# Children's Environmental Health:

## Spotlight on the U.S.-Mexico Border

Seventh Report of the

# Good Neighbor Environmental Board

to the President and Congress of the United States

GNEB
The Good Neighbor Environmental Board

*February 2004*

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**Front cover photo credit:** US-Mexico Border Health Commission website.

GNEB
The Good Neighbor Environmental Board

February 24, 2004

The President
The Vice President
The Speaker of the House of Representatives

On behalf of the Board, your advisor on environmental conditions along the U.S.-Mexico border, I am pleased to present this Seventh Report of the Good Neighbor Environmental Board to the President and Congress of the United States.

The theme for this year's report is children's environmental health in the U.S.-Mexico border region. The Board selected this topic because, in its view, addressing this issue should be a top priority for the current Administration. The combination of poor air quality, contaminated water (as well as supply shortages), and inadequate waste management in many border communities means that children living there often face a disproportionately high level of environmental problems. These environmental problems, in turn, may result in environmental health problems.

To improve the environmental health of children living along the U.S.-Mexico border, the Board recommends the following four actions:

- Education: Institutionalize a bilingual environmental and environmental health education program throughout border-region school systems and community groups. Directly involve children and their families as educators and program implementers.

- Research: Foster collaboration across border-region academic institutions, health organizations, and environmental agencies. Step up research, data gathering, and data analysis of border-region children's environmental health issues as the foundation for informed strategic actions.

- Actions for Children: Support environmental health programs and projects in border-region settings that especially benefit children as an age group.

- Actions for All Age Groups: Continue to support border-region environmental infrastructure projects, called for by the Board in its previous reports, that benefit all age groups.

The Board appreciates the opportunity to offer these recommendations to you and respectfully requests a response. We welcome continued dialogue with the Executive Branch and Congress on implementation of our advice.

Respectfully yours,

Placido dos Santos,
Chair


**Cooperative efforts continue among the four U.S. border states (Texas, New Mexico, Arizona, and California) and the six Mexican states (Tamaulipas, Nuevo Leon, Coahuila, Chihuahua, Sonora, and Baja California).**
*Source: U.S. EPA's Office of International Affairs*

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## Scope of the Report

Tackling a complex policy issue such as children's environmental health along the U.S.-Mexico border is a sobering undertaking. Before beginning its work on this report, the Good Neighbor Environmental Board made specific decisions about what the report would, and would not, cover. These decisions were guided in large part by the Board's mission: providing advice and recommendations to the U.S. President and Congress on the environment and infrastructure in the U.S.-Mexico border region. The Board is administered and supported by the U.S. Environmental Protection Agency (EPA).

Using its mission as a backdrop, the Board defined several basic keywords: "environment," "health" and "children." For the purposes of this report, "environment" is limited to exposures to air, water and soil contaminated by chemical and infectious agents. In the same vein, the term "environmental health" refers to specific health conditions among children living in border communities that may be associated with environmental exposures. Finally, the Board decided to define "children" to include the developmental and growth phases that occur from birth through age 18. While the Board recognizes the importance of environmental exposures that the fetus may indirectly experience through the mother, this report concentrates primarily on direct exposures beginning at birth.

To better understand the unique circumstances in which children find themselves, the report concentrates on three exposure scenarios: where children live, where they play, and where they go to school. Examples involving specific border communities are included to illustrate particular issues; the intention is to provide cases in point rather than provide comprehensive examples across all ten U.S.-Mexico border states. In addition, while the Board recognizes and is concerned that some border-region children may have jobs with occupational exposures to contaminants, such workplace exposures are considered beyond the scope of this report in that they fall under the authority of the Occupational Safety and Health Administration (OSHA).

Concerning the issue of risk, the Board decided to focus on involuntary, rather than voluntary, risks from environmental exposures. "Involuntary risks" are defined as those risks of exposure over which the child has no direct control, such as living in a community with poor air quality, inadequate water and sewage services, or exposure to smoke from cooking or heating fuel. The report will not cover "voluntary risks" such as a child's decision to smoke.

Finally, it should be noted that the Board serves as a policy advisory group rather than as a group of scientific, medical or health experts. Therefore, the report's contents and policy recommendations rely primarily upon information from existing studies and reports; citations often are included. In several cases, however, the Board believes that it has contributed new material to the field by compiling information not previously easily available, notably, information on demographics of children in the border regions and information on environmental conditions in border-region schools.

# Children's Environmental Health:

## Spotlight on the U.S.-Mexico Border

Seventh Report of the Good Neighbor Environmental Board
to the President and Congress

# Recommendations at a Glance

*In order to protect children's environmental health along the U.S.-Mexico border, we, the Good Neighbor Environmental Board, recommend that the U.S. President and Congress, in full cooperation with appropriate Mexican authorities, take the following four steps:*

### Recommendation 1: Environmental and Environmental Health Education

- Institutionalize a bilingual environmental and environmental health education campaign throughout border-region school systems and community groups. Directly involve children and their families as educators and program implementers.

### Recommendation 2: Research

- Foster collaboration across border-region academic institutions, health organizations, and environmental agencies. Step up research, data gathering, and data analysis of border-region children's environmental health issues as the foundation for informed strategic actions.

### Recommendation 3: Actions for Children

- Support environmental health programs and projects in border-region settings that especially benefit children as an age group.

### Recommendation 4: Actions for All Age Groups

- Continue to support border-region environmental infrastructure projects, called for by the Good Neighbor Environmental Board in its previous reports, that benefit all age groups.

## PREFACE

*This year the Board decided to focus its Seventh Report to the President and Congress on border-region children – specifically, the links between their health and local environmental conditions. This decision was based on the firm belief that environmental policies must not only continue to address current problems and opportunities, they must also reflect a keen eye on the future. And perhaps nothing more eloquently embodies the future than our children and their health.*

The U.S.-Mexico border region is growing rapidly. In its previous reports, the Board has highlighted some of the environmental and public health challenges arising from the region's living conditions, economic status, and natural environment. Children living in communities along both sides of the border must contend with a complex array of environmental conditions that may significantly affect their health and well-being. As the U.S. Environmental Protection Agency says in its "Draft Report on the Environment" published in June 2003, additional data is needed about potential links between some environmental pollutants and health effects. Moreover, the amount of information that pertains to children in general, and specifically to children living along the U.S.-Mexico border, is sparse at best. We must better understand these links if we are to remedy and, better still, prevent health problems caused by environmental pollutants.

The Board fully recognizes that a number of questions remain about the links between environmental health problems and environmental quality problems. It realizes that in the view of some policymakers there is a tendency to jump to conclusions about the effects of, for example, pesticides in food. It also realizes that in the view of other policymakers there is more than ample evidence of cause and effect between various forms of pollution and illness, and that needed action is slow and inadequate. Despite these questions, the Board's view is that enough information currently exists to suggest a cause for concern, and that data gaps should be filled as quickly as possible, particularly in the U.S.-Mexico border region, which historically has been neglected.

One goal of this report is to begin to sketch the specific types of environmental conditions children living in border communities may encounter on a daily basis where they live, play, and go to school. Another is to refer to existing studies that point to some of the health risks these children may face when their communities suffer from poor environmental quality. Finally, the Board makes recommendations on steps that should be taken by the government to make progress on this problem, including highlighting promising projects and partnerships.

Environmental threats to children's health in the U.S.-Mexico border region are more than just local or regional threats – they also indirectly affect both nations, as well as tribes. Working together to eliminate these threats is not only the responsible thing to do; it also makes economic sense for the region. Health-care costs, missed days at school, and workplace absenteeism by parents caring for sick children are only a few examples of the many types of costs that accrue.

Although the Board's mission is to advise the U.S. President and Congress (and not Mexican authorities), our recommendations are based on available information on the conditions on both sides of the border in the firm belief that border-region environmental improvements of lasting value are only possible through binational cooperation. They also are submitted with the conviction that no lasting progress can be made unless actions are taken on both sides of the border.

***The Good Neighbor Environmental Board dedicates this report, its Seventh Report to the President and Congress of the United States, to the children of the U.S.-Mexico border region.***

# Children's Environmental Health:

## Spotlight on the U.S.-Mexico Border

## Part I: Children's Special Vulnerabilities

*Note: The following section provides brief background information on children's special vulnerabilities and on environmental conditions along the U.S.-Mexico border. It is intended to assist those who may be unfamiliar with either topic to understand the context from which the Board's recommendations are drawn.*

### *Why Concern for Children*

Environmental contaminants can affect children quite differently than adults. Physiologically, children are not just small adults; their bodies are undergoing rapid changes in growth and development, as the Environmental Protection Agency (EPA) noted in its February 2003 draft report, "Guidance on Selecting the Appropriate Age Groups for Assessing Childhood Exposures to Environmental Contaminants." Healthy growth and development may be compromised in the presence of environmental contaminants.

A classic example is the heavy metal lead. Lead competes with calcium and iron for absorption in the body. Children, especially those whose diets are low in essential nutrients or who are suffering from malnutrition, absorb a larger dose of lead than adults. Children are exposed to lead because it may be present in such common items as paint, plumbing, candy and other consumer products. Once absorbed, lead is stored in their bones, where it can retard growth, or is distributed to the central nervous system where it can cause a variety of adverse effects, including reduced intelligence and aggressive behavior.

The special susceptibilities and vulnerabilities of children have caused growing concern about exposures to chemical and biological contaminants that can result in the development of childhood diseases and illnesses. Asthma, birth defects, diarrhea and other gastrointestinal disorders, childhood cancer, and learning disorders are a few examples of diseases and illnesses associated with poor environmental quality.

Asthma continues to be a growing health concern for children throughout the U.S. and Mexico. In the U.S., 12.6 percent (9.2 million) of children 0-17 years old were diagnosed as having asthma at some point in their lives and 8.7 percent (6.3 million) were reported to currently have asthma (data for 2001, reported by the National Center for Health Statistics website at http://www.cdc.gov/nchs/products/pubs/pubd/hestats/asthma/asthma.htm). The impact of illness and deaths due to asthma is disproportionately higher among low-income populations, minorities, and children in inner cities than among the general population. Border communities in Imperial County, California, have some of the highest asthma prevalence rates in the state.

Diarrheal illness caused by the ingestion of pathogenic organisms continues to put children at risk in developing countries. Children are also exposed to organisms through inadequate hand-washing, improper food preparation (inadequate hand-washing by the food preparers and/or sanitation of cooking utensils and equipment), poor water-storage practices, and contaminated bathing or drinking water. While these exposures may be common to many children, border communities with inadequate infrastructure or access to water put children at greater risk for exposure.

### *How Children Are Exposed to Environmental Contaminants*

Children are different from adults in two principal ways. First, they have rapidly developing organ systems including the nervous and immune systems. Second, their behavioral patterns are undergoing maturation from birth to about 18 years of age, and these behaviors influence exposure to environmental contaminants.

Children are at special risk from environmental contaminants because of their unique daily activities and habits. Where children live and play, what they play with, what they eat and drink, how it is prepared and served, where they go to school and how they get there, as well as other details of their daily routines at different ages, may all result in either avoiding or encountering potential environmental health risks. The impact of illness and deaths due to asthma is disproportionately higher among low-income populations, minorities, and children in inner cities than among the general population. Border communities in Imperial County, California, have some of the highest asthma prevalence rates in the state.

For instance, nursing infants can be exposed to environmental contaminants from consumption of breast milk or milk products. Compounds such as polychlorinated biphenyls (PCBs) and some chlorinated pesticides (DDT), which are fat-soluble, are released during lactation and can be present in breast milk and other milk-based products. Similarly, formula prepared with contaminated water increases a child's health risks. The skin of infants and very young children is more permeable than that of older children and adults. This puts them at greater risk from dermal absorption of chemical contaminants that may be present in bath water, clothing and bedding.

Very young children, crawlers and toddlers, spend much of their time near or on the floor. Carpets tend to accumulate dirt, dust, and other contaminants brought indoors on shoes and clothing that can be absorbed or ingested by children. The hand-to-mouth activity of very young children exposes them to contaminants both indoors and outdoors in their play environment. Soil ingestion by children is a common route of exposure to environmental lead. In addition, because lead is still found in some dyes and inks, it ends up in pencils and erasers, packaging materials, and some toys (Amaya 1999).

As children learn to walk, run and play, they take part in many activities that increase their risk of exposure. Outdoors, children are directly exposed to air pollutants through inhalation and indirectly exposed by ingestion of pollutants that have deposited onto soil and food crops. Indoors, children are exposed to air pollution from sources like stoves. Outdoor pollution readily enters indoor environments, particularly in warm-weather locations where windows are open much of the year. Because children are growing and are more physically active, they inhale more air and eat more food, pound-for-pound, than adults. This translates into higher doses and higher risks from environmental contaminants for children than for adults. Environmental exposures also can influence the development of their immune systems, and may contribute to the development of allergies and the worsening of asthma. Consumption of contaminated food – for example, mercury in fish – can adversely affect neuro-development. Swimming and playing in contaminated water may lead to diarrhea and other gastrointestinal disorders.

At puberty, chemicals that affect the endocrine system can affect development of children's reproductive systems. From puberty and adolescence to young adulthood, social influences and the desire to be perceived as an adult play a larger role in potential exposure to harmful substances, such as the decision to use cigarettes.

Given the magnitude of these special vulnerabilities, there is growing concern about children's exposure to chemical and biological contaminants and the resulting potential to develop childhood diseases and illnesses.

## *Living Conditions Along the U.S.-Mexico Border*

Children living along the U.S.-Mexico border, whether in heavily populated urban areas or in small rural communities, often face a disproportionately high level of environmental problems in their neighborhoods and surrounding areas. Some of them live in special settings such as colonias – unincorporated communities that often lack basic infrastructure such as a public water supply. Others live on tribal land or in migrant labor camps that may face particular environmental challenges. Additional factors such as poverty, lack of education, cultural practices, continuous movement back and forth across the border, and other circumstances can increase border-region children's chances of developing poor health from exposure to environmental contaminants.

