HIDDEN DANGER

Environmental Health Threats in the Latino Community

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ABO NRDC

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FOREWORD

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Environmental Health Threats in the Latino Community

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As Latinos, the environment is part of our heritage. Our ancestors taught us to love, protect and cherish the environment. Activists like César Chávez and Dolores Huerta fought hard in the 1960s and 1970s so our families today can benefit from a stronger environment and better health. They spearheaded the ban of harmful pesticides and paved the way for a broad recognition of the importance of environmental justice in the Latino community.

But despite their efforts and efforts of those who continue to fight, Latino families today continue to bear the burden of poor environmental conditions. Our children disproportionately suffer from asthma as a result of air pollution, and pregnant women and the elderly suffer from lead and other contaminants in our drinking water. The reality is that our health continues to be inextricably linked to the quality of the environment.

Unfortunately, there is a lack of information available on the extent of the impact of environmental conditions on public health of the Latino community, and often, the information that is available is not easily accessible. This lack of access and lack of information makes it difficult to educate our communities, hard for us to fight for ourselves, and even more difficult to legislate policies that will make a real difference for our community.

Natural Resources Defense Council's new report, *Hidden Danger: Environmental Health Threats in the Latino Community,* is a good step toward getting the information we need to continue to fight for our health and our community. Together, with leaders from the Latino community and other public health and environmental groups, I hope that we can use this information to work toward a cleaner and healthier future.

Together, we can.

Hilda L. Solis, Member of Congress

Ranking Democratic Member, Environmental and Hazardous Materials Subcommittee, House Energy and Commerce Committee

Chair, Congressional Hispanic Caucus Health Task Force

The Natural Resources Defense Council gratefully acknowledges The California Wellness Foundation, the Richard & Rhoda Goldman Fund, and The Quixote

Pollution in the United States poses health risks for everyone, regardless of race, ethnicity, language, or country of origin. A large percentage of U.S. Latinos,

AIR POLL ION IN HEA IL HI PANIC AREA

Approximately 66 percent of U.S. Latinos—25.6 million people—live in areas that do not meet the federal government's air quality standards. These include the U.S.-Mexico border region, the Central Valley of California, and the cities of Chicago, New York, Phoenix, and Houston.

Air pollutants that stream out of power plants, vehicles, heavy machinery, and factories can lead to an increased risk of asthma, lung cancer, allergies, and chronic bronchitis and can even contribute to premature death. Air pollution takes a particular toll on pregnant women and young children, increasing the risk of complications during pregnancy and the risk of premature birth, low birth weight, and cardiac defects in babies.

cryptosporidiosis, respectively, than other ethnic groups. The health effects for many waterborne diseases include diarrhea, abdominal pain, nausea, and vomiting—and some waterborne diseases such as cholera and those caused by *E. coli*, for example, can be fatal to humans.

Bacteria and parasites are not the only contaminants in drinking water that cause illness. Arsenic, which occurs naturally in some rocks that dissolve into water supplies, is known to cause cancer of the bladder, lung, and skin and is suspected to cause cancers of the liver and kidney. Perchlorate, a component of rocket fuels and

The article explained how lead-contaminated candies manufactured in Mexico make their way into the U.S. market.

Another factor for increased risk of childhood lead poisoning among Latino immigrants, particularly those of Mexican origin, is the use of certain folk remedies. Such traditional remedies as *greta* and *azarcón*, which may contain nearly 100 percent lead and are often used to treat stomachaches, may expose children to dangerously high lead concentrations.

MERC R E PO RE

The harmful effects of mercury pose another health threat to Latinos. The major ways in which Latinos are exposed to mercury are by eating mercury-contaminated fish and by using mercury in religious ceremonies, cosmetics, and folk remedies. The problem of exposure is aggravated by a lack of Spanish-language educational materials about mercury's hazards and by many states' failure to provide warnings in Spanish about mercury levels in fish caught in local waterbodies.

Mercury accumulates in the body, where it remains for many months. Although mercury exposure can cause health problems for men and women of any age, women of reproductive age and children face the greatest risk. Mercury in a pregnant woman's body can affect the developing brain of the fetus. Children, whose brains continue developing until approximately the age of seven, can develop neurological and behavioral problems and learning disabilities from exposure to mercury. A nationwide study found that on average, Latino children have higher mercury levels in their bodies compared with non-Hispanic children.

Mercury is released into the air by power plants and chemical companies, falls into water, and accumulates in fish, including the canned tuna commonly bought in stores. Tests by the Food and Drug Administration and independent organizations have shown that the mercury levels in canned white (albacore) tuna are high enough that women of reproductive age should not eat more than one can every 10 days. Yet many mothers, particularly those who receive assistance from the Women, Infants, and Children (WIC) program, unknowingly put their children at risk by choosing tuna as an inexpensive, low-fat source of protein, because tuna (but not other types of fish or meat) is a WIC-eligible food. In 2002, for the first time, Hispanics made up the largest group of WIC participants; and according to a study in New York City, canned tuna is the most popular fish among Latinos.

Mercury-contaminated fish—which cannot be distinguished by taste, touch, sight, or smell—is not only purchased but also caught by recreational and subsistence anglers. Although government agencies test fish in many parts of the country, they rarely warn the Spanish-speaking community of the risks of eating contaminated fish. In New York, a study showed that Latino anglers ate more fish from contaminated waters and were less likely to be aware of health advisories than non-Latinos. A study of anglers in Santa Monica Bay found that only 58 percent of Latinos, versus 88 percent of non-Hispanics, had heard about fish advisories in their area.

Certain religious and cultural practices provide another route of exposure to mercury, which is sprinkled indoors by practitioners of *Espiritismo* and *Santeria* (religious traditions found most commonly among people of Puerto Rican and Cuban origin, respectively), and in the *Voodoo*

educate residents on how to reduce exposure to microbial and chemical contaminants in the water.

▶ The EPA should require public water systems serving an area where at least 10 per-

CHAPTER 1

INTRODUCTION

HIDDEN DANGER

Pollution in the United States poses health risks for everyone, regardless of race, ethnicity, language, or country of origin. A large percentage of U.S. Latinos, however, live and work in urban and agricultural areas where they face heightened danger of exposure to air pollution, unsafe drinking water, pesticides, and lead and mercury contamination. These hazards can cause serious health problems, including an increased risk of asthma and cancer; waterborne diseases such as giardiasis, hepatitis, and cholera; and neurological and developmental problems. The problems are compounded by several factors, including the following:

- Lack of data about environmental health risks to Latinos
- Lack of accessible, Spanish-language information on environmental issues and ways to protect against health risks
- Lack of access to adequate medical care
- Lack of government action to protect low-income and minority communities from environmental hazards

Exposure to pollution, combined with weak or nonexistent efforts to inform Latinos about and protect them from associated health hazards, contributes to a serious and growing health problem for Hispanic communities from coast to coast.

HERE LA INO LI E AND ORK IN HE NI ED A E

Latinos are the largest minority group in the United States. Nearly 40 million Latinos lived in the United States in 2002, making up 13.4 percent of the total U.S. population.[1] Latinos share common bonds of language, culture, religion, and history, and yet there is considerable variation in terms of self-defined ethnic identity. Some Latinos refer to themselves according to their country of origin—for example, as Mexican-Americans (or Chicanos). Others refer to themselves as Latinos or Hispanics, and still others simply as Americans.[2] The 2002 census defines a Hispanic or Latino person as "a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race."[3] In this report, the terms *Latino* and *Hispanic* are used interchangeably.

About two-thirds (66 percent) of U.S. Latinos are of Mexican origin, with people of Central and South American extraction accounting for another 14 percent. Slightly less than half (44 percent) of U.S. Latinos live in the West, 35 percent in the South, 13 percent in the Northeast, and 8 percent in the Midwest. Most Hispanics (91 percent)

C AR E. CH E : A PREEMINEN LA INO EN IRONMEN AL AC I I

In possibly one of the most important public marriages of civil and environmental rights, César E. Chávez led the fight of California and Southwestern farmworkers against injustices brought on by abusive employment practices and the dangers of pesticides. The son of a migrant farmworker, Chávez experienced the hardships of life in the fields at a time when workers had fewer rights than they have today. With his wife, he began teaching English to other farmworkers so that they could become American citizens. Then he organized voter registration drives and unionized farmworkers to fight for their rights, ultimately helping to form the National Farmworkers Union (now the United Farmworkers of America).

Chávez and other union members faced violence and jail sentences in their struggle for better pay and working conditions. Their sacrifices paid off in 1966, when growers and farmworkers reached an unprecedented collective bargaining agreement, which required growers to provide clean drinking water and protection against pesticides. Under Chávez's leadership, farmworkers also obtained higher salaries and worker's compensation benefits.

César Chávez continued working for farmworkers' rights until his death in 1993. His legacy lives on in the work of those who continue to fight to improve the lives of America's farmworkers.

