

U.S.-Mexico Environmental Program Border 2012

Program
Highlights
Fall 2010



Goals

Reduce Water Contamination

Reduce Air Contamination

Reduce Land Contamination

Improve Environmental Health

**Enhance Joint Readiness for
Environmental Response**

**Improve Environmental
Compliance, Performance and
Stewardship**



Message from the National Coordinators

The U.S.-Mexico Border Environment Program: (Border 2012) continues to be a model of cooperation and collaboration between neighboring nations, and has achieved tangible, on-the-ground, environmental and public health results for communities in the US-Mexico Border region. Through this program, the U.S. Environmental Protection Agency (EPA) and Mexico's Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT) are working to address the most significant environmental and public health risks, and addressing disproportionate environmental impacts in border communities.

As the National Program Coordinators, we reiterate our continued support to our state and local government partners, U.S. border Tribes and Mexican indigenous communities, and our important border stakeholders, as we anticipate a successful conclusion of the Border 2012 program, and the creation of a successor binational program.

We would like to thank you for your support, invaluable contributions, and most importantly, your enthusiasm, dedication and commitment to improving environmental conditions for communities throughout the U.S.-Mexico border region.

The report that follows showcases a few of the many accomplishments and efforts that are taking place in communities along the U.S.-Mexico border. For a more comprehensive listing of on-going and past efforts, please visit our Border 2012 website.

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National Coordinator, United States



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Border 2012 Provides Flood Warning and Discharge Monitoring for Ambos Nogales

Project Highlights

- Through a U.S. Department of Defense Northcom grant, the USGS is leveraging the Border 2012 project with the installation of two meteorological stations and 20 internet-accessible rain gauges in the upper watershed of the Santa Cruz River. The data-gathering infrastructure is ensuring disinfection resources are mobilized efficiently when the wash is impacted by SSOs.
- The Arizona Department of Emergency and Military Affairs (ADEMA) identified incident planning and emergency response for Nogales Wash as its No. 1 priority.

waterdata.usgs.gov/nwis/uv?09481000

The U.S. and Mexican border communities of Ambos Nogales are located in the Upper Santa Cruz River Watershed approximately 65 miles south of Tucson, Arizona. In Nogales, Sonora, rapid population growth has placed pressure on the municipal government to provide adequate public services, including wastewater infrastructure. The issues are compounded by rapid building and development. In Nogales, Arizona, construction has occurred on the floodplains and drainages of the Nogales Wash. During periods of heavy precipitation, runoff from developed sites introduces sediments into the

wastewater infrastructure, which is buried within the wash. When this occurs, the wastewater infrastructure can generate sanitary sewer overflows (SSOs), raising the potential for disease and unsanitary conditions in the two communities.

Because of the lack of a monitoring system in the Nogales Wash, abnormal discharges may go unnoticed for long periods of time. With \$39,430 from Border 2012, the Arizona Department of Water Resources has installed a stream gauge on the Nogales Wash. The gauge provides Internet-accessible, real-time flow data ensuring adequate



Stream gauge on the Nogales Wash providing Internet-accessible, real-time flow data.

response to SSOs. Agencies using the data include the U.S. International Boundary and Water Commission, the Nogales (Sonora) Wastewater Utility, the Arizona Division of Emergency Management, and the Arizona Department of Environmental Quality.

Ojinaga Rallies after Devastating Flood

Project Highlights

- During the Border 2012 cleanup, 749,096 cubic meters of scrap metal were taken to a nearby recycling plant. Money from the sale provided funds for the cleanup workers.
- To address air quality problems from airborne silt, a result of the tons of dried mud, Ojinaga's roadways were prepared and excavated for the planting of 1,327 trees.
- Community leaders estimate the Border 2012 cleanup succeeded in helping 21,157 Ojinaga flood victims.

In September 2008 the communities of Ojinaga, Chihuahua, and Presidio, Texas, were subjected to an extraordinary event when upstream waters from the Conchos River breached the banks of the Rio Grande and broke the levee system that protected both communities. For ten days, portions of Presidio and most of downtown Ojinaga were under water. The situation was particularly acute in Ojinaga where flood waters reached a height of five meters (16.4 feet). The flooding of Ojinaga and its surrounding agricultural areas led to serious problems with the

accumulation of debris and sediment and the dispersion of waste and pollutants. Further, the flood significantly damaged Ojinaga's wastewater treatment plant, forcing the release of sewage water into the Rio Grande. Eighteen months later, flood debris and much of the now-dried sediment remained on streets and residential properties.

With \$31,553 from Border 2012, community leaders in Ojinaga planned and executed a 12-week cleanup. Twelve temporary workers removed debris from 8,502 homes and private buildings, depositing 4,598 cubic



An employee removes trash and debris from Ojinaga's Colonia Emiliano Zapata, inundated in the 2008 flood.

meters of non-metallic waste in the local landfill. About 3,350 kilograms (3.7 tons) of electronic waste and unusable appliances were collected and confined in special containers.

