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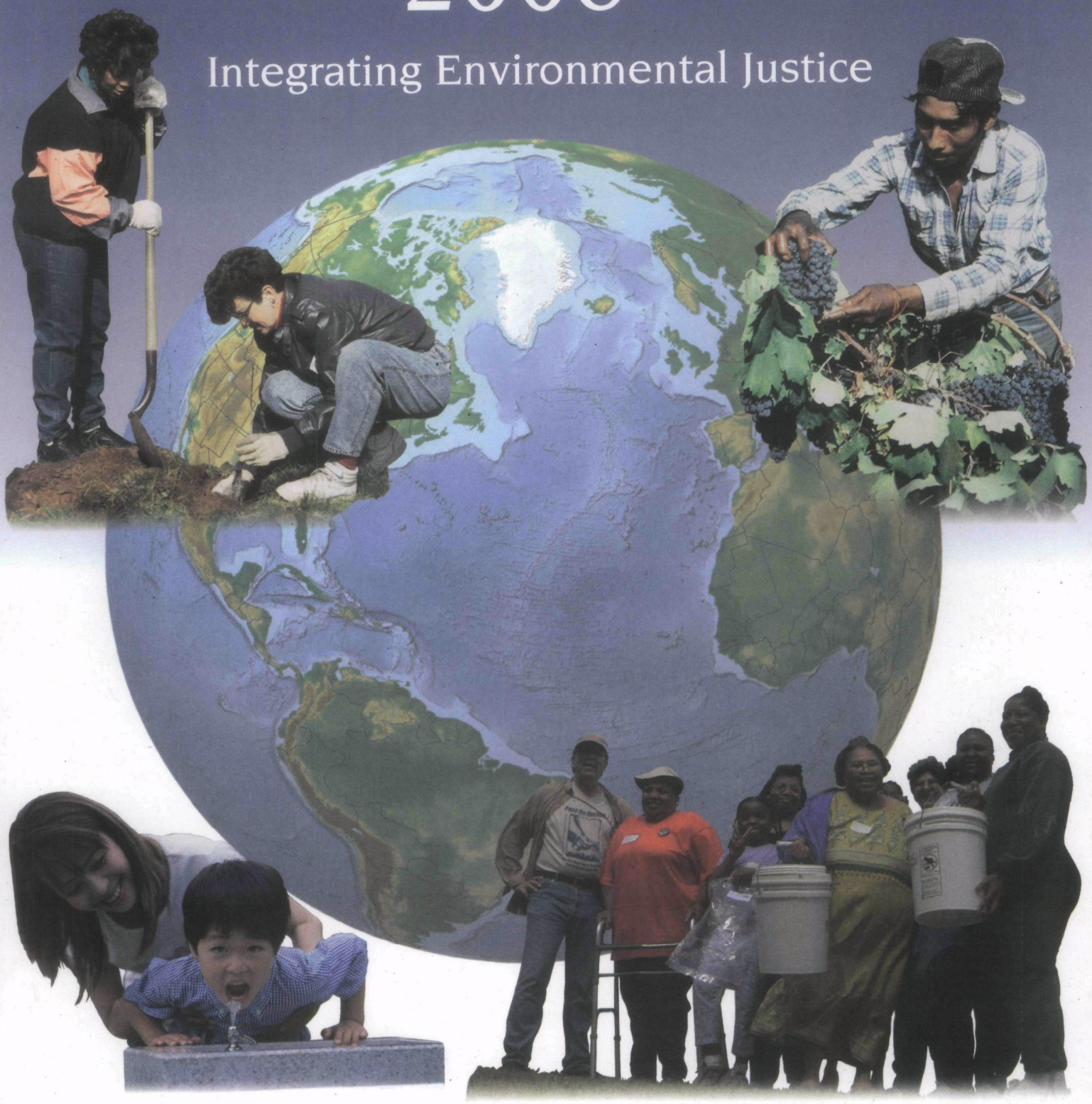
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF ENVIRONMENTAL JUSTICE

Environmental Justice Biennial Report 2006

Integrating Environmental Justice



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Introduction

The U.S. Environmental Protection Agency (EPA) recognizes that minority and/or low-income communities may be exposed disproportionately to environmental harms and risks. The Agency works to protect these and other communities from adverse human health and environmental effects. Ensuring environmental justice means not only protecting human health and the environment for everyone, but also ensuring that all people are treated fairly and are given the opportunity to participate meaningfully in the development, implementation, and enforcement of environmental laws, regulations, and policies.

EPA's Environmental Justice Program is aligning its environmental justice efforts with the Agency's overall strategic planning and budgeting processes as a means to further integrate environmental justice into the Agency's core programs, policies, and activities. The 2005-2006 Environmental Justice Biennial Report reflects the six main goals of EPA's 2006-2011 Strategic Plan. The plan is a blueprint for EPA's activities over the next five years:

1) Clean Air and Global Climate Change

2) Clean and Safe Water

3) Land Preservation and Restoration

4) Healthy Communities and Ecosystems

5) Compliance and Environmental Stewardship

6) Cross-Goal Strategies

Each chapter is further categorized in terms of EPA's eight national environmental justice priorities:

1) Reduce asthma attacks

2) Reduce exposure to air toxics

3) Ensure that fish and shellfish are safe to eat

4) Ensure that water is safe to drink

5) Ensure compliance

6) Revitalize brownfields and contaminated sites

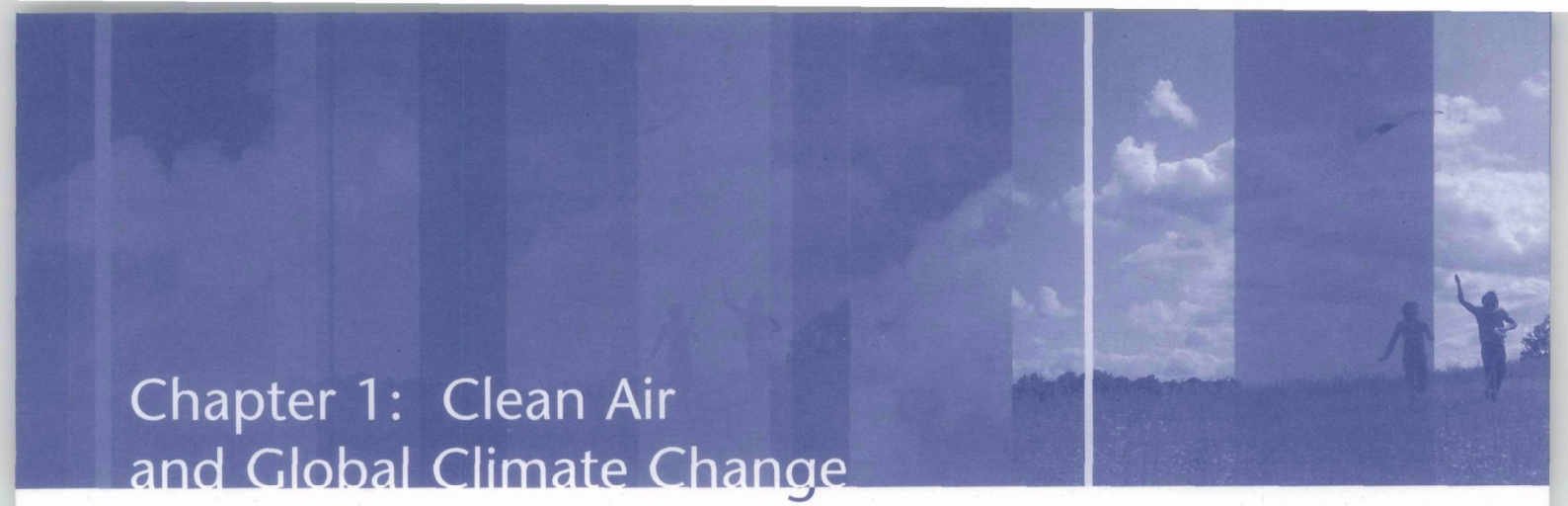
7) Reduce incidences of elevated blood lead levels

8) Engage in collaborative problem-solving

Introduction

The Biennial Report is primarily an outreach tool for the general public that summarizes the Agency's key accomplishments in addressing environmental justice issues. This report highlights activities that demonstrate the: 1) integration of environmental justice considerations into the Agency's daily operations, 2) alignment of the program and regional offices' work with the eight national priorities and the Agency's overall Strategic Plan goals, and 3) measurable, results-oriented outcomes of the Agency's work to address environmental justice. This document is not an exhaustive compendium of all environmental justice activities.

The Agency has made significant progress in integrating environmental justice into its mission and core functions to enhance EPA's ability to address environmental and public health issues in the most impacted communities, including minority and low-income communities. EPA realizes that more work lies ahead to ensure that all people enjoy the same degree of protection from environmental harms and risks. We invite all environmental justice stakeholders to join in this monumental effort.



Chapter 1: Clean Air and Global Climate Change

EPA's Clean Air and Global Climate Change goal seeks to address the broad range of impacts to air quality and the stratospheric ozone, including emissions from power plants and other large sources and emissions from smaller sources such as motor vehicles. These issues are best handled at the federal level, as a national approach allows for the cost-effective use of both traditional regulatory tools and innovative nonregulatory approaches, for example, emission trading, banking, and averaging. State, tribal, and local governments are well positioned to address the regional and local problems that remain after federal measures have been fully applied. EPA works with public and private sector partners and stakeholders to develop tools, such as monitoring programs, models, and emission inventories, that allow states, tribes, and local governments to address these localized problems.

Environmental Justice Priority: Reduction in Asthma Attacks

Asthma is a rapidly growing environmental and public health concern. According to the Centers for Disease Control (CDC), 20 million Americans, including approximately 5 million children, have asthma. The higher incidence of asthma in low-income and minority communities (particularly Black and Hispanic) is of great concern.

The Office of Air and Radiation (OAR) aims to reduce susceptible populations' exposure to asthma triggers through initiatives addressing ambient and indoor air pollutants, both of which contribute to asthma attacks. To this end, OAR promotes voluntary measures to integrate indoor environmental management into medical asthma management practices to benefit the approximately 5 million children who live with asthma. OAR's ambient air quality initiatives strive to improve air quality to healthy levels for the 39 percent of the U.S. population who live in areas

not meeting new standards for fine particles and for the 60 percent who live in areas not meeting new standards for 8-hour ozone by 2010. Additionally, OAR's National Clean Diesel Campaign, an initiative to reduce exposure to air pollutants near roadways and other mobile source pollution hot spots, will help reduce asthma triggers in outdoor air. Based on 1990 levels, EPA expects a 90-percent reduction in diesel emissions and a 60-percent reduction in other mobile source air toxics by 2020 as a result of the campaign.

Headquarters

Activity: Authority to Issue New Source Review Permits in Indian Country

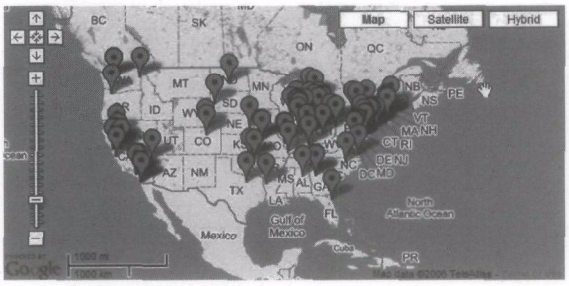
OAR, in partnership with EPA's regional offices and the American Indian Environmental Office, proposed a Federal Implementation Plan (FIP) for Indian country under the Clean Air Act on August 21, 2006. Two preconstruction air quality regulations proposed in this FIP should reduce health disparities between people who live in Indian country and those who live within the rest of the United States. The regulations will create new permit programs that will lead to a decrease in emissions of air pollutants, including particulate matter (PM), helping to achieve the Agency's national environmental justice priority of reducing the incidence of asthma. Tribal communities represent a vulnerable population due to low socioeconomic status and reduced access to health care, and are also more likely to experience negative PM-related health effects due to a high prevalence of elderly and young persons and the prevalence of asthma and other forms of lung disease. The FIP will also address the Agency's national environmental justice priority of reducing exposure to toxics by providing a permitting mechanism for small toxics sources, which will provide better accountability and oversight of these sources.

These regulations will fill a significant regulatory gap, as there is currently no permitting mechanism for minor stationary sources located anywhere in Indian country or for major stationary sources located in areas of Indian country not attaining the National Ambient Air Quality Standards (NAAQS). The rules will also benefit tribes by clarifying jurisdiction in air permitting, creating a timely mechanism for obtaining permits, and ensuring that natural resources are protected through controlled growth. EPA or a delegated tribal government will implement these rules until they are replaced by an approved tribal implementation plan. Prior to this rulemaking, OAR consulted extensively with tribal governments and representatives to ensure that their concerns were addressed, and also sought input from state and local air pollution control agencies.

Activity: Communities in Action for Asthma-Friendly Environments

The Indoor Environments Division of the Office of Radiation and Indoor Air (ORIA) strives to improve the health of people with asthma—in particular, disproportionately impacted populations—by 1) increasing knowledge about the importance of working with a doctor, developing an asthma action plan, and identifying personal asthma triggers; 2) fostering acquisition of new skills and behavior changes to reduce exposure

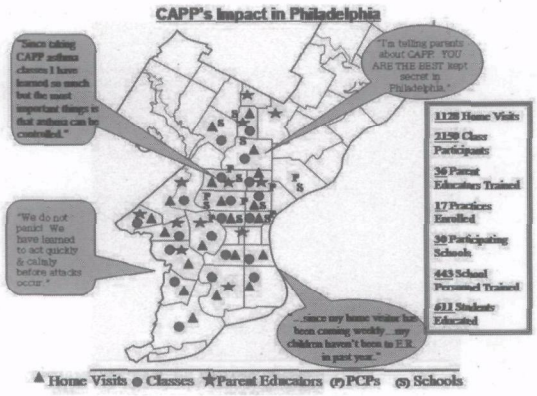
to environmental asthma triggers; and 3) affecting the type and quality of care provided to people with asthma. To accomplish these goals, ORIA works directly with people with asthma and with a variety of stakeholders, including health care providers, commercial and public health insurers, state agencies, childcare and school personnel, community-based organizations, and coalitions.



ORIA launched Communities in Action for Asthma Friendly Environments (Communities in Action) in May 2006, based in part on the results of the landmark Asthma Health Outcomes Project, which identified key programmatic attributes of successful community-based asthma programs. Communities in Action is aimed at enlisting 1,000 communities and the organizations that support them to deliver quality asthma care and improve health outcomes for millions of people dealing with asthma. The framework that supports Communities in Action includes an online network (AsthmaCommunityNetwork.org) and an annual event, the National Asthma Forum. Regional events are held throughout the year to provide local education, outreach, and benchmarking opportunities. Communities in Action is conducted in partnership with the Robert Wood Johnson Foundation-funded Allies Against Asthma, national nonprofit organizations, and EPA regional offices.

The Communities in Action online network offers peer-to-peer learning and real-time information exchange for participating communities. Through an interactive, Web-based platform, participants have access to emerging guidance, online discussion groups, Web conferences, and other tools and resources. Current asthma program guidance has been captured in the "Change Package for Increasing the Effectiveness and Impact of Community-Based Asthma Programs," a comprehensive tool that synthesizes field data and experiences of successful asthma management programs that include an environmental component.

Ninety communities are currently participating in the online network. For example, the Children's Hospital of Philadelphia's Community Asthma Prevention Program (CAPP) is a comprehensive asthma care program that exemplifies



many of the effective strategies in the Change Package. CAPP's environmental program has proven to be a highly effective method for reducing the impact of asthma in a disproportionately affected community, inner-city Blacks living in North and West Philadelphia. Since 1998, CAPP has offered home visits to help children with

asthma and their families manage environmental triggers. Trained lay educators visit the homes of families enrolled in the program—children between 2 and 16 years of age with a diagnosis of persistent asthma who use controller medicines are eligible. CAPP is tracking the effects of home environmental interventions on hospital visits, ER visits, missed school days, missed parent work days, inappropriate use of medications, and nighttime asthma symptoms. In addition to teaching families about asthma and supervising asthma trigger removal in the homes, home visitors also document each visit. CAPP provides individualized follow-up, such as referrals to social services or contact with the primary care provider, based on findings from the home visits. Families that receive home visits, environmental counseling, and materials to help them implement simple environmental mitigations reported fewer cockroaches. Cockroaches are a strong allergen that can trigger asthma. CAPP's data shows that these families also experienced a decrease in asthma-related hospitalizations, emergency room visits, sick visits, and asthma symptoms.