Source: César E. Chávez Institute, San Francisco State University. Available online at http://www.sfsu.edu/~cecipp/cesar_chavez/chavezhome.htm.

was the third most important issue to registered Latino voters in California, after improving public education and reducing crime, according to a survey by the Latino Issues Forum in 1998.[8] Another survey of Latinos in California found that 85 percent are in favor of permanently protecting wilderness areas and wild rivers that are being threatened by development.[9] In 2000, a nationwide survey of registered voters found that 55 percent of Hispanics (versus 44 percent of the general population) said that reducing illnesses caused by environmental problems should be a top priority of the federal government. In addition, 62 percent of Hispanics said this issue should be a priority of their state and local governments.[10]

Latinos have also demonstrated their concern about environmental issues at the polls and elsewhere (see "César E. Chávez"). For example, in 2002 California's Proposition 40, the largest bond proposal for parks and open space in U.S. history, passed with the approval of 74 percent of Latino voters.[11]

Despite demonstrated interest among Latinos to preserve the environment and prevent harm from environmental health threats, policymakers and businesses are not addressing the serious environmental health hazards many Latinos encounter in their daily lives.

EN IRONMEN AL HEAL H RI K O LA INO

Although the Latino population is growing and becoming increasingly influential in public policy debates, many Hispanics live and work in places where environmental health hazards are most likely to be in evidence. Occupational and home exposures

include power plants and industrial facilities in or very close to Hispanic neighborhoods, pesticides in the fields where many Latinos work, and contaminated drinking water in heavily Latino areas of the country.

Agricultural Areas

Nearly 90 percent of U.S. farmworkers are Hispanic. In California, 91 percent of all hired farmworkers were born in Mexico.[12] Many of these men and women live and work in areas where exposure to pesticides is almost constant. They take in toxic pesticides at work when they spray fields and when they harvest crops in recently sprayed fields. Farmworkers and their families are also exposed to pesticides off the job because of pesticides drifting through the air; pesticide residues brought into the home on their skin, clothes, and shoes; and pesticide residues on the food they eat and in the water they use to drink and bathe.

Major Urban Areas

Heavily Hispanic neighborhoods are often located in industrial areas where pollutants are constantly poured into the air by factories and heavy traffic. Major highways on which polluting diesel trucks travel day and night often surround their neighborhoods. Exposure to this polluted air can cause lung cancer, asthma attacks, and premature death. One study estimates that a Hispanic child's chances of developing asthma are two and a half times as high as those of a non-Hispanic white child.[13]

Not only do factories pollute the air, but also many leave behind toxic waste that continues to expose nearby communities—often minority or low-income people—to dangerous chemicals long after the factories have shut down. The most polluted abandoned hazardous waste sites around the country are designated by the Environmental Protection Agency (EPA) for cleanup through the Superfund program. Cleanup of these sites is funded by a tax paid by chemical and oil companies. But in 1995, Congress allowed the tax to expire, and, as a result, the cleanup of as many as 522 Superfund sites could be scaled back or postponed, leaving many poor and minority communities exposed to serious health hazards. In areas with large Latino communities, underfunding jeopardizes the cleanup of many contaminated sites: 2 in Arizona, 37 in California, 24 in Florida, 17 in Illinois, 5 in New Mexico, 49 in New York, and 25 in Texas.[14]

U.S.-Mexico Border and Southwestern States

Water pollution also affects Latino communities across the country, particularly in impoverished areas along the U.S.-Mexico border, where contaminated drinking water is a serious problem. Pollutants in drinking water in southern and western

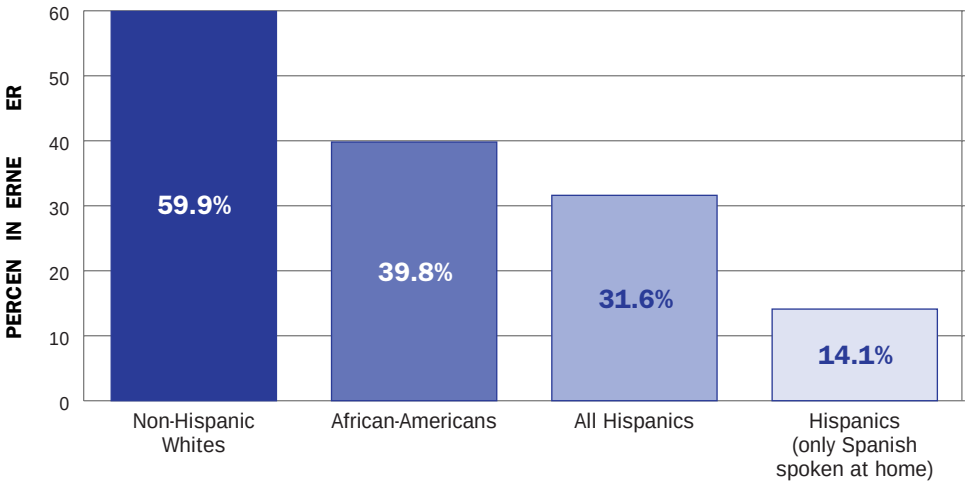
,owhecrW

The Particular Risk to Children

The combined effect of these environmental hazards is particularly serious for children. All children breathe more air, drink more water, and consume more food pound for pound than adults. The air intake of a resting infant is twice that of an adult under the same conditions; infants and children drink more than two and half times as much water daily as adults do as a percentage of body weight; children ages one through five eat three to four times more per unit of body weight than the average adult American; and the total area of skin that could be exposed to a chemical (by swimming or bathing in polluted water or rolling in dirt) is two and a half times as great per unit of body weight in the infant as in the adult.

A study published in the *Journal of the American Medical Association*, for example, found that Hispanic children "rank at or near the top of several unhappy lists": exposure to environmental toxins, poverty, lack of health insurance, low levels of education, and cultural and language barriers that affect their performance in school and limit their ability to achieve better living conditions as they grow into adulthood.[15]

FIG RE 1-2
I P G , 2001



To close this data gap, Congress should enact legislation that will require data collection and make progress toward improving the health of Hispanic children. Such laws include the Legal Immigrant Children's Health Improvement Act (H.R. 1689), the Health Care Equality and Accountability Act (S. 1833), and the Hispanic Health Improvement Act (S. 1159), all of which were introduced in Congress in 2003. And the U.S. Department of Health should require that the programs it operates or funds must collect race, ethnicity, and language data to detect disparities in ethnic and racial health care. In addition, the U.S. Department of Health, the EPA, and other federal and state agencies that conduct scientific studies involving health information should gather data on the race and ethnicity of their study populations. In this way, the data can be used to detect any special health patterns in different ethnic groups.

Lack of Accessible Information in Spanish

Despite the well-documented interest of the Latino community in the quality of our environment, most environmental information from federal, state, and local government and private nongovernmental groups is written only in English and is distributed through limited channels, leaving it beyond the reach of those with limited English skills. As government agencies increasingly distribute information over the Internet, a new barrier is created because only 31.6 percent of Latinos are Internet users (see Figure 1-2). Among Hispanics living in homes where Spanish is the only language spoken, the percentage is even lower: only 14.1 percent.[16]

Because environmental issues generally receive little coverage in most of the Spanish-language media, Hispanics are often left in the dark about environmental problems. Several grassroots organizations have been providing information to fill this gap for years, and other larger groups, including NRDC, are beginning to address this need. But there is still a large information gap that government and

Lack of Government Action

Air Quality

Air pollution threatens the health of many Americans and is a significant health

Valley in the worst classification: “extreme.” Rising temperatures due to global warming will continue to promote ozone formation and make it even more difficult to reduce ozone to healthy levels.

Major air pollution sources can be divided into three general categories:

- Power plants (particularly coal-fired power plants)
- Gasoline- and diesel-powered vehicles
- Industrial sources, such as factories, materials-processing facilities, refineries and other petrochemical operations, mining works, and shipping terminals

This chapter discusses all these major sources as they pose particular threats to Latino communities in the United States.

PO ER PLAN POLL ION

Of the three major sources of air pollution, coal-fired power plants are the biggest polluters. In addition to emitting large amounts of particulate matter, nitrogen oxides, sulfur dioxide, and carbon dioxide, power plants spew 50 tons of mercury into the atmosphere every year (see Chapter 6).

LATINOS AND ASTHMA

Nationwide, more than 2 million Latinos currently suffer from asthma symptoms. Researchers repeatedly link asthma and other respiratory diseases to air pollution, observing that when particulate matter—dust, soot, and smoke—increases, the number of asthmatic children admitted to emergency rooms increases. A recent survey of asthmatic Latino children in East Los Angeles, a neighborhood surrounded by freeways and trucking routes, showed that air pollutants were associated with the onset of the children's asthma symptoms. Heightened rates of asthma also affect children's health in other ways. For example, asthmatic children are more likely to develop bronchitis when exposed to air pollution at levels common in Southern California.

