary source of financing for wastewater treatment facilities and related purposes at the state level. They provide states with federal "seed money" in the form of grants to capitalize their revolving funds. The states use their revolving funds to make loans to local governments, and, as loans are repaid, the funds are replenished.

Mexico's current economic situation puts its credit rating just below investment grade for foreign currency.[15]

The Mexican government, in conjunction with the NADBank, is seeking to resolve some of the financial and administrative obstacles challenging Mexican communities. As described earlier, to protect the NADBank's investors against potential losses from Mexican currency devaluations, the Mexican government has created a hedging mechanism for loans issued in dollars. This mechanism is a form of insurance for both the NADBank and its Mexican borrowers that will provide short-term emergency capital to continue repaying loans, thereby preventing defaults.[16] To complement existing funding from the NADBank, the Mexican government has also created a revolving loan fund administered by BANOBRAS to encourage private sector investment in infrastructure projects that might not otherwise receive funding due to their size, risk, and/or low return on investment.

Because U.S. colonias lack basic financial and administrative capabilities, state environmental officials do not believe that NADBank loans will be a practicable option for assisting them. To meet the special needs of colonias for water infrastructure assistance, Texas and New Mexico have received about $186 million, approximately 36 percent of all EPA's funding for border projects over the last 5 years. Even with this funding, most of their residents have not benefited from environmental improvements, primarily because the cost to connect to nearby systems is prohibitive. Federal and state environmental officials believe that grant funds will continue indefinitely to be the primary funding source for U.S. colonias and similar Mexican communities. To assist with these needs, the United States and Mexico have agreed to provide $700 million each in grant funds to border communities over 7 to 10 years (beginning in fiscal year 1995) to supplement the NADBank and other funding sources. The U.S. share of these funds will be provided through EPA, which plans to fulfill its commitment within the next 6 years. In addition, EPA and the NADBank have begun to formalize their working relationship through meetings and correspondence to improve the border communities' access to financing for infrastructure projects. The agency has also entered into a formal agreement with the International Boundary and Water Commission to provide financial and technical assistance to border communities to meet

[15]The devaluation of the peso in December 1994 precipitated a crisis in Mexico's financial institutions and markets. Despite recent progress, interest rates continue to be high, the peso continues to be volatile, the banking sector remains strained, and economic growth has been weaker than predicted.

[16]According to NADBank officials, this hedging mechanism—which is operated by BANOBRAS—will only be available to the NADBank and/or organizations working with the NADBank.

the BECC's certification requirements and, in turn, qualify for financing from the NADBank. Under this agreement, EPA has begun to make funding available for wastewater treatment facility planning and is currently evaluating additional avenues for project development.[17]

EPA Needs to Focus Border-Related Activities on the Region's Greatest Needs

Between fiscal years 1991 and 1995, EPA invested approximately $520 million on border-related environmental activities in two general categories—funds that the Congress had earmarked for water infrastructure assistance ($441 million) and funds that were spent at the agency's discretion ($79 million). Those funds earmarked by the Congress were channeled to (1) the International Boundary and Water Commission, primarily to reduce wastewater flows from Mexico into the United States and the pollution of surface water and groundwater resources shared by the two nations and (2) Texas and New Mexico, to provide water infrastructure assistance to colonias. The remainder of EPA's funding was spent at the agency's discretion and supported a variety of media-specific activities outlined in the 1983 La Paz Agreement as well as other priorities for the agency.

EPA's discretionary expenditures for border-related activities were spread across 11 program areas. (See table 1.) Funding within each program area was further divided across a wide range of projects, such as training; technical assistance; data gathering on the types, magnitudes, sources, and impacts of pollution; coordinating existing data on the border region; and testing low-cost and/or less-polluting technologies. For example, the Compendium of EPA Binational and Domestic U.S.-Mexico Activities (June 1995) and the listing of the Border XXI Community Grants for fiscal year 1995 show that EPA dispersed these funds to over 130 projects.