The profound effects of poverty in the border region should not be underestimated. While children are more susceptible than adults to health risks due to environmental contamination, poor children are particularly vulnerable. They are more likely to live in homes without safe running water and without proper sewage treatment. They are more likely to be exposed to dust from unpaved streets or agricultural activities. Environmental justice studies have shown that polluting industries tend to be located near low-income neighborhoods. Also, adults in low-income homes are more likely to smoke and are less likely to have proper nutrition and health care, putting children at considerable disadvantage to healthy development.

## *Population, Poverty*

The U.S.-Mexico border region will have approximately 6.1 million children by the year 2020.

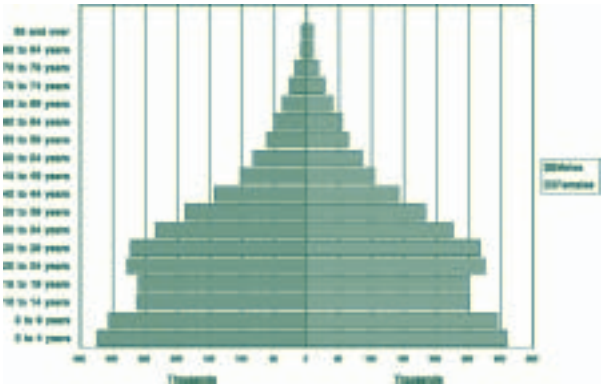
Based on 2000 census data for the United States and Mexico, some 3.8 million children live in the U.S.-Mexico border region, approximately 53 percent in Mexico and 47 percent in the United States. Of this total, about 93 percent are urban residents, while the remaining 7 percent reside in rural areas. Approximately 2 million, or about 53 percent of the children of the U.S.-Mexico border region, live in poverty. The U.S. side of the border has nearly 1.8 million children, of whom approximately 27 percent live in poverty.

The U.S.-Mexico border-region population is growing rapidly through a combination of natural increase and domestic and international migration. Both sides of the border are growing faster than their respective nations, and the Mexican border population growth rate is about twice that of the U.S. border zone. Tijuana's population, for example, doubles every 14 years, and San Diego's doubles every 40 years. The municipality of Ciudad Juárez doubles every 16 years, and the county of El Paso doubles every 56 years. By 2020, the U.S.-Mexico border will likely have more than 18 million people, a significant increase from the 6.8 million residents in 2000.

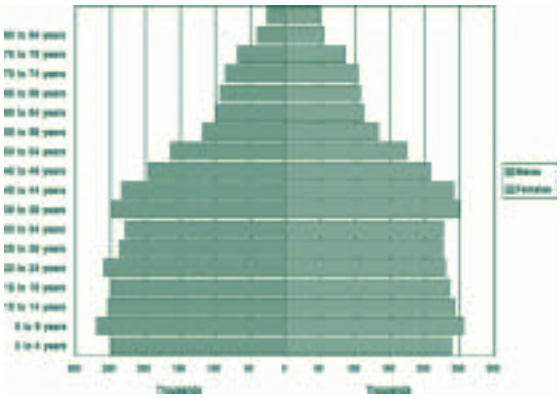
Rapid population growth challenges local governments not only to expand basic municipal services such as paved streets, water and sewage, but also to meet the special needs of a burgeoning number of children. As the age-distribution population charts for the Mexican and the U.S. border populations show, 28.5 percent of the U.S. border population is under 18 years of age, and 36.9 percent of the Mexican border population consists of children. Thus, the challenges of providing for Mexican border children will be even greater than for U.S. border children.

*Note: Analysis provided by Jim Peach, New Mexico State University, and Angélica Villegas and Nathan Gallagher, Institute for Regional Studies of the Californias, San Diego State University.*

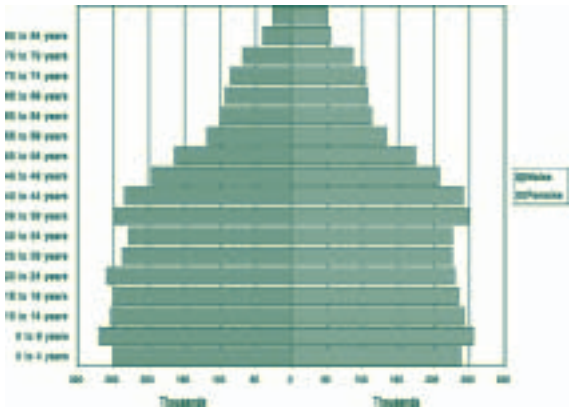
**Mexican Border Region, 2000**



**U.S. Border Region, 2000**



**U.S.- Mexican Border Region, 2000**



**Population pyramids for the Mexican, U.S., and combined U.S.-Mexican border area, broken out by age group and gender. Note the relative youth of the Mexican border population versus the aging U.S. border population.**

## Environmental Conditions in the Border Region

### *Air Quality*

Environmental conditions in many border communities remain a cause for concern. Air quality has been degraded significantly in some areas. Border areas in each of the U.S. border states have regional air pollution problems, violating one or more of the national health-based ambient air quality standards. The dry climate in many places, as well as high rates of deforestation in the region, can produce dust subject to wind erosion. The problem is more acute in towns with a large percentage of unpaved roads. Airborne dust contains inhalable particulate matter (PM less than 10 microns in diameter), which can pose a health threat to children living and playing next to unpaved roads. The adverse health effects of PM include the exacerbation of asthma and other upper respiratory illnesses, decreased lung function and lung growth, and increased infant mortality. Dusty conditions are a particular problem in the hundreds of colonias (unincorporated communities) on the U.S. side of the border, as well as in many neighborhoods on the Mexican side of the border, where street paving is even less prevalent. On a positive note, road-paving projects carried out over the past several years are beginning to improve conditions.

Other human activities in border communities may create additional sources of air-quality problems. Family cars and school buses (particularly older, poorly maintained vehicles), diesel trucks, open burning of trash, smoke from wood used for cooking and residential heating, brick making, and agricultural burning all can contribute to children's exposures to air pollutants. At congested border crossings such as in San Diego/Tijuana, El Paso/Ciudad Juárez, and Laredo/Nuevo Laredo, some children earn money by washing the windshields of cars and trucks whose engines may idle for hours before the vehicles are allowed to cross. Children standing nearby selling food and consumer products to waiting travelers are similarly exposed. Still other children are passengers in the waiting lines of cars, or are walking across the border on their way to school or to visit family and friends. In the process, they are exposed at close range to the emissions from these idling vehicles, many of which may not meet the host state's emissions standards.

Some border communities have industries that can pose potential health risks to children from poor air quality. For instance, the issue arose regarding children living in agricultural regions such as the Imperial Valley of California and parts of the Lower Rio Grande Valley who may be exposed to pesticide "drift" from spraying of nearby crop fields. While no direct evidence for this was found, the potential for serious acute health risks to children merits further investigation.

Adobe brick-making kilns are another potential source of environmental toxins along the border. Kiln operators sometimes burn used tires, fuel oil, plastics, used battery cases, and other materials that are sources of toxic air pollutants in this region. Many kilns are located in areas of high population density.

For example, most of the estimated 300 brick kilns in Ciudad Juárez are located inside impoverished communities in the city, where large numbers of children, especially young children, spend a great deal of their time playing outdoors. Similar concerns about brick kilns are being voiced at the other end of the border: In November 2003, a Mexicali, Baja California, newspaper carried an article quoting a concerned citizen who said that eight large brick-making plants near his neighborhood were contaminating the area's air by burning tires, animal manure, and other flammable materials. Fortunately, led by applied research at New Mexico State University, the past decade has witnessed increased attention and some improvements in the operation of brick kilns.

Besides such outdoor risks, air quality inside the homes of some border residents may also create potential health risks for the children living there. In some of the poorer neighborhoods, for instance, households may use wood and other biomass fuels for cooking and heating. As a result, children and the rest of the family may also be exposed to any chemicals that may be present in the wood, such as preservatives, or in the paper, such as dyes and metals. Tobacco smoke can also contribute to indoor air-quality problems. House dust can contain chemical toxins such as lead, pesticides, and asbestos, and biological toxins such as bacterial spores, viruses, dust mites, flea eggs, pesticides, mold, and hazardous particulate matter from natural and human products, according to the nonprofit group Children's Environmental Health Network. Carbon monoxide monitoring and case surveillance data have also indicated that acute carbon monoxide poisoning from home heaters is a serious health risk in Ciudad Juárez; it is being studied by SCERP researchers at the University of Texas at El Paso (Gurian 2003).

## *Water Quality and Water Supply*

Contaminated water, untreated or partially treated sewage, and a lack of safe drinking water pose health risks to children in poorer communities along the border. For instance, children may play outside their homes in puddles formed by partially treated sewage that has seeped to the surface from home systems in poor repair. Rivers and streams where children may play can also be contaminated by sewage that has not been adequately treated.

Rivers that receive agricultural drainage water can contain elevated levels of minerals (e.g. arsenic and selenium), pesticides and fertilizers. Arsenic and mercury from mining spoils also can contaminate surface water. Some rivers and streams also receive untreated industrial wastes from manufacturing facilities, and illegal dumping of hazardous wastes on both sides of the border also contributes to water contamination.

Some rivers on the southern side of the border are used to carry effluents away from heavily populated urban areas. The New River, for example, flows from Mexicali, Baja California, north into Calexico, California, carrying untreated and partially treated sewage wastes because of a lack of sewage collection and treatment capacity in rapidly-growing Mexicali. The north-flowing Nogales Wash at the Arizona-Sonora border is also often polluted by fugitive wastewater flows. Along the Pacific Coast, the town of Imperial Beach has had its own set of challenges. Although construction of the binational International Wastewater Treatment Plant and an ocean outfall have largely solved the problem of sewage flows into the Tijuana River and into the ocean near Imperial Beach, there still are occasional malfunctions of the sewage conveyance and treatment system in Tijuana, as well as stormwater pollution, which produces unhealthy coastal waters. Also, the San Antonio de Los Buenos sewage outfall, approximately six miles south of the border in Tijuana, discharges inadequately treated sewage that occasionally affects beach water quality in Playas de Rosarito, Playas de Tijuana, and northward into the United States to Imperial Beach. Both Imperial Beach and City of San Diego officials have taken special steps to ensure the health of their beaches and tourist industry by partnering with Scripps Institution of Oceanography to establish a binational coastal monitoring system. They also are supporting Tijuana officials in their efforts to improve sewage conveyance structure as well as treatment techniques and monitoring.

Besides contaminating surface waters, human sewage also can contaminate drinking-water supplies by leaching nitrates and nitrites and pathogens such as viruses into the groundwater. Another source of nitrates and nitrites in drinking water is livestock manure and fertilizers. And although public drinking-water systems in the U.S. must supply water that meets federal drinking water standards, private wells are not monitored. Little data, if any, is available regarding water quality from private wells. Elevated levels of nitrates are particularly hazardous for infants, impairing their ability to transport oxygen in their blood.

When children swim in contaminated waters, single-cell parasites like Giardia and Cryptosporidium can be ingested along with a variety of harmful bacterial and viral pathogens that can occur due to nonexistent or improperly operated wastewater treatment plants. Swimming in water contaminated with agricultural runoff exposes children to a potpourri of harmful chemicals.

The creation of border-region institutions such as the Border Environmental Cooperation Commission (BECC) and the North American Development Bank (NADBank) has enabled a number of border-region communities to upgrade both their drinking water and wastewater treatment systems in recent years, but many communities still face major water infrastructure challenges.

> **Children may develop a number of health problems if they are exposed to contaminated water, including infectious intestinal diseases. Nitrates in drinking water may cause acute toxicity in bottle-fed infants, causing methemoglobinemia ("blue baby syndrome"), and studies link arsenic in drinking water to miscarriages. Inorganic mercury compounds in drinking water, after long-term exposure at levels above the maximum contaminant level, can cause kidney damage. - Commission for Environmental Cooperation, "Making the Environment Healthier for Our Kids," April 2002.**

Besides these water contamination problems, the border region also continues to suffer from water shortages. These shortages and a lack of water infrastructure can severely compromise border-community children's ability to practice good sanitation. Inadequate restroom facilities in schools and insufficient water for proper hand-washing are just two examples. According to the British Medical Journal in its May 2003 issue, improving personal hygiene can significantly reduce global health threats: Based on current evidence, "washing hands with soap can reduce the risk of diarrhea diseases by 42 to 47 percent, and interventions to promote hand washing might save a million lives."

**Inadequate restroom facilities at schools can severely compromise border community children's ability to practice good sanitation.** *Source: "'Tras lomita' por necesidad," El Diario de Juárez, Feb. 7, 2000*

In some colonias, where residents are not connected to municipal water supplies, families rely on water trucks to deliver their drinking and bathing water. Poverty and lack of education may result in water supplies being stored in containers that may formerly have held toxic substances. In other cases, children in colonias may spend hours each day fetching water that has become contaminated from one cause or another, carrying it back to their homes.

According to the U.S.-Mexico Border Health Commission, although only 5 percent of the U.S. population is not served with community water systems controlled by the EPA's Safe Drinking Water Act, the border region does not fare as well as the national average. In Texas colonias alone, 13 percent of the population does not have approved drinking-water systems.

## *Chemicals, Consumer Products, Garbage*

Environmental contaminants in food items and consumer products are present in some unique forms in the border region. For example, SCERP's Border Basket project tested foods, condiments and utensils in the El Paso-Ciudad Juárez region for the presence of lead. The project found high levels of lead in oregano, ground dried shrimp, the inks used on plastic food bags, and in the medicinal herb ruda (Pingitore 1996). Later Border Basket studies found another threat of lead exposure among children in the El Paso-Ciudad Juárez area: lead-bearing inks used for labeling some Mexican consumer products. Many of these products, such as erasers and candies, are marketed especially for children (Amaya 1999).