In addition, the Urban Health Plan (UHP) serves families in the Bronx, New York, where at least 27 percent of children have an asthma diagnosis, more than three times the national prevalence. UHP's strong ties to the community it serves; its partnerships with other organizations, particularly the New York City Asthma Initiative; and the integrated health care and environmental services that UHP delivers to its patients with asthma is making a real difference. All 13 clinical care sites in its system have implemented a quality improvement project, and the program is achieving some of the most impressive asthma health outcomes in the country in a disproportionately affected community: 80-85 percent of providers now use the standard asthma classification system during clinical visits; 100 percent of patients who need it are on anti-inflammatory medication; 60 percent of patients have self-management goals; and UHP has achieved and maintained 10 symptom-free days in a row, even during the months when asthma symptoms traditionally spike. UHP's ZIP Code has seen the largest decrease in asthma hospitalizations in all of New York City. Between 1997 and 2000 asthma hospitalization rates decreased among children aged 0-14 years in UHP's community, Hunts Point-Mott Haven, by 56 percent.

Environmental Justice Priority: Reduce Exposure to Air Toxics

Reducing exposure to toxic or hazardous air pollutants is of particular concern for low-income and minority communities because of the prevalence of susceptible populations (such as children, the sick, and the elderly) and disproportionate levels of emissions affecting some communities. Air toxics are pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects, birth defects, or adverse environmental effects.

EPA is working with state, local, and tribal governments to reduce releases of 188 air toxics to the environment. EPA has issued rules that require pollution controls for industrial and commercial sources of toxics, which are projected to reduce annual air toxics emissions by about 1.5 million tons. Air toxics emitted by cars and trucks are also subject to rules that are expected to reduce air toxics emissions from mobile sources by over 1 million tons per year.

States, tribes, and local agencies can best address the regional and local ambient air problems that remain after federal measures have been fully applied. EPA works with government agencies and community organizations that are interested in air toxics tools that help them better understand and reduce air toxics in their local areas. At the international level, EPA collaborates with a range of partners to reduce significant sources of emissions in developing countries through programs to control emissions from vehicles and refineries and eliminate lead in gasoline.

Headquarters

Activity: Implementing Community Risk-Based Programs

The Community Air Program (CAP) is designed to complement national regulatory approaches and meet community needs by helping communities understand and address their unique toxic concerns. While national regulatory approaches have resulted in significant reductions in toxic releases, they have not always effectively addressed local concerns and cumulative risks from toxic releases from multiple sources.

OAR assists EPA's regional offices in implementing CAP by monitoring progress, providing technical support, and developing tools and information on reduction activities that communities can use to improve air quality. Rather than prescribing specific measures, CAP allows the regional offices to work with their communities to identify area-specific problems and needs. CAP aims to help all communities live in a healthy environment, while accomplishing goals set forth in OAR's 1988 Urban Air Toxics Strategy. By focusing on reductions of air toxics, CAP addresses two of the Agency's environmental justice priorities: 1) reduce asthma attacks; and 2) reduce exposure to air toxics.

Measures of Success—Results/Outcomes

Ninety community projects, in which communities identify and address risk, have been implemented nationwide under CAP. For example, the St. Louis CAP, a broad-based collaborative effort, seeks to improve residents' health by identifying and reducing air pollutants in the St. Louis urban area. The project is composed of implementation teams that focus on 1) indoor air

toxics reduction, 2) diesel emission reduction, 3) improved emission inventory and pollution prevention assistance for small businesses, and 4) "greener buildings" work with the St. Louis Chapter of the U.S. Green Building Council. The St. Louis CAP work has resulted in $1.1 million in diesel oxidation catalyst retrofits for more than 800 diesel school bus engines in the St. Louis metropolitan area.

Another CAP project, the Lawrence Risk-Based Air Screening in Lawrence, Massachusetts, input air toxics emissions data into an air dispersion model to compute ambient air concentrations of hazardous air pollutants in the studied area. Scientists used these results and determined which chemicals and sources contributed primarily to human health risk. They also mapped air toxics sources using the Toxic Release Inventory and National Air Toxics Assessment of 1999. Using the maps and focus groups, the community developed an action plan to address the pollution sources and chemicals and implement risk reduction programs.

Through CAP, EPA and its tribal, state, and local partners are working together to build community capacity and to understand and reduce risks by providing funding, information, training, technical support, and access to voluntary programs to address community concerns. OAR maintains a community database that includes information on planned, completed, and ongoing community-level air toxics assessments across the country. This tool is used to track results and lessons learned from the community projects and helps communities find successful projects that they can replicate.

Activity: International Efforts to Address Air Toxics

Globalization has made clear that interdependencies of ecosystems and the transport of pollutants affect the entire world, and that depletion of natural resources in one nation can have environmental and economic ramifications elsewhere. When the United States assists developing countries to manage their natural resources and protect the health of their citizens, our country is ensuring our own well-being.

The Office of International Affairs (OIA) leads EPA's efforts to address global environmental issues. The integration of environmental justice into international work has aided environmental management and directed the Agency's efforts toward the greatest threats in the communities, homes, and workplaces of all global citizens, including sensitive populations, such as children and the elderly, and communities that are disproportionately impacted.

Poor air quality is a major concern throughout the world. In developing countries, urban air pollution has worsened in most large cities because of industrialization, increased vehicle use, and increased populations. The World Health Organization estimates that as many as 1.4 billion residents breathe air that does not meet air quality guidelines. Because air quality does not recognize national borders, the United States is both a source and a recipient of transboundary air pollution.

EPA collaborates internationally on shared vehicle pollution issues through the Partnership for Clean Fuels and Vehicles, launched in 2002 at the World Summit on Sustainable Development. To reduce air pollution in developing countries, the Partnership's goals are to: 1) eliminate lead in gasoline worldwide; and 2) reduce sulfur in diesel and gasoline fuel, while introducing advanced emissions control technology. As EPA moves to address these environmental goals, the Agency encourages inclusion, fair treatment, access to information, and opportunities that enable nations and individuals to improve their quality of life without compromising that of future generations.

EPA's work on the partnership leverages millions of dollars in partner donations, refinery modifications, and vehicle emission reduction programs. OIA works with EPA's Office of Air and Radiation (OAR), with many of the 90+ partners in the Partnership, and with the United Nations Environment Programme to implement these programs.

EPA's regional initiatives are extremely effective when they are coordinated with programs in other nations that share U.S. environmental interests. Several EPA program and regional offices have provided resources (both human and financial) to assist OIA in improving global air quality and addressing environmental justice concerns.

Measures of Success—Results/Outcomes

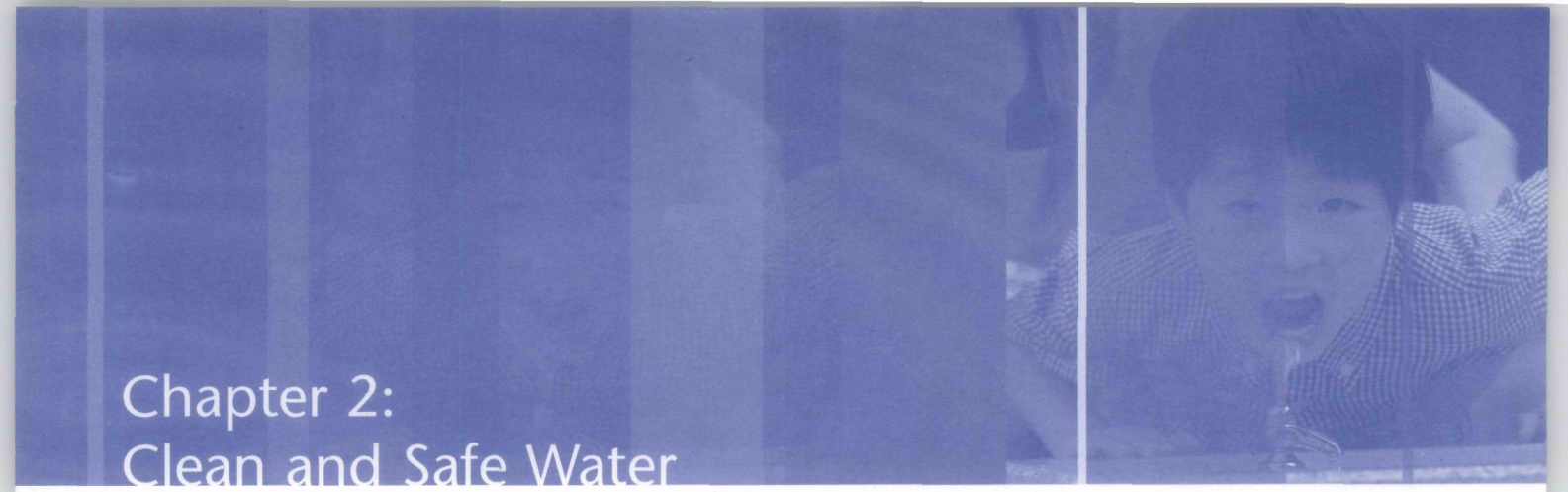
To assist South Africa in eliminating lead from gasoline, Region 6 hosted a stakeholder delegation from South Africa and shared U.S. experiences regarding lead phaseout, broader air quality issues helpful in lead removal, emission controls and pollution prevention options for refineries, and approaches to community awareness and involvement. The director of the Office of Environmental Justice and Tribal Affairs and its staff escorted the delegation to meetings and tours at two refineries. The delegation also visited with community-based organizations, which shared the arduous steps taken by the government, the refineries, and the communities to work together to resolve air quality and environmental justice issues. The delegation, in turn, invited U.S. experts in air quality management and environmental justice to South Africa to see the country's problems first hand and discuss issues and recommendations with larger audiences.

OIA hosted a study tour for "Mothers Against Lead," a group of mothers from all over Indonesia who came to the United States to be educated on the dangers of lead and how to prevent and reduce lead poisoning in their neighborhoods. EPA Region 3's environmental justice coordinator helped arrange an environmental justice meeting and tour in Baltimore, Maryland. There, the Coalition to End Childhood Lead Poisoning hosted the delegates, who learned strategies to mitigate lead dangers and met with state and local legislators, medical personnel, and mothers. The delegates also toured cleaned-up neighborhood sites and visited the home of a mother with two lead-poisoned children, who had recently relocated to a cleaned-up home. Delegates also met with community advocates who worked with EPA and other stakeholders to make the cleanup possible. After the tour, OIA

sent an EPA children's health/lead expert to Indonesia to speak at public and private forums and to assist the mothers in their public awareness campaigns all over Indonesia.

After tireless work of negotiations and public awareness campaigns, successes all over the world are being realized. In 2006 alone, the elimination of lead in gasoline has benefited more than 700 million people. Forty-nine countries in Africa, as well as Turkey, Syria, Croatia, and Indonesia, have completely eliminated lead from gasoline. The Partnership's goal is to have a world free of leaded gasoline by the end of 2008.

In 2006, EPA Region 4 staff worked with field monitoring teams in Ghana and Tanzania to develop, or enhance, ambient air quality monitoring capabilities in their cities. EPA, with the support of its contractor, provided particulate matter (PM_{10}) monitors to each city to expand their respective monitoring networks to seven permanent sites and four roadside sites as specified in the original monitoring plan for these countries. This required preparing and shipping two additional Selective Size Inlet (SSI) PM_{10} monitors to Accra, Ghana, and three SSI monitors to Dar es Salaam, Tanzania, to complete the permanent monitoring site expansion, as well as one additional PM_{10} Mini-Vol Sampler to each city to complete the roadside site expansion. After the Ghana EPA and Tanzania National Environmental Management Council (NEMC) set up the additional monitoring sites, the contractor traveled to each city to verify that the new monitors were properly established and operating correctly. The contractor also conducted a performance evaluation/audit of the entire monitoring program in each city, including working with Ghana EPA and the Tanzanian NEMC to complete/update their respective quality assurance project plans. Ghana EPA is now collecting PM_{10}, ozone, sulfur dioxide, nitrogen dioxide, and carbon dioxide samples at five permanent and three roadside sites; PM_{10} samples are collected for 24 hours every six days. The monitors also collect ozone, sulfur dioxide, and nitrogen dioxide for six days, every 18 days, as well as carbon monoxide for 24 to 72 hours every six days, at roadside sites only. Ghana EPA began sampling at two additional roadside sites as well.



Chapter 2: Clean and Safe Water

Thirty years ago, some of the nation's waters were being used as open sewers, posing serious health risks, and many water sources were unusable for traditional purposes, such as swimming, fishing, and recreation. The number of polluted water bodies has dropped significantly over these past decades, primarily due to a large investment of federal, state, tribal, and local resources; however, serious water pollution and drinking water problems remain. The United States must remain committed to improving water quality and protecting human health.

EPA's Office of Water (OW) strives to provide clean and safe surface water and drinking water that all Americans can enjoy. To achieve this, OW is committed to integrating environmental justice principles into its policies, programs, and activities to ensure that no segment of the population is disproportionately affected by adverse human health or environmental effects. EPA's authorities to address water quality issues are derived from the Safe Drinking Water Act (1974) and its amendments (1986, 1996), and from the Clean Water Act (1977). OW works with EPA regional water and wastewater divisions, states, tribes, water systems, and the public to set national drinking water standards and develop water pollution control programs.

Environmental justice considerations have been integrated into the water priorities through 1) funding for infrastructure improvements to small and disadvantaged communities and tribal and territorial public water systems through the Drinking Water State Revolving Fund, to reduce public exposure to contaminants through compliance with rules and provide reliable delivery of safe water; and 2) maintenance of the Fish Consumption Advisory Program Web site, which includes the National Listing of Fish Consumption Advisories a compilation of advisories issued by state, tribal, local, and federal agencies.

Environmental Justice Priority: Fish and Shellfish Safe to Eat

Exposure to contaminants in fish and shellfish is a public health issue for communities with environmental justice concerns. Some toxic contaminants (e.g., methyl mercury) that enter water bodies can move up the food chain and pose

health risks to humans, particularly to children and women of childbearing age. Exposure to toxic contaminants in fish is higher among low-income and tribal communities where there are a relatively high number of subsistence anglers.

Like fish, shellfish can accumulate disease-causing microorganisms and toxic algae. Shellfishing was approved in 1995 in 77 percent of approximately 21.6 million acres that support shellfish harvesting. By 2005, the number of acres classified as approved for shellfish harvesting had increased to 81 percent of approximately 23.6 million acres. States and tribes report that they have issued fish consumption advisories for some 14 percent of river miles and 28 percent of lake acres. EPA is working with states, tribes, and other federal agencies to improve water and sediment quality, so all fish and shellfish are safe to eat and the public is informed of the health risks associated with consuming fish and shellfish.

Activity: Translations of the National Mercury Advisory Brochure, What You Need to Know About Mercury in Fish and Shellfish

EPA's OW and Office of Science and Technology, in partnership with the U.S. Food and Drug Administration's (FDA's) Center for Food Safety and Applied Nutrition, completed six new translations of the national mercury advisory brochure, *What You Need to Know About Mercury in Fish and Shellfish*—into Cambodian, Hmong, Vietnamese, Chinese, Portuguese, Korean, and Spanish. The brochure provides guidance on selecting and eating fish and shellfish to women who might become pregnant, pregnant women, nursing mothers, and young children. By following the recommendations in the brochure, woman and children will receive the benefits of eating fish and shellfish and feel confident that they have reduced their exposure to the harmful effects of mercury.

Each of the new translations is accompanied by a communication strategy that outlines separate distribution plans for the translated brochures, according to organizations that specialize in working directly with Vietnamese, Chinese, Portuguese, Cambodian, Korean, and Hmong communities in the United States. The recommended methods include distributing the brochures via mail, posting them on the Web at <www.epa.gov/waterscience/fishadvice/advice.html>, developing public service announcements, and developing associated teaching and outreach materials.