[17]The Commission will serve as the project manager, and the work will be done by consulting engineering firms.

Table 1: EPA's Funding of U.S.-Mexican Border-Related Activities, Fiscal Years 1991 Through 1995

Dollars in thousands

Program	Funding level	Percent
International Activities[a]	$14,673	18
Water	1,248[b]	2
Air and Radiation	12,094	15
Enforcement and Compliance Assurance	4,339	5
Research and Development	5,404	7
Solid Waste and Emergency Response	10,316	13
Regional Operations and State and Local Relations	1,464	2
S.C.E.R.P.[c]	10,000	13
Other border activities	19,870[d]	25
Total	**$79,408**	**100**

[a]Regions 6 and 9 receive a large portion of these funds for specific projects.

[b]This amount reflects EPA's funding for border-related water activities not channeled to the International Boundary and Water Commission.

[c]The Southwest Center for Environmental Research and Policy is a consortium of five U.S. and four Mexican universities funded by the U.S. Congress. However, these funds were not requested by EPA.

[d]This amount reflects EPA's border-related funding for fiscal years 1991 and 1992 that was not identified by program areas. It also includes funding for fiscal years 1991 through 1995 for border-related activities for the Office of Prevention, Pesticides, and Toxic Substances ($520,000) and the Office of Policy, Planning, and Evaluation ($250,000).

Source: GAO's analysis of EPA's data.

The expenditures shown in table 1 include a variety of media-specific projects that EPA has funded on the basis of input from stakeholders in the border region's environmental activities, including binational workgroups, EPA's program and regional offices, state and local governments, and nongovernmental organizations. Some of the activities receiving EPA's funding clearly target environmental needs and provide details on how the information gathered will be used to remediate a specific problem. For example, one project is establishing air-monitoring networks in Tijuana and Mexicali to determine the sources, magnitude, and effects of air pollution. EPA plans to use the data collected from this effort to develop cost-effective control strategies and to measure progress and compliance.

Nevertheless, many of the projects funded at EPA's discretion are activities that do not include environmental indicators and specific objectives that are clearly linked to measurable environmental outcomes. For example,

several of the agency's binational activities are driven by objectives that include facilitating the exchange of information, improving peer relations, and reaching an understanding between the United States and Mexico. While regional agency officials believe that many of these activities will improve environmental conditions by increasing the ability of Mexican communities and agencies to address pollution problems and by developing basic information upon which to make funding decisions, they also acknowledged that the benefits of these activities may not be directly traceable to environmental improvements. Activities with general objectives that lack environmental indicators make it difficult for EPA to link specific activities to measurable changes in environmental conditions and to measure the effect of its funding decisions on remediating the border region's most critical environmental problems. According to an EPA headquarters official, the agency could have been more thorough in quantifying the effects of its expenditures on improving conditions in the border region.

EPA plans to initiate several efforts to link its future funding decisions on projects for the border region to environmental goals. For example, EPA plans to play a central role in a newly established binational workgroup that will inventory all existing environmental information for the border region. EPA also plans to focus its funding on projects that have measurable environmental benefits. In addition, EPA plans to assess the border region's water supply and wastewater infrastructure needs and has initiated a dialogue with the NADBank to discuss cooperative funding arrangements for environmental projects.

In the absence of a comprehensive assessment of needs among all environmental media and program areas, over the past 5 years EPA has spent about $79 million at its discretion to address various environmental problems (including activities to improve the quality of air and safely dispose of hazardous waste). While EPA officials told us that the agency has not initiated any actions to prepare such a comprehensive assessment, they said that it will likely assess these needs within 5 years. Timely action to establish priorities based upon such an assessment is essential to EPA's selecting the most critical projects to fund.