A survey published in 2000 by the Texas Department of Health (TDH) found that of 2,194 border households, including both colonia and non-colonia households, 53 percent of tested ceramic food storage containers contained leachable lead. And in 1999-2000, five reportable cases of childhood lead poisoning were caused by consuming Mexican candies and folk remedies (greta and azarcon) containing lead. One particular brand of lollipop contained very high levels in the stick and wrapper (404 parts per million and 21,000 ppm, respectively), and the Food and Drug Administration and California Department of Health

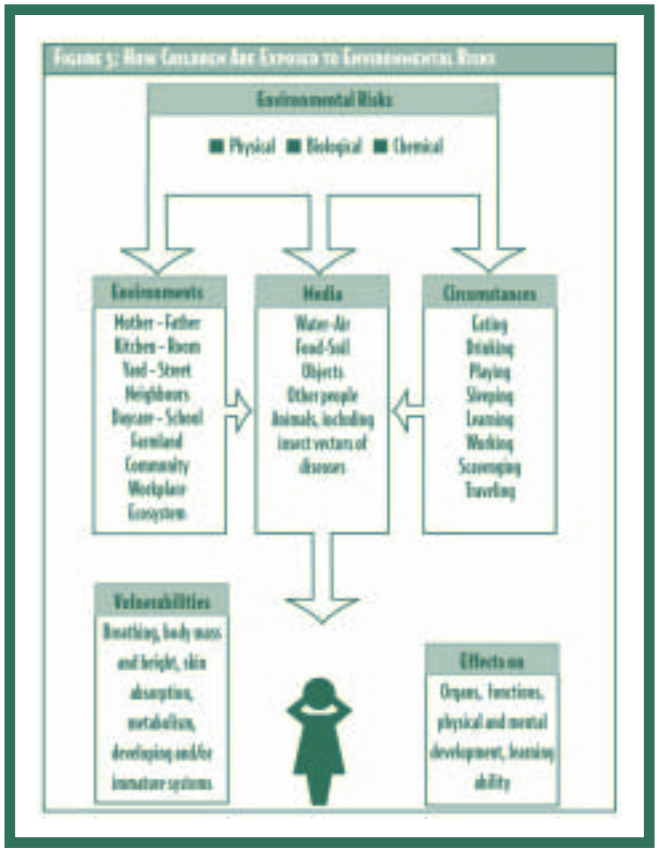
Services issued a public-health warning not to consume this candy (Centers for Disease Control and Prevention *Morbidity and Mortality Weekly Report*, vol. 51(31); 684-686 (2002).

On a more encouraging note, consumer-product labeling in both English and Spanish, another issue of potential concern for the border region, does appear to be widespread. An informal survey conducted in September 2003 by the California Regional Water Quality Control Board (Region 7, Colorado River Basin) in the Calexico-Mexicali border area found a significant degree of bilingual labeling. In general, if a product is manufactured in Mexico, it has bilingual labeling. If a product is manufactured in the U.S. or Asia it will often have an after-market label in Spanish applied to the product if it is sold in Mexico. Large-volume discount stores (consumer products and food stores) in Mexico often sell "U.S." products manufactured in Mexico under the license or trademark of American companies that have bilingual labeling. Some labeling challenges do remain, however. For instance, the same discount chain stores on the U.S. side of the border sell the same products, but of U.S. manufacture and without bilingual labeling. (If the products are imported from Mexico, they do have bilingual labeling.) In addition, many Mexican residents cross over the border to shop in U.S. border towns, which reduces their access to products labeled in Spanish. Whether or not to use multilingual labels is primarily at the discretion of individual companies, and the decision usually is driven by marketing and economic interests.

Garbage, which also poses a potential environmental health risk, has become a grave concern for some of the 26 federally-recognized Native American tribes whose land is located along the border. *(Border 2012 framework document, April 2003*). Undocumented immigrants collectively discard substantial amounts of solid waste during their treks across the U.S.-Mexico border region. The impacts and magnitude of this problem on federal lands in Arizona is well-documented in a report by the U.S. Bureau of Land Management (BLM) to the U.S. House of Representatives Committee on Appropriations (http://azwww.az.blm.gov/undoc_aliens/SEAZ_REPORT2.pdf). This solid waste dumping also occurs on private lands, but at this point in time, the impact on tribal lands, particularly the Tohono O'Odham reservation in the Arizona-Sonora border, seems particularly acute.

The Reservation includes approximately 70 miles of border fencing along its southern U.S. portion. This stretch of land increasingly has become a major point for illegal entries and drug trafficking. According to Reservation officials, wildlife is being killed for food, plants are being damaged by off-road vehicles, and garbage of all descriptions is being strewn across the open land. Trash in many forms remains a major concern; for instance, approximately 3,700 abandoned vehicles were towed from Reservation land during 2002.

The border area also is dotted with landfills, illegal trash dumps and waste tire piles. For instance, the Centinela tire pile west of Mexicali, Baja California, contains millions of used tires and poses a significant fire and public health risk to the surrounding communities on both sides of the border.




**According to the World Health Organization, environmental risks can be divided into three categories: physical, biological, and chemical.**
*Source: "Children in the New Millenium: Environmental Impact on Health," 2002 United Nations Environment Programme, p. 30, adapted from the World Health Organization.*

# Children's Environmental Health:

## Spotlight on the U.S.-Mexico Border

## Part 2: Recommendations for Improving Children's Environmental Health along the U.S.-Mexico Border

*Note: For each of the following four recommendations to the President and Congress, these categories of information are provided: a) brief background material that builds a case for the need for action, b) examples of laudable projects and partnerships already under way that merit continued support, and c) a series of next steps to be taken to move ahead on implementing the recommendation.*

Institutionalize a bilingual environmental and

-region school systems
Directly involve chil-

In a region where meeting basic needs for survival sometimes can be a struggle, it can prove very difficult to focus attention on issues that may not be immediately apparent. Gaining support for projects whose benefits are either realized in the future or else consist primarily of avoidance of harm can be a tough sell. In the border region, environmental education around children's health issues can all too easily fall into that category. And yet, in the view of the Board, the need to move environmental health education to center stage is indisputable.

Conditions in some border-region schools provide one example of the barriers that environmental health education may face. Particularly in poor communities with few resources, school administrators understandably put problems such as lack of space and lack of books at the top of


**The Center for Environmental Resources Management at the University of Texas at El Paso produces educational materials to help reduce the risk of exposure to environmental contaminants in border communities.**
*Source: Center for Environmental Resources Management, University of Texas at El Paso.*

their lists. Other concerns such as the prevention of violence, drug abuse, sexually transmitted diseases, and teen pregnancy also understandably command priority attention. When environmental health education issues do surface, they more often manifest themselves as water-supply problems or broken toilets and sinks, rather than concerns that may arise in more affluent schools such as toxic art supplies or playground-equipment building materials.

Even in schools and community settings with adequate resources, cultural and linguistic differences may become additional factors with which to contend. Communication among city officials, school administrators, health clinics, environmental agencies, and families may be limited by a lack of established networks or even by a lack of technology. For instance, an educator in Nogales, Arizona, indicated that some of her students lived in areas with no television stations and only two radio stations.

### Statistics on U.S. Border-Region Schools

*The number of public schools in U.S. counties adjacent to the border totals 2033, based on 2001-2003 data from state educational agencies. This figure includes 710 in California, 455 in Arizona, 76 in New Mexico, and 792 in Texas. In addition to these public facilities, there also are a number of private, tribal and military schools in the U.S. border counties. Some of these school buildings are converted residences, churches, and temporary, portable structures, particularly in areas with rapidly growing populations.*

*A significant number of school children who are U.S. citizens residing in Mexico cross the border daily to attend school in the U.S., in some cases paying school fees.*

***Source: Analysis provided by Surabhi Shah, U.S. Environmental Protection Agency.***

## Projects and Partnerships

*Note: The section that follows highlights examples of successful efforts to promote school-based and community-based environmental health education in the border region.*

- **Promotores** – Promotores (often called promotoras) are community health workers who continue to play a vital role in raising awareness about many health issues. They are trained by health professionals to communicate with community members about health issues and disease-prevention methods. Along the border, promotores work both in community health centers and in what are called Area Health Education Centers. Some work on projects funded by agencies such as Health Resources and Services Administration (HRSA) and the EPA, while others are community volunteers and work with people in their homes. The promotores approach has been employed in Yuma/San Luis-San Luis Rio Colorado, Ambos Nogales, El Paso-Ciudad Juárez, and a number of other sister cities along the border.

- **SoAHEC** – In New Mexico, promotores from the Southern Area Health Education Center (SoAHEC) have gained national attention for their work that focuses specifically on environmental health issues. SoAHEC's Environmental Health - Home Safety Education project has provided hundreds of families in Doña Ana County with education on topics such as asthma and allergies, lead in the home, pesticide use, hazardous chemicals (including many cleaning supplies) in the home, and other safety issues. The program's success was recognized with a 2003 Border Models of Excellence award from the U.S.-Mexico Border Health Commission. SoAHEC currently is updating a guidance manual on how to start up a similar environmental health-home safety education project elsewhere. To strengthen its environmental health activities in schools, it also is compiling curriculum materials on environmental health.

- **Gotitas de Aire** – This promotores project, with Western Arizona Area Health Education Center, will train community outreach workers (promotores) to educate community residents on health risk factors related to asthma. The project will conduct training for health professionals on environmental health risk assessment and effects on asthma on both sides of the border. It will also promote the American Lung Association's "Open Airways" Program, as well as com-

munity awareness training for school staff, childcare providers, and parent groups in Yuma, Arizona, and San Luis Rio Colorado, Sonora.

- **California-Baja California Environmental Education Guide** – The State of California has developed a shared border environmental education curriculum for grades 1 through 6. The theme of the lessons is conservation and pollution prevention. Specifically, units cover conservation of natural resources, water and electricity, as well as water, land and air pollution. Some of the classroom activities are community-service oriented, and the materials are written for potential use both inside and outside the classroom.

- **Tohono O'odham Environmental Education Resource Guide** – Published during 2003, this tribal guide was prepared in cooperation with the Tohono O'odham Environmental Protection Agency, the Tohono O'odham Natural Resources Office, and the Environmental Information Exchange. Its goal is to link information and services with those seeking them.

- **UTEP *Environmental Health Threats Lurking Close to Home* Project** – This project, being carried out by the University of Texas-El Paso (UTEP), has produced a comic book titled "Aguas que hay microbios" (Water that contains microbials), available at www.cerm.utep.edu/outreach/apb/educational.html. Other comic books dealing with indoor air quality, respiratory problems, and pesticides and chemicals are planned. In addition, a series of training workshops in colonias is under way.

- **Ambos Nogales Clean Air Calendar** – The Arizona Department of Environmental Quality continues to administer an annual Ambos Nogales Clean Air Calendar contest in Arizona and Sonora. The final calendar features artwork and written opinions of students in grades 1-12. It promotes both student and community education about local air-quality issues, including the health consequences of elevated particulate matter, to which children are especially vulnerable. Over 10,000 calendars are distributed each year, primarily to student participants but also to regional officials and air-quality specialists. Local partners may modify the curriculum so that it is appropriate for use in their area. Teachers participating in the project are provided with sample lesson plans about air quality appropriate for their students' age group.

- **Ambos Nogales Re-vegetation Partnership** – Led by the University of Arizona and the Instituto Tecnológico de Nogales (Sonora), this partnership teaches schoolchildren to take simple steps to improve environmental health in their communities. The re-vegetation activities have improved air quality by reducing soil erosion and particulate matter in the area. High school and middle school students planted community gardens, organized neighborhood workshops on composting and worm-farming techniques, planted and maintained school nurseries, participated in neighborhood clean-ups, managed tree "giveaways," installed drip irrigation systems, and installed water harvesting systems. Accomplishments were presented at events including Encuentro Fronterizo, an annual gathering of non-governmental organizations from along the U.S.-Mexico border.

A project expansion in Nogales and Rio Rico, Arizona, is under way in cooperation with Platicamos Salud (Mariposa Community Health Center). The Nogales High School, through its Ecology Club, already operates a nursery that will serve as a resource for plants as well as education and outreach opportunities. In addition, Terra-Cycle Tech, an organic farm and composting facility in Rio Rico, will provide resources and expertise. A school will be selected to provide a site for a demonstration landscape and schoolyard habitat that incorporates environmental health into the regular curriculum. Success will be measured based on both level of re-vegetation and the level of increased awareness of the link between PM10 and respiratory illness. Assistance will be provided by the University of Arizona and the Instituto Tecnológico de Nogales (Sonora).

- **Ambos Nogales Proyecto Medio Ambiente Phase II** – Phase II of this binational project, with Platicamos Salud (Mariposa Community Health Center), will promote clean air and proper solid waste disposal through pollution prevention, reduction and elimination in the communities of Ambos Nogales. The program will use educational modules to familiarize promotoras on environmental factors regarding air, water and waste. This effort will help in their outreach efforts to educate people in homes and schools on environmental issues affecting their health. The project will continue to emphasize binational collaboration among health agencies to meet the project's goals.

- **Tijuana Esperanza Family Water Safety Project** – The goal of this Esperanza International Project is to improve drinking water quality and efficient water use in marginalized low-income communities through a self-help program. The project will focus on community capacity buildup that will lead to sustainable progress in the areas of environmental health, hygiene education, and improved sanitation. It is projected to reach more than 300 families and will train more than 25 promotoras in Tijuana, Baja California.

- **California/Baja California Community Health Worker Environmental Workshops** – Carried out in cooperation with Project Concern International, this program will provide community health workers with training that focuses on health effects related to air quality and pesticide exposure. The training will be conducted during five regional workshops in San Diego County and Baja California.