Laredo Group Renews Basin-wide Interest in Día del Río Celebration; River Alliance Forms

Since 1994, the Río Grande International Study Center (RGISC) in Laredo, Texas, has organized and participated in the annual Día del Río, a bi-national, basin-wide observance celebrated from the river's headwaters in Colorado to the saltwater estuaries of the Gulf of Mexico. Events include riverbank cleanups, raft races, water quality testing and educational presentations on the river's flora and fauna. In Laredo alone, some 800 volunteers have rallied annually for a Saturday-only nature trail cleanup. In recent years, however, the Laredo observance has experienced a fall in participation. Other formerly active communities both in the U.S. and Mexico have experienced a similar decline. With \$20,000 from EPA's Border 2012 Program and \$6,252 in contributions

in support of the project, RGISC launched an ambitious initiative to restore awareness and participation in the Día del Río observance and provide communities throughout the basin with information and educational materials to mount or renew their local events.

On Oct. 6, 2010—after countless teleconferences, press releases and meetings—the 16th Annual Día del Río kicked off with hundreds of events that attracted thousands of educators, environmentalists, citizens, elected officials, Native American pueblos, state and federal agencies, NGO's and the media. Community celebrations were held Saturday, Oct. 16, in Colorado, New Mexico and Texas, as well as the Mexican states of Durango, Coahuila, Nuevo Leon and Tamaulipas.



Students with the Santa Fe, New Mexico, Indian School test the waters of the Rio Grande.

Activities included river cleanups, tree plantings, talks, art exhibits, kayaking races and festivals.

The organizers formalized a vision and mission statement for creating a watershed network called the Rio Grande/Rio Bravo Watershed Alliance. The Alliance may serve as a catalyst to promote the annual event and other activities that foster conservation and sustainable use of the river.

Project Highlights

- The Día del Río attracted 175 participating schools, clubs, foundations, governments and environmental organizations both in the U.S. and Mexico (an estimated 25,000 participants).
- The event hosted a Rio Research Roundup, where 42 U.S. and 17 Mexican student teams used water testing kits provided by the Gulf of Mexico Foundation to test their section of the river's watershed.
- A Rio Relay was initiated in Creede, Colorado, ending 1,250 miles downstream at Boca Chica, Texas. Relay participants collected water samples at schools and international bridges before conducting a ceremonial "pouring of the waters" into the Gulf of Mexico.

www.diadelrio.com

Tijuana Opens Border Park in Los Laureles Canyon

Intense human development has significantly degraded the natural flow of Tijuana's Los Laureles Canyon as it drains across the border and into the Tijuana River estuary in Imperial Beach, CA. In periods of heavy rain, sediment and waste drain from the canyon into the river, flowing into valuable salt marshes downstream.

With \$50,000 from Border 2012, a partnership of local

stakeholders inaugurated Parque Frontera 2012, a public park located in Colonia San Bernardo in Los Laureles Canyon. The park illustrates the use of reclaimed materials such as scrap tires, plastics and glass in the construction of retaining walls and athletic fields. Water pervious pavement was laid as a pilot to test the effectiveness of permeable structures to slow the velocity of discharge



Volunteers arrange pavers that allow water to percolate through the pavement and channel runoff.

allowing for the watering of native vegetation planted in the previously barren canyon.

Project Highlights

- The use of permeable pavement is considered a Best Management Practice by the U.S. EPA.
- A perimeter of native trees and shrubs is planned to allow for control and channeling of surface flow.
- An estimated 65,000 individuals live in Los Laureles Canyon.

fs.sdsu.edu/kf/reserves/trnerr/
www.tijuanaestuary.com

Environmental Education Pays Big Dividend in Colonias on the Outskirts of Cd. Juárez

Project Highlights

- Benefits of the Juárez “Aqua XXI” project are likely to be replicated as promotoras, or community health workers, carry the message to other neighborhoods around the city, leveraging the original \$20,000 grant.

Parents and children living in three colonias on the western outskirts of Cd. Juárez, Chihuahua, are today more likely to understand the importance of personal hygiene, sanitary food storage and handling, hand washing, water treatment, and the dangers of airborne pesticides and chemical exposure. Since 1999, the regional “Aqua XXI” program has conducted educational workshops and promoted school events that encourage personal hygiene and environmental health practices. Despite this effort, rapid growth in population and limited access to potable water continue to hamper improvements in the overall health of the population. Of particular concern are high

incidents of respiratory and gastrointestinal illness.