To bring the project to fruition, EPA translated the brochures, and FDA printed them in early 2006. The first significant national distribution is planned for 2007 with help from EPA regional offices and state health agencies.

Measures of Success—Results/Outcomes

EPA initiated Phase One of the communication strategies by distributing the brochures on the Web and at national medical and environmental health conferences throughout the country. These conferences are attended by thousands of physicians and public health officials who receive copies of the brochures to distribute to their non-English speaking patients.

The 2007 national distribution will include mailings to organizations that work directly with the targeted ethnic groups, as well as to public health

agencies, Cooperative Extension Services, and Sea Grant offices in states where 1 percent or more of the targeted populations reside. Based on available resources, distribution might also include cooperation with CDC to develop public service announcements and teaching materials for educators and outreach workers to use in targeted communities.

Short-term and long-term measures of success include:

1) An increase in the number of brochures distributed, as well as an increase in the number of stakeholders attending educational sessions, listening to the radio, and/or watching television channels where public service announcements on mercury in fish and fish consumption are played.

2) Changes in the awareness and behavior of the targeted populations when selecting and eating fish to avoid mercury exposure. Success will be determined by surveys conducted after the outreach efforts are complete.

The intended outcome from distribution of the brochures is an increased awareness of, and adherence to, the National Mercury Advisory among high fish-consuming, non-English speakers in the United States.

Environmental Justice Priority: Water Safe to Drink

Ensuring that everyone in the Unites States receives drinking water that meets all applicable health-based standards is one of EPA's fundamental goals. To achieve this goal, OW is developing strategies that address each community's specific challenges. To that end, OW is considering the particular problems faced by tribal populations and communities with environmental justice concerns and taking steps to find solutions that meet their needs.

Thirty years ago, many of the nation's drinking water systems provided water to the tap with very limited treatment (usually disinfection) or no treatment at all. Drinking water was too often the cause of acute illnesses linked to microbiological contaminants or long-term health problems resulting from exposure to other contaminants. Today, drinking water systems monitor the quality of the water they provide and treat water to ensure compliance with standards covering a wide range of contaminants. In addition, new efforts to prevent contaminants from entering drinking water sources are helping to keep drinking water safe.

More than 260 million Americans rely on the safety of tap water provided by water systems that comply with national drinking-water standards. EPA's strategy for ensuring safe drinking water over the next several years includes four key elements 1) developing or revising drinking-water standards; 2) supporting states, tribes, and

water systems in implementing standards; 3) promoting sustainable management of drinking-water infrastructure; and 4) protecting drinking-water sources from contamination.

Headquarters

Activity: Lead in Drinking Water in Schools and Childcare Facilities

Lead can affect almost every organ and system in the human body, and no safe blood lead level in children has been determined. The central nervous system, including the brain, is most sensitive to lead exposure, particularly in children, and lead also damages kidneys and the reproductive system. The effects are the same whether lead is inhaled or swallowed. Even low levels of lead in the blood (below 10 g/dL) have been associated with reduced IQ and attention span, learning disabilities, poor classroom performance, hyperactivity, behavioral problems, impaired growth, and hearing loss. Very high blood lead levels (above 70 g/dL) can cause severe neurological problems, such as coma, convulsions, and even death. The only method to determine a child's lead level is to have a blood lead test done by a health provider. Elevated blood lead levels are more prevalent in children who live in older housing and in children of low-income families.

EPA and its partners are concerned about the potential for elevated lead levels in the drinking water of schools and childcare centers, as young children and infants tend to absorb more lead than the average adult. Drinking water is one possible source of lead exposure, and infants whose diets consist mainly of formula prepared with tap water can receive a significant portion of their lead exposure from water. Some drinking water pipes, taps, solder, and other plumbing components contain lead, which can leach into the water and pose a health risk when consumed. Testing water in schools and childcare facilities is important because children spend a significant portion of their days in these facilities, and they are likely to consume water while there.

EPA signed a partnership agreement on June 9, 2005, to focus attention on testing drinking water for lead in schools and childcare facilities. The agreement promotes voluntary efforts to reduce children's lead exposure and represents an unprecedented partnership with the Department of Education, CDC, the American Water Works Association, the Association of Metropolitan Water Agencies, the National Association of Water Companies, the National Rural Water Association, and the Association of State Drinking Water Administrators.

The signatories of the agreement have committed to encourage schools and childcare facilities to take steps to reduce children's exposure to lead, including 1) testing drinking water for lead; 2) disseminating results to parents, students, staff, and other interested stakeholders; and 3) taking appropriate and necessary actions to correct problems. The partners will support this effort through education and outreach and by encouraging the drinking-water community to assist schools and childcare facilities in their efforts to understand and reduce lead exposure from drinking water.

EPA protects children from elevated lead levels in drinking water under the Lead and Copper Rule (LCR). Schools and daycare centers that are regulated as public water systems (i.e., have their own source of drinking water) must comply with the requirements of the LCR. Inventory data from the Safe Drinking Water Information System (SDWIS) indicates that 4,458 schools and daycare centers nationwide qualify as public water systems (community water systems and non-transient, non-community water systems). Approximately 12 percent (548) of these systems exceeded the action level for pollutants at least one monitoring period since 2000.

While the LCR regulates schools and daycare centers with their own water systems, no federal law requires sampling of drinking water in schools that receive water from a public water system. Some states have provisions to include schools served by a public water system as sampling locations (i.e., at the tap) for a public water system's lead and copper monitoring program, but there are no federal requirements for more extensive testing. States and local jurisdictions may, however, establish programs for testing drinking-water lead levels in schools.

Measures of Success—Results/Outcomes

To better protect children from lead in drinking water and encourage voluntary activity by schools and childcare centers, EPA developed and released a suite of new tools and guidance documents in January 2006. The guidance documents teach schools and childcare facilities how to implement the "3Ts" —Training, Testing, and Telling. The goal is to encourage voluntary lead reduction programs for drinking water. EPA's objective is to provide school officials and childcare providers with the tools they need to understand and address lead in drinking water in their facilities. More information on starting a 3Ts program is available at: www.epa.gov/safewater/schools.

Region 6

Activity: Safe Drinking Water for Mescalero Apache Tribe of New Mexico

The Mescalero Apache Tribe drinking-water system, which provides water to approximately 3,000 people, had a 15-year history of non-compliance due to irregular sample collection and high total coliform levels. EPA Region 6 took an innovative, culturally specific approach, rooted in tribal culture awareness, to bring the system into compliance, collaborating with the tribe and the Indian Health Service and other partners to achieve this goal. After extensive communication with the tribe, EPA issued three Orders on Consent requiring the tribe to install and operate a continuous chlorination system and monitor chlorine residuals to ensure proper operation of the disinfection process.

Measures of Success—Results/Outcomes

Due to the team effort of the three entities, drinking-water quality has improved for all members of the Mescalero Apache Tribe. Two new wells with state-of-the-art control panels were drilled at the reservation, and each well produces 100 to 150 gallons of water per minute. Additional improvements include the installation of a new distribution system, including a new booster pump, two new storage tanks, and a well

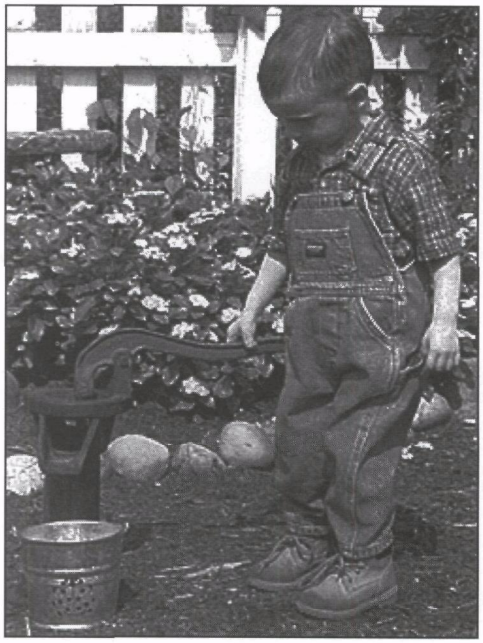
house. After establishing a genuine partnership between EPA and the Mescalero, the tribe went above the requirements outlined in the Orders on Consent by upgrading additional water systems and adding water systems to keep up with projected population growth. The tribe has also supported the continuing education of its water systems operator, resulting in a certified Level 4 drinking water operator and a certified Level 1 wastewater operator.

Through this project, all 14 Mescalero water systems achieved compliance for the first time in 15 years, and no major violations have occurred to date. The Mescalero met all drinking-water regulations, and Region 6 staff continues to work with the tribe to monitor and ensure maintained compliance.

Region 8

Activity: Safe Drinking Water for Household Well Users

EPA initiated a drinking-water well project to provide testing, education, and information to household drinking-water well users in the San Luis Valley of Colorado. Household wells are not regulated by the Safe Drinking Water Act; therefore, well users are responsible for the quality of their own drinking water. Region 8 worked collaboratively with EPA's Office of Environmental Information (OEI) and Community Leaders in the San Luis Valley to implement a successful community project. The project was initiated in 2005, and in June and July of 2006, the Agency's mobile laboratory tested 417 private household wells for bacteria and other contaminants. Final results showed that 28.5 percent of all household wells tested positive for bacteria (total coliform, *E. coli*, and other bacteria). Approximately one in



five household wells tested positive for bacteria; 1.4 percent of household wells exceeded the Maximum Contaminant Level (MCL)—EPA's primary drinking-water standards for nitrate; 11.9 percent exceeded the MCL for arsenic; 1.4 percent exceeded the MCL for lead; 3.1 percent exceeded the MCL for uranium; and 3.6 percent exceeded the MCL for fluoride. EPA contacted households that tested positive for bacteria or nitrates within 48 hours after collection of the samples and gave instructions on the "shock chlorination" processes for bacteria and recommended filtration devices for nitrates. Agency staff then mailed laboratory test results to all participants, with contaminant fact sheets and information on interpreting the test results.

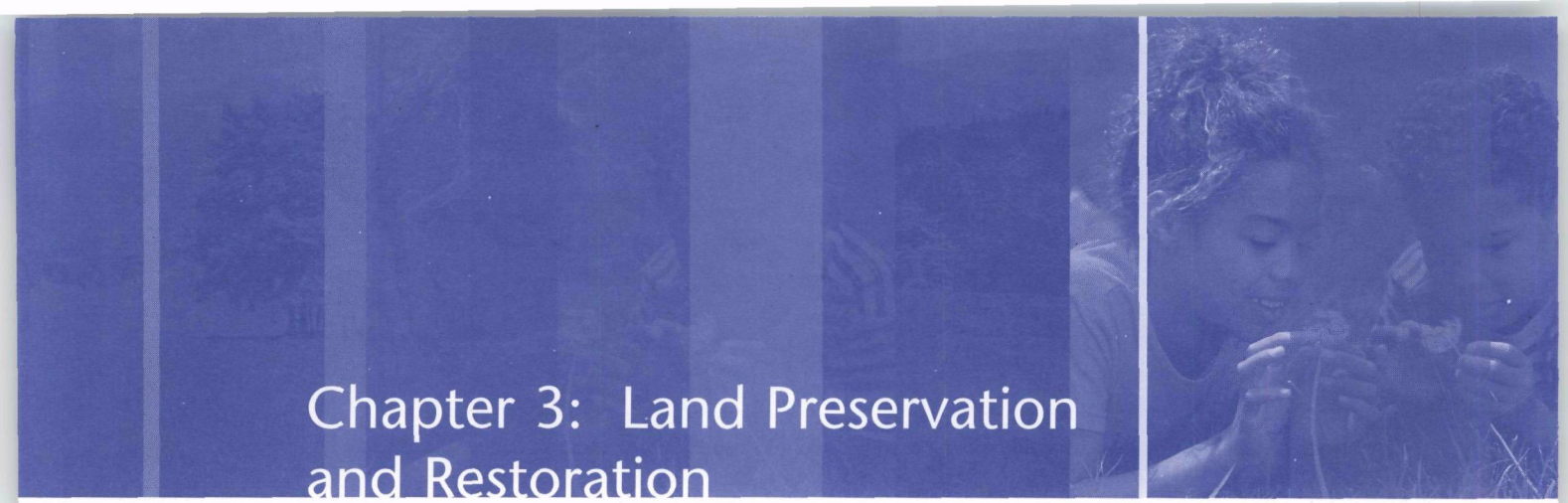
Measures of Success—Results/Outcomes

EPA will conduct follow-up calls to community participants in early 2007 to determine what risk reduction and/or corrective actions they have taken, as well as to discuss annual testing, well

maintenance, filtration devices, and ways to enhance public education and outreach. Region 8, through its collaborative work with OEI, used this project as a model for effective environmental and health information dissemination in rural communities. Region 8 will produce a lessons learned report in early 2007, which will be utilized by community organizations and other EPA regional offices that would like to implement a similar project.

In May and June 2006, Region 8 and community leaders of the San Luis Valley held nine community meetings in various counties to initiate participation in the household drinking-water well project. The meetings were designed to familiarize community members with community leaders and engage in meaningful dialogue with EPA regarding environmental justice, barriers, health risks, and water contaminants. In addition, the EPA Laboratory Services Program personnel provided training on how to collect acceptable well water samples. Some major community concerns identified during the community meetings included 1) the cost and affordability of future testing, 2) the cost and affordability of filtration devices, and 3) the health risk associated with arsenic and pesticide contamination in water.

This project is the first community project of its kind in Region 8. EPA implemented outreach and communication concerning the project to each county by distributing flyers, placing press releases in local newspapers, encouraging word-of-mouth, staffing booths at community fairs, and developing a local radio broadcast. More than 400 community members participated in the nine meetings, and 355 household well owners participated in the pre-testing survey. This survey covered basic questions on health, well types, contaminant facts, well usage, well maintenance, frequency of water testing, and the affordability of testing. As a result, the success of the project has helped to position the San Luis Valley and its community leaders to develop a community public health infrastructure that will contribute to a sustainable drinking-water well program led by the community.



Chapter 3: Land Preservation and Restoration

Left uncontrolled, wastes released on the land can migrate, contaminating drinking water, causing illness or disease, and threatening healthy ecosystems. EPA's Office of Solid Waste and Emergency Response (OSWER) works to minimize environmental risks by preserving and restoring land using the most innovative, effective waste management and cleanup methods available, and by cleaning up contaminated properties to reduce risks posed by releases of harmful substances. OSWER's commitment to and performance measures for addressing these environmental and public health concerns can be found in Goal 3 and Goal 4 of EPA's *2006-2011 Strategic Plan.*

EPA employs a hierarchy of approaches to protect the land, including reducing waste at its source, recycling waste for materials or energy values, managing waste effectively by preventing spills and releases of toxic materials, and cleaning up contaminated properties. We are especially concerned about threats to our most sensitive populations: children, the elderly, and people with chronic diseases.

The Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund) provide the legal authority for most of EPA's work to preserve and restore the land. OSWER uses the Superfund authority to clean up uncontrolled or abandoned hazardous waste sites and return land to productive use. Under RCRA, the Agency works in partnership with states and tribes to address risks associated with leaking underground storage tanks and the generation and management of hazardous and nonhazardous wastes. Tribal governments are the primary parties for setting standards, making environmental policy decisions, and managing programs consistent with federal standards and regulations for reservations, and EPA's regional offices work directly with them, as they are the recognized independent authorities for reservation affairs.

EPA also uses authorities provided under the Clean Air Act, Clean Water Act, and Oil Pollution Act of 1990 to protect against spills and releases of hazardous materials. Controlling

the many risks posed by accidental and intentional releases of harmful substances presents a significant challenge. To minimize these risks, EPA integrates prevention, preparedness, and response efforts. It conducts spill prevention activities to keep harmful substances from being released to the environment. EPA also continues to improve its readiness to respond to and minimize contamination and harm to the environment when spills do occur by coordinating with its partners at all levels of government, developing clear authorities, training personnel, and providing proper equipment.