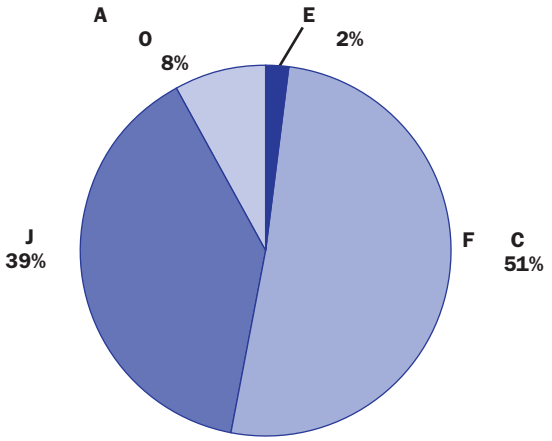
Although Latinos have lower asthma rates than whites or African-Americans on a national basis, studies conducted at regional and local levels reveal hot spots where Latinos have a higher prevalence of asthma and where they are at a much greater risk of being hospitalized or dying from asthma attacks. Whereas the average rate of asthma for all races nationwide is 7.1 percent, a study in the South Bronx area of New York City showed that 17.9 percent of Latino children had asthma compared with 8.2 percent of non-Hispanic white children and 11.6 percent of African-American children. A study in one area of Boston found asthma rates of 39.6 percent for adult Latinos, 39.1 percent for African-Americans, and 24.4 percent for non-Hispanic whites.

Nationally, Puerto Ricans have the highest asthma mortality rate of all ethnic groups, at 47.8 per million, compared with 14.7 per million for non-Latino whites and 38.1 per million for African-Americans. The difference in mortality rates between Latinos and other groups is most striking in the northeastern United States, where the annual asthma mortality rate for Latinos was 33.8 per million from 1990 to 1995, or 2.8 times the rate for non-Latino whites (12.1 per million) during the same period.

Worse still, these rates are increasing for Latinos. The annual asthma mortality rate among Latinos in Chicago increased from 14.3 per million in the 1990–1993 period to 25.7 per million in the 1994–1997 period. Whereas asthma hospitalizations of non-Hispanic white children in California decreased 32 percent between 1983 and 1996, asthma hospitalizations of Latino children *increased* 37 percent during that time, to a rate of 161 per 100,000. These hospitalization rates translate into costs of about $34.6 million per year.

Sources: H. Desqueyroux et al., "Short-term effects of low-level air pollution on respiratory health of adults suffering from moderate to severe asthma," *Environmental Research* 89(1)(2002): 29–37; G D'Amato et al., "Respiratory allergic diseases induced by outdoor air pollution in urban areas," *Monaldi Archives of Chest Disease* 57(3-4)(2002): 161–163; G. Norris et al., "An association between fine particles and asthma emergency department visits in children in Seattle," *Environmental Health Perspectives* 107(6): 489–493; R. Delfino et al., "Asthma symptoms in Latino children and daily ambient exposures to toxic and criteria air pollutants," *Environmental Health Perspectives* 111(4): 647–656; K. McConnell et al., "Air pollution and bronchitic symptoms in Southern California children with asthma," *Environmental Health Perspectives* 107(9): 757–760; American Lung Association, "Asthma trends 2003"; F.P. Perera et al., "The challenge of preventing environmentally related disease in young children: Community-based research in New York City," *Environmental Health Perspectives* 110(2): 197–204; A.A. Litonjua et al., "Race, socioeconomic factors, and area of residence are associated with asthma prevalence," *Pediatric Pulmonology* 28(6): 394–401; D.M. Homa et al., "Asthma mortality in U.S. Latinos of Mexican, Puerto Rican, and Cuban heritage, 1990-1995," *American Journal of Respiratory and Critical Care Medicine* 161(2 Pt1): 504–509; S.D. Thomas and S. Whitman, "Asthma hospitalization and mortality in Chicago: An epidemiologic overview," *Chest* 116(4 Suppl 1): 135S–141S; and R. Donoso and C. Reyes, "Taking Action: Confronting the Health, Social, and Environmental Factors Associated with Asthma in the Latino Community," *Latino Issues Forum*, p. 58. 2003.

FIG RE 2-2
E D (O_2) E , F C , J
C -F P P , N M , 2000



Sources: U.S. EPA, Emissions & Generation Resource Integrated Database, Version 2.01, 2003; and New Mexico Bureau of Geology and Mineral Resources, "New Mexico's Energy, Present and Future: Policy, Production, Economics, and the Environment, Decision-Makers Field Guide 2002, San Juan Basin," 2002.

Elevating the environmental health threat in this region is the forecast that the number of power plants in the U.S.-Mexico border region will grow by more than 400 percent from 2001 to 2011. Polluted areas in Tamaulipas and Texas, as well as California and Baja California, will experience the greatest increase in the number of power plants. Moreover, cities and regions such as El Paso-Ciudad Juárez, the Imperial Valley-Mexicali region, and the Lower Rio Grande Valley will see an increase in pollutants from additional emissions from the new power plants.

Despite the threat to public health from power plant pollution, current administration policies would effectively allow power plants to increase harmful emissions (weakening requirements that power companies install modern pollution control devices when they upgrade older, heavily polluting plants). A plan being developed by the EPA would also allow power plants to (1) trade credits for pollutant emissions, which potentially can create pollution hot spots and (2) release nearly seven times as much mercury pollution for 12 years longer than the current regulatory system, which would require the installation of maximum achievable control technology for mercury by 2007.[16]

EHICLE POLL ION

Engine exhaust from cars, trucks, and other vehicles is the leading source of pollution in most U.S. cities, including those where the vast majority of Latinos live and work. In all, 91.2 percent of Latinos live in urban areas, where the air is more likely to contain health-endangering pollutants.[17] The harm, however, is not limited to urban areas. Large numbers of Latinos living along or near the U.S.-Mexico border also face serious health risks from the stream of cars and trucks flowing through their communities (see "Health Risks from Global Warming in the Latino Community").

problems were taken to the emergency rooms of two hospitals in Ciudad Juárez. When maximum ozone levels rose by 20 parts per billion (ppb), the risk of emergency room visits for asthma increased by 17 to 37 percent, depending on how long the ozone concentration remained elevated. The study has identified an association between high ozone levels and asthma and respiratory infections, and particulate matter levels appeared to be associated with mortality from respiratory problems among infants from the poorest families.

Approximately 84 percent of the 662,000 tons of air pollutants released in the area in 1997 came from cars and trucks, millions of which travel through Ciudad Juárez to enter and leave the United States each year.[18] The commission's research raises the possibility that similar effects may be felt on the U.S. side of the border, especially given the increase in truck traffic since the North American Free Trade Agreement (NAFTA) went into effect in 1994. El Paso, Texas, was the port of entry for 47 million trucks and passenger cars entering the United States from Mexico in 1999, and that traffic has contributed to a serious pollution problem in the area: El Paso County fails to meet air quality standards for carbon monoxide, ozone, and particulate matter (see Table 2-1).[19]

One reason the problem is so severe is that Mexican trucks coming into the United States, which are generally older and more polluting, are not required to comply with the increasingly stringent emissions standards applied to U.S. trucks. Compounding this situation is an increase in the number of power plants and industrial polluters in the area, leading to serious air quality issues along the border.

ABLE 2-1
L P C A . .-M B F M N A Q
A P

/C	L P (N P)	C M	O ONE (1-H)	(8-H)	D	P M
A						
Cochise	36,134 (30.7)				●	●
Maricopa	763,341 (24.8)	●	●	●		●
Pima	247,578 (29.3)					●
Pinal	53,671 (29.9)			●	●	●
Santa Cruz	31,005 (80.8)					●
Yuma	80,772 (50.5)					●
C						
Imperial	102,817 (72.2)		●	●		●
Riverside	559,575 (36.2)	●	●	●		●
San Diego	750,965 (26.7)			●		
N M						
Doña Ana	110,665 (63.4)		●			●
El Paso	531,654 (78.2)	●	●			●
	3,268,177					

Sources: U.S. Environmental Protection Agency, *Green Book,* 2004. Available online at www.epa.gov/oar/oaqps/greenbk/, as updated in the Federal Register current as of May 5, 2004. U.S. Census Bureau, Census 2000, www.census.gov.

Traffic in New York City and Its Boroughs

Traffic-related pollution is a serious concern for Latinos in large urban areas. In New York City, all five boroughs fail to meet national standards for ozone, perhaps not surprising given the 1.8 million cars registered in the city and the significant commuter traffic.[20] Traffic from outside the city adds to the problem. Approximately 100,000 cars and trucks travel from New Jersey through Manhattan each day on their way to destinations in New York City and beyond.[21] The resulting volumes of traffic contribute to the New York City–Northeastern New Jersey metropolitan area's ranking as the second worst area for traffic congestion in the United States.[22]

Exposure to ozone and other asthma triggers released by motor vehicles could seriously affect the health of Latino residents. Latinos in New York City have the highest adult asthma rate of all ethnic groups, at 6.4 percent, compared with rates of 3.5 and 4.6 percent for whites and African-Americans, respectively.[23]

Transportation accounts for most urban air pollution, and that pollution causes serious health problems, as the residents of Hunts Point, New York, can attest. Heavy traffic is a major source of air pollution in this South Bronx community, which is home to a large commercial produce market. More than 20,000 trucks traverse the area each day, and this traffic is expected to increase with the relocation of a major fish market to Hunts Point.[24] Research has associated the community's unusually high concentrations of airborne particulate matter and elemental carbon (soot) with traffic, particularly truck traffic. Concentrations of these pollutants are 1.6 to 3 times as high in Hunts Point as in areas with lower traffic.[25] The pollution poses a serious health threat for residents, two-thirds of whom are Hispanic. The community's asthma rate has been as high as 12 times the national average.[26] Efforts by community groups to educate the public and obtain greater government involvement in asthma and pollution control have contributed to a decrease in asthma incidence and hospitalization rates, but this illness is still a significant problem. The adult asthma hospitalization rate is 7.3 times the national rate and hospitalizations among children are three times the national rate.[27]

Traffic in Arizona's Maricopa Count-tes0 0 6.5 -1.45 6spitTm0.eihe stion fic, par4spit[(7.3)-250

by two highways, the community has the highest asthma rates in the county, so high that asthma has become a part of daily life for many area children, who must be rushed to emergency rooms when the air quality is bad. The superintendent of the community's Roosevelt Elementary School District estimates that 25 percent of the district's students are asthmatic.

contain populations that are more than 31 percent minority, these 12 percent contained 21 percent of the facilities considered major sources of air pollutants.[31] At the local level, many predominantly Hispanic communities have grown in the shadows of smokestacks and surrounded by toxic waste dumps.