With a \$20,000 grant from Border 2012 and \$8,800 in in-kind funding, the staff of “Aqua XXI” conducted home visits and sponsored community meetings and school programs to highlight hygienic practices and improve awareness of the dangers of exposure to pesticides and certain chemicals. More than 200 parents and 2,000 public school students living in the colonias of Granjas Unidas, Palo Chino and Pánfilo Natera engaged in project activities such as puppet shows and the distribution of educational comic books at community meetings. A survey of individuals attending the educational meetings found that



Students read instructional comic books at the community center in Colonia Pánfilo Natera.

participants improved their understanding of hygienic practices by an average 50%. Long-term benefits of the project include a reduction in frequency of gastrointestinal diseases and poisoning among colonia residents. Benefits to the environment include a reduction in the use of pesticides and other chemicals.

Border 2010 Examines Options for Improving Air Quality at El Paso’s Busiest Port of Entry

Project Highlights

- An important parameter for calculating traffic flow and consequent air emissions is the length of time it takes for a Customs inspector at a port of entry to clear a vehicle for entry into the United States. Using traffic models, data and observations, UTEP researchers were able to calculate these inspection times as 200 seconds for commercial vehicles and 90 seconds for non-commercial passenger vehicles.

The Bridge of the Americas in El Paso, Texas, is among the most congested ports of entry in North America with an average 600,000 commercial and 10 million passenger vehicle crossings annually. With \$50,000 from Border 2012 and an additional \$43,359 in matching contributions, the Department of Civil Engineering at the University of Texas at El Paso (UTEP) is engaged in an ambitious two-year project to evaluate possible

changes in traffic flow to reduce congestion and improve regional air quality. Under the project, four pollutants – PM_{2.5}, NO₂, VOCs, and CO – are monitored simultaneously. Real-time data are being collected from ground-level traffic counters and elevated video cameras.

Three options for changes to traffic flow (as well as one no-change option) are under consideration and will be evaluated to determine their



Aerial photo of the traffic flow at El Paso’s Bridge of the Americas.

impact on ambient air quality and pollution exposure to Customs inspectors and residents in nearby neighborhoods.

Arizona Targets Border Diesel Emissions with Retrofit of 39 School Buses

An initiative to improve air quality in two Arizona border counties was completed in 2010 with the installation of retrofit devices on 39 school buses. With \$149,000 from Border 2012, the Arizona Department of Environmental Quality (ADEQ), in coordination with the Border Environment Cooperation Commission (BECC), issued contracts to equip the buses with devices to reduce particulate matter from diesel emissions. After installation, the devices

were found to reduce emissions from 30-90%, depending on the device and the condition of the bus.

In Santa Cruz County, 11 buses were retrofitted in the town of Patagonia, five in Nogales and three in Santa Cruz. In Cochise County, nine buses were retrofitted in the city of Douglas, six in Palominas, three in Bisbee, and one each in Naco and Tombstone. The project is a continuation of a 2008 project, which retrofitted 32 school buses in the



Arizona school buses were retrofitted to reduce diesel emissions in border counties.

Santa Cruz Valley and a 2009 project that retrofitted 55 diesel short-haul, 18-wheel cargo trucks.

Project Highlights

- The Arizona bus retrofit project complements other ADEQ programs to reduce diesel emissions, including a program to reduce school bus idling, which has been adopted by more than 700 schools in the state.

www.azdeq.gov

Sonora and Baja California Identify Greenhouse Gas Sources, Begin Mitigation

With support from Border 2012, the Mexican states of Sonora and Baja California have completed greenhouse gas emissions inventories. The inventories account for the amount of greenhouse gases emitted into the atmosphere or removed from it during a specific time period, usually 12 months. For both Sonora and Baja California, the 2005 inventories showed about one-third of greenhouse gas emissions were due to the generation of electricity. Emissions from transportation sources—such as cars, trucks and buses—accounted for 25% of total

greenhouse emissions in Sonora and more than 40% of total greenhouse emissions in Baja California. In Sonora, about one-sixth of emissions were due to agricultural activities, while in Baja California agriculture accounted for merely 3% of emissions. The findings for agriculture were not surprising considering the significance of agricultural production to Sonora's economy.

The inventory projected that greenhouse gas emissions in both states will continue to grow steadily, increasing by an estimated 70% above



Gasoline-powered vehicles are identified as the largest contributor to air emissions in the state of Baja California.

the 2005 levels by the year 2020. With the assistance of the BECC and EPA, both states have created Climate Action Plan Committees to identify areas where greenhouse emissions can be reduced.

Project Highlights

- Air emissions inventories in Sonora and Baja California identified gasoline-powered vehicles as the largest contributor to air emissions in Baja California, while electricity generation was deemed the largest contributor to greenhouse gas emissions in Sonora.

www.cedes.gob.mx
www.climatestrategies.com

Eagle Pass, Piedras Negras Partner to Provide Accessible Disposal Sites for Electronic Waste

Project Highlights

- The border cities of Eagle Pass and Piedras Negras have committed resources to guarantee an ongoing public awareness campaign for educating their citizens on the hazards of electronic waste and encouraging its proper disposal.
- This is the second joint initiative of the two cities focused on waste reduction, a serious problem in both communities.