Recognizing that minority and/or low-income communities frequently can be exposed disproportionately to environmental risk and harm, OSWER utilizes its land preservation and restoration program to protect these and other burdened communities from adverse human health and environmental effects. We implement these programs consistent with existing environmental and civil rights laws and their associated regulations, as well as Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." Ensuring environmental justice means not only protecting human health and the environment for everyone, but also making certain that all people are treated fairly and given the opportunity to participate meaningfully in making decisions that will affect their health and communities.

Environmental Justice Priority: Revitalization of Brownfields and Contaminated Sites

Environmental justice issues often involve brownfields, which are properties where expansion, redevelopment, or reuse can be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. The importance of revitalizing contaminated brownfields sites cannot be overstated, however; the U.S. General Accounting Office estimates that there are 150,000 to 500,000 brownfields sites nationwide, and that it would take $650 billion to clean them up. A survey of 39 cities, conducted by the U.S. Conference of Mayors, identified 21,000 sites totaling approximately 43,000 acres of land, an area the size of the District of Columbia. The Conference of Mayors report also suggests that the majority of brownfields sites are located in the older industrial cities in the Northeast and Midwest, and that these sites tend to be located in low-income and minority urban neighborhoods.

In the context of contaminated or potentially contaminated properties, land revitalization refers to actions taken to promote safe, productive, and sustainable use or reuse of property. These revitalization activities can help to impart new life to properties, resulting in enhancements to communities and ecosystems. EPA has found that effective coordination and holistic decision-making can maximize community benefits, protect the environment, enhance community

end-use of the property, increase property values, and address environmental justice concerns.

Headquarters

Activity: Providing Technical Assistance to Superfund Communities

The Office of Site Remediation and Technology Innovation (OSRTI) believes that providing technical assistance to affected stakeholders is key to addressing environmental justice. Access to independent technical assistance gives communities a voice in site cleanup decisionmaking by helping them understand the Superfund cleanup process and information regarding contaminants of concern, exposure pathways, and potential response actions.

The Superfund program uses two principal mechanisms to provide technical assistance: 1) the Technical Assistance Grant (TAG) program; and 2) the Technical Outreach Services to Communities (TOSC) program, which includes a corollary program called the Technical Outreach Services for Native American Communities (TOSNAC). Previously structured around a grant mechanism, the TOSC program is transitioning to a contract vehicle that the Agency expects to award by early 2007.

The TAG program provides funds to qualified community groups to procure independent technical advisors to explain technical information, plans, and documents related to cleanups at sites listed, or proposed for listing, on the National Priorities List (NPL). This assistance can include helping communities with issues tied to redevelopment and reuse, public health concerns, and relocation issues. A portion of TAG funds also can be used to publish newsletters, obtain relevant supplies and equipment, or hire a grant administrator. Grants of up to $50,000 per site are available. Additional funds are available for some complex sites, but only one active TAG can be used at a time for each Superfund site.

The TOSC and TOSNAC programs provide free, independent information and assistance to communities. While the Agency is in the middle of restructuring the TOSC program, its past configuration linked community groups with professors and technical assistance specialists from the Hazardous Substance Research Centers (HSRCs), a group of university centers focused on hazardous substance management and brownfields redevelopment. These specialists provided free, independent information and assistance to communities. Within the TOSC program, TOSNAC provided technical assistance to tribal communities dealing with hazardous substance issues on their lands. The assistance was provided through the Haskell Indian Nations University.

The reconfigured TOSC program will provide communities with free access to a roster of technical assistance providers. The Agency expects the TOSC contract to be in place by fall 2007. As with its previous configuration, the new TOSC program will provide communities that are not eligible for TAGs with technical assistance. The program will also provide technical assistance services to communities that want such assistance but choose not to apply for and manage a federal grant.

Measures of Success—Results/Outcomes

Technical assistance is an essential public participation tool for communities to improve understanding of sites, the overall Superfund cleanup process, and related technical issues; as well as to level the playing field for communities to participate in EPA's decisionmaking process.

Since the Agency awarded the first TAG in 1988, nearly 300 communities have been awarded such grants.

Activity: Strategy for an EPA/Tribal Partnership to Implement the Underground Storage Tank Program in Indian Country

The Energy Policy Act (EPAct) of 2005 required EPA's Office of Underground Storage Tanks (OUST) to develop a strategy to implement the underground storage tanks (UST) program on Indian reservations or areas under the jurisdiction of an Indian tribe by August 2006. The goal of the strategy is to ensure that OUST works in partnership with tribes to establish UST programs that protect human health and the environment in Indian country. Although EPAct mandated an aggressive schedule, OUST successfully accomplished this goal within the one-year timeframe. As a part of the strategy development, OUST, in collaboration with tribes, formed a national workgroup to build on the existing framework established over two decades of implementing the UST program in Indian country. A key part of the strategy involves recognizing the tribes' broad diversity, as well as specific needs, to carry out the program in Indian country.

In developing the tribal strategy, OUST took great care to respect tribal sovereignty and ensure that the new strategy is consistent with previous policies. In addition, OUST afforded tribal governments the maximum administrative discretion possible (Executive Order 13175 [2000]). OUST also advocated the development of tribally run regulatory and cleanup programs based on willingness, authorities, and funding (OSWER Directive 9610.12, 1995).

On August 7, 2006, OUST issued the tribal strategy. With this strategy, OUST also aims to further the cleanup and compliance of USTs in Indian country, strengthen the relationship with tribes, and work closely with tribal governments to implement the strategy. OUST submitted a report to Congress on the progress of the program in Indian country.

Measures of Success—Results/Outcomes

OUST designed the tribal strategy to increase understanding of UST issues in Indian country, as well as increase compliance and cleanup rates. To accomplish these goals, OUST staff took extra measures to strengthen relationships and increase collaboration by holding frequent meetings, enhancing coordination during the funding process, and establishing regularly scheduled training courses. In addition, OUST and tribes formed a multidisciplinary workgroup to study the definition of tribes under RCRA and ascertain the ability to delegate RCRA programs to tribes.

The collaborative activities OUST conducted with tribes included 1) a kick-off meeting in Phoenix, Arizona, in December 2005 to discuss

issues of concern; 2) establishment of workgroups and subgroups to discuss the key objectives of the strategy (each subgroup was then assigned a key objective area of the strategy and instructed to write that part of the tribal strategy document); 3) a series of conference calls with the subgroups to discuss drafting their part of the tribal strategy; 4) invitation letters to more than 500 tribes and Alaska Native Villages requesting participation in a tribal strategy workgroup; 5) follow-up letters inviting tribes to a meeting in Dallas, Texas, in February 2006; 6) reviewing the findings of the subgroup and discussing issues to be resolved by OUST during the February 2006 meeting; 7) bi-weekly conference calls and a tribal meeting during the National UST Conference in Memphis, Tennessee, in March 2006; 8) meeting with tribes in Chicago, Illinois, in May 2006 to discuss concerns with the draft strategy (many of the tribal comments were included in that draft); and 9) mailing the final tribal strategy to the tribes and posting it on the OUST Web site.

At the conclusion of the strategy development process, OUST felt confident that its efforts were in alignment with the national environmental justice priority to ensure meaningful tribal community involvement. Not only did OUST ensure the tribes were fully involved in the planning of this document, but they maintained a stake in the final strategy.

Region 1

Activity: Providence Brownfields Job Training Program

The 2004-2006 Pawtucket/Providence Brownfields Job Training Program matches qualified workers with companies that clean up brownfields sites for the purpose of reuse and economic development. This program provides unemployed residents with the skills required to contribute to the redevelopment of nearby brownfields sites. The curriculum is comprehensive and helps place participants in industries such as hazardous waste management, environmental remediation, lead abatement, and asbestos abatement. The program also provides workers with job development opportunities, ongoing case management, and referrals for basic skills training such as math and English.

Key partners that assisted with recruitment efforts include SER Jobs for Progress/Youth Builder, Pawtucket Citizens Development Corporation, Dorcas Place, Urban League of Rhode Island, Federal Hill House, Community College of Rhode Island, and West Elmwood Housing. These organizations are located in the neighborhoods where the participants reside. The key partners for job placement and employment include Resource Options, Inc., Clean Harbors Environmental Services, Inc., PSC, Inc., Onyx Environmental, BCT Construction, and Mill City Construction.

Measures of Success—Results/Outcomes

Project benefits include:

- The Brownfields Job Training Program has trained 28 inner-city residents who have been either directly impacted by brownfields in their communities or who face under-employment or unemployment in the Providence and Pawtucket communities.
- Twenty-one of the Brownfields Job Training Program graduates have successfully obtained employment in the environmental industry.

Lesson learned from the project include:

- The need for additional housing and the desire to curb sprawl have allowed the Pawtucket/Providence area to realize its existing resources of land and labor. As the rebuilding of the city begins, it is important to include all residents in the revitalization process and ensure that the benefits derived from brownfields redevelopment remain with the local residents living in brownfields-impacted communities.

Region 5

Activity: Redevelopment of a Brownfields Site to a Hmong Funeral Home

In 2004, the St. Paul Port Authority used an EPA brownfields grant to fund the cleanup of an abandoned dump site once used for the disposal of waste materials. The Port Authority purchased this property in the late 1960s after dumping operations ceased, and since then, the property has remained vacant.

The Twin Cities Metropolitan Area is diverse and has the largest Hmong population of any urban center in the country, with 58.3 percent of the state's Hmong population living in St. Paul. The Hmong are an Asian ethnic group that traditionally lives in the mountainous regions of southern China and adjacent areas of Vietnam, Laos, and Thailand. This demographic influenced the Port Authority's decision to sell the land to a developer with plans to construct the first facility specifically for Hmong funerals. The Hmong have rituals regarding death that are unique to their culture, and they have had difficulty finding facilities to accommodate their funeral needs in the United States. A Hmong funeral typically lasts three days and must be handled properly according to the Hmong beliefs. The lack of facilities in the Twin Cities that are able to accommodate a Hmong funeral service has created a problem for many Hmong residents who have had to wait up to a month to pay their respects to loved ones.

Redevelopment of the property into a funeral home started in March 2005 and was completed in August 2005. The design of the home permits multiple funeral services to be conducted at the same time.

The city of St. Paul, the St. Paul Port Authority, and a Hmong-American developer, J. Kuo Vang, were key partners in the project. A brownfields cleanup grant of $200,000 along with a Department of Employment and Economic Development (DEED) grant, a Metropolitan Council grant, and St. Paul Port Authority general funds funded the cleanup of the contaminated site. J. Kuo Vang funded the redevelopment phase of the project.

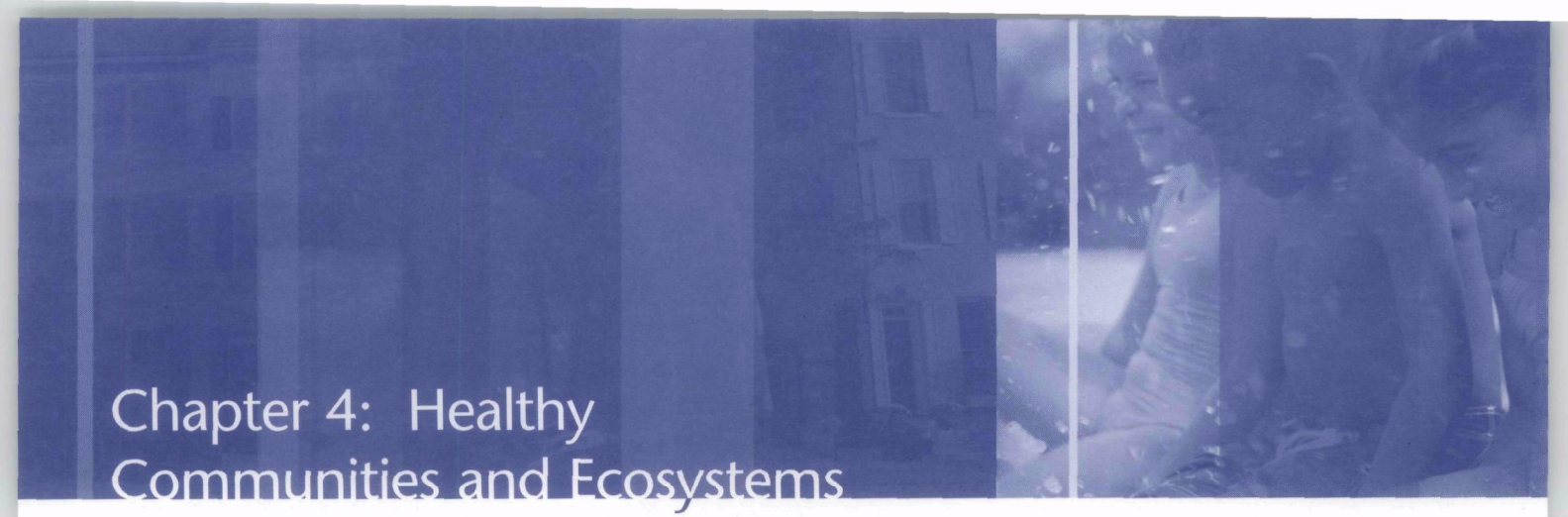
Measures of Success—Results/Outcomes

Project benefits include:

- Cleaning up 3.28 acres of land once contaminated with petroleum, asbestos, lead, polycyclic aromatic hydrocarbons, and other pollutants.
- Leveraging six full-time jobs.
- Redeveloping of an abandoned lot that had been vacant for 30 years.
- Building the first funeral home in the nation constructed specifically for Hmong services.
- Establishing a cultural center that allows Hmong residents to continue their traditions and practices in the United States.

Lessons learned from the project include the following.

- The project illustrated how the leveraging of limited resources resulted in the construction of a long overdue facility in the community. Public resources from the federal, state, and local levels funded the cleanup, and private resources funded the development of the funeral home.
- Cultural sensitivity played a key role in advancing this project. Though the development of a funeral home may sound uncommon to some, partners involved in the effort recognized its cultural significance to the Hmong residents.



Chapter 4: Healthy Communities and Ecosystems

EPA is working to create a variety of tools and resources to protect, sustain, and restore the health of communities and ecosystems. The Agency is also approaching its responsibilities with partnerships in mind, bringing together federal, state, tribal, and local government agencies and enlisting the support of other stakeholders. EPA recognizes that it must manage environmental risk to watersheds, communities, homes, and workplaces to protect human health and the environmental integrity of ecosystems. The Agency is using a mix of regulatory programs and voluntary approaches to achieve results efficiently and in innovative, sustainable ways. For instance, preventing pollution at the source is an effective way to reduce risk and environmental impact. When pollution prevention is not feasible, however, EPA encourages waste minimization and proper disposal and remediation. While managing risk, EPA is directing its efforts toward the greatest threats to communities, homes, and workplaces, including threats to sensitive populations such as children, the elderly, and indigenous populations.

Environmental Justice Priority: Collaborative Problem-Solving

Collaborative problem-solving simply means that various stakeholders agree to work together to address a particular issue or concern. In situations involving environmental justice issues, stakeholders (e.g., community groups, industry, academia, and all levels of government) often have to reconcile divergent interests to address complex and interrelated environmental, public health, economic, and social problems in communities. Many of these problems are deeply

rooted and difficult to resolve without the concerted effort and active participation of all the stakeholders. When multiple stakeholders work together, they create a collective vision that reflects mutually beneficial goals for all parties that are proactive, strategic, and visionary. Such collaboration fosters conditions that enable the parties to mobilize the resources necessary to realize stronger, more lasting solutions. Partnerships can range from informal working relationships to very structured arrangements in which goals, membership, ground rules, and operating principles are clearly defined.

Headquarters

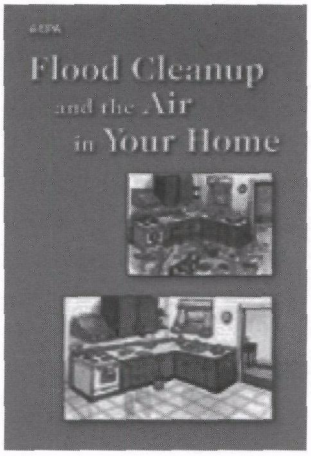
Activity: Mold Education Effort Related to the Gulf Coast Hurricanes

EPA's mold education efforts are an important part of the Agency's asthma program. Mold is a key asthma trigger, and EPA's major mold objective is to reduce the public's exposure to indoor mold. This goal is primarily accomplished through public education activities. EPA coordinates with other federal agencies and works closely with CDC, the Federal Emergency Management Agency (FEMA); and other federal, state, and local agencies to provide information and guidance to the public on mold-related issues. For example, EPA provided input for the Institute of Medicine reports *Clearing the Air, Asthma and Indoor Air Exposures* (EPA-funded) and *Damp Indoor Spaces and Health* (CDC-funded).