According to a NADBank official, the Bank believes its success depends on EPA's timely efforts to provide funds for environmental infrastructure projects with the highest priority. He noted that the problems confronting the region greatly exceed the public and private finances available to address them over the next several years and that expenditures of limited

funds should be directed to achieve the maximum environmental benefits for the region. He said that the Bank views EPA's funding as critical to the Bank's development of affordable financing packages for border communities and assistance in building their technical, financial, and administrative capacity to support infrastructure projects.

EPA will continue its role in assisting border communities with their environmental infrastructure needs under the new Border XXI Program released in draft form in June 1996.[18] This program will build upon efforts taken under EPA's Integrated Environmental Plan for the Mexican-U.S. Border Area (First Stage, 1992-1994) to improve environmental conditions in the border region. The new program will attempt to overcome shortcomings identified with that plan by expanding the new program's scope, increasing public input into the decision-making process, integrating environmental protection with natural resource management, and increasing attention to environmental health concerns. U.S. and Mexican federal entities responsible for environmental conditions in the border region will work cooperatively through nine multiagency Border XXI Workgroups[19] to implement the new program.

Among the objectives of the Border XXI Program will be to inventory all environmental data for the border region and to establish environmental indicators. Inventorying all environmental data would help ensure that EPA's limited funds for the border region are spent on activities that address the most urgent needs first. In addition, a timely assessment of environmental data would help

- environmental stakeholders in the region target their funding requests,
- the NADBank consider funding requests from border communities, and
- the Congress earmark funds for the region's highest-priority needs.

However, the program does not include specific plans to use the inventory of environmental data to

- establish criteria within as well as across the nine Border XXI Workgroups,
- set priorities based upon the established criteria, and

[18]U.S./Mexico Border XXI Program: Draft Framework Document, EPA (June 1996).

[19]Six of these workgroups (Water, Air, Hazardous and Solid Waste, Contingency Planning and Emergency Response, Cooperative Enforcement, and Pollution Prevention) will continue and expand on the work of the binational La Paz Workgroups that have been in existence for several years. Three new workgroups will be established—Environmental Information Resources, Environmental Health, and Natural Resources.

- clearly link the activities chosen for funding to environmental indicators.

Conclusions

Although the United States and Mexico have made some progress in improving the border region's environmental infrastructure, serious pollution problems persist that pose an ongoing threat to the health of residents and the environment. The environmental infrastructure needs of Mexican communities and U.S. colonias are particularly acute because of insufficient financial and technical resources. Limited access to affordable financing continues to prevent many of these border communities from extending basic environmental infrastructure services to residents. To improve access by border communities to needed infrastructure financing, EPA and the NADBank have begun to formalize their working relationship through meetings and correspondence. Similarly, the International Boundary and Water Commission and EPA have formally agreed to support the wastewater infrastructure planning efforts of U.S. and Mexican border communities to help them meet the BECC's certification requirements and enhance their eligibility for financing from the NADBank. Despite these efforts, it is not certain that this financing will be affordable to communities on either side of the border.

EPA's funding for the border region provides a critical resource for U.S. border communities that lack the necessary financial and technical capacity to address their basic environmental infrastructure needs. The agency has been working to improve the bases for making funding decisions on border-related activities through several data-gathering, coordination, and other efforts. EPA plans to build on its ongoing border-related activities under the new Border XXI Program. This will include a central role for the agency in inventorying all environmental information for the border region and assessing this region's needs for water supply and wastewater infrastructure. However, the draft Border XXI Program does not detail specific plans to use this inventory of environmental information to sequentially do the following:

- establish criteria within as well as across the nine binational workgroups,
- set priorities based upon these criteria within and across these groups, and
- link the priority activities it chooses to fund to measurable environmental outcomes.

Such a systematic approach is needed to ensure that EPA's limited funds target the region's most critical needs first.