The border cities of Eagle Pass, Texas, and Piedras Negras, Coahuila, have a reputation for bi-national cooperation, especially on matters concerning the environment. In 2009 the two communities initiated a joint Border 2012 project to highlight the hazards of electronic waste, or e-waste, and to warn of the potential for illegal disposal of such waste to contaminate their shared water supply, the Rio Grande. Prior to this, city officials on both sides of the river were noticing an increase in illegal dumping of electronics in streambeds and tributaries leading to the Rio Grande.

The bi-national project was

twofold in its approach: The project (1) provided educational materials and presentations to classrooms in 31 elementary and secondary schools on both sides of the border and (2) fostered the legal disposal of electronic waste by providing numerous, accessible disposal sites for citizens of both communities.

As part of the project, two groups of about 15 students, one each from Eagle Pass and Piedras Negras, were trained to provide community presentations and distribute education materials that highlighted the benefits of proper disposal of e-waste including cell phones, television sets and appliances. Customized



Presentation to school children on the benefits of proper disposal of electronic waste.

waste containers provided by A&B Recycling, a private waste removal company, were placed in both communities to encourage proper disposal of electronic waste. In the first seven months of the project, some 85 tons of e-waste were collected and properly removed for recycling or disposal.

Border 2012 Teams with Industry to Recycle 17 Tons of Obsolete Electronics

Project Highlights

- Through project leadership and public engagement, this Border 2012 effort led to additional partnerships with the University of Sonora and SEMARNAT, Mexico's federal environmental agency. Project partners promoted the program in Hermosillo, the Sonora state capital, thus exceeding the reach of the original project in Nogales.

One way to reduce impacts to the natural environment is by recovering metals and special materials through recycling of obsolete electronics. A significant obstacle to establishing a successful recycling program is having a well-established recycling chain that includes collection, dismantling, and pre- and end-processing.

With \$15,717 from Border 2012, the Association of Environmental Safety Professionals (APSA) based in Nogales, Sonora, promoted the environmental benefits of recycling and facilitated the local recycling of 17 tons of

electrical and electronic materials. Due to the project's success, it was extended to Hermosillo, the state's capital city.

Through APSA's leadership, some of the region's largest industrial manufacturers agreed to promote and facilitate recycling for their employees. The manufacturers contracted with a recycling company to collect electronic waste. The project began by collecting waste from the employees at five large manufacturing operations. It later expanded to include 11 manufacturing plants; a national department



A colorful banner advertises the location of a collection center for unwanted electronics.

store; several nearby colonias in Nogales, Sonora; and two academic centers. Many of the employers have committed to making the Border 2012 effort a permanent program.

Border Team Studies the Potential for Managing Mexican E-Waste

Electrical and electronic products are today ubiquitous. When broken or obsolete, these products, commonly referred to as e-waste, can adversely impact the environment if not handled appropriately. In areas experiencing economic growth, such as Baja California, building the capacity for recycling e-waste has become a priority.

With \$84,000 from Border 2012, a team of government agencies, non-profit organizations and academic institutions agreed to examine the current and future potential e-waste streams in Mexico's industrialized northern border region. The team summarized the information with the intention of fostering

development of a large-scale, e-waste management plan. This Border 2012 project included participation from U.S. and Mexican environmental agencies such as Mexico's National Institute of Ecology (INE) and the non-profit REMEXMAR. In the past, REMEXMAR has partnered with government and industry to increase awareness of e-waste and has piloted electronic collection events in five cities in Baja California.

Under the current project, the project team identified the potential in Mexico's northern border region to dispose of 40,292 tons of existing e-waste, mostly television sets and computers, and the future need to dispose of



Broken and obsolete electronics pose a growing problem in Mexico's industrialized northern border region areas.

48,373 tons of electronics that are currently in use. The numbers represent 18.8% of the estimated e-waste for the entire nation of Mexico and provide the basis for investigating a nationwide policy for cost-effective e-waste management.

Project Highlights

- Mexico's INE has studied social behavior patterns in various Mexican states, including Baja California, and is using this information to formulate policy for a nationwide e-waste management program.

www.ine.gob.mx
www.remexmarbc.org

Waste Management and Mosquito Control Highlight Efforts in Laredo and Nuevo Laredo

In this Border 2012 project, the City of Laredo Health Department is engaged in an ambitious project to develop and implement a comprehensive solid waste reduction and mosquito control program in Laredo and the Mexican city of Nuevo Laredo, just across the Rio Grande. Under the direction of a volunteer, bi-national advisory board, the department proposes to introduce an amendment to Laredo's city ordinance on Health and Sanitation. If adopted, the amendment would

provide a fine of \$2,000 for failure to properly store and dispose of scrap tires. The ordinance requires tire shops to inventory the sale of new or used tires and account for their eventual disposal. A scrap tire unsuitable for retread would be required to have a large hole punched in the sidewall to ensure that it is not reused.