- **Western Growers Charitable Foundation** – During 2003, the Foundation announced the first round of grant recipients for its Growing with Children school garden project. The goal is to plant a garden in every school in California and Arizona. See www.wga.com.

- **PAHO Ecology Clubs** – The Pan American Health Organization (PAHO) field office in El Paso, Texas, is working on a project to bring Ecology Clubs, modeled on groups in South America, to young people ages 10-18 in some of the border region's sister cities. The El Paso office also serves as the secretariat for the U.S.-Mexico Border Health Association.

- **Urban School District Leadership Program** – The Las Cruces, New Mexico, school district is one of seven pilot projects under a national Urban School District Leadership Program funded by the American Cancer Society and the Department of Health and Human Services' Centers for Disease Control and Prevention. Under this project, the Las Cruces school district has created a coordinated school health council that is addressing the district's "healthy schools" issues in an integrated fashion.


**Polvo de Avion, or methyl parathion, is a toxic agricultural pesticide that, at one point, was reportedly being sold in Mexican border communities and then brought back into the U.S. for use around the home.**
*Source: U.S. EPA, Texas Secretary of State, the New Mexico Department of Health, and the Texas Department of Health, February 2002.*

- **Young Farmworkers Academy (YFA) for Migrant Workers** – This program was founded and initially funded by the U.S. EPA Office of Pesticide Programs. Its goal is to educate young migrant agricultural workers and migrant family members in the Lower Rio Grande Valley about pesticide risks and environmental protection. YFA encourages young people to educate their families and communities about protective measures and also achieve success in their own educational activities. The program is currently being administered by the University of Texas at Brownsville.

- **Children's Environmental Health Institute (CEHI)** – This nonprofit group based in Austin, Texas, conducted a Children's Environmental Health Town Meeting in El Paso in 2002. The event took place through a partnership with the National Institute of Environmental Health Sciences (NIEHS) and the local medical society. Participants from Texas, New Mexico, and Mexico discussed local issues affecting children's environmental health. In addition, CEHI also received funding from NIEHS to develop and coordinate the Texas Network for Children's Health; initial projects planned include creation of a database. CEHI staff and Board members also are involved in the National Children's Study, the Nationwide Health Tracking Network, and the Border Environmental Health Tracking Project being coordinated by the nonprofit Physicians for Social Responsibility. See http://www.cehi.org.

- **Texas Department of Health (TDH)** – State agencies like TDH also are playing a part in environmental education related to health risks. For instance, in 1995, the TDH investigated a case in which a teenage boy suffered from symptoms that indicated mercury poisoning. It discovered that the boy had been using an acne cream made in Mexico, Crema de Belleza-Manning, containing 6-10 percent by weight mercury (as mercurous chloride). Approximately 150 users who were tested had levels of mercury in their urine from using the cream. A bilingual educational campaign was initiated in the border region to halt border residents from using the product.

Six years later, early in 2001, it was discovered that El Paso residents were crossing over to Ciudad Juárez to purchase from street vendors polvo de avión or "airplane powder," actually methyl parathion, for illegal use for indoor and outdoor pest control. Methyl parathion is a highly poisonous pesticide, and when subject to disposal it is listed by the EPA as an acute hazardous waste. With EPA assistance, the Texas Department of Health developed an awareness/educational campaign for the Paso del Norte area, which includes Doña Ana County, New Mexico; Ciudad Juárez, Chihuahua; and El Paso, Texas.

## Next Steps

*Note: The section that follows sets out next steps to be taken to build momentum for fully implementing Recommendation 1.*

### *At School*

- Institutionalize environmental and environmental health issues within the school curriculum. Begin by comprehensively gathering existing environmental education materials as well as border-specific materials. Modify existing materials to reflect the unique conditions that exist along the U.S.-Mexico border, including using examples from the school setting to raise more general awareness.

Curriculum materials produced specifically for the border are important because of the unique environmental health issues in the region. Glazes used in Mexican pottery, venetian blinds, and candy produced in Mexico present more of a potential route of lead exposure on the border. A CDHS study found that of about 1,000 cases of elevated blood lead levels among California children during May 2001 and January 2002, candy produced in Mexico was identified as a potential source of exposure in approximately 150 cases.

New materials should be developed where needed, including translation into both Spanish and English. The materials should be tied to state standards in both countries to ensure their widespread use. Among key issues to include are hand-washing and other health sanitation practices.

- Fully support extracurricular environmental education programs within border-region school systems. Encourage a wide range of community partners to participate in these school-based voluntary programs. Within the arena of environmental health education, promote stronger collaboration between promotores and schools to encourage promotores to conduct both in-school and community projects.

- Provide support within the school setting that enables school children to carry environmental education and environmental health messages home to their families. Educational studies have demonstrated that children in grades 3 to 5 are particularly effective at educating their parents. Leveraging what is learned from the school setting to the home and community settings will enable adults to do their part to protect children's environmental health.

### *In the Community*

- In keeping with the promotores concept, provide environmental and environmental health information to trusted sources within the community, such as religious leaders, health clinic workers, and civic organizations. Enable these message-carriers to help families learn about particular children's environmental health risks such as the potential for certain Mexican candies, pottery, and folk remedies to contain lead that results in lead poisoning among children.

- Create strong information networks with public health care providers. Share information on topics such as the potential hazards of certain food products such as candy so that such information can be borne in mind when carrying out particular procedures such as evaluating a child with an elevated blood lead level. Design effective educational interventions to communicate actual health risks to affected populations, as a household survey in Nogales, Sonora, has demonstrated (Sadalla 1999). Consider creation of a binational award system, similar to Presidential environmental awards, as an incentive to better educate doctors and school nurses on how to identify possible environmental links to health issues in children. Build on progress already being made in this arena through the Pediatric Environmental Health Specialty Units (PEHSUs), which were established by the U.S. Association of Occupational and Environmental Clinics with funding from the Agency for Toxic Substances and Disease Registry and the U.S. EPA, and are located in the U.S., Mexico, and Canada.

- Develop and distribute more environmental health education materials that have an appealing design and are clearly written in both English and Spanish. A key educational message should be the importance of safely storing drinking water to avoid contamination. Identify promising settings for distributing these materials, such as health fairs and teacher professional development programs.

- Take special steps to educate those adults whose activities and daily habits may have a particularly strong effect on children's exposure to potential environmental health threats. For example, provide information to farm workers about washing their work clothing separately. Ensure that all home pesticides and cleaning products include instructions and warning labels that are clearly written in both Spanish and English.

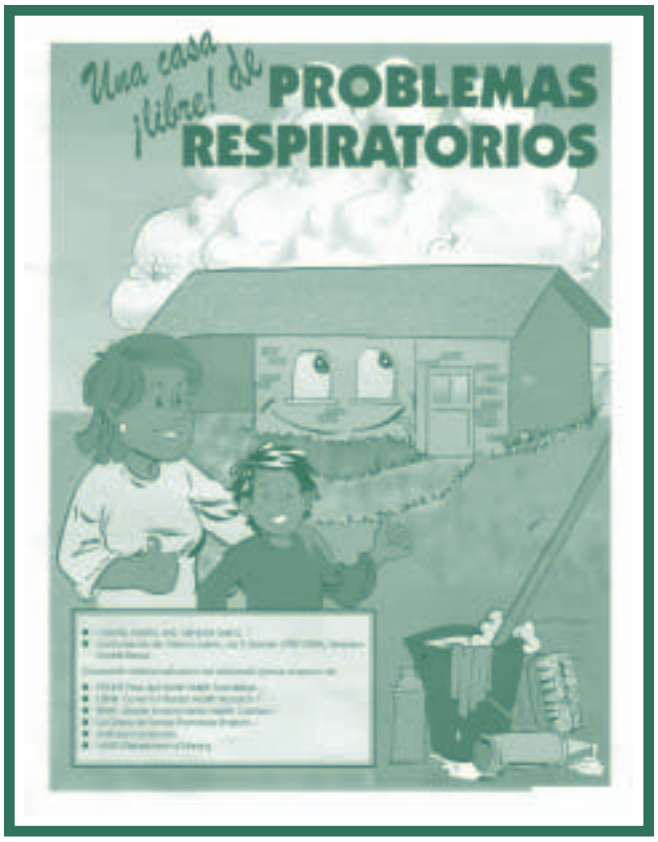
- Encourage regulatory agencies to provide more environmental quality information to the public. For example, under current law, Imperial County, California, does not meet the U.S. population threshold required to report the Air Quality Index (AQI) to the public. But its Mexican sister city of Mexicali has a population of more than 800,000 which, needless to say, affects regional air quality. During 2001, Imperial County exceeded the 8-hour ozone standard on 18 days and exceeded the PM10 24-hour standard on four days. Significantly, Imperial County also has the second-highest childhood asthma hospitalization rate for Hispanics in California. Public notification of the AQI in both English and Spanish would provide parents and school authorities the information necessary to modify the day's program of physical activities. Outreach to publicize AQIs should not only include the mass media, but also target doctors and school nurses serving asthma patients and children with other pre-existing health conditions.

**Recommendation 2: Research**

- Foster collaboration across border-region academic institutions, health organizations, and environmental agencies. Step up research, data gathering, and data analysis of border-region children's environmental health issues as the foundation for informed strategic actions.

Laudable attempts to focus national and international attention on environmental health issues as they specifically exist in the U.S.-Mexico border region have been under way for decades. During the 1970s, the Pan American Health Organization (PAHO) field office in El Paso, Texas, published a guide to border environmental health issues that was distributed to policymakers and the interested public. And in recent years, other government agencies as well as nonprofit groups have turned more of their research attention to the U.S.-Mexico border and to children's environmental health.

Yet, the body of integrated scientific work on this topic that incorporates all three elements – the U.S.-Mexico border region, children, and environmental health – remains patchy. Concern and opinions are expressed, but rigorous research to either confirm or allay the concern often is missing. One example of this gap in readily available information was the Board's futile search for information about the daily diet of border-region children during its preparation of this report. With the assistance of officials




**According to the Border Environmental Health Coalition, triggers in the home such as dust mites, pet dander, smoking, carbon monoxide from heating/cooling units and pests can affect children with upper respiratory problems.**
*Source: "Una Casa Libre de Problems Respiratorios," Border Environmental Health Coalition, in collaboration with Paso del Norte Health Foundation, Center for Border Heath Research, La Clinica de Familia Promotora Program, Anthony Community, and NMSU Department of Nursing. Artwork provided by Salvador Saenz and UTEP CERM.*

from the U.S. Department of Agriculture, the Board looked for existing studies carried out in the border region on any potential health problems that may have been related to children's ingestion of certain foods that either were grown or prepared in particular ways that may have introduced toxins – for example, cooking beans in clay pots containing lead. Although there is ample anecdotal evidence of families preparing food in this manner, the Board was unable to locate border-specific studies that explore this potential link to health problems.

Data gaps such as these may result in key issues being left unaddressed due to a lack of awareness. They may also result in policies and precious resource allocations that are based on speculation rather than sound science. For example, a tragically high occurrence of babies born without brains or with underdeveloped brains (neural tube defects) was detected in Brownsville, Texas, in 1990-1991. Initially, pollution was widely believed to have contributed to this tragic pattern. Through research and surveillance conducted from 1993-1998, however, the problem ultimately was linked to a dietary deficiency of folic acid. Inhibiting the complete understanding of the problem is the confounding nature of lead levels that block folic acid assimilation (Quintin 2000). Perhaps no other experience on the border better describes the need for rigorous analysis of public-health issues and their possible links to environmental conditions.

SCERP's study in Tijuana, Baja California, had similar findings to those in Brownsville. Based on indications of insufficient folic acid in the diet, a recommendation was sent to the Maquiladora Health and Safety Support Network regarding education on folate enrichment in the diet of female maquiladora workers of childbearing age. Similar resolutions have been adopted by the U.S.-Mexico Border Health Association and the Centers for Disease Control (Quintana 2000).

In summary, in order to fully understand children's environmental health issues in the border region, compilation and careful analysis of epidemiological information, in light of both past and present environmental conditions, is vital.

## Projects and Partnerships

*Note: The section that follows highlights examples of research and data gathering that **specifically** focus on children's environmental health in the U.S.-Mexico border region.*

*At the same time, it should be mentioned that federal agencies such as the U.S. EPA (its Office of Children's Health Protection) and the U.S. Department of Health and Human Services are pursuing noteworthy children's environmental health studies of a more general nature. And on a state level, groups such as the Environmental Council of States (ECOS), the Association of State and Territorial Health Officials (ASTHO), and the National Conference of State Legislators (CSL) also are looking at children's susceptibility to environmental hazards. Finally, the White House has extended President Bush's Task Force on Environmental Health and Safety Risks to Children; the National Children's Study, undertaken by the task force, will follow about 100,000 children from before birth up to adulthood to look at links between environmental exposures and potential health effects. All of this work, undoubtedly, will indirectly benefit the border-specific studies under way.*

- **Border 2012 Program Arizona-Sonora Workgroup** – Under the binational Border 2012 Program, the Arizona-Sonora Regional Work Group has established the region's first multisector task force specifically dedicated to children's environmental health along the border. Composed of professionals from the medical community, promotores, academicians, and environmental specialists from both sides of the border, the group met for the first time in September 2003. Members have begun to exchange relevant studies, projects and activities with the aim of identifying priority issues of concern. Specific proposals for local and borderwide research projects are likely to emerge from such interdisciplinary collaborations.