Recommendations for the Administrator of EPA

To ensure that EPA's funding for border-related activities addresses the region's highest-priority environmental needs, we recommend that the Administrator, EPA, work with key federal entities in the United States and Mexico that are involved in developing and implementing the U.S./Mexico Border XXI Program to ensure the program includes specific plans to (1) use the inventory of all environmental data for the border region to establish criteria within as well as across the nine binational workgroups (taking into account the relative risks to human health and the environment), (2) set priorities within and across the binational workgroups according to the established criteria, and (3) clearly link the priority activities chosen for funding to environmental indicators.

Agency Comments

We provided copies of a draft of this report to the State Department and EPA for their review and comment. We met with officials of these agencies who are responsible for environmental programs in the U.S.-Mexican border region. These officials included the Principal Deputy Assistant Administrator for the Office of International Activities, EPA; Chief of the Municipal Assistance Branch, Office of Wastewater Management, EPA; the Environmental Officer and the Special Assistant, International Boundary and Water Commission, both with the Office of Mexican Affairs, State Department; and the Deputy Director, International Finance and Development, State Department. State Department and EPA officials generally agreed with the information in the report and provided technical and editorial comments that we have incorporated into the report as appropriate. However, EPA had more extensive comments and wanted us to include some additional points. The principal comments are discussed below.

EPA officials believe that the agency has made significant progress in meeting its obligations under the La Paz Agreement. This progress has primarily been made through (1) establishing binational workgroups and (2) setting joint binational priorities within these groups through negotiations with their Mexican counterparts and with input from key environmental stakeholders in the border region. Although we agree that EPA has made progress, as noted in our report, the agency did not use its available data on media and programs to comprehensively assess the border region's environmental needs before negotiating joint binational priorities with its Mexican counterparts. Such an assessment is needed to prioritize projects within as well as across binational workgroups to (1) allow the relative merits of competing projects to be ranked by

decisionmakers according to their urgency and (2) maximize the use of limited funding to achieve the greatest environmental benefits.

EPA officials also provided us with a copy of its U.S./Mexico Border XXI Program: Draft Framework Document after we had submitted our draft report to them for comment. This new program details the plans of EPA and other key U.S. and Mexican federal entities for the border region and will build on current binational efforts. The draft program's objectives include plans to inventory all existing environmental information on the border region and develop environmental indicators to measure whether environmental policy is addressing the most urgent environmental problems there. The program also states that each year the program's priorities will be weighed against available funding. This program is a good start towards addressing shortcomings identified under EPA's Integrated Environmental Plan for the Mexican-U.S. Border Area (First Stage, 1992-1994) because it includes plans to organize environmental information, expand public participation, and address environmental health concerns. However, the draft program does not clearly state that it will sequentially do the following within as well as across the nine binational workgroups:[20] use the inventory to establish criteria, use these criteria to set priorities, and then use these priorities to determine which activities are most urgent and merit funding. In addition, the draft program should link all funded activities to environmental indicators. Without a systematic approach, EPA cannot prioritize projects within and across binational workgroups to ensure that its limited funds are used to target the highest-priority needs first. In light of the new information EPA provided, we have modified our recommendations to address the U.S./Mexico Border XXI Program: Draft Framework Document.

To respond to this report's objectives, we met with officials from EPA headquarters and regional offices as well as the departments of the State and Treasury. We also interviewed a wide range of other U.S. and Mexican officials from both governmental and nongovernmental organizations. In addition, we reviewed documents provided by these officials as well as pertinent laws and regulations. We also traveled extensively in the U.S.-Mexican border region. Appendix I contains additional information on our scope and methodology.

[20]Although the workgroups under the Border XXI Program will be expanded to involve multiple agencies, according to the draft program, EPA will play a central role in eight of the nine workgroups and provide funding to support their activities.

As arranged with your office, unless you announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this letter. At that time, we will send copies to the Administrator of EPA and the Secretary of State. We will also make copies available to others on request. Please call me at (202) 512-6111 if you or your staff have any questions. Major contributors to this report are listed in appendix II.