EPA maintains an outreach program that includes an Indoor Air Quality hotline; a mold Web site (www.epa.gov/mold); and outreach work with nonprofit, industry, and professional groups to incorporate moisture control and mold prevention into good indoor air quality practices.

Measures of Success—Results/Outcomes

As part of its response to the 2005 Gulf Coast hurricanes, EPA conducted media outreach on mold. For example, EPA participated in a joint telebriefing on mold with CDC and the Louisiana Department of Health and Hospitals. In partnership with the Louisiana Department of Environmental Quality, EPA recorded public service announcements on several topics, including mold, to provide information to people in the hurricane-affected areas.



EPA also provided extensive field and community outreach support. For example, EPA distributed more than one million hurricane-related flyers in English, Spanish, and Vietnamese. EPA workers and contractors met with many local leaders and helped residents contact EPA cleanup experts; they covered nearly 20,000 square miles in 27 parishes. Tens of thousands of EPA documents were distributed including: *Mold Remediation in Schools and Commercial Buildings*; *A Brief Guide to Mold, Moisture, and Your Home* (English, Spanish); and the fact sheet, *Flood Cleanup—Avoiding Indoor Air Quality Problems*.

EPA maintains hurricane and mold related materials on the EPA Web site. For example, in September 2005, EPA posted the fact sheet *Potential Environmental Health Hazards When Returning to Homes and Businesses*. EPA also maintains a hurricane 2005 response Web site: www.epa.gov/katrina.

In October 2006, EPA produced a low literacy flood cleanup brochure, in coordination with CDC, which is based on lessons learned from Hurricanes Katrina and Rita regarding indoor air quality. All flood materials are free of charge on EPA's Web site at <www.epa.gov/iaq/flood> or from the Indoor Air Quality hotline at (800) 438-4318.

Region 1

Activity: Effective Partnerships Working to Eliminate Childhood Lead Poisoning in Boston

In autumn 2001, a geographic information systems (GIS) mapping project with the Lead Action Collaborative (LAC), Tufts University, and EPA Region 1's Urban Environmental Program (UEP) identified five Boston communities with the highest concentrations of elevated blood lead levels (greater than 10 micrograms per deciliter [ìg/dl]) in children under 7 years old: North and South Dorchester, Roxbury, Hyde Park, and Mattapan. In fact, these five neighborhoods contain 70 percent of all lead poisoning cases in the city. In November 2001, LAC, Tufts Institute of the Environment, and EPA brought together more than 80 legislators, policymakers, government officials, and community leaders at the "Let's End It Here!" Summit in Boston. What emerged was the "Boston Blueprint to End Childhood Lead Poisoning," which lays out a detailed strategy to address and eradicate lead poisoning over the next five years.

From 2001 to 2006, the UEP worked closely on tracking the implementation of the Boston Blueprint. UEP has taken the lead working with LAC to create a Community Assessment Tool to help investigate and document neighborhood conditions on a street-by-street, lot-by-lot basis to identify areas and housing with a high risk of lead poisoning. Volunteers from the community visit neighborhoods to identify housing conditions that indicate a potential for lead poisoning, including peeling or chipping paint, the presence of children, and the type of ground cover around the house. The information is mapped to identify areas in need of greatest assistance, which allows partners working on the Boston Blueprint to focus their available efforts. Working with LAC and other stakeholders such as UEP and the city of Boston, the National Center for Healthy Housing and Abt Associates developed a Web-based housing registry called LeadSafeHomes.info, which provides key information for parents, homeowners, tenants, community groups, and policymakers to maximize the value of lead poisoning prevention efforts and resources. LeadSafeHomes.info also provides address-specific information for all of Massachusetts and community-level information about childhood lead poisoning in Boston neighborhoods.

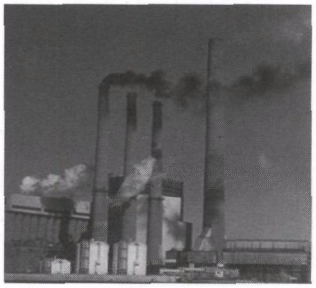
Measures of Success—Results/Outcomes

The Agency's work with external partners influenced EPA's internal resource deployment. The Office of Ecosystem Protection now coordinates regularly with the Office of Environmental Stewardship to target inspections, compliance assistance, and outreach and education, and set joint priorities for working in the Tier 1neighborhoods in Boston to bring all available Agency resources to focus on the greatest needs. These combined partnership efforts have already produced impressive measurable results. Since launching joint targeting efforts in 2001, elevated blood lead levels for children in Boston have dropped from 1,123 cases in 2001 to 747 cases in 2003 to 647 cases in 2004 to 497 cases in 2005. Recent data from the Boston Childhood Lead Poisoning Prevention Program also reports that, for the first time, the Fenway neighborhood had zero lead-poisoned children. Region 1 and its community partners are now poised to build on successes and achieve the mutual goal of ending childhood lead poisoning in Boston by 2010.

Activity: Chelsea Creek Community Listening Session

On September 28, 2006, EPA Region 1 and the Massachusetts Department of Environmental Protection (MassDEP) held the "Chelsea Creek Listening Session" in East Boston to follow up on a public request by the Chelsea Creek Action Group to focus on enforcement and compliance assistance programs and identify areas for future action in and around the Chelsea Creek. Chelsea Creek is an urban, industrialized river bordered by polluting industries, parking lots, a multi-ton salt pile, many hazardous waste sites, and fuel storage for industrial and commercial enterprises. The session included approximately 35 participants from government, nonprofit groups, community residents, healthcare professionals, school officials, and other local experts. It was a first-of-its-kind dialogue with the public, including urban communities around the Chelsea Creek such as East Boston, Chelsea, Everett, and Revere.

Region 1 and MassDEP identified six enforcement and assistance programs, developed in response to public concerns described in a 2003 report generated by the Chelsea Creek Action Group, to highlight during the event. The programs represent the best match between community needs and the authority and capabilities of the agencies. EPA focused on the following programs: 1) diesel idling; 2) Clean Water Act regulations for combined sewer overflows, sanitary sewer overflows, and stormwater; 3) supplemental environmental projects; and 4) the "1018" Residential Lead Paint Notification Program. Additionally, MassDEP focused on 1) the Massachusetts Clean Schools Program; and 2) a video surveillance program to identify illegal dumping of solid waste in urban neighborhoods.



Measures of Success—Results/Outcomes

During the three-hour listening session, community representatives described their priorities and concerns, listened to the EPA and MassDEP program presentations, and participated in open discussion and dialogue to identify areas of concern and potential future action. Region 1's Urban Environmental Program is working with the

Chelsea Creek Action group to gather additional ideas for action and reach even more residents. EPA and MassDEP managers have committed to finding ways to address issues of concern raised by the community and to conducting inspections or other program activities in the target communities to improve environmental quality and public health. EPA and MassDEP are currently working to determine possible regulatory and compliance assistance activities for the future and will report back to the community on plans for future work in urban communities along the Chelsea Creek.

Region 2

Activity: Community Training on Environmental Justice, Collaborative Problem-Solving, and Grant Writing

From November 7 through 9, 2006, EPA representatives from headquarters' Office of Environmental Justice and Region 2 met with community residents from across Puerto Rico to offer training on environmental justice, collaborative problem-solving, and grant writing. The focus of the two-and-a-half day community training event was to provide specific information to nonprofit community organizations serving the small private drinking-water systems in Puerto Rico (those not regulated by the Puerto Rico Aqueduct and Sewer Authority). The heart of this effort was to educate and engage these groups to better equip them to prepare and submit eligible and complete applications under a new Agency financial assistance program exclusively for these small private systems.

On the first day of the training, leaders introduced participants to the fundamentals of environmental justice. While several attendees had heard of the term "environmental justice," the day's presentations enhanced their knowledge of environmental justice in the United States and within the context of the history of the Commonwealth of Puerto Rico.

On the second day, participants had the opportunity to learn about the collaborative problem-solving model and how it can be used as a tool to address current public health and environmental issues they are facing in their communities. One of the main tools used in this portion of the training was a recently translated EPA publication titled *Justicia Ambiental de la EPA Modelo Colaborativo para Solucionar Problemas* (EPA's Environmental Justice Collaborative Problem Solving Model). Through the use of this tool, participants explored each of the seven elements of the collaborative problem-solving model and how they apply to unique local environmental issues.

As part of the collaborative problem-solving training, participants reviewed case studies along with highlights from former and current EPA grant recipients who benefited from using the model. The last phase of the training focused on grant writing. Participants learned step-by-step processes on determining eligibility and how to prepare a complete application under EPA's environmental justice grant programs.

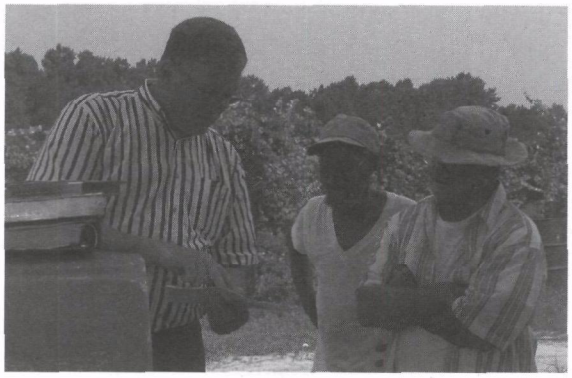
Measures of Success—Results/Outcomes

This training was the first of its kind offered in Puerto Rico, and it received an overall evaluation score of 9.7 out of 10 on participant feedback forms. As part of the effort to deliver a more effective training, as well as increase the understanding of many of the complex concepts, a translation firm offered its services throughout the entire training. This enhancement allowed real-time discussions to take place between English- and Spanish-speaking participants. Further, demonstrating their commitment to participate, a number of the community representatives traveled more than three hours each day to be a part of the training. One of the most productive outcomes from the training was the community leaders' decision to form an island-wide network to further their discussion on future actions, trainings to benefit their communities, and collaborative problem-solving.

Region 4

Activity: Protecting a High-Risk Population From Pesticide Exposure Through Cultural and Language Training for Inspectors

The Worker Protection Standard (WPS) is a federal regulation to protect agricultural workers from occupational exposure to pesticides and to reduce health risks associated with this exposure on farms and in nurseries, greenhouses, and forests. Agricultural workers are particularly susceptible to pesticide poisonings due to the nature of their work. According to the California policy research Center at the University of California, more than 1.2 billion pounds of pesticides are



used each year in the United States, and these chemicals are responsible for 300,000 illnesses in farmworker communities annually.

According to the U.S. Department of Labor, 81 percent of farmworkers in the United States speak Spanish as their first language; less than 5 percent of this group reports that they can speak and read English well. Effective implementation and enforcement of WPS is crucial for protecting this immigrant population, and part of effective WPS implementation is conducting thorough inspections of farms, nurseries, and greenhouses to evaluate whether agricultural workers are protected from pesticide exposure and working in a safe environment. Most agricultural inspectors responsible for enforcing WPS do not speak Spanish, however, and do not know how to approach or speak with Hispanic farmworkers effectively. In addition to the language barrier, there is also a cultural barrier; most inspectors feel uncomfortable approaching Hispanic workers, and Hispanic workers are fearful and uncomfortable about speaking with inspectors.

To address this issue, the Region 4 team developed a training course curriculum called "Breaking Barriers" to introduce inspectors to Hispanic

culture and the Spanish language. The cultural part of the curriculum helps inspectors understand differences in cultural norms that influence the way many Hispanics communicate (for example, there are different rules about eye contact and personal space) and helps them learn ways to approach workers in a culturally sensitive and non-threatening way. The Spanish language part of the curriculum includes vocabulary regarding agriculture, protective clothing, and symptoms of pesticide poisoning, as well as WPS interview questions in Spanish. As part of the course, Region 4 also created Spanish lessons on CD so inspectors can continue to learn Spanish on their own time. The course also covers interviewing techniques and how to work with an interpreter.

This curriculum has been used in seven regional and national inspector trainings, reaching inspectors from 39 states and tribes. It is the first of its kind that EPA has pursued to overcome these barriers and thus protect the health and safety of farmworkers in the United States.

Region 6

Activity: Nueces County Regional Colonia Initiative

Community residents of Corpus Christi, Texas, raised concerns to EPA Region 6 about the deplorable conditions in which many *colonias* (low-income, unincorporated subdivisions) residents are forced to live. Because most of the problems associated with *colonias* are local or county issues, however, EPA generally does not have the authority to address them. Instead, in Texas, the Office of the Secretary of State is charged with seeking solutions for the issues affecting the more than 1,600 *colonias* along the Texas border. After consulting with community leaders, EPA, and county officials, the Secretary of State's office proposed forming a Nueces County Regional Colonia Initiative and inviting stakeholder representatives to participate. EPA Region 6 assisted with an initial summit meeting in February 2006. The group continues to meet each month, and participants include county officials; various state, local, and federal agency representatives; nonprofit organizations; faith-based organizations; health groups; academia; and grassroots and *colonia* organizations.

Measures of Success—Results/Outcomes

The group is currently developing a strategic plan and working to define goals and objectives with determined timeframes. Serious challenges under discussion include the lack of potable water, lack of sewer systems and waste collection, water-borne health problems, lack of proper drainage, lack of paved roads, soil contamination due to oilfield wastes, and emergency response issues. Due to the creation, planning, and activities of this broad-based coalition, residents of these communities have realistic expectations for addressing their environmental and quality-of-life concerns.

Activity: Kelly Area Collaborative

In 1994, Executive Order 12898 established the Federal Interagency Working Group on Environmental Justice (IWG), a group composed of 11 federal agencies and several White House offices. The Executive Order directed the IWG to develop interagency model demonstration projects, thereby sharing resources and technical expertise to address communities facing a disproportionate number of adverse health or environmental problems.

In 2003, the IWG workgroup selected the Kelly Area Collaborative as one of its national pilot projects. Kelly Air Force Base (KAFB), located in San Antonio, Texas, was closed in 2001. For years, many residents in the low-income, 90-percent-Hispanic neighborhoods nearby have believed that their health problems were attributable to the activities on the base and the contamination generated there. The residents allege that the Air Force contaminated the area with the industrial solvent trichloroethylene (TCE), which is primarily used to remove grease from metal parts. TCE exposure is associated with several adverse health effects, including neurotoxicity, immunotoxicity, developmental toxicity, liver and kidney toxicity, endocrine effects, and several forms of cancer.

After the base closed and environmental cleanup began, community groups voiced frustration that community priorities were being ignored and requested that EPA exercise greater oversight and keep the community better informed. The community also pressed the Air Force to address health problems they believed were caused by contamination at the site. Based on those concerns, the Southwest Workers Union wrote a proposal regarding cleaning up KAFB communities, which was accepted as an IWG demonstration project in 2003.

The Air Force Real Property Agency, EPA Region 6, San Antonio Metro Health, the Texas Commission on Environmental Quality (TCEQ), and Port San Antonio (a division of the state of Texas established as a business entity to transform the former KAFB for the benefit of San Antonio) all agreed to participate in the project. Project planning began in July 2003, and EPA, San Antonio Metro Health, and the Air Force Real Property Agency shared facilitation expenses for planning meetings and roundtables. Additional partners in the collaborative effort included the Edgewood Independent School District, the city of San Antonio's Planning Department, and the Quintana Neighborhood Association.

Measures of Success—Results/Outcomes

The project held its first community meeting in May 2006 to identify community concerns and priorities regarding the environment, health, and economic revitalization of the KAFB area. The 60 participants devised a plan for future roundtables and implementation meetings, including an Environmental Roundtable and a separate Health Roundtable. The group is working collaboratively to identify solutions for the challenges they face together. This collaborative process leverages the limited resources of several agencies throughout various levels of government in order to maximize results. The KAFB area collaboration process has removed barriers and advanced the agenda for restoration and revitalization of the area.