Latinos and other minorities have an elevated risk of suffering health problems caused by pollution because they tend to live and work in areas significantly affected by industrial emissions. In Los Angeles County, California, 60 percent of the people living within a half mile of the top 100 emitters of toxic pollutants are Latino, even though Latinos make up only 44 percent of the county's population.[32] Research in Southern California has connected minorities, including Latinos, to high lifetime cancer risks associated with toxics in their air and notes that companies commonly choose to locate their polluting facilities in low-income, minority areas (see "Better Breathing in Asthma Town").[33]

Port Pollution in the Bandini Community of Commerce, California

A prime example of polluting industries affecting low-income, minority communities is the Bandini neighborhood of Commerce, California—a neighborhood, 95 percent

Latino, in which 20 percent of residents live below the poverty line. The community is surrounded by a container train yard that serves the busy ports of Los Angeles and Long Beach. Diesel trucks shuttle between the two ports, spewing pollution into the air. In addition, the community's air is polluted by traffic along Interstate 710, various chemical plants, and an electricity-generating garbage incinerator.[34]

"Refinery Row" of Corpus Christi, Texas, Near Public Housing

The Refinery Row area of Corpus Christi, Texas, also exhibits some of these inequities. In the days of racial segregation, public housing was commonly constructed near industrial areas, without regard for the health of residents. These dwellings are in use to this day, occupied mostly by African-Americans and Hispanics, and are located in areas where refineries and chemical plants continue to release large amounts of toxics (see Figure 2-3). Even worse, industrial accidents have exposed residents to dangerous concentrations of chemicals on several occasions.[35] The areas closest to the plants range from 40 to 89 percent Latino, and the cancer rate here is 17 percent higher than in the rest of the city.[36]

The risks to children of air pollution from industrial sources are especially worrisome. A recent study of Texas counties with large numbers of refineries and chemical plants has found that minority children were the most likely to be affected by toxic emissions from these facilities (see "Houston Latinos Want Cleaner Air"). An astounding 40 million pounds (or 63 percent) of these emissions were released within two miles of a school. Although only 40 percent of Texas schoolchildren are Latino, a disproportionate percentage—54 percent—of them are affected by the emissions.[37] The pollutants

campaign to end the toxic assault. Years of lawsuits and advocacy were required before the government moved to curb the pollution.

The community's hard work paid off in several important victories: Port authorities stopped the use of the dangerous pesticide methyl bromide in the

hazards posed by conditions in their community, and ways to reduce their health risks, and these agencies should issue press releases in Spanish in areas with significant Latino populations.

► State and local governments should require air-polluting industries located in or around residential neighborhoods to assess, disclose, and act to minimize their environmental impacts; decisions regarding new sitings should facilitate the involvement of non-English-speaking community members.

WATER QUALITY

Access to clean water is something that most people in the United States take for granted. Nevertheless, thousands of U.S. residents become ill from water contamination each year.[1] According to the National Water Quality Inventory (2000), 31 percent of surveyed stream miles, nearly 48 percent of surveyed lakes, and 21 percent of surveyed estuaries were polluted. Moreover, federal data between 1997 and 2001 showed that 19 percent of community water systems, serving more than 3 million people, violated health standards.

Drinking water can contain microbes from human and animal waste, chemical pollutants including pesticides and volatile organic compounds, heavy metals such as arsenic and lead, and even chemical byproducts created by processes for disinfecting drinking water. This wide range of contaminants can cause an equally broad spectrum of adverse health effects, ranging from simple gastrointestinal illness to serious long-term effects, including cancer and developmental problems. Those most likely to suffer from diseases caused by contaminated water are people who do not have access to sanitary sewers; who live near chemical factories, landfills, hazardous waste sites, or large farms; and whose water supply depends on shallow wells or surface water sources that drain highly polluted areas. Many Latino communities in the United States fall into these categories, including Florida, the U.S.-Mexico border area, and western and southwestern states.

DRINKING A ER PPL IN LA INO COMM NI IE

Latinos living in urban areas with large-scale drinking water distribution systems are not free from worry about water quality. In a recent study of 19 U.S. cities, NRDC found that overall tap water quality varies widely from city to city. Some cities have excellent tap water, but in others, including some with large Latino populations—Albuquerque, Fresno, and San Francisco—water is sufficiently contaminated to pose health risks to vulnerable people.[2]

In 2000, the most recent year for which the Environmental Protection Agency (EPA) reported data, 31 drinking water supplies in Arizona were contaminated with more chemicals than the EPA health standards allow; moreover, 73 supplies were contaminated with bacteria in excess of the EPA standards, and 11 violated treatment standards for public health. In addition, more than 370 water suppliers in the state were in "significant violation" of federal lawi qO302.27e Uo(A)-ic5 of oh5PAcve

2004 that data quality is so poor that 35 percent of all health-based violations do not appear in the EPA database. The report concluded that the EPA estimates were based on incomplete information, and, contrary to the agency's claims, the EPA had failed

sources, Latinos are less likely to drink tap water and more likely to consume large amounts of bottled or vended water. Even Hispanics in areas without contamination problems often turn to bottled water products, believing, as many others do, that bottled water must be cleaner and safer than their tap water. The irony is that bottled water is subject to weaker regulations than tap water and in many cases may be nothing more than bottled tap water.

such as the Los Angeles Metropolitan Water District, have begun to reach out to

municipal wells. The TCE spread at least one mile wide and four miles long across southern Tucson, eventually resulting in a 24-square-mile Superfund site. An estimated 47,000 people living in the areas have consumed water contaminated with TCE. Initially, the predominantly Latino residents of Tucson's Southside area were not informed about the extent of contamination of their drinking water and the possi-

at 7 million or more per year, including 560,000 severe cases.[25] Two microscopic parasites—*Giardia* and *Cryptosporidium*—are among the most common causes of waterborne disease in the United States.[26] The largest outbreak in the United States of disease from these contaminants was in 1993 in Milwaukee, Wisconsin, when *Cryptosporidium* sickened 400,000 people and killed more than 100.

Nationwide, it is not known what percentage of those affected yearly by the microbial contamination of drinking water are Latinos, but data for Los Angeles County in 2001 demonstrated higher rates for giardiasis among Hispanics than among Asians and African-Americans.[27] In New York City, in 2001, Hispanics also had the highest rates of cryptosporidiosis, and ranked second, after white non-Hispanics, for *Giardia* infection.[28]

Figure 3-1 compares the rates of some waterborne illnesses in the United States. Rates of hepatitis A, salmonellosis, and shigellosis are higher for Hispanics than for other sectors of the population. The disparity in hepatitis A rates is particularly noteworthy: It is 2.7 times as high for Hispanics as non-Hispanics. Spread by drinking polluted water and eating food contaminated with feces, hepatitis A is an indicator of poor sanitation, a frequent consequence of the absence of piped water.

Waterborne Diseases Along the Border

Along the U.S.-Mexico border, the lack of reliable access to clean drinking water is a serious problem. Some 12 percent of the border population lacks access to potable

These sources may be polluted by pesticide-laden agricultural runoff, industrial pollution, and biological contaminants from septic tanks and household waste. Because of the lack of safe drinking water as well as inadequate wastewater collection and treatment, *colonia* residents are at high risk of contracting diseases such as giardiasis, hepatitis, and cholera. On the Mexican side of the border, gastrointestinal disease linked to water contaminated with sewage is the leading cause of infant death.[31] By contrast, in the United States as a whole, waterborne disease does not even rank among the top 15 causes of infant mortality, constituting less than 1 percent of infant deaths in 2001.[32]

Complicating the problem is a growing stream of pollution from American-owned factories on the Mexican side of the border. According to the International Trade Data System, some 4,760 of these facilities, known as *maquiladoras,* are situated near the border in Mexico. [33] The largest concentrations of *maquiladoras* are found in Tijuana, where 605 factories employ 140,000 workers, and Ciudad Juárez, where 302 plants employ 190,000 workers.[34] These manufacturing facilities, which produce goods for export using imported materials and Mexican labor, receive special tax incentives from the Mexican government. Many of these plants are responsible for the discharge of large quantities of waste into surface waters each year.

Another major challenge facing governments along the border is the illegal dumping of household and industrial wastes. For example, El Paso County in Texas has 1,542 illegal dumping sites, and pollution from these sites poses a threat to water quality and human health in this largely poor area.[35] Illegal waste dumps are common in other border areas, but no reliable estimates of their number, or what they may contain, are available.