- **Border 2012 Environmental Health Workgroup** – Also under the Border 2012 Program, the Environmental Health Workgroup has been conducting the following studies specifically related to children in the border region: El Paso Children's Respiratory Health Study; Retrospective Study on Pediatric Asthma and Air Quality; Pesticide Exposure and Health Effects on Children; Symptomatic Children and Pesticides Exposure in Imperial County; and School Children's Pesticide Exposure in Yuma, Arizona. The Workgroup's website also contains information on other studies such as the Survey of Health and Environmental Conditions in Texas Border Counties and Colonias, and the Pediatric Lead Exposure Identification and Risk Reduction initiative. The latter study involved participation from several state, federal and non-governmental organizations from both the U.S. and Mexico. See www.epa.gov/orsearth.

- **Commission for Environmental Cooperation (CEC)** – The CEC, which was established to address environmental issues in Mexico, the U.S., and Canada related to the implementation of the North American Free Trade Agreement (NAFTA), has established a Children's Environmental Health Program. The Commission is in the process of developing "children's health and the environment" indicators for North America and has encouraged public input. In addition, under its trade and transportation corridors program, the Commission released a study in October of 2003 of respiratory distress in children in Ciudad Juárez, Chihuahua. See www.cec.org.


**Children are particularly vulnerable to environmental risks such as lead in paint or pottery, according to the Commission for Environmental Cooperation of North America.**
*Source: "Making the Environment Healthier For Our Kids," Commission for Environmental Cooperation of North America (CEC), April 2002, cover.*

- **Border Environmental Health Tracking Project** – The nonprofit group Physicians for Social Responsibility has received a grant from the CEC to develop its Border Environmental Health Tracking Project. See www.psr.org.

- **Lower Rio Grande Valley pesticide poisoning study** – Another active collaboration includes the Centers for Disease Control and Prevention (CDC), the Texas Department of Health and the U.S. EPA. This partnership carried out an investigation of children in the Lower Rio Grande Valley (LRGV) and in a non-border comparison region, in which children ages 6 and under were diagnosed by physicians as having pesticide poisoning. Information from this study will be used by the CDC to evaluate whether children in the LRGV may be at increased risk for poisoning, to identify risk factors for childhood poisoning in these regions, and to direct intervention activities aimed at reducing or preventing it.

- **Border Environmental Health Coalition, Inc. study** – This New Mexico-based coalition received a grant from the Paso del Norte Foundation and Border Health Research to carry out a study of respiratory symptomatic children living in southern Doña Ana County, New Mexico. The study entailed health visits by promotores to evaluate the potential for reducing selected asthma triggers in the homes of these children. It also included an assessment of changes in knowledge and attitudes following these visits. The program was based out of La Clínica de Familia, whose promotores were hired to carry out the work. One of the outcomes was an educational comic book on how to reduce asthma triggers.

- **Harlingen, Texas, Regional Academic Health Center** – This new center, which secured some federal funding during the year to move it toward being launched, will be the first and only U.S. Hispanic Nutrition Research and Education Center. The goal is to help health officials better understand how diet and nutrition – along with genetic, social, psychological, socioeconomic, cultural and environmental factors – affect the wellness of Hispanics. Research topics will include a study of cooking preferences.

- **Southwest Center for Environmental Research and Policy (SCERP)** – This consortium of five U.S. and five Mexican border universities has conducted applied research and community outreach on environmental health topics that impact the health of children. More information is available at www.scerp.org/projs/envhlth.htm

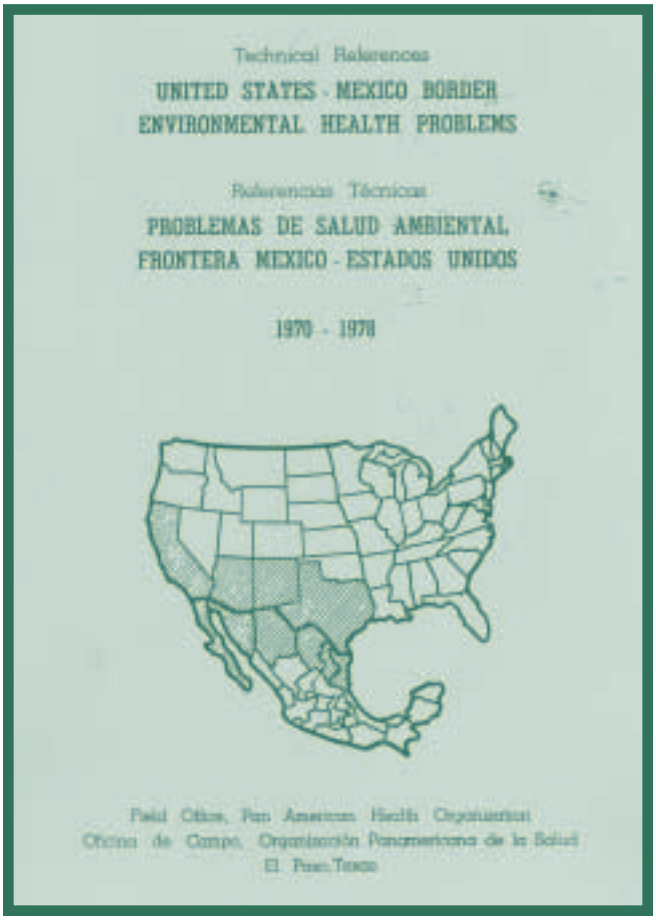
## Next Steps

*Note: The section that follows sets out next steps to be taken to build momentum for fully implementing Recommendation 2.*

- Extend existing research: Although there are several worthwhile pediatric research efforts under way, as yet there is no specific focus on the unique conditions that exist in the U.S.-Mexico border region. Case in point: the 12 National Environmental Pediatric Research Centers of Excellence established during 2003 in the United States and the Pediatric Environmental Health Specialty Units (PEHSUs) located in the U.S., Mexico and Canada. A focus on border-region issues by one of these centers, or the establishment of an additional center within the border region to carry out this work, would greatly enhance the process of filling the many data gaps that remain.

- A sustained research agenda requires a reliable and adequate source of funding from all levels of government, industry, and NGOs. Yet the nation's children's health program was mandated with limited or no funding, resulting in creating a significant barrier to a reliable and sustainable source of funding for children's environmental health research. While working to build funding support for the national program, federal and state agencies must continue to join forces to leverage funds that will support the necessary research.

- Efforts to develop environmental health indicators must be strengthened so that a common baseline is in place for measuring progress. EPA, CEC and SCERP are examples of groups already working in this arena.




**The Pan American Health Organization's field office in El Paso, Texas, took the lead on some of the early environmental health work that focused specifically on the border region.**
*Source: Pan American Health Organization (PAHO), El Paso Border Office.*

## Possible Research Topics

*Note: Several topics that merit scientific examination in the border region are presented below. Studies about such issues should describe and review conditions on both sides of the U.S.-Mexico border to accommodate the interrelated and mobile nature of people living in the sister communities on either side of the international fence. This is not intended to be an all-inclusive list, but rather examples of arenas in which more research is needed.*

- **Flame Retardants in Maquiladora Workers** – A common category of flame retardants, polybrominated diphenyl ethers (PBDE), has been detected in mother's milk at alarmingly high levels throughout the United States. Two types of PBDEs have been banned in the state of California due to concerns about the effects on children and the chemicals' bioaccumulative nature. Possible health effects include impairment of mental development and behavioral changes. These chemicals are sometimes present in maquiladoras along the U.S.-Mexico border. Since the vast majority of the maquiladora work force is comprised of young women, mostly of child-bearing age, valid questions exist about the presence and impact of PBDEs in the border region.

- **Lead in Children's Blood** – U.S. border states have done a great deal of work to identify and reduce cases of lead poisoning in children. For example, the Arizona Department of Health Services (ADHS) has performed studies revealing that some traditional or folk medicines have resulted in elevated levels of lead in the blood of children residing in border communities. SCERP's Border Basket project found similar results for consumer products marketed to children. Such issues reflect the local culture and are a feature of life in some parts of the U.S.-Mexico border region. Other demonstrated sources of blood lead levels include lead-based paints and lead-based glazing on traditional pottery cookware. Binational examination of these problems would reveal the prevalence of the problem in sister cities, allowing comparisons across the border, to develop appropriate local strategies to resolve the issues at the community level.

- **Children's Exposure to Air Pollutants at Brick Kilns** – There has been much speculation that children who live near traditional brick kilns are exposed to dangerous levels of air pollutants. Studies that carefully examine this issue and attempt to specifically quantify the risk to children in residences or nearby schools would be beneficial. Of added interest would be the monitoring of hydroflouric acid, which has locally been demonstrated to be a serious emissions problem in an Arizona brick kiln.

- **Diesel Emissions from School Buses in Border Communities** – For those children who travel to school by bus, especially the older diesel models that are still used by many school districts, the diesel emissions may pose potential health problems. Children are exposed to these emissions while boarding a bus, riding on a bus, and possibly at school when buses are idling on campus.

A 2003 study by the California Air Resources Board (CARB) (http://www.arb.ca.gov/research/schoolbus/schoolbus.htm) found diesel vehicle-related pollutant concentrations up to 2.5 times higher inside the bus when the windows were closed than when they were open. A comparison of conventional diesel buses to cleaner buses (i.e., those burning compressed natural gas [CNG] or equipped with particulate filters on the exhaust system) showed 2 to 5 times more diesel-related pollutants on board the bus. The CARB study estimated an increase in lifetime cancer risk of about 30 in one million, based on 13 years of riding conventional diesel-powered school buses. Considering the much older and poorly-maintained condition of some of the school buses in the border region, it may be appropriate to preferentially fund the conversion of these school buses to use cleaner-burning fuels (CNG, PLG, low sulfur diesel fuel) or retrofits to reduce emissions.

- **Siting and Planning Using Geographical Information Systems (GIS)** – Obtaining and plotting geographical information about the location of schools, playgrounds, public parks, day care centers and other places where children gather is necessary to adequately assess levels of risks or exposures for sources of pollution. For example, air-quality emissions inventories or air-quality monitoring networks often fail to consider collecting or scrutinizing air quality data near locations where children cluster for long periods of time. Consideration of such basic data in communitywide or regional environmental studies may reveal potential siting issues, and may assist with future land-use planning that considers the protection of children's environmental health. It may also be useful in public health studies on the occurrence of illnesses such as asthma, childhood leukemia or other diseases where an environmental link may be suspected.

- **Studies on Chemical Use and Disposal in Schools** – Hazardous chemicals are sometimes used in educational exercises in school programs, and valid questions exist about the risk to children as a result of this potential exposure. Concerns also have been expressed about the possible use of expired chemicals, and about disposal techniques for used chemicals. While these issues exist for schools everywhere, the poor economic state of some border-region schools may introduce pressures to implement potentially risky cost-saving measures related to chemical use and disposal. In the absence of firm scientific analyses focusing on children as the potentially exposed population, existing perceptions and concerns will remain. Therefore, research on these issues may be appropriate.

- **Compendium of Children's Environmental Health Research Projects in the Border Region** – The Board's efforts in developing this report would have been considerably easier if a document existed listing all current and past children's environmental health research projects. With a very broad audience of health professionals, land-use planners, environmental managers, natural-resources professionals and great interest by the public and elected officials, such a document would be of great use and is recommended as a preliminary reference guide for all future children's environmental health projects.

**Actions for Children**

Support both fledgling and established

-region settings that especial-

Given children's special vulnerabilities, it is particularly important that environmental health projects be developed that specifically target them as beneficiaries. Organizations ranging from neighborhood groups to global organizations such as the United Nations Children's Fund (UNICEF) continue to advance the field of children's environmental health.

One of the obvious strategies for carrying out this targeted approach is to focus on where children live, play, and, especially, where they go to school. The school setting already is being used at a national level in the United States as a prime setting for carrying out projects of special benefit to children. One example is the U.S. EPA's Indoor Air Quality (IAQ) Tools for Schools program; its Fourth Annual Symposium took place in October of 2003. More

**Children at play may be exposed to harmful contaminants in surface waters.**
*Source: U.S.-Mexico Border Health Commission website.*

than 10,000 schools across the country currently are participating in this program, which provides a free kit to help schools identify and solve indoor air problems. EPA also has published a booklet on Integrated Pest Management (IPM) in schools and is encouraging nationwide adoption of best practices.

Greater implementation of these national school-based programs into the border region is essential in order to ensure that children in border community schools also benefit from the resources. But program developers should, as always, bear in mind some of the unique features that characterize the border region if the region is to be a full partner. In addition to the more obvious resource constraints for implementing solutions to any problems identified, there may be other dynamics at work that could create barriers for actions. For example, parents and school officials may be reluctant to raise issues for fear of being accused of discouraging economic development or closing down industries that provide precious jobs. Here again, a keener understanding of the unique conditions that exist in the border region will set the stage for smoother integration of existing programs and a broader network of partners who work together to ensure their longer-term survival.

More broadly, several of the Border 2012 Program's objectives specifically address children's environmental health. For example, the objective related to air quality calls on stakeholders to, by 2006, "evaluate various measures of respiratory health in children that might be tracked to assess changes that may result from actions to improve air quality in border communities." Also, the objective related to pesticides reads as follows: "By 2007, reduce pesticide exposure by training 36,000 farm workers on pesticide risks and safe handling, including ways to minimize exposure for families and children."

## Projects and Partnerships

*Note: The section that follows highlights examples of noteworthy environmental health projects that especially target children as beneficiaries.*

- **California School Bus Emissions Reductions** – In December 2000, California's Air Resources Board adopted a statewide two-year $66 million General Fund program to reduce emissions from the oldest, highest-polluting school buses. Approximately half of the funding went to new alternative-fuel buses and fueling facilities including CNG, one-fourth went to new cleaner diesel buses, and the remainder was used to install particle filters on existing diesel buses and to provide low sulfur diesel fuel.