Activity: Outreach to the Vietnamese-American Community After Hurricanes Katrina and Rita

Region 6's Vietnamese-American staff routinely offers skills in translating Agency documents into Vietnamese. Providing information in the native languages of immigrant populations increases awareness of environmental and public health issues and enables limited English proficiency individuals to make more informed decisions regarding their lives and their local environment. EPA's translation services for Vietnamese-Americans

were more important than ever after Hurricanes Katrina and Rita, which displaced approximately 50,000 Vietnamese-Americans. Providing vital environmental information to hurricane-affected communities was a top priority for EPA.

After these storms, Region 6 led a translation team consisting of native-speaking Vietnamese-American staff from OW, Office of Pesticides, and Regions 3 and 9 to ensure that all EPA-translated documents were technically accurate, linguistically appropriate, and culturally sensitive. Translated products included vital information and guidance on subjects such as emergency disinfection of drinking water; how to deal with mold, flood water, asbestos, and lead; how to clean up sediments; what to do when returning to homes and businesses after hurricanes; and hazardous waste and commercial debris disposal.

In addition, Region 6 assisted in creating a Web site to post EPA resources for hurricane preparation and recovery in Vietnamese. To publicize EPA's newly created Vietnamese Web site and resources, Region 6 participated in talk show broadcasts on local ethnic radio stations in Dallas and Houston. These locales were chosen because the majority of hurricane-affected Vietnamese-Americans were relocated to these areas.

The Region 6 Office of Environmental Justice and Tribal Affairs facilitated communication between a New Orleans East Vietnamese community, industry, and the state regarding the use of a local landfill for hurricane debris disposal. Community residents were opposed to the use of the landfill since they believed the long-term impacts would have negative consequences on health, quality of life, recovery, and revitalization. This process highlighted the necessity to integrate public participation into the emergency response decisionmaking process. Region 6 is working with the state and EPA's Office of Solid Waste to evaluate the current public process to make recommendations for change.

Measures of Success—Results/Outcomes

The staff translated approximately 20 brochures, pamphlets, and flyers and eight public service announcements into Vietnamese after the hurricanes and assisted the Agency's New Orleans Command Center in distributing more than 3,000 flyers and handouts to Vietnamese-American evacuees and communities in the affected areas.

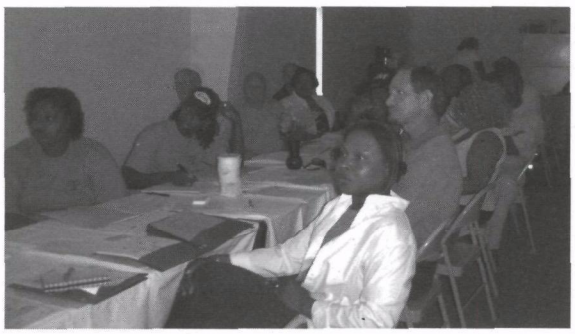
Region 6 engaged in outreach efforts with Saigon Houston Radio, the major radio station for more than 150,000 Vietnamese-Americans living in Houston, and also provided interviews to the Vietnamese Voice of America, which broadcasts more than 1,000 hours of news, information, educational, and cultural programming every week to an estimated worldwide audience of more than 100 million people; Vietnamese Public Radio in Washington, D.C.; and the *Times-Picayune* in New Orleans.

Region 7

Activity: Integrating Environmental Justice Through Grants and Collaboration

The city of Howardville is a low-income community with few economic opportunities and thus, no real tax base, where many inhabitants are seasonal farmworkers. The community is 99.7 percent African-American, 0.2 percent Indian, and 0.1 percent Caucasian. To help Howardville Community Betterment, Inc., a local community-based organization, in its efforts to improve the local environment, EPA Region 7 provided training in leadership skills, grant writing, and basic environmental education, in partnership with the Natural Resource Conservation Service. Enhanced grant-writing skills enabled the organization to effectively compete for an Environmental Justice Small Grant, awarded in 2005.

The purpose of the Environmental Justice Small Grant project was to develop and carry out an environmental campaign addressing safe drinking water, air quality, and safe waste disposal. The project addressed the causes and effects of respiratory illnesses (e.g., asthma), conducted home surveys as part of an effort to improve poor drinking water quality, conducted demonstrations to aid in the prevention and control of air pollution, and cleaned up open dumps and community "eye-sores."



Best Practice: Region 7

Action: Collaborate with local and state conservation and natural resource offices to address indoor/outdoor air and water pollution that causes contamination in drinking water, as well as exposure to solid waste. Determine the appropriate course of action to take for any noticed or reported illegal dumping.

Goal: To increase the resident knowledge of preventive health by assisting the community in better understanding the health impact and benefits of better air quality, safe drinking water, and proper disposal of solid waste.

Results:

- 59 percent increase in awareness of environmental hazards within the community
- 59 percent decrease in preventable illnesses

Partners included the Missouri Department of Conservation, the Missouri Department of Natural Resources, EPA, Conservation Federation of Missouri, Missouri Stream Team #1617-Howardville, Missouri Bootheel Healthy Start, Howardville landowners, New Madrid County Public Service Water District, the American Lung Association, and the Southeast Missouri Hospital.

Measures of Success—Results/Outcomes

During Howardville's grant period, September 2005 through September 2006, Howardville Community Betterment, Inc. helped ensure that

sewage problems were corrected, which has led to safer drinking water; cut down all the tall grass and overgrowth in the community; and removed the trash and debris from the downtown area. The community also hosted meetings with other nonprofit organizations and local and state government entities to address issues of concern, and leveraged the following resources and services from partners:

Partner	Expertise Provided
Carl Brown Consulting	Educated the community on sewage gas, water rates, and the costs and benefits of the community operating its own water systems.
Stream Team #1617—Howardville	Conducted litter pick-up.
Community Volunteers	Cleaned and cleared lots.
Southeast Missouri Hospital: Asthma Department	Hosted a meeting/training to assist residents who have asthma with the control and reduction of episodes.

Stopping residents of other communities from dumping and littering on Howardville property is a remaining issue that might require further assistance to address.

Region 9

Activity: U.S.-Mexico Environmental Program: Border 2012—Environmental Justice Accomplishments

The surge of industrial activity at the U.S.-Mexico border is straining the environment in many ways. Existing drinking water and wastewater infrastructure is not adequate to accommodate the growing population. Air quality is suffering due to the increase in the number of old vehicles, differences in governance and regulatory frameworks between the two countries, and topographic and meteorological conditions. Inadequate waste management systems, such as makeshift waste dumps, unsupervised waste sites, and scrap tire pile fires, contaminate the land. Also, an increase in the number of industrial facilities that create hazardous waste has led to more frequent chemical emergencies. At the same time, border residents face a high risk of exposure to these contaminants and are susceptible to high rates of asthma, hepatitis, and infectious diseases. As a result of these conditions, the area faces an immediate need for environmental and public health improvements as well as training for emergency response measures.

In April 2003, EPA, Mexico's Secretariat for the Environment and Natural Resources (SEMARNAT), the 10 border states, and 26 U.S. tribes agreed to renew their collective commitment to measurably improve environmental conditions along the 2,000-mile border. The commitment is

Best Practice: Region 9

Action: Form a collaborative to address and act upon six environmental goals at the U.S.-Mexico Border.

Goal: To achieve measurable improvements to environmental conditions and protect the health of border communities.

Results: A successful collaboration that has led to significant accomplishments and will continue to protect against environmental injustices in years to come.

embodied in the U.S.-Mexico Border 2012 Program, which includes six goals that address reducing pollution in the air, water, and land; improving environmental health; reducing exposure to chemicals from accidental releases or terrorism; and improving environmental performance through compliance, pollution prevention, and the promotion of environmental stewardship. Many border communities are low-income, minority, and tribal. Since the signing of Border 2012, this 10-year, bi-national effort has resulted in sustainable and tangible benefits that also address environmental justice.

Measures of Success—Results/Outcomes

Water Improvements—Between 2003 and 2005, EPA approved Border Environment Infrastructure Fund (BEIF) grants for 11 water projects that are estimated to benefit more than 1.6 million people. An additional $500 million was invested in drinking-water and wastewater infrastructure. For the most part, these efforts are due to the collaboration between EPA and Mexico's Comision National del Agua (CONAGUE) through the Border Drinking Water and Wastewater Infrastructure Program; the support of the border states, tribes, and municipalities; and the participation of the Border Environment Corporation Commission (BECC) and NADBank. In the past three years, Border 2012 funded the implementation of 22 projects throughout the border region to assess surface water quality; protect shared waterways; gauge the effectiveness of innovative wastewater treatment technologies; and provide training to border residents, municipal workers, and others on water system upkeep and basic sanitation practices.

Air Improvements—The majority of Border 2012 investments have been towards emission inventories, real-time bi-national air quality monitoring, and investments to support priority initiatives such as clean diesel and road paving. Unpaved roads contribute to high levels of particulate matter and are abundant in border communities. Border 2012 and NADBank have funded road-paving projects in Ciudad Juarez; Baja California; Sonora; Chihuahua; and Tamaulipas, Mexico. Ambient air monitoring networks provide communities with information on air quality trends, which serves as a foundation for identifying emission reduction strategies. EPA, SEMARNAT, the 10 border states, 26 U.S. tribes, and Mexican indigenous communities support many bi-national ambient air monitoring networks in the border region, including projects with the Pala Band of Mission Indians and the Torres Martinez Desert Cahuilla Indians.

Waste Management Improvements—From 2003 to 2005, the Border 2012 program invested more than $2.1 million on 23 projects aimed at reducing land contamination along the border. Cleaning up tire piles and improving scrap tire management practices made up 35 percent of the projects; 30 percent addressed proper handling of hazardous waste; more than 22 percent of projects involved funding strategy development and waste reduction and recycling programs; and 13 percent funded cleaning up contaminated sites. One project cleaned up an illegal dump site in the Tohono O'odham Nation and a copper mine in the Arizona and Sonora area. The Border 2012 program also held four public meetings to hear citizen concerns and

identify ways to improve waste management. The program also sponsored a Brownfields workshop in El Paso, Texas, which provided grant training and funding opportunities to both U.S. and Mexican partners.

Emergency Response Improvements—Government agencies have invested more than $300,000 in 12 projects to support emergency response and preparedness activities. The majority of these funds were used for capacity-building projects, including emergency contingency training development. Other accomplishments include implementing several bi-national and tri-national (including tribal nations) exercises to help develop emergency preparedness and prevention in the border region. These efforts include risk and consequence analysis, risk reduction, and counterterrorism.

Health Improvements—Border 2012 funded seven pesticides-related projects addressing a variety of issues and created an Environmental Health Work Group to address bi-national environmental health concerns. The group's efforts developed and supported a wide range of projects, including the creation of a bi-national Border Health Week, which brings together more than 29 federal partner agencies and 310 community organizations to promote public health along the border and training *promotoras* (community health providers) to educate the community on environmental health issues such as child pesticide exposure.

Best Practice: Region 9

Action: Bring together local, state, federal, and tribal agencies and community groups in collaboration to clean up and prevent future open dumps.

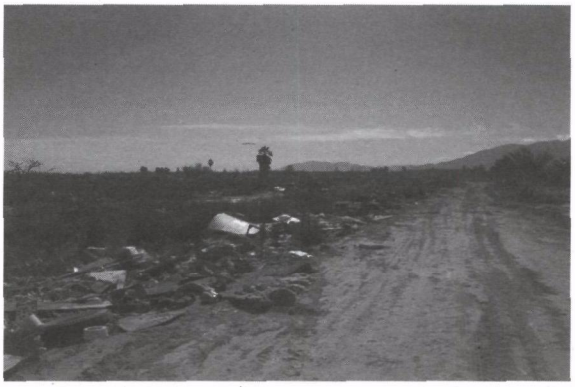
Goal: To clean up all 27 illegal dump sites, prevent all further illegal dumping through surveillance and enforcement, and continue to involve the community in the effort.

Results: Closure of the Lawson facility, clean-up of 11 dumps, and enforcement actions against dump owners.

Activity: Torres Martinez Solid Waste Collaborative

The Torres Martinez Reservation is located in the agriculturally rich Coachella Valley, in Riverside County in southern California. It consists of approximately 24,800 acres of land, including more than 11,000 acres under the northern Salton Sea and 12 miles of Salton Sea shoreline. Because of the expanding population in nearby communities, several major housing developments are underway, which has increased the volume of illegally dumped solid waste on the reservation—particularly, construction and demolition debris and green waste. Not only is this an unsightly and costly nuisance for the reservation, but fires from the open dumps are also a major concern.

To address cleaning up and preventing illegal dumping on the reservation, EPA, along with the Torres Martinez Tribal Government; the Bureau of Indian Affairs (BIA); and local, state, and other federal agencies, formed the Solid Waste Collaborative in April 2006. The collaborative identified approximately 27 illegal dump sites



and developed an action plan to address the issue, including establishing various subcommittees to deal with different sites. The community outreach subcommittee, for example, educates Torres Martinez and surrounding Riverside communities about preventing and stopping illegal dumping. In June 2006, the tribe sent a letter to all landowners and residents on the reservation reminding them about the tribe's Land Use Ordinance. The tribe also installed billboards in English and Spanish warning against illegal dumping on the reservation and also posted 35 "No Dumping" signs. The group also published a Spanish/English dumping alert in local Coachella Valley newspapers and cities within the Coachella Valley. EPA distributed the alert to hundreds of area waste generators and haulers.

As part of the collaborative's efforts, EPA issued four notices of potential violation in response to the illegal dumping of grape stakes and other waste. In June 2006, EPA inspected eight facilities suspected of disposing of solid and hazardous waste on the reservation and assisted four reservation landowners with proper management of waste tires and used oil. Further planned efforts to monitor compliance include installing surveillance cameras on the reservation and aerial monitoring of the reservation by the California Highway Patrol and Riverside County Sheriff's Office to track existing illegal dump sites and identify new ones.

Measures of Success—Results/Outcomes

The collaborative agreed to an action plan addressing 27 dumps on the reservation, and EPA, BIA, and the California Integrated Waste Management Board have all provided funding for dump closures. In addition, the Riverside County Badlands Landfill is now approved to accept treated wood waste, providing an alternative to illegal dumping and burning on the reservation. Within one year, the Torres Martinez Solid Waste Collaborative has shut down three of the largest dump sites and cleaned up almost half of the remaining 24 sites. The tribe plans to clean up and install access control for three more sites in 2007.

Environmental Justice Priority: Reduced Incidences of Elevated Blood Lead Levels

Blood lead levels in the United States remain alarmingly high in localized areas, despite marked decreases nationally. In this country, the incidence of elevated blood lead levels greater than or equal to 10 micrograms per deciliter (⊠g/dl) in children 1 to 5 years old dropped from approximately 88 percent of children in 1976–1980 to about 2 percent in 1999–2002. The decline in blood lead levels from 64 parts per million in 1990 to 38 parts per million in 2000 is due largely to the phasing out of lead in gasoline between 1973 and 1995 and the reduction in the number of homes with lead-based paint. In many areas with minority and low-income populations, elevated blood lead levels remain unacceptably high, however.

Lead is a major environmental health hazard for young children. Childhood exposure to lead contributes to learning problems such as reduced intelligence and cognitive development. Studies have shown that childhood exposure to lead contributes to hyperactivity and distractibility, increases the likelihood of having a reading disability and lower vocabulary, and increases the risk for antisocial behavior and delinquency.

In 1997, CDC identified three factors that independently correlate to a greater risk for elevated blood levels in children: 1) being of non-Hispanic Black race; 2) having an income below the poverty line; and 3) living in housing built before 1946. The same correlations also apply to blood lead poisoning (blood lead levels greater than 20 μg/dl), the level at which intervention is recommended. Indicative of these findings, for 1999–2002, while only 7 percent of White, non-Hispanic children and 7 percent of Mexican-American children had blood lead levels at or above 5 g/dl, about 19 percent of Black, non-Hispanic children showed elevated lead levels. In addition, in 2000, CDC found that children of low-income families comprise 83 percent of the children ages 1 to 5 with blood lead poisoning.