Along the U.S.-Mexico border, sanitation problems caused by the lack of safe

in 1998 in several communities in the state of Chihuahua, and it helped reduce the incidence of gastrointestinal diseases from 21 percent to 6 percent in those areas. The program focused on educating residents about basic sanitation practices, providing them with household water disinfectants, analyzing water quality and waste disposal

California and Florida, concentrations of disinfection byproducts are often higher than in other areas. Waters in southern Florida, in particular, have high levels of organic matter that react with the chlorine used for disinfection to produce these toxic byproducts.[43] This is sometimes referred to as the "Florida effect."

Some of the major studies on the link between these chemicals, birth defects, and miscarriage have been conducted in Santa Clara County, California, a heavily Latino community.[44] These studies have found a significant link between miscarriages and exposure to drinking water with high levels of DBPs in the first trimester of pregnancy. Other recent studies have indicated that high peak levels of trihalomethanes and other disinfection byproducts may be associated with low birth weight, preterm delivery, spontaneous abortions, stillbirths, and birth defects—in particular, central nervous system defects, major cardiac defects, oral cleft, and respiratory and neural tube defects.[45] California's Central Valley, which already faces a myriad of health threats, also has high levels of disinfection byproducts in the water supply.

The CDC has recognized that quality medical care for pregnant women and newborns is critical to identify and reduce the effects of premature births or birth defects.[46] Unfortunately, 25.6 percent of pregnant Latinas do not receive early prenatal care, compared with 11.5 percent of non-Hispanics.[47] Therefore, when Latinos are exposed to chemicals, such as disinfection byproducts, that appear to cause low birth weight or trigger other reproductive problems, they may be harder hit than members of non-Hispanic white communities with similar exposures.

The EPA has established maximum contaminant levels for some disinfection byproducts. Public water systems that use surface water, or groundwater under the direct influence of surface water, must comply with limits of 80 parts per billion (ppb) annual average for trihalomethanes, and 60 ppb annual average for haloacetic acids.

By improving water treatment through methods such as using activated carbon filtration and switching to ultraviolet light as a primary disinfectant, water systems can control disinfection byproducts while reducing microbiological risks. It is also necessary to protect source water from excessive contamination with organic matter by preventing agricultural runoff laden with soil, fertilizer, or animal waste from reaching lakes and streams, and by preventing sewage overflows.

DRINKING A ER CON AMINAN

The heavily Hispanic areas of the West and Southwest are also plagued with significant drinking water problems: high levels of arsenic, increasing spread of perchlorate contamination, and nitrates from fertilizer residue and animal waste.

Arsenic

Arsenic is one of the world's best-known poisons, made popular as a murder weapon in mystery novels and films. But arsenic also occurs naturally in certain types of rocks, from which it can dissolve into water supplies in some parts of the country. Long-term exposure to arsenic is known to cause cancer of the bladder, lung, and

the maximum concentration was 48 ppb, according to calculations by the National Academy of Sciences, a level four times the new EPA standard, presenting a cancer risk of 40 excess cancers per 10,000 people drinking the water. Albuquerque's average arsenic level is one of the highest of any city in the United States, at 14 ppb. In some parts of Albuquerque, the lifetime chance of developing lung or bladder cancer from arsenic in the water is as high as 1 in 100. California communities such as Hanford (43.6 percent Hispanic) and the city of Chino Hills (39.2 percent Hispanic) also rank high on the list of places affected by arsenic.[53]

Perchlorate

Perchlorate, a component of rocket fuel and explosives, has seeped into the water supply from many military and aerospace installations, as well as from the factories of defense contractors. As many as 20 million Americans are drinking water contaminated with perchlorate. Perchlorate interferes with the normal ability of the thyroid gland to absorb iodine, which is a necessary nutrient. People exposed to perchlorate are at greater risk of diminished levels of thyroid hormone (hypothyroidism). Thyroid hormone is essential for normal brain development in the fetus and infant. Babies that do not have enough thyroid hormone are more likely to have learning disabilities, lower intelligence, and problems in school.[54] Contamination has been found in nearly 400 drinking water sources in 31 states.

Some 15 million people in Nevada, Arizona, and California are exposed to drinking water from the Colorado River that is contaminated with perchlorate. The contamination originated at a Kerr-McGee factory located outside Las Vegas and ran down a desert stream known as the Las Vegas Wash and into Lake Mead, and from there into the Colorado River.[55]

San Benito, Los Angeles, San Bernardino, and Riverside counties and in the lower Colorado River. In Los Angeles County alone, an estimated 8.9 million residents may be receiving perchlorate-contaminated water. In the summer of 2003, water officials in Fontana, Bloomington, Colton, and Rialto were forced to shut down 20 perchlorate-contaminated wells; in fact, in Rialto, more than one-third of the city's wells are polluted. All four of these cities are more than 50 percent Latino.

In January 2002, the EPA issued an extensive report on perchlorate in water and recommended that the level of this contaminant in water be restricted to a very low level of 1 ppb. For comparison, levels in the Colorado River are about 5 to 8 ppb, and wells in many other communities have levels of more than 100 parts per billion. The Department of Defense and the companies responsible for perchlorate pollution have succeeded in delaying federal action while the National Academy of Sciences reviews the EPA conclusions. The EPA now says it has no plans to regulate the levels of perchlorate in water in the foreseeable future. Several states are beginning to take action on this problem by shutting down contaminated wells. California also passed a law in 2003 to force polluters to pay to supply consumers with cleaner drinking water.

A report produced by a joint initiative between U.S. and Mexican agencies found that 14 wells tested in Nogales, Mexico, and in Sonora and Nogales, Arizona, contained high concentrations of nitrates and other carcinogenic chemicals.

Nitrates

Another serious water pollution problem of particular concern to the Hispanic community is nitrates (and nitrites)—nitrogen products from fertilizers, human feces, and animal manure that wash off land into surface water sources and enter some groundwater sources.[60] Nitrates interfere with the blood's ability to carry oxygen to the brain and vital organs. Infants who drink water that contains excessive nitrates for even a short time can develop blue baby syndrome (methemoglobinemia), in which nitrate poisoning prevents their blood from holding oxygen. Pregnant women are also particularly vulnerable to high nitrate levels in drinking water, again because it can affect the ability of their blood to carry oxygen. Studies have revealed indications of a potential link between high nitrates in drinking water and gastrointestinal cancer, miscarriages, and an increased risk of neural tube defects.[61]

A report produced by a joint initiative between U.S. and Mexican agencies found that 14 wells tested in Nogales, Mexico, and in Sonora and Nogales, Arizona, contained high concentrations of nitrates and other carcinogenic chemicals.[62] Contamination of groundwater in California by nitrates is widespread and has forced the closure of more public wells than any other contaminant.[63] Officials have closed approximately 800 wells in Southern California because of nitrate levels. In 1999, California's Department of Health Services found that 22 public water systems in the state were in violation of state and federal nitrate standards. Infants and pregnant women should not drink water, or formula prepared with water, that contains nitrate levels near or above the 10 parts per million permitted by the EPA. Some heavily Latino areas, however, get their drinking water from wells with nitrate concentrations as high as 40 milligrams per liter (40 parts per million).

In 2003, a total of 58,840,020 gallons of sewage spilled into Florida's waters (see "Florida Beach Paradise Lost to Polluters"). Florida is among the top 10 states that allowed the most sewage permit violations between January 1999 and December

FLORIDA BEACH PARADI E LO O POLL ER

In Florida—where Hispanics are the largest minority group, numbering 2.7 million—industrial and municipal facilities are being permitted to discharge large amounts of toxic chemicals and other pollutants into streams, rivers, beaches, and even underground aquifers. A study by Florida's Public Interest Research Group found that between 2002 and 2003, 53 percent of facilities with permits to pollute violated their legal limits. These actions degrade the places where Floridians fish and swim, contaminate drinking water sources, and threaten public health.

Lakes and rivers are under fish advisories due to mercury pollution, and Floridians have been advised to limit their consumption of fish caught in Florida waters. Because of poor warning systems, many people in Florida are not aware of the risk from eating their catch. Florida's economic lifeblood—its beaches—is also under attack from increased pollution and lax enforcement. The state of Florida did not require any monitoring of ocean and bay coastal waters until the passage of Senate Bill S1412 in June 2000 gave the Florida Department of Health the authority to initiate a statewide beach monitoring program and close beaches or issue advisories if standards are exceeded.

NRDC's August 2003 report *Testing the Waters: A Guide to Water Quality at Vacation Beaches* found that in 2002, Florida had 1,745 beach closings and advisories, more than double the number in 2001 (686). NRDC's report determined that 92 percent (1,600) of closings or advisories in 2002 reflected monitoring that revealed elevated bacteria levels. Of these (excluding 103 from Wakulla County that gave no source information), 66 percent (986) were from unknown sources of contamination, 29 percent (433) were from stormwater, 18 percent (262) were from other sources (including wildlife), and 5 percent (72) were from sewage leaks

2001. Of the 1,745 beach closings in 2002, 92 percent were caused by elevated bacteria levels from sewage.

RECOMMENDA ION

Thousands of U.S. residents become ill each year by drinking water contaminated with human and animal waste, pesticides, and heavy metals such as arsenic and lead—especially along the U.S.-Mexico border, where some communities lack access to sanitary sewers, and in southern and western states, where drinking water sources are polluted with arsenic and nitrates. NRDC recommends the following measures to begin to reduce the health threat to Hispanic communities from water pollution:

► Congress should establish a clean water trust fund with a dedicated source of funding, not subject to any congressional appropriations fight, to help finance water infrastructure projects.