Well into the project, the department conducted educational outreach in neighborhoods, public schools and



Photo from Laredo brochure, published in English and Spanish, on control of mosquitoes and other disease-carrying pests.

through attendance at health fairs. A series of cleanup events have focused on the collection of household hazardous wastes and the removal of scrap tires.

Project Highlights

- Laredo's Border 2012 project has so far reached 3,260 elementary school students, trained 115 adults and 40 children in mosquito control and use of EPA's Sunwise program, and provided learning events and training to 165 parents and students in the Webb County Head Start Summer Program.
- The project has resulted in the collection and proper disposal of more than 39,000 scrap tires and 15,000 pounds of household hazardous wastes.

Arizona Project Surpasses Expectations for Unwanted Pesticides Stored on Border Farms

Project Highlights

- Under the project, the cost for collecting and transporting unwanted pesticides averaged \$1.77 (US) per pound, an amount considered reasonable by the Arizona Department of Agriculture.
- Information on registering pesticides:

www.azda.gov/ESD/pestpacket.pdf
www.cofepris.gob.mx

The Arizona Department of Agriculture working in cooperation with Mexico's Secretary of Agriculture (SAGARPA) successfully removed 25,610 kilograms (56,460 pounds) of unused liquid and solid agricultural pesticides stored on farms and ranches in the border region of Sonora, Mexico. With \$100,000 from the Border 2012 program, the pesticide collection project was designed as a continuation of a successful collection event held in Arizona in 2006. At that time, it was noted that additional unusable pesticides were likely being stored by

agricultural producers in the Arizona border region and, by extension, at agricultural sites across the border in Sonora, Mexico.

Originally planned as a project in both the U.S. and Mexico, the Border 2012 effort took on new significance when unexpectedly large volumes of solid and liquid pesticides were discovered waiting for collection at locations in San Luis, Sonora. This significantly raised the anticipated costs in Mexico of transporting the pesticides for disposal. A second collection event was held in San Luis, bringing the project's



Fifty-five gallon drums of bulk liquid pesticide were collected at one of three drop off sites in San Luis Rio Colorado, Sonora.

collection effort to its full budgeted capacity. All told, the EPA Border 2012 funds were used for the Mexican collections, while Arizona state funds were used for identical pesticide collection events at sites in the Arizona border region.

Border 2012 Tests Method for Reducing Risk of Poisoning in Low-Income Households

Project Highlights

- A contribution of \$4,826 was made by UTEP's College of Health Sciences to conduct additional project evaluation and follow-up.

research.utep.edu/cerm

A 2005 study of low-income households in El Paso, Texas, and Doña Ana, New Mexico, found evidence of a substantial risk of poisoning from exposure to caustic cleaners and pesticides. Based on this and other evidence, the University of Texas at El Paso's (UTEP) Center for Environmental Resource Management (CERM) with \$65,000 from Border 2012 set out in 2009 to identify an effective intervention to minimize exposure to the cleaning products and pesticides found in low-income households in El Paso, Cd. Juárez and southern New Mexico.

Within nine months, the experienced staff at CERM had instructed family members in 252 low-income households in the U.S. and Mexico and organized 41 community talks on the safe use, storage and disposal of commercially available, caustic products and pesticides. Project evaluations found significant improvement in the level of knowledge of participants.

The project involved a number of community partners and the training of 11 community health workers, or promotoras. As a follow-up to the project, a comparative study



Do not apply household pesticides where children play.

is being conducted by CERM to identify the most effective method to deliver environmental health information to communities with the unique cultural and language characteristics of the U.S.-Mexico border.

Border 2012 Invests in Home Safety for Low-Income Families in Southern New Mexico

With \$75,000 from Border 2012, the Ben Archer Health Center in southern New Mexico is engaged in an ambitious project to conduct 500 in-home environmental visits and educate families on home safety. The project is an extension of an effort in New Mexico's Luna County that proved successful in changing patterns of behavior and creating healthier home environments. This project is especially significant given the findings of a Home Safety Council study that identified southern New Mexico as reporting the nation's highest incidents of death annually from unintentional home

injuries (13.03 deaths per 100,000 persons compared to the lowest rate in Massachusetts of 3.33 deaths per 100,000).