EPA is seeking to address this nationwide issue under the Residential Lead-Based Paint Hazard Reduction Act of 1992. Programs range from abatement and enforcement-based strategies to education. Moreover, EPA recently established two new ambitious but realistic targets, based on health disparity comparisons. To place resources where they are needed most, EPA has set a goal to close the blood lead poisoning disparity and to eliminate childhood lead poisoning by 2010.

Region 2

Activity: Children's Health Protection Initiative

The Children's Health Protection Initiative in Jersey City, New Jersey, focused on environmental hazards with a disproportionate potential to impact children, including drinking water, asbestos, pesticide usage and hazardous waste management in schools, and lead paint disclosure in target housing. To accomplish these goals, Region 2 used a multi-faceted approach that combined education and outreach; compliance assistance; and a review of compliance with asbestos, residential lead, pesticides, and hazardous waste regulations. The criteria that were evaluated in selecting Jersey City for this initiative included: the incidence of children with elevated blood lead levels; high risk from Toxic Release Inventory (TRI) releases, as measured by the TRI risk model; density of industrial facilities; and asthma rates.

Measures of Success—Results/Outcomes

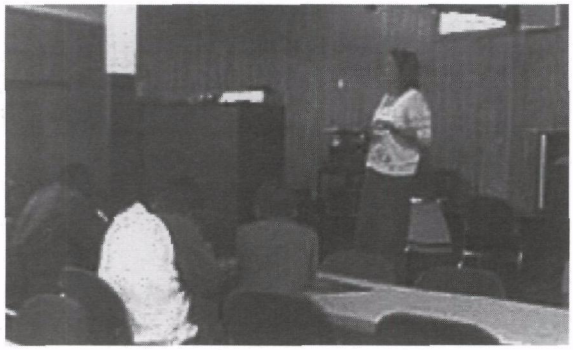
The initiative resulted in: 1) collecting and analyzing 324 samples covering all tap water lines in eight elementary schools, which identified 46 water lines that were taken out of service until they were remediated; 2) offering guidance throughout the sampling process; 3) mailing Integrated Pest Management outreach materials to all schools in Jersey City; and 4) completing Asbestos Hazard Emergency Response Act inspections for all schools, eight Resource Conservation and Recovery Act inspections, 44 lead-based paint inspections, and joint IPM inspections with the state Department of Environmental Protection.

Region 7

Activity: Lead Poisoning Prevention Community Initiative

EPA Region 7 is utilizing a broad-based strategy to address childhood lead poisoning that will help meet EPA's 2008 and 2010 goals for lead reduction in children. In the spring of 2006, Region 7's Lead and Environmental Justice programs partnered with the Kansas City, Missouri, Health Department; the Ivanhoe Neighborhood Association; and several other community members to create the Lead Poisoning Prevention Community Initiative (LPPCI). This initiative grew out of the state of Missouri designating Kansas City as a high-risk area for childhood lead poisoning, since approximately 80 percent of the houses in Kansas City contain lead-based paint. For this reason, children between the ages of 6 months and 6 years should be tested annually for elevated blood lead levels. EPA staff spent six months developing and piloting an initiative to foster sustainable behaviors to address and prevent childhood lead poisoning.

LPPCI is a social marketing demonstration package that has been presented to numerous health departments and lead workers throughout the

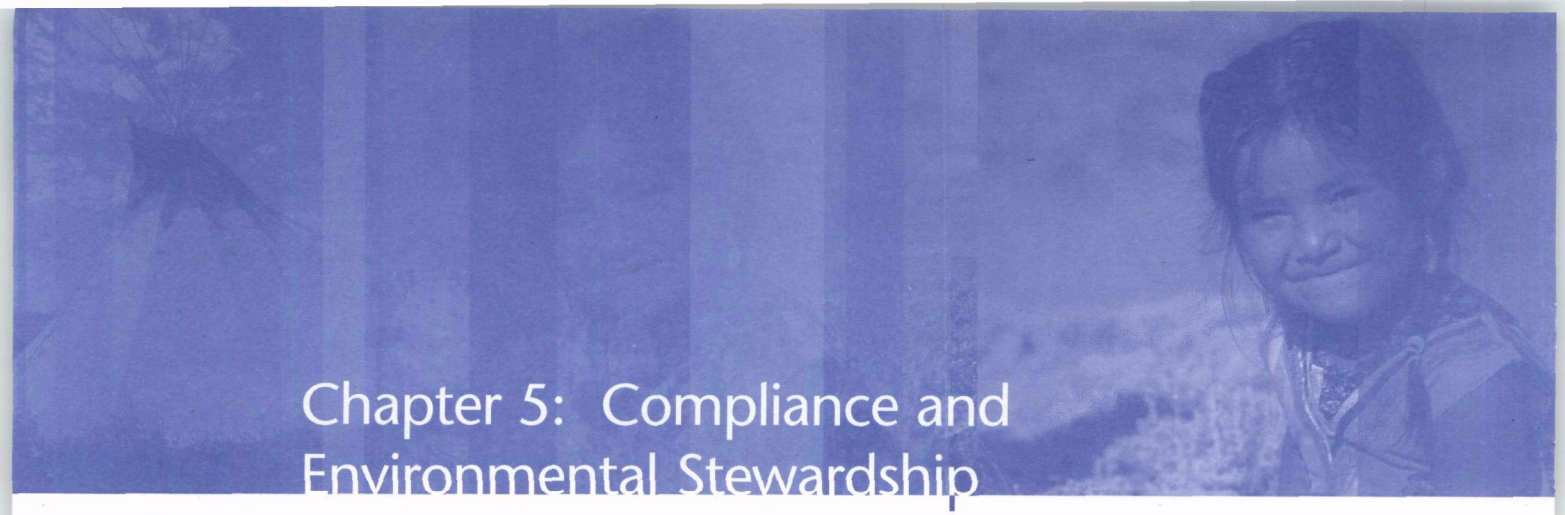


region. It was developed using marketing techniques that recognize common human behaviors and remove barriers to sustainable behavior. The components of LPPCI include mass communication; personal communication; and the provision of background educational information, alternative guidance, resource information, and supplies to implement changes. LPPCI's success will be measured not only by the number of families reached, with the ultimate goal of reducing childhood lead poisoning in the Kansas City metropolitan area, but also by the number of other communities that implement this package.

The specific components of the project include: "train-the-trainer" certification for community members; lead awareness presentations to parents and caregivers; lead outreach to families during summer and back-to-school events; and a media campaign utilizing television and print, such as the use of bus signs and billboards in the Kansas City Metro area.

Measures of Success—Results/Outcomes

The initiative provided four train-the-trainer sessions to more than 30 individuals, resulting in 20 community trainers committed to reaching 1,000 individuals in one year with the message of lead poisoning prevention. Community trainers received a training kit that included a tote bag, a training t-shirt, a tabletop presentation board, lead awareness publications, presentation measurement cards, and training guidelines.



Chapter 5: Compliance and Environmental Stewardship

Environmental justice is specifically integrated into EPA's 2006-2011 Strategic Plan, Objective 5.1: "Achieve Environmental Protection Through Improved Compliance." Each aspect of the objective places an "emphasis on achieving results in areas with potential environmental justice concerns," through Compliance Assistance (Sub-objective 5.1.1), Compliance Incentives (Sub-objective 5.1.2), and Monitoring and Enforcement (Sub-objective 5.1.3). This emphasis will result in improved environmental quality for all people, especially for those living in areas that can have a disproportionate number of adverse environmental and human health risks. To achieve the desired results, the Office of Enforcement and Compliance Assurance (OECA) has committed to developing a set of nationally consistent environmental justice indicators of health, environment, compliance, and demographics to identify "Areas with Potential Environmental Justice Concerns." Based on the analysis of the indicators in specific areas, OECA will develop specific environmental justice measures and goals for compliance assurance activities. OECA will then be able to report on the impact of compliance efforts in areas found to be disproportionately affected. EPA's efforts will lead to improved protection in minority and/or low-income communities.

Environmental Justice Priority: Compliance

To protect human health and the environment, EPA is charged with enforcing and ensuring compliance with those federal environmental laws for which the Agency is responsible. OECA carries out its functions through compliance assistance, compliance monitoring, compliance incentives, and civil and criminal enforcement, as well as by ensuring the program adequacy of its regulatory partners: state, tribal, and local pollution control authorities.

EPA strives to ensure that all citizens receive full and equal protection under the nation's environmental laws and regulations, regardless of race, color, nationality, or economic status. In fulfilling its protective mission, OECA integrates environmental justice considerations into its program through targeted data analyses of compliance and the development of enforcement initiatives to address identified problems. These problems often may affect specific groups (e.g., urban populations, farm workers, and subsistence fishermen). OECA also reaches out to communities, establishes partnerships, and takes steps to gather information to identify environmental violations that might otherwise go unreported.

To ensure that OECA personnel have the capacity to identify and address environmental justice concerns, all OECA personnel with environmental decisionmaking responsibilities receive action-oriented training in the fundamentals of environmental justice. This training enhances the skills of enforcement personnel and has resulted in increased integration of environmental justice considerations into OECA's programs, policies, and activities.

OECA divides its work into two broad categories: 1) National Program Priorities and 2) the Core Program. The National Program Priorities represent a discrete set of targeted strategies that focus the efforts of compliance and enforcement staff at headquarters and in each of the 10 regional offices. The Core Program is made up of basic activities necessary to implement and oversee the 10 federal statutes and 28 programs for which OECA ensures compliance. Both the National Program Priorities and the Core Program operate on a three-year time frame, which aligns with the Agency's Strategic Plan. OECA has established a cross-cutting environmental justice element in each of the National Program Priorities. This integration will ensure that environmental justice concerns are considered and addressed and that regional and headquarters efforts are properly aligned.

Headquarters

Activity: OECA's First Environmental Justice Achievement Award

In 2006, with strong support from OECA's senior leadership, the OECA Environmental Action Council and OECA's Office of Planning, Policy Analysis, and Communications (OPPAC) created and awarded the first OECA Environmental Justice Achievement Award. OPPAC created this new award as a mechanism for OECA to acknowledge groups and individuals who take proactive measures to achieve OECA's environmental justice goals and support and effectively implement OECA's Environmental Justice Policy.

In January 2004, OECA issued its Environmental Justice Policy, requesting the integration of environmental justice as an operating principle into its programs, policies, and activities to ensure that no community is disproportionately placed at risk from environmental and human health threats. The policy also requires that environmental justice be fully integrated into OECA's planning and budgeting processes and calls for OECA-wide training for staff and managers who are asked to ensure that the integration of environmental justice into their programs is achieved in accordance with the policy.

The OECA Environmental Justice Achievement Award is now part of OECA's annual Honor Awards ceremony and is awarded to an OECA employee or team of employees who has demonstrated a commitment to environmental justice principles through a project or activity that 1) promotes sound environmental justice principles; 2) effectively assesses and addresses a community's environmental justice concerns; and 3) contributes to the implementation of OECA's Environmental Justice Policy.

Measures of Success—Results/Outcomes

In July 2006, OECA announced the recipient of the first OECA Environmental Justice Achievement Award. The award went to an interoffice team consisting of staff from the National Enforcement Training Institute (NETI) and Office of Environmental Justice, who developed the Web-based *Introduction to Environmental Justice* course that has significantly advanced the understanding of environmental justice principles and affected the overall awareness of environmental justice considerations at OECA, EPA, and beyond.

Although a classroom-based course on the *Fundamentals of Environmental Justice* has existed for several years, OECA recognized the need for a more widely available, updated, and enhanced approach to environmental justice training to raise awareness of environmental justice issues and principles. Working with experts in NETI, OEJ used technology to enhance the effectiveness and appeal of this material. Through NETI's subject matter expertise and technical knowledge, and with skilled management of contractors, the winning team creatively used available template design work to produce the online course.

The Web-based course is more widely available than the existing classroom-based course and uses animation, graphics, interactivity, and feedback mechanisms, and measures knowledge. The course has resulted in a high-quality and cost-effective means to enhance learning and improve awareness of environmental justice principles. Already used by hundreds of people throughout EPA, and also available to state and local government agencies, the training has proven its effectiveness and highlighted the potential demand for similar courses.

Activity: Wood Heater Supplemental Environmental Projects

During 2006, Wood Heater Program (WHP) staff in the Compliance Assessment and Media Programs Division within the Office of Compliance negotiated two Supplemental Environmental Projects (SEP). Through these projects, two wood stove manufacturers agreed to donate a total of 74 wood stoves to two Weatherization Assistance Program (WAP) providers (Community Housing Partners of

Christiansburg, Virginia, and Opportunity Council of Bellingham, Washington) in lieu of paying monetary penalties for their violations of the Clean Air Act.

WHP is a headquarters program that administers and enforces provisions of the New Source Performance Standard (NSPS) for New Residential Wood Heaters at 40 CFR Part 60, Subpart AAA. The NSPS was promulgated on February 26, 1988, to reduce particulate matter (PM) emissions from wood stoves. The NSPS requires manufacturers of wood stoves to certify through emission testing and a compliance certification review process that each wood stove model line offered for sale in the United States meets a PM emission limit of 7.5 grams per hour for non-catalytic wood stoves and 4.1 grams per hour for wood stoves that use a catalyst to reduce emissions. As a result, EPA-certified wood stoves are 80 percent cleaner and 50 percent more efficient than wood stoves manufactured prior to promulgation of the NSPS regulations. In addition to certifying wood stove model lines for compliance with the NSPS, WHP staff also conduct field inspections at manufacturing facilities and retail outlets, initiate enforcement actions, negotiate settlement agreements, and respond to residential complaints.

Measures of Success—Results/Outcomes

WAP providers are nonprofit organizations funded by the U.S. Department of Energy (DOE) to provide energy assistance services to low-income and very low-income households. The WAP providers installed donated wood stoves free of charge in low-income households in Westmoreland County, Virginia, and Whatcom County, Washington. To date, 70 of the 74 wood stoves have been installed. The use of free WAP installation and counseling services reduced costs by nearly 50 percent. Since the SEP penalty amounts were fixed, the free services provided by the WAP providers allowed twice as many households to receive new wood stoves. The remaining four wood stoves are scheduled to be installed prior to the September 30, 2007 project deadline. Once complete, the installation of the new wood stoves will permanently reduce PM emissions by 2 tons per year.

The success of the two SEPs prompted the National Community Action Foundation (NCAF) and the Hearth Patio and Barbecue Association (HPBA) to collaborate on an Open Letter to the Enforcement Community, dated October 6, 2006. In this letter, the NCAF and the HPBA encourage local, state, and federal regulators to incorporate use of WAP organizations to improve air quality in low income communities through the replacement of old, inefficient woodstoves.

Region 3

Activity: Park Heights Auto Body/Auto Repair Shop Compliance Initiative

A project known as the Park Heights Auto Body/Auto Repair Shop Initiative aimed to increase regulatory compliance of auto body shops in the Lower Park Heights neighborhood of Baltimore, Maryland. This was a joint effort of EPA Region 3's Office of Enforcement, Compliance and Environmental Justice (OECEJ); OECA; the Maryland Department of the Environment (MDE); the Park Reist Community Corridor Coalition; the Park Heights Community Health Alliance; and the Northwest Baltimore Automotive Association.

Lower Park Heights is a predominantly minority and low-income neighborhood in northwest Baltimore with a significant number of auto body and auto repair shops located throughout the community. For years, the residents have expressed concern to state, local, and federal officials that these facilities are sources of environmental pollution that adversely impact the quality of life in their neighborhood. In fact, MDE had noted motor oil and other automotive byproducts that had originated in the area showing up in storm drains and water treatment facilities. Senator Barbara Mikulski requested that EPA Region 3 tour the area and evaluate any environmental problems, so OECEJ met with MDE and a variety of stakeholders in the Park Reist Corridor and conducted the tour. They found that many of the facilities in question did not comply with local zoning ordinances and exhibited environmental problems. Inspectors found that facilities were generally unresponsive, closed, or would move to another location when confronted with violations.