► Congress should increase funding for wastewater infrastructure through the Clean Water State Revolving Fund, which provides low-interest loans to localities for clean water projects.

► Congress should enact legislation to hold bottled and vended water products to the same regulatory, reporting, and right-to-know standards to which tap water is held. The labels of bottled water should contain information about the presence of con-

► Congress should increase funding for the Border Environmental Infrastructure Fund (BEIF) in the EPA budget from the current $50 million to $100 million, as requested by the advisory committee that oversees this fund. This would increase the BEIF's capacity to build and improve drinking water systems in the U.S.-Mexico border region.

► The EPA should require public water systems serving an area where at least 10 percent of the population speaks Spanish as a primary language to translate their consumer confidence ("right-to-know") reports into Spanish; and the EPA should broadcast announcements on Spanish radio to inform people about the release and importance of the reports and how to obtain more information.

► State and local governments should require water-polluting industries located in or around residential neighborhoods to assess, disclose, and act to minimize their environmental impacts; and decisions regarding new sitings should facilitate the involvement of non-English-speaking community members.

Pesticides

Americans are exposed to pesticides on a daily basis, from the food we eat, the water we drink, and the air we breathe. However, farmworkers and their families are at greatly increased risk for pesticide-related health problems, for the simple reason that they are much more likely to be exposed to pesticides, and at much higher levels.

Because 88 percent of farmworkers are Latino, this problem is of particular concern to Latino communities. In addition, people living in agricultural areas are at higher risk for pesticide exposures—including millions of Latinos living in Arizona's and California's farming communities.

Pesticides are a diverse group of chemicals used to kill insects, molds, and other undesirable organisms on crops and lawns or inside buildings. Although some pesticides are more toxic than others, the purpose of these chemicals is to kill pests, so even low levels of exposure can be toxic to humans.

The effects caused by exposure to pesticides range from skin rashes, burning eyes, and cough to acute illness with nausea, vomiting, diarrhea, sweating, twitching, and difficulty breathing. Pesticide exposure can also increase a person's risk of certain types of cancer, such as lymphoma, prostate cancer, and childhood cancers. Women who work with pesticides may be at higher risk of experiencing a miscarriage or having a child with a birth defect.

An estimated 2.5 million migrants and seasonal laborers work on farms in the United States each year. The Centers for Disease Control and Prevention (CDC) has identified this subgroup of the U.S. population as a group at risk for a number of serious health problems, including infectious diseases, diabetes, high blood pressure, work-related injuries, and diseases related to pesticides.[1] Poor nutrition and limited e at gryChefects cauc at c1 c at gjat grT/i4

CHILDREN OF FARM ORKER A RI K

Even though children themselves do not work in the fields, many children of farm-workers are exposed daily to harmful pesticides. Children can be exposed at school and on playgrounds located near farms, which become contaminated with pesticides drift-

evaluated for safety despite the mandate of the Food Quality Protection Act of 1996, which requires the EPA to evaluate the health threats posed by these pesticides. In 2001, NRDC, the United Farm Workers, the Breast Cancer Fund, and others won a settlement forcing the EPA to fulfill these duties and better protect farmworkers and their families.

AGRIC L RAL PE ICIDE DRIF

Neighborhoods, migrant worker camps, and whole towns in agricultural regions can be exposed to airborne pesticides following aerial crop spraying, or via air currents containing pesticide-laden dust from farm fields. This phenomenon, called pesticide drift, is a serious matter. More than half of all farmworker poisonings from 1998 to 2000 occurred because of pesticide drift. The greatest number of worker poisonings were reported in Tulare, Fresno, Monterey, and Kern counties, which are 38 to 51 percent Latino and have a total Latino population of 980,000.[9] Kern County does not require pesticide applicators to notify people living near application sites and requires only a quarter-mile buffer zone between aerial applications of restricted pesticides and schools or residential areas. Many more pesticide poisonings go unreported each year. The

victims and their families may be unable to recognize the symptoms of pesticide-related illness, and they may not have access to health facilities. Moreover, many health care providers fail to correctly identify cases of pesticide poisoning.[10]

Surface water and groundwater near agricultural fields can also contain high concentrations of pesticides, and these polluted waters frequently serve as sources of drinking water for local residents and farmworkers. A U.S. Geological Survey study of rural drinking water wells between 1992 and 1999 found that 38 percent were contaminated with at least one of a group of 83 pesticides.[11]

In January 2003, the CDC published its second national report on human exposure to environmental chemicals. In this study, the government took blood and urine samples from more than 1,000 people of all ages and ethnicities in the United States to test for patterns of exposure to hazardous pollutants such as pesticides. The report found the most exposed Mexican-Americans had between 1.3 and 2 times as much of some neuro-

for washing in the field.[15] This condition lengthens the time that workers spend in contact with pesticide residues, thus increasing the danger of pesticide-related illnesses.

Workers who apply pesticides in the field often do not have or use safety equipment such as respirators, gloves, boots, and coveralls. According to a recent study, approximately 23 percent of farmworkers reported not using any safety equipment while mixing or applying chemicals in their most recent farm job.[16] Even when some safety equipment is available, many workers do not receive training in its proper use.

In some parts of the country, information is even more difficult to obtain for non-English-speaking farmworkers, as evidenced by a study that surveyed about 300 Latino farmworkers in North Carolina in both 1998 and 1999. The study found that between one-third and more than half of field facilities and pesticide training practices were inadequate for basic pesticide safety. Between one-third and more than half of the interviewed workers did not have access to separate sources of water for washing and drinking at the worksite, did not have access to adequate laundry facilities, and did not have pesticide safety training. Less than half of the interviewed workers reported that pesticide application information or warning signs were posted in central areas, and only 11 percent of the workers were able to name the pesticides used in their fields. The latter finding is important because knowing which pesticides are used is critical to the proper treatment of pesticide illnesses. Furthermore, only about 20 percent of workers reported being told by employers to dress and work safely.[20] Employers act with a degree of immunity because farmworkers do not have the ability to challenge pesticide violations in court and are vulnerable to employer retaliation.

Based on reported data about pesticide-related illnesses in California, the Environmental Protection Agency (EPA) estimates that agricultural workers in the United States as a whole suffer 10,000 to 20,000 acute pesticide-related illnesses each year (see "Pesticide Drifts in California Poison Farmworkers"). However, most cases likely go unreported. Chronic pesticide exposures that do not cause immediate illness, which may account for the majority of pesticide-related health problems, are almost never recorded.[21]

The situation is further complicated by lack of access to preventive health services and other medical care. Only 5 percent of farmworkers have some form of employer-provided health insurance, and only 13 percent are enrolled in the Medicaid program.[22] Another 15 percent of U.S. farmworkers obtain medical care through federally funded migrant health centers.[23] This means that most of the U.S. farmworker population must rely on some limited state programs or clinics run by nonprofit groups. The limited availability of such programs leaves most farmworkers, who can rarely afford to pay a doctor, without regular access to health care. The problem is so serious that a 2000 study of farmworkers in California found that 32 percent of male farmworkers had never seen a doctor in their lives.[24] Gaining access to health care may be especially challenging for the tens of thousands of illegal immigrants, who may not qualify for government programs and who may be afraid of seeking any assistance out of concern that they will be deported.

The situation is further complicated by lack of access to preventive health services and other medical care. Only 5 percent of farmworkers have some form of employer-provided health insurance, and only 13 percent are enrolled in the Medicaid program.

Although high cancer rates are a serious problem for the general farmworker population, few government agencies have studied the problem in detail. One such study, by the Cancer Registry of Central California, found that Hispanics employed as farmworkers had a 59 to 69 percent greater risk of stomach, cervical, and uterine cancer, and of some leukemias, than other Hispanics in California.[25]

Limiting Exposure to Agricultural Pesticides

Recent research has suggested useful ways to limit the pesticide exposure of farmworkers and their families. Exposure conditions are often far worse for homeless

workers who are not provided with temporary housing or washing facilities at the workplace. Between 1991 and 1992, the County of San Diego, California, conducted an observation project aimed at (1) determining the number of homeless migrant farmworkers living in 42 temporary encampments without adequate sanitation facilities and (2) defining the health risks faced by these workers.[26] The research found that 19 of 29 surveyed water sources drew water from farm irrigation systems. These systems often contained toxic levels of pesticides and fertilizers during the growing season. Even if the camps had tapped in to the irrigation systems at points upstream from the introduction of pesticides and fertilizers, it would have been necessary to add valves to prevent backflow of contaminated water. Although these are inexpensive devices, employers were unlikely to have provided them to workers living in temporary encampments.