Sincerely yours,

Peter F. Guerrero
Director, Environmental
Protection Issues

Objectives, Scope, and Methodology

Concerned about the efforts of the United States and Mexico to address environmental infrastructure needs in the border region, the Ranking Minority Member of the House Committee on Commerce asked us to examine (1) the U.S.-Mexican border region's current and projected unmet needs for environmental infrastructure, (2) the financial and institutional challenges each country faces in addressing present and future environmental infrastructure needs, and (3) the way in which the Environmental Protection Agency (EPA) has identified and prioritized funding for environmental problems along the U.S.-Mexican border.

We reviewed relevant documents and agreements between the United States and Mexico, such as NAFTA's supplemental agreement on environmental cooperation for the border region and the accompanying legislation to implement it, the 1983 La Paz Agreement, the Integrated Border Environmental Plan, and the International Boundary and Water Commission's Minutes on sanitation issues in the region. To review the border region's environmental infrastructure needs and the financial and institutional obstacles challenging its communities, we reviewed documentation from EPA, the Office of U.S. Trade Representative, the Office of the Texas Governor, the California Environmental Protection Agency, the Texas Natural Resource Conservation Commission, and the Texas Water Development Board, as well as nongovernmental organizations such as the U.S. Council of the Mexico-U.S. Business Committee, the Sierra Club, the Texas Center for Policy Studies, the Environmental Law Institute, and the International City/County Management Association.

We interviewed officials from EPA headquarters and Regions 6 and 9; the EPA Representative to the U.S. Embassy in Mexico City; the New Mexico Environment Department; the Office of U.S. Trade Representative; the Treasury Department, the Office of International Debt Policy; the State Department (primarily Consulate General Staff in the border region); and the BECC, including members of the Board of Directors; and the General Manager and Deputy Manager of the NADBank. We also interviewed representatives of nongovernmental organizations on both sides of the border, such as the Sierra Club, the Texas Center for Policy Studies, the Environmental Defense Fund, the Border Ecology Project, the Environmental Health Coalition, the Center for International Environmental Law, the Southwest Center for Environmental Research and Policy, the Northern Border College, the Ecological Commission of Reynosa, the Natural Resources Defense Council, the Surfriders'

Foundation, and the U.S.-Mexico Border Progress Foundation, and the Mexican Embassy in Washington, D.C.

In Mexico, we interviewed officials and reviewed documents from the National Water Commission; the Ministry of Social Development; the Ministry of Environment, Natural Resources, and Fisheries; the Office of the Mexican Attorney General for Environmental Protection; the Ministry of Commerce and Industrial Development; the Secretariat of Foreign Relations; the National Bank of Public Works and Services (BANOBRAS); and the World Bank.

To complement our review of documents and information gathered from interviews, we visited the sister cities of Brownsville/Matamoros, McAllen/Reynosa, Laredo/Nuevo Laredo, El Paso/Ciudad Juarez, Calexico/Mexicali, and San Diego/Tijuana to interview a wide range of governmental and nongovernmental officials. We chose these cities on the basis of their relative size, the severity of their environmental problems, and the level of investment in their environmental infrastructure projects. In Matamoros, we visited the municipal solid waste disposal site and an industrial park. In Nuevo Laredo and San Diego, we toured wastewater treatment facilities managed by the International Boundary and Water Commission. We also visited colonias in El Paso, Texas, and Sunland Park, New Mexico, to assess the lack of basic environmental infrastructure.

For our review of EPA's efforts to identify and prioritize border environmental problems, we interviewed officials and analyzed documents from EPA's Office of International Activities and Office of Water, Regions 6 and 9, and EPA's San Diego and El Paso border offices.

We did not independently confirm the accuracy and validity of technical data provided to us by various governmental and nongovernmental organizations on both sides of the border. We performed our work from June 1995 through June 1996 in accordance with generally accepted government auditing standards. EPA and the State Department reviewed a draft of this report, and we have incorporated their comments where appropriate.

Major Contributors to This Report

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