The Border 2012 effort will target low-income families in New Mexico's southwestern counties of Luna, Doña Ana, Otero and Sierra. An experienced staff of community health workers, also known as *promotoras*, will offer handouts and educational materials on topics that include chemical storage, the safe use of pesticides and home safety precautions. Areas identified as needing attention will be highlighted to family members such as



A mother stores household pesticides out of the reach of children.

securing cabinet latches for medicine storage. Follow-up visits are planned to determine changes in family behaviors and to document, where necessary, any barriers to improvement. An end-of-project evaluation will determine the success and long-term impact of this important project.

Project Highlights

- Ben Archer is providing \$27,000 in direct and in-kind support for this southern New Mexico project, a contribution amounting to 26% of total project cost.

bahcnm.org

State of Sonora Initiates Plan to Remove Devices with Mercury from Border Hospitals

Mercury is an element of nature known for its toxicity and its capacity for accumulating in living tissue. In humans, exposure to mercury can lead to cancer, neurological damage and is known to have negative effects on the kidneys, heart, lungs, stomach and skin. In significant quantities, mercury can cross the placenta and cause irreparable damage to the unborn fetus. In Mexico, incidents of mercury poisoning have been traced to improper management and disposal of mercury waste in hospitals.

With assistance from Border 2012, the state of Sonora

initiated a program to analyze the use of mercury-containing devices in seven hospitals located within 100 kilometers (62 miles) of the U.S. border and develop and implement a plan to promote proper handling and management of mercury waste. The training highlighted alternatives to traditional thermometers and other devices that commonly contain mercury. Key hospital personnel were trained in the gradual elimination of mercury to reduce the risk of exposure to healthcare workers and the general population. The project was conducted under the direction of the



Instructors and attendees of the Puerto Peñasco General Hospital training session standing with kits for clean up of mercury spills.

Sonora Secretary of Public Health and the Sonora Center for Higher Education at hospitals in the communities of Nogales, San Luis Rio Colorado, Magdalena, Puerto Peñasco, Caborca, Agua Prieta and Cananea.

Project Highlights

- As part of this project, an inventory was conducted of mercury containing devices in seven Sonora hospitals located within 100 kilometers (62 miles) of the U.S.-Mexico border. The inventory identified some 3,000 thermometers, 91 blood pressure cuffs and 915 fluorescent lamps. These devices were targeted for long-term replacement or removal.

www.saludsonora.gob.mx
www.cesues.edu.mx

Border 2012 Targets Pesticide-Induced Asthma in Children Living in the Texas Lower Rio Grande Valley

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Project Highlights

- Project participants learned about the five major indoor asthma triggers: tobacco smoke, mold, dust mites, pets and pests.
- An additional workshop titled “Pediatric Asthma: Advances in Management” was conducted for regional healthcare providers including pediatricians, pulmonologists, clinical and school nurses, and respiratory therapists.

srph.tamhsc.edu/
www.uanl.mx

In the state of Texas, asthma accounts for nearly 25,000 hospital admissions annually. Worldwide, exposure to pesticides has been identified as a contributing factor to the incidence of asthma. Researchers in the Texas Lower Rio Grande Valley believe local exposure to pesticides is contributing to a regional increase in the incidence of asthma in Lower Valley children.

With \$48,000 from Border 2012, physicians and researchers from the Texas A&M School of Rural Public Health-South Texas Center and the Autonomous University of Nuevo Leon initiated an educational campaign to reduce asthma admissions and increase the number of symptom-free days for children who suffer from asthma. Key to the project was the need to decrease exposure to pesticides inside and outside of the home, a difficult assignment in light of recent

research that found high levels of pesticides on the hands and clothes of Lower Valley children.

This Border 2012 project targeted school children and healthcare workers in the Texas border counties of Starr and Hidalgo. The project concluded with the training of more than 314 health care professionals, 567 school children (of whom some 87 reported suffering from asthma), more than 120 school staff members and 65 Mexican promotoras. A theater script was written by students from the IDEA Quest Preparatory School in McAllen, Texas, to promote awareness of pesticides and asthma. Near the end of the project, follow-up phone calls were placed with parents of children with asthma, and a workshop was planned to update the region’s medical providers on advances in asthma management.



Community health workers, also known as promotoras, attend workshops on the topic of Asthma and Healthy Homes. The promotoras take their new knowledge back to their communities where they work closely with neighbors and family members.



Health education training is provided to members of Parent Teach Organizations and to colonia families living in the Texas Lower Rio Grande Valley.

Partnership of U.S. and Mexico Agencies Plan Exercise to Improve Readiness

More than 80 stakeholders representing a host of U.S. and Mexican border agencies met for two days at Rancho Viejo, Texas, for the third consecutive year of the Knowledge Exchange, a collaboration between EPA and the U.S. Department of Defense's Northern Command (USNORTHCOM). The partnership is designed to enhance readiness and improve emergency response in the event of a border environmental disaster. The Knowledge Exchange also

gives attendees the opportunity to discuss how best to lower the potential for such a disaster to occur. Now in its third year, the Knowledge Exchange reviewed plans and strategies for a future mock exercise to be conducted in 2011. Among topics on the table, U.S. and Mexican officials discussed arrangements for cross-border communication, Sister City response plans, equipment and resource sharing, training and cross-border protocols in the Gulf States region.