- **SDAPCD Alternative Fuel Bus Program** – Specifically within the border region, the San Diego Air Pollution Control District (SDAPCD) provided 10 percent matching funds to buy 25 new alternative-fuel buses and 21 new low-sulfur diesel buses (equipped with diesel particulate filters). The SDAPCD itself directly sponsored the purchase of an additional 21 alternative-fuel and 28 low-sulfur diesel fueled buses. It also received sufficient funding to retrofit 250 school buses with diesel particulate filters requiring the use of low-sulfur diesel fuel. School districts in Imperial County received funding from the California Energy Commission for four alternative-fuel buses. California's program was continued in 2003 and it is due to continue into 2004, with $9.8 million directed to the purchase of new buses.

- **EPA Clean School Bus Program** – At the national level, but with much less funding, the EPA initiated the Clean School Bus USA Program in 2003. This program provided $5 million in competitive (and cost-shared) grants to school districts in order to help them upgrade their bus fleets. EPA must approve funded activities as a verified or certified pollution reduction technology. Acceptable technology under EPA's guidelines includes engine retrofits to improve engine performance with low emission technologies, replacement of the oldest buses, and conversion to alternative fuels such as CNG. To the Board's knowledge, none of the border states applied for this funding in 2003.

- **The "Agua Para Beber" Project** – This project was developed for rural residents with private wells for drinking water as well as those living in colonias. Participants were provided with educational information on well-water testing options as well as information on how to chlorinate their drinking water. Local, state and federal resources, as well as corporate foundations, provided the funding. Initiated in the El Paso-Ciudad Juárez area, through the support of SCERP and the Center for Environmental Research Management at the University of Texas at El Paso, the program has spread to San Diego-Tijuana, Laredo-Nuevo Laredo, and Ciudad Chihuahua. An evaluation of this community-based program by SCERP in the Ciudad Juárez-El Paso area indicated lowering of gastrointestinal distress in 2,500 families (Liebman 1999).

- **Integrated Pest Management (IPM) in U.S. Border State Schools** – All four U.S. border states have some rules requiring schools to notify parents about pesticide applications, but only Texas has a law that requires IPM in schools. Effective as of 1995, all Texas public schools were required to have a school IPM plan. According to a 2002 report by the national coalition Beyond Pesticides, Texas is one of 11 states in the U.S. requiring schools to develop IPM programs. The program requires schools to employ non-chemical pest-management strategies whenever practical and track their pesticide use, including each product's level of toxicity. Opinions differ on how effectively the program is being implemented; according to a 1999 report by the nonprofit organization Texas Pesticide Information Network, many schools were not complying due to loopholes and a lack of enforcement.

In 2000, the **California** Legislature passed the Healthy Schools Act, which provides tools and training for schools interested in adopting least-toxic IPM. This law requires school districts to provide parents, teachers, and school staff with information on the school's pest-management activities, and also requires the California Department of Pesticide Regulation to train school district personnel in least-toxic IPM techniques. Opinions vary on the act's effectiveness of this program: A 2002 report by the nonprofit group Californians for Pesticide Reform claims that many schools are continuing to use toxic pesticides because California's law only recommends, but does not require, IPM in schools. Recent legislation provides incentive for schools to participate in the voluntary program or they must use licensed pesticide applicators to control pests.

The **Arizona** Department of Environmental Quality (ADEQ) began a pilot project in October of 2003 to assist Arizona schools in developing an IPM program. In coordination with the University of Arizona, the project team initially will work with officials from the Scottsdale, Casa Grande, and Mesa school districts, as well as the Salt River Pima-Maricopa Indian Community School District. The project is funded by a grant from EPA. A similar grant from EPA supports a program at Texas A&M that offers guidance to school districts.

U.S. tribes also are becoming interested in adopting school IPM programs. According to one EPA School IPM coordinator in the border region, tribal schools have been particularly interested in the program and seem to prefer not to use toxic pesticides. During 2002, nine tribes applied for school IPM grants, two from the border region. The **Pauma Tribe** in San Diego County was among the grant recipients.

- **Sony Tijuana Projects** – In March of 2003, a group of Sony Corporation volunteers worked with the community in Tijuana to renovate a public elementary school. Before the project began, the school had no roof, no desks or chair for the teachers, and had been the victim of rampant graffiti. In May, Sony participated in an event to improve conditions in an orphanage that included making improvements to the bathrooms. In addition, the company operates a family care program at its facility in which three doctors provide services from 8 a.m. until 8 p.m. Monday through Friday.

- **Mold Eradication Program** – School administrative staff in Las Cruces, New Mexico, are working with other schools in their district to address the mold problem. In addition to checking for mold in ductwork, some of the evaporative cooling systems are being replaced with other models that are designed to avoid generation of moisture and mold and also operate more efficiently.

- **California School Siting Program** – Under California law, the California Department of Toxic Substances Control (DTSC) must review and evaluate the environmental and public health risks of properties being considered for new school construction and provide oversight of local school district cleanup of contaminated school sites. All proposed school sites in California that will receive state funding must go through DTSC's environmental review and oversight of cleanup.

## Next Steps

*Note: The section that follows sets out next steps to be taken to build momentum for fully implementing Recommendation 3.*

### *Where Children Live*

- Devote resources and personnel to improving water quality by addressing drinking water and wastewater treatment. This is covered in more detail in Recommendation 4 but merits inclusion here because of the subject's importance to children. In addition to the major infrastructure needs discussed in the later Recommendation, low-cost and practical alternatives should be identified to improve sanitation along the border. Residents must be educated about the dangers of contaminated water and as appropriate, be taught methods to disinfect water at their point of use. Established methods of point-of-use disinfection such as boiling and filtration must be promoted alongside innovative and cheap technologies to disinfect water in areas without practical access to potable water. For example, solar stills that use the sun to disinfect water and the CDC's Safe Water System, which uses locally produced chlorine and specially designed storage containers to disinfect and store water in the home, are low cost alternatives that should be considered. In addition, border states that do not currently regulate private wells should receive funding for the testing of these wells.

- Establish more effective regulation and education with respect to harmful products used on the border – foods, cleaning agents, pesticides, cosmetics, etc. Residents must be educated about potential health effects from contaminated foods and common household products, especially with regard to hazardous products obtained from Mexico. Products from food containers, medicines, acne cream, to pesticides have all been shown to contain dangerous levels of lead, mercury and methyl parathion, all of which are known human toxins and responsible for numerous health effects in many border residents.

**School officials are essential partners in community-based projects to safeguard children's environmental health.**
*Source: Photo courtesy of PAHO/Amando Waak.*

## *Where Children Play*

- Remove chromate-copper-arsenic (CCA) treated playground structures and other harmful materials from areas children frequent. Several parks and playgrounds in the border area have wooden play structures treated with wood preservatives that use arsenic and chrome, both of which are carcinogens. Although some states maintain a funding program for replacing dangerous playground equipment, many states do not have any funding available to make playgrounds safer.

- Assess children's aquatic recreational activities, conduct water quality tests to determine whether the sites are polluted, and take appropriate actions. Children are naturally drawn to bodies of water. Because of inadequate treatment of wastewater, however, children in portions of the border region may experience a risk of exposure to harmful contaminants. Irrigation canals, stagnant ponds, and stormwater drainage that can contain raw sewage or garbage are sometimes used for playing by low-income children. Potential dangers should be identified and explained to children. Funding the construction of low-cost public swimming pools in population centers that do not have access to safe places to swim may be an effective means of protecting children's health in some locations; however, it may create new risks if the pools are not adequately designed, built or managed.

- Provide additional safe childcare facilities and play areas for children. The Board commends local businesses that already currently provide safe spaces for children as benefit to their employees. The Board encourages others to consider the safety and well-being of their employees' children while their parents are at work. In fact, many businesses have found that it makes good business sense to do this, by reducing lost workdays attributed to sick children.

- Make paving roads near children's playgrounds a top priority. Unpaved roads and barren fields are subject to high dust levels when traffic or wind re-suspends dust particles. To reduce the levels of PM the roads located nearest schools should be paved.

## *Where Children Go to School*

- Educate children about the importance of personal hygiene and improve their access to personal hygiene products. Hand-washing is an essential tool for reducing a wide range of infectious diseases and is a cornerstone of public health. Some schools in the border region do not provide adequate facilities for personal hygiene, notably hand-washing facilities. For schools in areas without access to sufficient supplies of clean water, the Board encourages innovative ways to promote and encourage personal hygiene, including dispensing alcohol gel.

- Investigate and eliminate possible barriers to border communities' access to U.S. EPA's Clean School Bus USA Program funding. California's adoption of stringent restrictions on school-bus idling at bus stops and on school campuses may be a useful model for other border states to consider (http://www.arb.ca.gov/toxics/sbidling.sbidling.htm). Children's exposures to diesel exhaust while traveling to school and while at school can be markedly reduced through use of lower-emitting school buses and the placement of limits on bus idling time.

- Continue and expand appropriate Integrated Pest Management (IPM) programs to schools throughout the border region. Several schools in the border region continue to use high-risk pesticides and hazardous cleaning agents. There are better and safer alternatives that can be promoted through the IPM, and some states have already adopted IPM practices that can serve as models for the region. Educate staff as well as students about safe use of pesticides, providing them tools or alternatives as appropriate.

- Improve indoor air quality (IAQ) in schools. Many schools in the border region currently have poorer IAQ than exists outdoors, as a result of construction materials, off-gassing from furniture, carpeting, wall coverings, poor ventilation, teaching supplies/materials, and classroom pets. The Board recommends that states promote the use of EPA's Asthma IAQ Tools for Schools to improve air quality for existing schools. The Board further recommends that California's Collaborative for High Performance Schools should be examined as a potential model for future construction of new schools.

- Identify deficiencies in water infrastructure at individual schools and take appropriate action. Communities could emulate Water For People in Arizona, a nonprofit group of volunteer engineers and water professionals, which installed and repaired water fountains at a school in the border community of Agua Prieta, Sonora. Health-related infrastructure deficiencies at schools should be considered priority projects for EPA, SEMARNAT, BECC, NADBank and other institutions that work on both sides of the border.

**Recommendation 4: Actions for All Age Groups**

- Continue to support border-region environmental infrastructure projects, called for by the Board in its previous reports, that benefit all age groups.

During the past several decades, many environmental projects and partnerships have been undertaken that have been designed to improve the quality of life for all border-region inhabitants, not just its children. One of the groups that may have especially benefitted is older adults, who also are more susceptible to environmental health hazards. These projects and partnerships address air and water quality, treatment of wastewater, and treatment and disposal of hazardous wastes. Previous annual reports of the Board have summarized many of these efforts, encouraged their continuation, and, in some instances, proposed additional or alternate approaches.

Although border-region children are not an explicit category of beneficiaries for these "age-neutral" projects, it would be remiss on the part of the Board to submit a set of recommendations that omitted the critical need to continue moving forward on this broad infrastructure work.

## *Water Quality/Wastewater*

One of the greatest environmental threats to children's health is contaminated water. Ingestion of water contaminated with bacteria, parasites or viruses can cause diarrhea and more serious illnesses. Children are more susceptible than adults to the debilitating dehydration caused by severe diarrhea. On a global basis, the Third World Academy of Sciences, based in Trieste, Italy, has calculated that waterborne diseases kill more than 6 million children each year. Providing safe drinking water and improved wastewater treatment is perhaps the greatest way in which children's environmental health can be improved along the U.S.-Mexico border.

**Historically, the border region has been seriously underserved with respect to potable water supply and wastewater infrastructure.**
*Source: Photo courtesy of Jeffry Scott.*

Water supplies in the region often end up being a shared resource, with joint strategies for their effective management a must. Historically, inadequate resources have resulted in this region being seriously underserved with respect to potable water supply and wastewater infrastructure. On the U.S. side of the border, small towns and colonias (home now to more than 400,000 people in Texas and New Mexico) have had the least of these services. On the Mexican side of the border, the lack of resources has affected even the larger cities.

In numerous Mexican cities, insufficient sources of revenue have resulted in nonexistent or inadequate treatment of wastewater. According to the 1997 U.S.-Mexico Border Environmental Indicators report, the portion of the population with wastewater sewer service in some major Mexican border cities varied from 39 percent in Ciudad Acuña, Coahuila, to 81 percent in Nogales, Sonora (Ciudad Acuña obtained a new wastewater treatment plant in 2000, but not all of its wastewater is collected for treatment). Untreated or poorly treated wastewater often affects not only the home community (which on the Mexican side may not have any drinking-water treatment) but also finds its way into the waterways shared with other cities as well as across the border. For instance, Mexicali's discharges of wastewater into the New River, which flows northward

through Imperial County, California, typically contain millions of counts of fecal coliforms per 100 milliliters (ml) of water, far exceeding the U.S. standard of 400 counts per 100 ml. Similar infrastructure deficiencies exist in other border communities, causing transboundary impacts to water resources, sensitive habitats and public health.

The creation of the BECC and NADBank in the mid-1990s provided a boost to meeting water infrastructure needs. Together, these institutions have become the largest single source of design assistance and funding. A significant majority of the funds they have dispensed has been grant money channeled through the Border Environment Infrastructure Fund (BEIF). The BEIF, in turn, comes entirely from U.S. congressional appropriations to the EPA but is managed by NADBank.

### *Projects and Partnerships Related to Water*

Funding for local wastewater treatment projects (loans, and in some cases, grants) has become available in recent years from federal agencies in both the U.S. and Mexico, as well as from some state agencies.

- **North American Development Bank (NADBank)** – Through June 2003, NADBank's funding (grants and loans) exceeded $600 million for 61 border infrastructure projects, which includes funds spent on infrastructure projects in Mexico's border region. NADBank financing of U.S. projects has been $305 million. For Mexican projects, the NADBank had provided a total of $205 million for 15 wastewater projects in the Mexican part of the border region.

- **U.S. Department of Housing and Urban Development (HUD)** – At the U.S. federal level, HUD has provided $10 million annually to colonias from its Community Development Block Grant (CDBG) program, and the Department of Agriculture is providing about $25 million a year to fund water and wastewater projects.