Because of this finding, a pilot project was begun in San Diego to provide these camps with clean municipal water sources. The expenses incurred by this project were remarkably low, averaging between $438 and $920 per system for piping, gravel, spigots, backflow devices, and other hardware, depending on how far the encampments were from the nearest municipal water supply point.[27] This project serves as an excellent example of the simplicity and low cost of many of the most fundamental practices necessary to protect farmworkers' health and safety.

E OF PE ICIDE IN HE HOME

Agricultural pesticides are not the only pesticides that put Latino communities at risk for pesticide poisoning (see "Deadly Poisons"). Hundreds of pesticides, used for everything from preventing weeds to killing rats and mice, are easily purchased. However, behind the seeming convenience of these products lie dangers ranging from skin irritation and respiratory problems to nervous system damage and cancer.

Some studies suggest a high rate of pesticide use in Latino households. According to a study of pesticide exposure among pregnant women in New York City, Latinas were more likely than non-Hispanic white women to report that they or a member of their household had used pesticides at home during their pregnancy (50.5 percent

weight was as great as if the mothers had smoked while pregnant. Low birth weight is associated with respiratory and other complications in newborns. More

to control, what ingredients they contained, how much should be applied, when they should be applied, and how they should be disposed of (see Figure 4-1).

Spanish speakers were more than twice as likely to rely on store employees or advertisements as sources of information. This is to be expected, because application instructions are usually available only in English. Reliance on word of mouth, advertisements, and other unofficial sources of information may increase the likelihood that pesticides will be applied incorrectly, thus increasing the health risks of exposure. The same San Diego study also found that although Spanish speakers generally applied pesticides less frequently than the general population, 22.2 percent of them used pesticides in their homes more than 12 times per year.[31]

PE ICIDE IN P BLIC HO ING

Public housing environments often contain densely concentrated populations—contributing to garbage disposal problems—and old, deteriorated bu5w muer

in their drinking water, and cling to their clothes and food. NRDC recommends the following to reduce the health threat to the Hispanic community from pesticides:

► Federal, state, and local governments should develop educational efforts aimed at migrant workers, farm owners, health clinics, and policymakers. These efforts should include giving farmworkers the right to know what pesticides they are exposed to on the job, including the health effects of exposure and the safety precautions they can take. Federal, state, and local governments also should require growers to provide field posting with dates so that workers know exactly when to stay out of the fields; and to provide workers with crop sheets so that they know the names of the pesticides to which they are exposed and can give these sheets to a health professional in case of suspected exposure.

► The EPA and various state agencies should designate farm children as a vulnerable population that must be considered and protected in all pesticide registration and tolerance decisions under federal and state law.

► The EPA and state agencies should include an additional 10-fold safety factor into its assessments of risks to children from pesticides.

► The EPA should consider nondietary routes of pesticide exposure for farm children in establishing its standards for pesticides in food, including exposure from their parents' clothes and pesticide drift.

► The Federal Department of Labor and state agencies overseeing the working and health conditions of agricultural workers should improve their data-collection practices so that medical researchers can have the information they need to conduct epidemiological studies and better track the health status of this population.

► Congress should eliminate the Federal Insecticide, Fungicide and Rodenticide Act's "one free bite" rule, which prohibits enforcement agencies from imposing monetary fines on private pesticide applicators (i.e., growers) for their first violation of a particular regulation. This rule is the reason that no fine is issued in 80 percent of the instances where violations are found.

► The EPA and other regulatory agencies should tighten their enforcement of pesticide and chemical-use regulations and should impose harsher penalties, including criminal prosecution, on those, including farm owners and pesticide manufacturers, who endanger workers' health.

► The EPA should ban the most hazardous pesticides, and the EPA and various state regulatory agencies should prohibit the most drift-prone application methods—including pesticide applications from airplanes or helicopters—to reduce acute and chronic pesticide poisonings.

► The EPA should cancel the registration of any pesticide that cannot be safely applied without protective equipment that farmworkers can realistically use under actual field conditions (such as hot weather and the like).

► The EPA should require farm owners to establish larger buffer zones during pesticide applications, and to improve their posting and worker-notification practices, in order to reduce pesticide drift and pesticide residue exposures.

► The EPA should develop and implement a national pesticide incident reporting system and require growers to keep records of all pesticides they apply.

► State agencies and the EPA should give farmworkers a private right of action to challenge pesticide violations in the workplace.

► The Department of Housing and Urban Development should establish regulations requiring public housing authorities (PHAs) receiving federal funds to adopt integrated pest management (IPM) in public housing developments; in the absence of a federal mandate, states should require that PHAs adopt IPM as the standard for pest prevention and control.

CHAPTER 5

LEAD

HIDDEN DANGER

Environmental Health Threats in the Latino Community

October 2004

According to the U.S. Agency for Toxic Substances and Disease Registry, "lead can affect almost every organ" in the body, especially the nervous system.[1] Scientists estimate that nearly half a million U.S. children between the ages of one and five have elevated levels of lead in their blood. Although blood lead levels have decreased steadily among the U.S. population as a whole since lead was banned in gasoline and paint in the 1970s, an estimated 4 percent of Mexican-American children have blood lead levels above the action level established by the Centers for Disease Control and Prevention (CDC) for risk of lead poisoning.

Hispanic children in general are twice as likely as non-Hispanic white children to exceed the CDC threshold.[2] In fact, the most recent data showed that in 2001, 5.57 percent of the Hispanic children whose lead test results were reported to the CDC had lead levels above the safety threshold. By comparison, 2.02 percent of non-Hispanic white children exceeded that level.[3] Because reporting criteria vary from state to state, it is not possible to determine the total number of Hispanic children suffering from lead poisoning, but the difference in lead levels between Hispanic and non-Hispanic white children suggests that Hispanics are at greater risk.

In adults, lead has been linked to neurological problems, high blood pressure, and kidney problems. In children, lead is known to cause neurological problems even at tiny doses.[4] Most notably, lead has been correlated with a decline in IQ, with learning disabilities, and with hyperactive behavior, violence, and an increase in antisocial behavior in children (see "Preventing Lead Poisoning").[5]

Humans are exposed to lead from a number of sources. The principal one is lead-contaminated dust (from lead-based paint) that can be inhaled or ingested by children when the contaminated dust sticks to their hands or toys. Water run through lead pipes or pipes soldered with lead, and the ingestion of soil still contaminated with lead particles from leaded gasoline, are two other sources.

Another risk factor is lead-glazed pottery used in cooking and food storage, which can result in chronic lead poisoning. In 1971, the Food and Drug Administration (FDA) adopted guidelines to remove from U.S. commerce ceramic pottery with high lead levels, but some tourists and immigrants continue to bring it with them from Mexico and other countries.[6] Lead-glazed pottery was responsible for 8 percent of lead poisoning cases in Arizona children in 2002 and was identified as a consistent source of severe lead poisoning.[7] A survey of Texas homes near the border with Mexico revealed that 53 percent of the ceramic food containers in these homes leached lead.[8]

DANGER OF LEAD POISONING FOR LATINO

Data from the New York City Lead Poisoning Prevention Program show that in 2000, 33 percent of children with blood lead levels at or above 20 micrograms per deciliter

mandatory for all children up to two years of age, and further lead screening is targeted at those found to have elevated blood lead levels or specific risk factors. The findings of this study are significant because they imply that Latino children are at significant risk from lead poisoning.

Studies conducted in other U.S. cities with large Hispanic populations have indicated similar findings. In Miami, Florida, 55 percent of homes in one predominantly Hispanic area exceed the EPA's lead standards.[10] In Santa Clara County, California, 20 percent of U.S.-born Latino children seen at public health clinics have high blood lead levels.[11] In San Bernardino County, California, 65 percent of lead-poisoned children are Hispanic. The two primary causes are lead-based paint in homes and lead-glazed pottery.[12] In Arizona, 77 percent of the children diagnosed with lead poisoning in 2002 were Latino.[13]

Another study has showed that 13 percent of Mexican-American children living in housing built before 1946 have elevated lead concentrations in their blood.[14] And the living conditions of many immigrant families along the U.S.-Mexico border put children at high risk of lead poisoning: lead paint in old, dilapidated housing, industrial pollution, hazardous waste sites, and the use of lead-containing products. One study put the childhood lead poisoning rate in the Texas border area at 3 percent; a similar study of the Arizona-Sonora area of the border found a rate of 6 percent.[15]

Although lead paint in homes is the greatest risk to children, the use of certain folk remedies among Latino immigrants, particularly those of Mexican origin, puts some children at particularly high risk for lead poisoning. Such traditional remedies as *greta* and *azarcón*, which may contain nearly 100 percent lead, to treat *empacho*, or stomachaches, may expose children to dangerously high lead concentrations and a risk of permanent brain damage or death.[16] Opportunities to inform families about this danger are lost when health care providers do not know these "remedies" are in use, as is sometimes the case.