Participants at the third Knowledge Exchange, a collaboration between EPA and DOD's Northern Command (USNORTHCOM).

Project Highlights

- During the Knowledge Exchange, participants engaged in a table top exercise to prepare them for a 2011 mock drill in the Gulf States region of the U.S.-Mexico border.

Border 2012 Readies Douglas-Agua Prieta in Case of Hazardous Materials Emergency

The Douglas, Arizona, Fire Department has reduced its response time for containing deadly chlorine gas leaks. Firefighters in Agua Prieta, Sonora, just across the border, are now trained in how to recognize and respond to a hazardous materials incident. With \$71,700 from the Border 2012 program, the fire departments and emergency personnel in the sister cities of Douglas and Agua Prieta can more readily respond to a hazardous materials emergency, mitigate the scene and control the situation before it affects the other side of the border.

As part of the Border 2012 effort, the Douglas Fire Department purchased and distributed equipment including a gas monitor, carbon monoxide probes, chlorine kits, emergency valves and grounding/bonding clamps, all useful in containing and mitigating the impact of hazardous materials emergencies. Much of the equipment went to the Agua Prieta Fire Department, which lacked the basic equipment to respond to many emergencies. In addition, training was provided for 250 regional responders in hazardous materials response and mitigation. The Border 2012 grant addressed the regional goal of



First responders in Sonora receive training in hazardous materials emergency response. The training was part of a larger effort to upgrade the capabilities of Mexico's first responders operating in communities near the U.S.-Mexico border.

reducing response times for first responders, minimizing the impact of chemical spills and releases and addressing the potential for terrorist incidents.

Project Highlights

- This project was the third of three similar projects funded by the Border 2012 program to assist Arizona and Sonora fire departments in acquiring equipment and training on how to handle a border hazardous materials or terrorist incident.

State of Sonora Sponsors Training for First Responders at the U.S. Border

Project Highlights

- The Civil Protection Unit of the State of Sonora exceeded its objective to train 300 first responders when 379 responders, or 26% more participants than expected, successfully completed their course work.
- The project is intended to benefit the estimated 2 million residents of the Arizona-Sonora border region.

With \$77,958 from Border 2012 and \$86,071 (USD) from the State of Sonora, equipment and training were provided to 379 emergency responders in three Sonora border cities. Training was provided to first responders in Nogales, Magdalena de Kino and Santa Ana. Firefighters in the nearby border communities of Nacozeni, Agua Prieta, Naco and Imuris Bacoachi also attended the training. In addition, equipment necessary for hazardous response was purchased and distributed to Sonora fire stations along the Arizona border.

The training has allowed a number of smaller fire departments in the Arizona border region to prepare for the possibility of a hazardous materials emergency or terrorist incident, addressing the goals of Border 2012. The project serves as a follow-up to earlier EPA border efforts, which identified and inventoried materials that might be involved in an industrial accident associated with the border maquiladora manu-



Equipment purchased for emergency responders in the border region of Sonora include a chlorine kit (top), various boots and gloves and materials for emergency drillings (bottom).



First responders in Sonora receive training in hazardous materials emergency response. Here, participants at a training session in Magdalena de Kino practice a decontamination exercise.



Participants from Cruz Roja attend a hazardous materials emergency response training session for border responders held in Santa Ana, Sonora.

facturing sector. Under the earlier program, the sister cities in Arizona and Sonora had identified the areas of

risk, but lacked the resources to respond safely and effectively to an incident.

Border 2012 Supports Bi-National Alliance to Counter Illegal Dumping; Promote Better Waste Management

Due to rapid population growth at the U.S.-Mexico border, solid waste management and illegal dumping has become an issue of escalating concern. Under the leadership of the Regional Center for Border Health, Inc. of Yuma, Arizona, a partnership of bi-national public, private, state, federal and tribal organizations was created to promote, educate, organize and increase awareness of illegal dumping in Yuma County, Arizona, and San Luis Rio Colorado, Sonora.

With funding from Border 2012, the partnership—known as the International Alliance—conducted a cleanup and awareness program for solid

waste management under the logo “No Contamine / Don’t Trash La Frontera”. Under the program, the Alliance:

- Recruited 330 volunteers and 31 organizations to participate in trash cleanup events,
- Completed five cleanup campaigns and collected 599 scrap tires and 177 tons of trash, and
- Developed and provided train-the-trainer curriculum for 133 promotoras who educated an estimated 10,000 school-age children from both sides of the border.