- **New Mexico Environment Department (NMED)** – NMED, with a $20 million grant from U.S. EPA, distributes funds to local governments for sewer and wastewater-treatment projects.

- **Texas Water Development Board (TWDB)** – TWDB provided grants and loans to sponsoring local governments to provide water and wastewater service for colonias. Much of this funding came from a $250 million bond issue that has now been fully expended.

### *Air Quality*

Along with providing safe drinking water and wastewater sanitation, any action taken to improve air quality in the border region is another significant step to better environmental health conditions. A 1997 study in the Paso del Norte region by the Centers for Disease Control and Prevention and several groups had startling findings: Even when the levels of particulate matter were low during the study period, there was a significant association between asthma-related emergency room (ER) visits of children ages 1-17 and levels of particulate matter two days prior to the ER visit (Rebecca Hart, et al. Date unmarked. *Ambient air quality and acute pediatric respiratory illness in the Paso del Norte airshed.* U.S. Department of Health and Human Services).

Government agencies, often with the advice and even hands-on assistance of non-governmental organizations (NGOs), have designed and implemented numerous programs and projects to improve air quality. Air movement does not respect national boundaries, and many of these projects have been in specific airsheds where actions need to be taken on a binational basis in order to improve air quality for both U.S. and Mexican border residents. The good news is that some geographical areas have enjoyed important success. In El Paso, most notably, measurements of ambient concentrations have shown significant improvement for all three of the pollutants for which the area has been in nonattainment of federal standards: ozone, particulate matter, and carbon monoxide. The problems have been more stubborn in other parts of the region, and the implications of population and economic growth, including recent and planned new power plants, could create an even more serious challenge.

Data indicate that the number of power plants in the U.S.-Mexico border region will grow by more than 400 percent between the years 2001 and 2011. Power plants, as stationary sources of particulate matter and precursors to ozone, will add to the existing pollution that exacerbates asthma in children. Current projections (SCERP Monograph 7) show that the states of Tamaulipas and Texas, as well as California and Baja California, will be prime areas of growth. Sister cities like El Paso-Ciudad Juárez and regions like the Imperial Valley-Mexicali region and the Lower Rio Grande Valley may experience elevated levels of these pollutants as a result of power-plant construction in these areas. To reduce the level of air contaminants, strategic planning and proper management of emissions need to be addressed.

## *Projects and Partnerships Related to Air*

Previous annual reports of the Board have addressed many of the efforts being undertaken with respect to air pollution. This subsection will highlight selected new projects or approaches.

- **Cross-border air-pollutant trading** – This new environmental management tool is being tested in the Paso del Norte air basin (El Paso/Ciudad Juárez/Doña Ana County). In 1999 and 2001, the Texas legislature authorized such trades to satisfy state emission reduction requirements on a case-by-case basis. In 2003, El Paso Electric (EPE) used this authorization to meet part of its obligation to reduce NOx emissions at its power plants in El Paso by funding the construction of five environmentally-friendly brick kilns in Juárez and demolishing the same number of older, highly-polluting kilns. The National Border Technology Partnership Program of the U.S. Department of Energy (DOE) is training kiln operators to operate the new kilns. Under the auspices of the November 2002 "Border Air Quality Strategy," regional stakeholder groups in the Paso del Norte air basin are currently reviewing this experience for the purpose of proposing an optimal technical, legal, and institutional framework for successful cross-border emission trading and undertaking a pilot emissions trade.

- **North American Development Bank (NADBank)** – NADBank has infused some new money into the efforts of local communities to address the historical problem of unpaved roads. On the Mexican side, road-paving programs have begun in Ciudad Juárez, Agua Prieta, and Baja California. In January 2003, NADBank approved its first two loans for street paving in Ciudad Juárez (which will also reduce PM10 in El Paso) and in Agua Prieta (which will benefit Douglas). In addition, in recent years, Ciudad Juárez has initiated a program to pave more of its main thoroughfares. Finally, NADBank approved its third street-paving project in April 2003, approving a loan for a Baja California project aimed at roads in Mexicali (which will benefit Imperial County), Tecate, and Tijuana.

- **California Air Resources Board (CARB)** – To guard against the illegal entry, sale and operation of non-complying vehicles/engines within California, CARB issued regulations that include an enforcement program administered on two fronts: in-use heavy-duty diesel vehicle enforcement, and programs to address all other on-road and non-road mobile sources.


**EPA has produced a brochure designed to help workers protect their children from pesticides brought indoors on shoes and clothing.** *Source: U.S. EPA.*

Heavy-duty diesel-powered vehicles produce about 30 percent of the oxides of nitrogen and 65 percent of the toxic particulate emissions attributed to motor vehicles in California. To reduce excessive smoke from heavy-duty diesel vehicles, CARB staff performs smoke opacity tests at locations throughout the state, including two busy border ports of entry (Otay Mesa and Calexico). During the first three and a half years (1998-2001) of smoke opacity testing, nearly 5,500 inspections at border stations resulted in an 11.9 percent failure rate, compared to a 7 percent failure rate statewide. Arizona also has a smoke inspection program.

California also partnered with the Municipality of Tijuana to develop pilot programs for vehicle and truck emission testing in the Tijuana metropolitan area. Training for these programs is being incorporated into some of the technical colleges in Tijuana, Ensenada and Calexico. California donated and installed test equipment. Technicians working for the Municipality of Tijuana, trained by CARB, will test all city-owned vehicles, including passenger cars, light- and medium-duty trucks, and heavy-duty diesel trucks and buses. If the program is successful, the Municipality of Tijuana will implement smog checks citywide.

### *Next Steps*

- Ensure that the budget for the NADBank's grant program (the BEIF) in FY 2005 and following years is raised to $100 million from its FY 2004 amount of $50 million.

- Allocate additional monies to fund training, inspection and maintenance of wastewater and water treatment plants so the money previously invested in construction continues to achieve objectives.

- Heighten public awareness of the importance of protecting source waters (groundwater and surface water) used for drinking water.

- Because it is unlikely that sufficient financing will be available to meet all water infrastructure needs, set up mechanisms to explore and test inexpensive, low-technology sustainable solutions to water quality and wastewater treatment challenges faced by border residents. Fund the deployment of those that prove successful. Since it is unlikely that sufficient financing will be available in the near future to meet all the needs, especially on the Mexican side, other options must be considered, especially in rural areas remote from water service. Examples of more affordable appropriate technologies include aerated lagoons, constructed wetlands, agricultural application of partially treated wastewater, and other appropriate technologies (SCERP Monograph 2).

The 2002 Safe Drinking Water report of the Third World Academy of Sciences also provides examples of inexpensive and low-tech but effective ways to disinfect water for drinking and provide wastewater treatment, such as exposing water for drinking in clear PET (soda) bottles to sunlight for six hours or more, which kills pathogens contaminating domestic water. Case in point: a two-step aerobic process for treating household sewage being used in Chile. The wastewater passes through a filter built of large stones, topped with smaller stones topped with gravel, followed by a layer of sawdust. Above this is placed 20-30 centimeters of humus containing microorganisms and 5,000-10,000 earthworms per square meter. Water exiting this biofilter is completely clear. It can then be treated with sunlight, chlorinated, or treated with higher-technology UV light to reduce microbial load. The system is inexpensive to build and maintain, can treat up to 1,000 liters per day per square meter, and is also being used at many schools.

- Provide funds to investigate the potential uses and implications of cross-border air pollution trades.

- Encourage and assist increased real-time public notification of air pollution levels in U.S. border cities that have problems partially related to binational airsheds but which do not by themselves meet the population thresholds currently triggering required publicity.

- Develop and maintain an electronic system of tracking hazardous waste in collaboration with the Mexican government. EPA no longer maintains the HAZTRAKS database, which was used for several years to monitor transboundary movement of hazardous waste from Mexico to the United States. HAZTRAKS had been used for enforcement purposes and had been touted by the United States as the tool to ensure that waste generated in Mexican maquiladoras would be returned to the U.S. With the demise of HAZTRAKS, the Board is concerned about the final disposal of wastes generated by maquiladoras in Mexico, which have a very limited number of disposal sites.

# Business Report

## Meetings

### *2003 Meetings*

The first border-community meeting during 2003 took place April 9-10 in Deming, New Mexico, at the Mimbres Valley Special Events Center. Deming Mayor Samuel Baca gave opening remarks, followed by presentations from guest speakers on two topics: transboundary groundwater issues and innovative environmental technologies. Public attendees and speakers represented the following groups: Utton Transboundary Resource Center - University of New Mexico School of Law; New Mexico Office of the State Engineer; New Mexico Environment Department; City of Puerto Palomas de Villa, Chihuahua; City of Deming; Sandia National Laboratory; Environmental Defense Fund; New Mexico State University Southwest Technology Development Institute; Southwest Desert Sustainability Project; and the Gila Resources Information Project.

The second meeting, in Del Rio, Texas, took place July 30-31 at the Del Rio Civic Center. The meeting focused on the interplay between environmental infrastructure and economic viability of rural communities. Board member and Mayor of Del Rio, Dora Alcala, officially welcomed the Board. Next, speakers presented success stories and challenges based on the environment and economy theme. Speakers included senior officials from the Laughlin Air Force Base Restoration Board, Alcoa Fujikura de Mexico, representatives from the Nature Conservancy, the Director of Public Works from Eagle Pass, and other area organizations. Public attendees included members of the Border Patrol, managers from the City of Del Rio landfill and its fire and rescue team, and several concerned citizens from the neighboring Sister City, Ciudad Acuña.

The third and final border-community meeting for 2003 was held in Imperial Beach, California, October 22-23, at the Dempsey Holder Safety Center. The first day began with greetings from Mayor and Board member Diane Rose, followed by a series of speakers on the topic of Binational Cooperation as it is manifested along the California-Baja California section of the border. Speakers included senior officials from the City of San Diego, Sony de Tijuana Este, the San Diego Baykeeper, Ecologia de Baja California, and other groups. In addition, the Board held a two-hour Joint Session with its Consejo counterparts. The four Consejo participants included the following: M.C. Norma Mota, Presidenta, Consejo Consultivo para el Desarrollo Sustenable (CCDS) NE (North East President); Antrop. Rene Cordoba, Consejero, NO CCDS (North West Member); Quim. Andres Ochoa, Consejero, NE CCDS (North East Member); and Arq. Oscar Romo, Representante del CCNDS (Member of the National Consejo). During its business meeting on the second day, the Board determined the locations and dates for its three meetings during 2004 and also decided upon the theme for its Eighth Report to the President and Congress: Water.

Besides these three border-community meetings, the Board also met in February in Washington, D.C., for a Strategic Planning Session. As snowstorms blanketed the area, Members went to extra lengths to ensure that the meeting still took place and was productive. A small number of Members managed to overcome travel barriers to actually be at the table, while a number of others participated by telephone. The Border Forecast Session Expert Panels had to be canceled, but the Strategic Planning Session itself and the Business Meeting went on as planned. One of the Session's highlights was a visit from then-EPA Administrator Christie Todd Whitman, who dropped by on the second morning to thank the Board for its good work.

### *Upcoming Meetings*

The Board will meet three times during 2004. The first meeting will take place February 24-25 in Washington, D.C. The next meeting will be in McAllen, Texas, and is scheduled for June 9-10. The final meeting of the year will be in Douglas, Arizona, October 27-28.

## Membership Changes

### *Non-Federal Members*

Five new non-federal members were appointed during 2003: Amanda Aguirre of the U.S.-Mexico Border Health Commission, Yuma, Arizona; Dora Alcala, Mayor of Del Rio, Texas; Paul Ganster, Director for Regional Studies of the Californias at San Diego University; Kenneth Ramirez, Partner at Bracewell & Patterson, Austin, Texas; and Douglas Smith, Director of Corporate Environment, Safety, and Health for Sony Electronics, San Diego. In addition, two non-federal members were re-appointed for an additional two-year term: Diana Borja, Director of Border Affairs for the Texas Commission on Environmental Quality (TCEQ); and Jerry Paz, Vice-President of Molzen-Corbin & Associates, Las Cruces, New Mexico.

Besides these changes, the terms of three non-federal members ended: Irasema Coronado, Professor of Political Science at the University of Texas at El Paso; Susan Kunz, Environmental Health and Tribal Consultant, Tucson, Arizona; and William G. Fry, Vice President of Quality Assurance & Environmental Affairs for H-E-B Grocery Company, San Antonio, Texas. In addition, the term of Board Chair Placido dos Santos was extended for one year.

### *Federal Members*

Federal membership changes during 2003 included the following: International Boundary and Water Commission (IBWC) U.S. Commissioner and Board member Carlos Ramirez resigned; Debra Little temporarily became Acting U.S. Commissioner; and, at the end of the year, Arturo Duran was designated as the new U.S. Commissioner. In addition, three federal Board members named official Alternates during the year. Board member Richard Walling from the Department of Health and Human Services named Thomas Mampilly; IBWC U.S. Commissioner Carlos Ramirez named James Stefanov; and Department of Agriculture member Rosendo Trevino named Manuel Ayala.

Year's end saw the appointment of Linda Lawson, Director of Safety, Energy and the Environment for the Department of Transportation (DOT), to the Board. Ms. Lawson was appointed by DOT Secretary Norman Y. Mineta.

## Publications

### *Sixth Report*

**Board Chair Placido dos Santos presents the Board's Sixth Report to the President and Congress to James Connaughton, Chair of the Council on Environmental Quality.**

Board Chair Placido dos Santos and Designated Federal Officer Elaine Koerner officially launched the Board's Sixth Report to the President and Congress on April 29 at Border Institute V in Rio Rico, Arizona, sponsored by the Southwest Center for Environmental Research and Policy (SCERP). The Sixth Report advises the President and Congress to take action in four areas of border-region environmental policy: water resources, power plants, human health, and natural resources conservation. To protect the region's water resources, the Board's advice is to promote binational cooperation on using a watershed approach and to initiate a border-wide groundwater assessment program. For power plants, the Board recommends pursuing arced-based emission caps and focusing on alternative sources of energy. To improve human health, the Board points to filling in data gaps in existing databases and stepping up the pace for improving the environmental infrastructure in the region. And to conserve natural resources, the Board recommends fostering a greater multidisciplinary approach and building coalitions. Finally, for all four areas, the Board emphasizes increased public education and awareness.