Unlike the threat from lead paint, these risks could be eradicated simply through education, but much more work is required in this area. A study conducted in the Texas border area in 1997 found that 27 percent of parents had given their children *greta* or *azarcón*.[17] Also, the state of Arizona reports that 14 percent of moderate to severe cases of lead poisoning in children were caused by the use of home remedies.[18]

Latino children are at risk not only from eating food served in lead-glazed pottery but also from ingesting lead in candy. Over several years, candy manufactured in and imported from Mexico to California has become a new source of lead contamination. The contamination is found both in the candy itself and in the wrapping, which is decorated with lead-based inks. In April 2004, the *Orange County Register* ran an investigative story on lead-contaminated Mexican candies, detailing how lead-contaminated candies manufactured in Mexico make their way into the U.S. market.[19] Federal and state records obtained by the newspaper showed that the state of California has found lead in Mexican candy one out of every four times it tests.[20] Even though 112 brands of candy have tested high for lead over the past decade, the state took action in only 11 of those instances.[21] In fact, health officials rarely pull candy from shelves or alert the public to the danger they may pose. Even when

candies have repeatedly tested high, the state resists ordering recalls or alerting companies about the results.

Mercury

Another substance posing a significant health threat to Latinos is mercury. Once known best as the silvery liquid in thermometers, mercury is better known today as a poison that damages the brain and kidneys. Despite the health risks associated with the chemical, the public largely does not appreciate the seriousness of the threat and the presence of its sources. This is especially true in the Latino community, where public education efforts in Spanish have so far been limited. The most serious ways in which Latinos may be exposed to dangerous amounts of mercury are eating mercury-contaminated fish and using mercury in religious ceremonies, cosmetics, and folk remedies.

Although mercury exposure can cause health problems for men and women of any age, women of reproductive age and children face the greatest risk. Mercury accumulates in the body, where it remains for long periods. When a woman becomes pregnant, mercury in her body can cross the placenta and affect the developing brain of the fetus. Children, whose brains continue developing until approximately the age of seven, can develop neurological and behavioral problems and learning disabilities from exposure to mercury.[1] New scientific evidence indicates that mercury in adults may increase the risk of cardiovascular disease.[2] Higher levels of mercury poisoning can produce headaches, tremors, memory loss, and hearing and vision problems.[3]

Industrial mercury pollution is released into the air primarily by power plants and certain chemical facilities and then settles into oceans and waterways, where it builds up in the fish that we eat. Most of the mercury released in the United States comes

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Nationwide, more than one in 12 women of reproductive age has mercury in her blood that exceeds the level set as safe by the Environmental Protection Agency (EPA).[4] A large study done by the Centers for Disease Control and Prevention (CDC) tested for mercury in the blood and hair of more than 2,500 women and children around the United States. On average, Mexican-American children had higher levels of mercury in their bodies compared with non-Hispanic white children.[5] In addition, three people tested in that study had mercury levels that were 100 to 1,000 times as high as the average for the other people tested. All of these people were Mexican-Americans, including a 37-year-old woman and two children ages 1 and 3. These people had both methyl mercury and inorganic mercury in their bodies, suggesting that they may have been exposed to this toxic chemical both from eating fish and from direct exposure such as from folk remedies or religious uses.

In addition to the problem of mercury in the fish people buy in stores, there is also the problem of pollution in the fish that people catch themselves. Often these fish are contaminated with mercury, which is hidden in the meat and not detectable by taste, smell, or appearance. The only way people can know whether the fish is contaminated with mercury is for state governments to test the fish and issue warnings. Unfortunately, although there is widespread contamination, warnings are rarely provided in Spanish, and there is often no effort to conduct outreach to the Latino community.

In Florida, a state heavily populated with Latinos, industries released 6,987 pounds of mercury into the environment in 2002. Of these releases, 2,167 pounds of mercury were air emissions that poison the air, then the water, and finally the fish. Florida currently has 66 separate fish consumption advisories, including a statewide coastal advisory, a statewide freshwater advisory, and additional advisories on waterbodies across the state. In Arizona, another state with a large Latino population, fish consumption advisories are in effect due to chemical contamination in 11 lakes. Ten of the advisories are due to mercury contamination.[9]

Yet state governments are failing to publicize the problem to the Latino community—a community that greatly enjoys fishing. Surveys have found that Latinos are less likely than others to know about fish consumption advisories issued by authorities to warn anglers that fish caught in specific bodies of water carry an unacceptable dose

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H M (M 0.55)	***Avoid eating***	Grouper* Orange roughy* Marlin*	Tilefish* Swordfish*	Shark* Mackerel (king)
H M (F 0.26 0.55)	***Eat no more than three 6-ounce servings per month***	Bass (saltwater)* Croaker	Tuna (canned, white albacore) Tuna (fresh bluefin)	Sea trout Bluefish Lobster Halibut*
L M (F 0.12 0.25)	***No more than six 6-ounce serving per month***	Rockfish* Mahi Mahi Crab (dungeness)	Snapper* Crab (blue)* Crab (snow)	Cod* Tuna (canned, chunk light)
L M (L 0.12)	***No limit***	Perch (saltwater) Crab (king)* Pollock Haddock* Herring Catfish	Whitefish Scallops Flounder* Sole Trout (freshwater) Crawfish/crayfish	Salmon Shrimp* Clams Tilapia Oysters Sardines

Source: Mercury concentration data based on information provided by the Food and Drug Administration (FDA). The consumption recommendations show the amount of various types of fish that a woman who is pregnant or planning to become pregnant can safely eat, according to the Environmental Protection Agency.

*Fish to avoid for reasons other than mercury: Fish and other types of seafood are marked with an asterisk if any of their populations are depleted due to overfishing or if the methods used to catch them are especially damaging to other sea life or ocean habitats.

of mercury. A study of anglers in Santa Monica Bay found that only 59 percent of Latinos—versus 88 percent of non-Hispanic whites and 95 percent of Japanese—had heard about fish advisories in effect in their area. Another study in New Jersey found that knowledge of fish advisories was much lower among Latinos than non-Hispanic whites and African-Americans, but Latinos were just as willing to comply with the advisories after they received the information.[10]

In a follow-up study, a group of women of childbearing age in New Jersey—mostly Latinas—received bilingual information on the effects of eating contaminated fish. Some 74 percent of them said they would change the way they chose or prepared fish in response to what they had learned. Women who heard about the advisories through classroom lessons were more likely to understand the advice than those who read a brochure (96 percent to 72 percent). This suggests that some form of verbal advisory may help improve the understanding of fish consumption advisories among Latinos.[11]

The same lack of awareness of mercury advisories has been documented elsewhere, including among Latinos living around the Great Lakes and in New York and Oregon.[12] A study of anglers in Michigan found that ethnicity was directly related to

documented individual cases of children becoming ill, even requiring hospitalization, from the use of mercury for *empacho*.[16] Not surprisingly, children are more likely than adults to be harmed by ingesting *azogue*.[17] Diagnosis is complicated by the similarity between the symptoms from consuming *azogue* and the symptoms of the illness it is used to treat. People who use *azogue* for the treatment of illness do not realize that it is harmful, just as most Americans did not realize until recently the potential hazards of mercury-containing disinfectants (such as Merthiolate or Mercurochrome) for treating cuts and scrapes in children.

Some cosmetics that are advertised for their ability to make skin lighter in color may contain large amounts of mercury. This is a problem because mercury can be absorbed through the skin. A beauty cream imported from Mexico caused an outbreak of mercury poisoning among Latinas in Texas, New Mexico, Arizona, and California in 1996.[18] This product was discovered to contain up to 10 percent mercury by weight. Hundreds of people in the Latino community were over-exposed to mercury from this product, and, in many cases, family members who did not use the product also were discovered to have high levels of mercury in their bodies.

Chronic exposure to this type of mercury can cause irritability, nervousness, headaches, tremors, fatigue, personality changes, memory loss, numbness, and tingling.[19] The problem does not seem to be unique to one product. Since 1996, several other

Conversations with *azogue* users indicate that some realize that touching or eating mercury may be harmful, but they are generally unaware that mercury is highly volatile and that inhalation is a very dangerous route of mercury exposure.[37] A culturally sensitive education campaign that involves *Santeros* (*Santería* priests), local groups, and local government could address the problem. Significantly, various studies show that *botánica* owners are already wary of outsiders and are trying to conduct sales in an inconspicuous manner. Any action that drives this business further underground will only hinder efforts at education. Therefore, an approach that does not point fingers or stigmatize religious practices and that allows practitioners to make well-informed decisions will help to protect children in these communities.

RECOMMENDA ION

NRDC recommends the following to reduce the health threat to the Hispanic community from mercury poisoning:

▶ The EPA should require power plants to install modern technology to achieve maximum control of mercury emissions, as required under the Clean Air Act; should require a prompt reduction of as much as 90 percent in mercury emissions from power plants; and should require mercury-cell chlor-alkali plants to switch to mercury-free technology.

▶ The Food and Drug Administration should expand its fish testing program, should establish targets for the number of fish species and samples to be tested annually, and should make the findings easily available to the public through its website.

▶ The Food and Drug Administration should require the posting of fish consumption advisories in grocery stores in both English and Spanish, and state departments of health should provide fish consumption advisories in English and Spanish and ensure that these advisories are posted in popular fishing areas and reported in the news media.

▶ State departments of health and state environmental protection agencies should post fish consumption advisories in English and Spanish at all popular fishing sites along contaminated waterbodies and should place warnings in newspapers and conduct community-based education in targeted communities.

▶ Local departments of health in cities with significant Latino populations should provide bilingual materials at public health clinics and in schools to inform Latinos about the risks of mercury use in folk remedies, cosmetics, and religious ceremonies.

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