OECEJ, MDE, and the local stakeholders agreed to work collaboratively on a project that would: 1) identify a population of regulated facilities and establish a statistically defensible compliance rate calculation methodology; 2) improve compliance rates in an identified population of regulated facilities by conducting a compliance assistance project with measurable results; and 3) conduct a collaborative activity involving the affected community in an effort to bring compliance assistance to the regulated community.

The project was designed in three phases. In Phase One, the partners: 1) developed a definition of automotive repair and auto body shop facilities including SIC code and facility size; 2) counted and geo-coded facilities in the geographic study area that fit the definition; 3) developed a statistical formula to identify how baseline and follow-up inspections would be required to establish the project's null hypothesis that compliance assistance changed the compliance rate within an acceptable range of certainty; 4) created an inspector checklist, using selected behavioral indicators based on regulatory requirements, which was used to measure the compliance rate before and after the compliance assistance activity; 5) formulated outcome measures; and 6) conducted the necessary number of random inspections, using the checklist to determine a baseline compliance profile.

In Phase Two, partners conducted targeted compliance assistance activities based on the results of the Phase One inspections. The activities included: 1) distributing user-friendly facility workbooks written in "plain English" to all shops; 2) providing facility training opportunities for all shops that chose to attend; 3) encouraging voluntary self-audits and completion of self-certification forms; 4) completing a community survey and sharing results with the facilities; and 5) developing site-specific solutions to encourage better practices. In addition, partners conducted follow-up compliance profile inspections and baseline and follow-up inspections and analyzed community survey data, which were reported by the University of Baltimore.

Phase Three used the data gathered in Phases One and Two as the basis for developing an ongoing compliance assurance program that would involve and assist the residential community with the identified facilities. The goal was to conduct a

collaborative activity within the community to bring compliance assistance to the regulated community.

Measures of Success—Results/Outcomes

The partners used the information gathered by the study as a basis for establishing a permanent and ongoing compliance assistance program, and to focus on the illegal operators who unlawfully dumped their waste. In addition, the participating shop owners came up with the idea of creating a local trade association designed to maintain and enhance their improved compliance and assist in improving environmental conditions and the quality of life in the community. The group will use a database to keep track of all the partner shops in the neighborhood. The trade association will provide a reliable point of contact for the shops to lodge complaints with the appropriate regulatory authorities concerning violations; serve as a point of contact for ongoing training regarding environmental regulations; and serve as a clearinghouse for information. The association will also serve as a mechanism to certify those shops that received the initial training and ongoing compliance assistance. Association meetings will provide a forum where shop owners can discuss and possibly solve their common problems. The association will also act as a liaison with the community and provide recognition for facilities that are working to be environmentally responsible.

Lessons learned from Phase One included the need for specific training and debriefing of inspectors because data capture inspections are very different from the traditional compliance inspections. The inspector must be trained to focus on the knowledge-based indicators, to compile information regarding how well a facility understands regulations, and to read the behaviors of facility staff with respect to regulations. The partners also learned that there were far fewer facilities in the area than had initially been indicated, as many facilities either relocated, closed, or could not be found at the addresses indicated.

Compliance assistance activities in Phase Two were extremely successful. Many facilities' compliance with environmental regulations improved after this stage, and the group of shop owners recognized the benefits of working with the program. In general, shops showed a greater awareness of environmental regulations and a marked desire to comply with these regulations.

Chapter 6: Cross-Goal Strategies

EPA's cross-goal strategies include improving the quality and availability of environmental and health information, providing sound science and research, and strengthening partnerships with states and tribes. All of these strategies play a critical role in supporting the Agency's efforts to meet all of the other goals in its *Strategic Plan*. This chapter highlights a few of the science and research and environmental and health information activities conducted over the past two years.

Environmental and Health Information: Accurate, timely, and usable information is the foundation for decisions and actions taken by EPA, states, and others responsible for protecting human health and the environment. Effective information management is vital to the success of EPA's mission and contributes to the achievement of all Agency strategic goals. The federal community has recognized and commended EPA for ensuring that information investments are made wisely to achieve environmental results. EPA develops, collects, analyzes, and provides integrated access to information to promote more knowledgeable and environmentally responsible attitudes, decisions, and actions. EPA strives to provide the right information, at the right time, in the right format, to the right people. This means making quality environmental and management information available for developing environmental policies and priorities. It means making environmental data publicly accessible to support individual and community involvement in decisions that can affect environmental quality and public health. It also means building the necessary infrastructure to provide secure information, reliable data, efficient and timely access, and analytic information tools.

EPA'S CROSS-CUTTING ENVIRONMENTAL INFORMATION STRATEGY

Enhance environmental results through the improved use of quality environmental information by EPA decisionmakers, states, tribes, other partners, and the public to:

- Promote environmentally beneficial action
- Improve environmental decisions
- Promote more environmentally responsible attitudes
- Improve knowledge

Science and Research: Science plays a vital role in supporting the protection of public health. Sound science is at the core of understanding and adequately addressing the needs of communities that are disproportionately affected by environmental problems. EPA is seeking to address environmental justice issues before they become environmental justice concerns by helping communities make informed decisions about their health and well being. EPA's Office of Research and Development (ORD) brings environmental justice concerns to bear, either directly or indirectly, through its research, expert advice, and leadership in the development of Agency science policies.

Through coordinated efforts with EPA's program and regional offices, ORD links environmental justice activities across the spectrum of the Agency's science endeavors. ORD is committed to conducting research that, while addressing major Agency issues, also supports environmental justice concerns through focused research activities and/or conducting field studies in communities disproportionately affected by environmental issues.

ORD is also committed to strengthening its environmental justice program by improving lines of communication to both its internal and external stakeholders, as well as environmental partners. By incorporating an environmental justice component into the research programs and initiatives, EPA seeks to more effectively address these challenging issues.

Environmental Justice Priority: Reduction in Asthma Attacks

Headquarters

Activity: Detroit Children's Health Study

The Detroit Children's Health Study (DCHS), a multi-year study being conducted by ORD, is investigating the potential relationship between children's respiratory health and outdoor air pollutant exposures. Specifically, scientists in the National Health and Environmental Effects Research Laboratory (NHEERL), in cooperation with the National Exposure Research Laboratory (NERL), EPA Region 5, and researchers at the Henry Ford Health System, are conducting the DCHS to examine the role of environmental factors in the prevalence of allergy and asthma among children in the greater Detroit metropolitan area. This epidemiologic study will help in understanding the relationship, if any, between local outside air emissions, particularly motor vehicle emissions, and the initiation of allergic asthma in schoolchildren (ages 7 to 12). The study's findings will be used by EPA program offices and by local officials involved in community planning issues.

The DCHS can be divided into three primary parts: 1) assessing exposure; 2) administering a large questionnaire survey; and 3) conducting a smaller respiratory health study of selected children. The first part involves studying neighborhood differences in outdoor concentrations of air pollutants in the Detroit metropolitan area by

taking exposure measurements outside selected schools. It also involves collecting information on many other factors, such as exposure to smoking, molds, and household pests, that are known to play a role in children's health status. The second part involves administering a health questionnaire to the families of 7,500 children residing in Detroit and Dearborn, Michigan, who have been served by the Henry Ford Health System. The 20-page health questionnaire, completed by the parents or guardians, covers respiratory outcomes, such as asthma and wheezing symptoms, and known risk factors, such as environmental tobacco smoke, parental health conditions, and housing characteristics. The third part of the study involves taking clinical measurements of lung function and exhaled breath from a voluntary subset of nearly 1,400 children.

In parallel research studies, scientists from NERL assessed neighborhood differences in air pollutant concentrations, and NHEERL scientists will examine biological markers for effect and susceptibility. From 1999 through 2003, NHEERL also conducted a similar research project, the El Paso Children's Health Study in collaboration with NERL scientists. This study involved nearly 9,000 schoolchildren in El Paso, Texas. The border cities of Detroit and El Paso share common characteristics, such as major diesel truck routes and vehicle idling at international border crossings, although the two cities have great climatic differences.

Measures of Success—Results/Outcomes

In the summer of 2006, EPA scientists conducted air sampling at 25 locations throughout Detroit and Dearborn for the first part of the study and now are analyzing these air quality measurements to assess neighborhood differences in air pollutant concentrations. For the second part of the study, EPA conducted the survey questionnaire and hopes to provide a descriptive summary of the findings to the community in 2008. In the third part of the study, EPA collected clinical measurements of children's lung function and exhaled breath in the summer and fall of 2006. The final results of the study will be published in scientific journals by 2009.

EPA conducts a broad program of asthma-related research, as described in its Asthma Research Strategy. Working with the National Institute of Environmental Health Sciences (NIEHS), EPA previously supported 12 Centers of Excellence for Children's Environmental Health, including the Michigan Center for the Environment and Children's Health in the Detroit metropolitan area. The intramural EPA research program includes both experimental studies to develop animal models for asthma and observational studies of children and adults with asthma. ORD scientists have also worked with the University of North Carolina's Center for Environmental Medicine, Asthma, and Lung Biology to improve methods of assessing allergies and asthma in children.

Environmental Justice Priority: Fish and Shellfish Safe to Eat

Headquarters

Activity: Contaminant Concentrations in Whole-Body Fish and Shellfish from U.S. Estuaries

Chemical contamination of coastal and estuarine biota continues to be of public concern, especially among populations that are heavily dependent on fishing as a primary food source. Despite laws and regulations governing the use and disposal of chemical contaminants found in estuarine biota, their adverse effects are well-documented. To analyze data about chemical concentrations in fish tissues in U.S. waters, ORD's Environmental Monitoring and Assessment Program (EMAP) collected data from probability-based surveys conducted in 2000 and 2001 in northeastern, southeastern, Gulf of Mexico, and West Coast estuaries. In addition, scientists from ORD's National Health and Environmental Effects Research Laboratory (NHEERL) collected fish and shellfish from 736 sites and analyzed composite samples for a suite of chemical contaminants, including persistent, bioaccumulative, and toxic chemicals. EPA found contaminant concentrations in a variety of finfish and shellfish species from U.S. estuaries (excluding Alaska and Hawaii) and presented results in a set of guidelines for recreational anglers who consume their catch.

EPA analyzed whole fish and shellfish tissue samples for 23 polycyclic aromatic hydrocarbon (PAH) compounds, 21 polychlorinated biphenyl (PCB) congeners, DDT and five of its metabolites, 14 chlorinated pesticides (other than DDT), and 13 metals, including mercury, and presented results for each coastal region, as well as a national estimate. Non-cancer effects from consuming contaminated fish include liver, kidney, neurological, muscular, ocular, reproductive, respiratory, circulatory, or other organ toxicities, and adverse developmental and reproductive effects from acute and chronic exposure. The guidelines provide recommendations for how many 8-ounce fish meals people can consume per month based on age, weight, and contaminant.

Measures of Success—Results/Outcomes

Fifty-two percent of the studied sites did not exceed non-cancer chemical concentration guidelines, 22 percent were between the lower and upper limits, and 26 percent exceeded an upper limit for one or more examined contaminants. The northeast region had the largest number of sites that exceeded minimum threshold values (69 percent), whereas the Gulf of Mexico had the least (35 percent). The southeast and west regions exceeded the minimum threshold value for 42 percent and 47 percent of sites, respectively. Total PCBs accounted for the greatest percentage of exceedances (20 percent of sites) of the upper limit thresholds and represented approximately 45 percent of all contaminant samples exceeding their respective upper limits. Mercury concentrations exceedences occurred at 11 percent of the sites. Mercury preferentially binds to muscle tissue; therefore, values were multiplied by three, so as to not underestimate the burden of mercury in whole fish. Total PAHs exceeded suggested guidance levels at 9 percent of sites, and total DDT

exceeded suggested guidance levels at 8 percent of sites. Toxaphene, cadmium, and dieldrin exceedances occurred at less than 1 percent of sites.

In this study, scientists collected specimen samples from all sites where an unbiased collection method could be employed that would provide a comparable catch community across large spatial areas (regions of the United States). Although the fish and shellfish caught are not usually thought of as the consumable species intended for the EPA recreational angler consumption guidelines, they are frequently intermediate-trophic-level (prey) species for larger predatory fish that are of commercial value. Applying EPA's recreational angler risk-based guidelines to examine whole-body tissue samples collected during the National Coastal Assessment survey, baseline national and regional fish and shellfish contaminant estimates can be used in support of tiered aquatic life use models and development of ecological criteria for U.S. estuaries.

Environmental Justice Priority: Collaborative Problem-Solving

OEI is responsible for establishing an innovative center of excellence that advances the creation, management, and use of information as a resource at EPA to support its strategic priorities, goals, and mission to protect human health and the environment. OEI identifies and implements innovative information technology and information management solutions that strengthen EPA's ability to achieve its goals. OEI ensures the quality of EPA's information and the efficiency and reliability of EPA's technology, data collection and exchange efforts, and access services.

In addition, OEI is the focal point for information collection and the development and implementation of innovative information collection policies and approaches for the Agency. OEI has integrated environmental justice considerations into the office's daily operation, supporting the eighth National Environmental Justice priority: collaborative problem-solving. OEI's functions support EPA's cross-cutting environmental information strategy's three-pronged approach to meeting information challenges laid out in the *2003-2008 EPA Strategic Plan*: analytical capacity, governance, and excellence in information service delivery. The best way to illustrate how the development and implementation of innovative information collection approaches address environmental justice concerns is by reviewing how EPA's Exchange Network addresses environmental information collection, maintenance, and sharing.

Headquarters

Activity: Exchange Network

In 1998, EPA responded to the challenge of the ever-growing interest in and need for environmental and public health information by working collaboratively with partners to develop the Internet-based Environmental Information Exchange Network, funded through the Exchange Network Grants program. This partnership, which includes EPA, states, tribes, and territories, has made it possible to address the issue of environmental information collection, maintenance, and sharing by using improved technology and agreeing on environmental and health data formats in which to exchange information. The standards and protocols increase the efficiency, timeliness, and accuracy of information exchanges and support better environmental and health-related decisions through improved

access to and exchange of environmental, health, and geographic information.

EPA's presence on the Exchange Network allows users to report information electronically to EPA programs (Web-based submissions) through the Internet. The Exchange Network also enables computer-to-computer exchanges of data among partners (automated Web service exchanges) and enables participants to control and manage their own data. This collaborative partnership among EPA, states, tribes, and territories across the nation supports better environmental and health-related decisions through improved access to, and exchange of, environmental, health, and geographic information.

The Exchange Network has made special efforts to work with tribes to increase their participation. For example, to increase the number of tribes participating, EPA entered into a collaborative partnership with the National Congress of American Indians (NCAI). NCAI supports tribal participation on the Exchange Network governance with feedback and advice on how to work with tribal sovereign nations and on the differing capabilities and capacities to develop and exchange electronic environmental information. In April 2006, NCAI hosted an Exchange Network tribal users meeting. The objective of this meeting was to understand tribal needs to help more tribes to participate in the Exchange Network. The tribal participants found this meeting to be a helpful forum for discussing tribal-related information issues. They have requested another meeting to discuss these issues further and to receive more information. NCAI also provides the leadership to convene tribal information management leaders to develop strategies for enabling tribal participation on the Exchange Network.

Best Practice:

Action: Include activities in the Exchange Network grant solicitation that support information management capacity building for tribes.

Goal: Increase the numbers of tribes with nodes and electronic exchange of environmental information.

Results: Improved information about environmental conditions in Indian Country. Exchanged information that supports more informed decisionmaking.

Measures of Success—Results/Outcomes

Since its inception in 2002, the Exchange Network grant program has set aside 10 percent of its funding for Indian tribes, and from 2002 to 2006, the program awarded nearly $10.5 million to them. In September 2005, the St. Regis Mohawk Tribe became the first tribe to exchange data on the network, reporting on an air quality system. In October 2006, a second tribe secured its spot on the network when the Cherokee Nation submitted facility registration system data. As of October 2006, 49 tribes have received 76 grants for the technology improvements needed to participate in the Exchange Network. Among these, 28 tribes have indicated that they intend to establish Exchange Network connections. EPA is committed to working with tribes in protecting human health and the environment in Indian Country and in the nation for generations to come.

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