### *Comment Letters, Round Up*

As it has in recent years, the Board issued several Comment Letters during 2003 in addition to its annual report to the President and Congress. These Comment Letters enable the Board to voice its views on issues that may arise during the year in a timely fashion. The first letter, drafted in May, made recommendations on the budget appropriation for the Border Environment Infrastructure Fund (BEIF)/ Border Water Infrastructure Fund (BWIF). The second Comment Letter acknowledged the efforts of several organizations involved in resolving the issues surrounding the Nogales International Wastewater Treatment Plant *(see full text of letters, which follows this section)*.

The Board also continued to publish a monthly e-mail newsletter called the Round Up. Each issue contains three sections: an update on Board activities; local, regional, and national news affecting the border-region environment; and a calendar of relevant upcoming events. Interested members of the public are invited to subscribe.

## Impact of Board Recommendations


**The Board continues to meet in border communities to hear first-hand the concerns and priorities of local residents. Its meeting in Del Rio, Texas, took place on July 30-31, 2003.**

Several meetings with senior Administration officials during the year served as indicators that the Board's voice is being heard. First, during the Board's Strategic Planning Session on February 19 in Washington, D.C., former EPA Administrator Christie Todd Whitman was in attendance for a portion of the morning. She expressed appreciation for the Board's work and its role in border-region environmental policy making. In addition, on June 11, Board Chair Placido dos Santos and Designated Federal Officer Elaine Koerner met with Council on Environmental Quality Chair James Connaughton, presenting him with a copy of the Board's Sixth Report.

The Board also continued to engage in dialogue with key border-region institutions. For instance, it was specifically cited as a partner in the Border 2012 program framework document, and Chair dos Santos was invited to brief participants on Board activities at the first Border 2012 National Coordinators' Meeting in Matamoros in December. In addition, as the Border Environment Cooperation Commission (BECC) - North American Development Bank (NADB) business process review got under way at the end of the year, Board members were sought out for input into the review process.

Outreach remained strong, as thousands of copies of the Sixth Report were distributed throughout the year. Recipients included senior-level Administration officials and Congressional representatives as well as policy makers and interested members of the public throughout the border region. In some cases, Board members held one-on-one briefings or briefed groups at meetings, while in other cases the Sixth Report was distributed in bulk at events. Examples of outreach events included the following: the annual border-region NGO event called Encuentro Fronterizo; Border 2012 Regional Workgroup meetings; the annual U.S.-Mexico Chamber of Commerce Hill Conference in Washington, D.C.; the Border Counties Coalition annual conference; and the U.S.-Mexico Border Health Commission Promotores Awards Ceremony.

Even while feedback from these activities suggested that the Board was making an impact, Board members also sought to establish more formal means of measuring the Board's effectiveness. To begin the process, during its Strategic Planning Session in February, Members reassessed the committee's Vision and its Work Plan, using its mission as the foundation for discussion. Then, during its meeting in Del Rio, Texas, in July, the Board set aside a portion of its business meeting to begin developing both quantitative and qualitative measures, what it called "Indicators of Effectiveness." Quantitative indicators raised as possibilities included numbers of meetings, reports distributed, and members of the public who participate in regional meetings. Qualitative indicators, it was determined, were more difficult to capture. However, some examples could include the quality and usefulness of the annual reports; the effectiveness of the Board in advising the Administration, Congress, and communities about environmental and infrastructure issues of the border region; impacts of the Board's recommendations on policy over the medium and long term; and awareness of key border issues among the groups with which the Board is in communication.

**The Board's third meeting of the year took place in the border community of Imperial Beach, California on October 22-23, 2003.**

Several practical approaches were suggested as starting points for measuring effectiveness: more systematic collection of specific quantitative indicators such as the number of copies of annual reports distributed; documentation of specific feedback from Congress, the Administration, and border communities; tracking of mentions of Board activities in the media; and more systematic collection of qualitative data that reflect the effectiveness of the Board, including briefings of decision makers and the effect of Board recommendations on administrative and legislative policy.

## About the Board

The Good Neighbor Environmental Board is an independent U.S. Presidential advisory committee that operates under the Federal Advisory Committee Act (FACA). Its mission is to advise the President and Congress of the United States on "good neighbor" environmental and infrastructure practices along the U.S. border with Mexico. The Board does not carry out border-region environmental activities of its own, nor does it have a budget to fund border projects. Rather, its unique role is to step back as an expert, nonpartisan advisor to the President and Congress and recommend how the federal government can most effectively work with its many partners to improve the environment along the U.S.-Mexico border. Under Presidential Executive Order, its administrative activities were assigned to the U.S. Environmental Protection Agency (EPA) and are carried out by the EPA Office of Cooperative Environmental Management.

Membership on the Board is extremely diverse. It includes senior officials from a number of U.S. federal government agencies and from each of the four U.S. border states – Arizona, California, New Mexico and Texas. It also includes representatives from the tribal, local government, non-profit, ranching and grazing, business, and academic sectors. The Board also maintains dialogue with its counterpart Mexican environmental agency advisory groups, the Consejos Consultivos para el Desarrollo Sustenable (CCDS), referred to as Consejos, to help ensure that it remains informed about issues on the Mexico side of the border.

The Board meets three times each calendar year in various U.S. border communities and in Washington, D.C. Its advice is submitted to the U.S. President and Congress in the form of annual reports that contain recommendations for action. These recommendations are submitted after consensus is reached across the entire membership. They are shaped by the combined expertise of the Board members, by the Board's ongoing dialogue with its Consejo counterpart groups, and by the speakers and concerned citizens from both sides of the border who attend its meetings in border communities. The Board also occasionally issues Comment Letters during the year to provide input on timely topics. One of the most frequently recurring themes in its advice is that support for cross-border cooperation is essential if sustained progress is to be made on environmental issues along the U.S.-Mexico border.

All meetings of the Good Neighbor Environmental Board are open to the public. For more information, see the Board website at www.epa.gov/ocem or contact the Designated Federal Officer, Elaine Koerner, at (415) 972-3437.


## *Note of Thanks*

*In addition to the Board Members, Alternates, and Resource Specialists listed in the Membership Roster for 2003, the following individuals from the following organizations also served on the team of their respective Board Member and contributed to this report: Arizona Department of Environmental Quality - Michele Kimpel-Guzman, Edna Mendoza and Gerardo Monroy; California Environmental Protection Agency - Melanie Marty and William Vance; Texas Commission on Environmental Quality - Sue Bumpous, Steve Niemeyer, Janet Pichette, and Ross Pumfrey; and U.S. Environmental Protection Agency - Martha Berger, Elizabeth Blackburn, Norman Calero, Evelyn Daniels, Bill Jones, Megan Moreau, and Surabhi Shah.*

*The Board also appreciates the ongoing support of EPA staff at Headquarters and in Regions 6 and 9 for meeting logistics and other administrative activities, especially EPA's border offices in San Diego and El Paso.*

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May 7, 2003

The President
The Vice President
Speaker of the House
Washington, D.C. 20500

Re: Budget appropriation for the Border Water Infrastructure Fund (BWIF) and Border Environment Infrastructure Fund (BEIF)

Dear President Bush,

The Good Neighbor Environmental Board (GNEB) strongly urges the incorporation of at least $100 million in the FY2004 budget of the U.S. Environmental Protection Agency's Border Environment Infrastructure Fund (BEIF), also known as the Border Water Infrastructure Fund (BWIF). We are expressing our view at this early stage of the FY2004 budget process because we are profoundly concerned about the budget reductions already decided upon for FY2003.

The GNEB understands that the Administration is contemplating a budget request of $50 million to the BWIF/BEIF for fiscal year 2004. This amount represents only half of what the program was originally intended to provide to border communities in appropriated grant funds. There is a clear need for BEIF funds in border communities. Many border environmental infrastructure projects have taken several years to reach a level of development where they are ready to be funded; many such projects await funding now and will not go forward unless BEIF monies are available.

The BEIF is a critical element that facilitates the work of the NAFTA-related institutions – the Border Environment Cooperation Commission (BECC) and the North American Development Bank (NADB) – that were created to address the chronic border environmental infrastructure deficit. At the same time, adequate BEIF funds are required to assure that the border does not suffer additional negative environmental infrastructure deficits due to increased NAFTA-related trade and commerce.

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655 15St. N W Suite 800
Washington, D. C. 20005* (T) 202-233-0090 *(F) 233-0070

According to the December 2002 BECC/NADB Joint Status Report, to date, the BECC has certified 70 environmental infrastructure projects: forty-one in the United States and 29 in Mexico. NADB participation in these projects is estimated at US$550 million. Some of the projects that have been completed or are under construction with partial funding from BEIF include: water and wastewater treatment improvements in Brawley, California to reduce the incidence of raw sewage discharges into the New River – and thus the likelihood of infectious disease, first-time water and sewage hookups for Colonias residents in seven Texas border communities, a wastewater treatment system for Ciudad Acuna, Coahuila, that will serve 100% of the population and eliminate raw sewage discharges into the Rio Grande, construction of a wastewater collection system in Gadsden, Arizona that will provide new services to the entire community, and a wastewater treatment and collection system that will serve the residents of La Union, New Mexico.

The BECC, which approves projects for NADB funding, at this time projects water and wastewater needs for 2003 and 2004 in 28 communities will total $392 million – $168 million of which will come from the BEIF. Considering that at this time there remains uncommitted only $18 million of the approved funds for fiscal year 2003, approving $50 million for the program for fiscal year 2004 would represent a shortfall for project construction of approximately $150 million.

In addition, the "U.S.-Mexico Border Five-Year Outlook," a report produced for the NADB, estimated that border environmental infrastructure project costs for the period 2001-2005 will total at least $1.9 billion, and that $943 million in new grant funding from the BEIF will be needed to finance a portion of these costs.

Border communities often lack the resources necessary to provide the level of matching funds needed for project construction or to be able to repay a loan. The BEIF has been instrumental in making such funds available to these communities and ensuring that projects go forward. At a time when border environmental health is particularly critical to the overall health of the nation, it seems crucial to ensure that border communities are able to meet their extensive environmental infrastructure needs by fully funding the BEIF.

Finally, we believe that both BECC and NADB have become more operationally efficient and have made great strides in addressing the significant financial and technical challenges faced by border communities over the past few years. The level of funding made available for border projects should reflect this commitment made by both organizations to meet the needs of the border region in a more timely and efficient manner.

The GNEB is a federal advisory committee created to advise the President and the Congress about environmental and infrastructure issues and needs within the states contiguous to Mexico. It was created by the Enterprise for the Americas Initiative Act of 1992 (EAIA 7 U.S. Code Section 5404). Board membership includes representatives from federal agencies, the state governments of Arizona, California, New Mexico, and Texas, the business sector, the tribal sector, and community development, academic, health environmental and other non-governmental entities. A Presidential Executive Order delegates implementation authority to the Administrator of the U.S. Environmental Protection Agency (EPA). The GNEB operates under the Federal Advisory Committee Act (FACA) and meets three times annually at locations along the U.S./Mexico border.

Please note that the members of the GNEB representing federal agencies have recused themselves from endorsing this letter; all other members of the GNEB endorse this letter.

Sincerely,

Placido dos Santos, Chair
Good Neighbor Environmental Board (GNEB)

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September 5, 2003

City of Nogales, Arizona (City of Nogales)
Arizona Department of Environmental Quality (ADEQ)
International Boundary Water Commission (IBWC)
US Environmental Protection Agency (USEPA)
Border Environmental Cooperation Commission (BECC)
North American Development Bank (NADBank)

Re: Nogales International Wastewater Treatment Plant (NIWTP)

TO ALL CONCERNED:

Our board member, Mr. Edward M. Ranger, briefed the Good Neighbor Environmental Board on the NIWTP project during our meeting in Del Rio, Texas on July 30, 2003.

We applaud the efforts of all involved to resolve the issues surrounding the NIWTP as certified in order to protect and preserve the local environment as well as the fiduciary obligations of the stakeholders.

Specifically, we understand that:

- EPA is providing border infrastructure grant assistance to address the wastewater problems in Nogales;
- The City of Nogales and IBWC are negotiating towards a settlement of their lawsuit;
- The City of Nogales and the USEPA are working to close out a pending grant;
- The USEPA and the ADEQ seconded an engineer to the City of Nogales to assist in resolving the NIWTP issues, and
- The City of Nogales, ADEQ, USEPA and IBWC agreed to engage the U.S. Institute for Environmental Conflict Resolution to facilitate the negotiation process and to ensure that the NIWTP, as certified, satisfies the varied needs of the stakeholders.

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As a Federal Advisory Board charged with reporting to the President and Congress on environmental issues along the US-Mexico border, we hope that your hard work, good intentions and creativity will provide an example for other border communities in addressing pressing environmental problems in coordination with federal, state and local authorities.

We look forward to hearing of your progress during our next board meeting in Imperial Beach, California in October. In the meantime, if we may be of any additional assistance, please contact us at your convenience.

Please note that the U.S. Environmental Protection Agency, as a Board member, recuses itself from this letter due to its role as a partial funder of this project.

Sincerely yours,

Placido dos Santos,
Chair

# Good Neighbor Environmental Board

## Membership Roster

*2003*

*Note: List below includes all Members who served during 2003; asterisk (*) indicates individuals who completed their service during the year. See website for most recent membership list (www.epa.gov/ocem).*

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