As part of an international educational campaign to pro-



Volunteers in the Yuma-San Luis Rio Colorado area sack trash during a Border 2012-sponsored cleanup.

te personal responsibility and awareness, the organization developed an international clearinghouse of bilingual information on recycling, environmental stewardship and the prevention of illegal dumping.

Project Highlights

- As part of its Border 2012 effort, the International Alliance developed bilingual radio and television public service announcements that aired in Mexico and the United States.

www.donttrashlafrontera.com

Border 2012 Fosters Improved Environmental Stewardship for Smaller Mexican Industries

Seventy percent of the 43,000 companies operating in Baja California are classified as small- or medium-sized enterprises. Many of these firms lack the resources to adequately comply with environmental regulations or permitting requirements. With funding from Border 2012, the Mexican industrial trade organization CANACINTRA conducted a program for small- and medium-sized firms to engage in voluntary environmental audits, obtain necessary permits and understand options for responsible

environmental behavior.

Under the project, seven industries were targeted that engage in recycling or reuse of metals, food and public waste. Regulatory paperwork was submitted for each company. As the result of environmental audits at each company and targeted environmental training, CANACINTRA estimated the Border 2012 project resulted in the elimination annually of 360 kilograms (794 pounds) of industrial waste and 935 kilograms (1.03 tons) of industrial emissions. Some 27,900 kilograms (30.8 tons)



A materials separation area at a Baja California firm.

of solid waste was disposed of in municipal solid waste facilities.

Project Highlights

- Project sponsor, CANACINTRA, ranks as one of Mexico’s largest industrial trade organization.

www.canacindra.com.mx

Rural Leaders Sign MOU to Manage Scrap Tires; Community Dusts Off Rules for Eroded Soils

Project Highlights

- This series of Border 2012 activities is estimated to have impacted the lives of more than 330,000 individuals living in the border region of northern Chihuahua and southern New Mexico.

border.nmsu.edu

In recent years, the Border 2012 program has inspired the development of collaborative partnerships among the cities, towns, villages and agricultural ejidos of northern Chihuahua and southern New Mexico. With funding from Border 2012, the New Mexico Environment Department working with New Mexico State University and local stakeholders has successfully addressed a number of shared environmental and natural resources issues. Rural activities include an historic signing of a memorandum of understanding among the mayors of Columbus, New Mexico, and the Chihuahua communities of Palomas, Ascensión and Janos to improve management, storage and disposal of scrap tires, a

long-standing environmental and public health issue. In Las Cruces, New Mexico, city officials are rewriting an old ordinance to reduce the amount of dust and blowing soil from newly cleared commercial lands.

Under this Border 2012 effort, environmental performance has been enhanced through educational programs such as the Border Environmental Trunk Project, which supplied classroom teachers in New Mexico and Chihuahua with materials to address issues of water quality, air pollution and other topics. Program partners also have reintroduced water festivals in several small communities to inform citizens about their water quality and demonstrate



Presentation to school children on the benefits of proper disposal of electronic waste.

conservation measures. To quote a community leader in Columbus, "It's obvious to me that none of this would have happened without the community inspiration provided at the local level through the Border 2012 program. We've acquired some confidence through Border 2012 that our common problems can successfully be tackled locally, together."

TV Stations Broadcast Bilingual Environmental Programming for Paso del Norte Viewers

Project Highlights

- This Border 2012 environmental awareness project reached an estimated 1.1 million television viewers with a budget of \$85,000 awarded to each of the two television stations.

eco-vida.org

Paso del Norte television viewers tuning into the KVIA-TV ABC affiliate or the local KINT-TV Univision channel are likely to hear a tip describing what they can do to help the local environment. Under this Border 2012 project, more than 1.1 million television viewers in the region of the border encompassing El Paso, Texas; Cd. Juárez, Chihuahua; and southern New Mexico have been introduced to programming that fosters improved environmental

health and awareness. Conservation measures, air quality and waste disposal issues have been aired, as well as tips for responsible environmental behavior. A public service announcement documenting the proper disposal of spent motor fuel has been a particular hit with viewers, and has been broadcast more than 200 times. This project is slated for the long term with Spanish-language Univision volunteering to continue broadcasting of



The Eco-Vida logo identifies local television programming that promotes improved environmental health and awareness.

Eco-Vida programming into the future.

Tarahumara Stage Environmental Workshops, Celebrate Project with Music and Dance

The history of Colonia Tarahumara, a neighborhood on the outskirts of Cd. Juárez, dates back to about 1950 when a group of indigenous people known as the Tarahumaras or Rarámuri entered Juárez for the purpose of finding work. Since then, a small community has sprung up, an offspring of the larger tribal group living in the higher altitudes of the Sierra Madre mountains near Mexico's Copper Canyon.

With \$20,000 from Border 2012, the residents of Colonia Tarahumara staged 26 educational meetings

and workshops that collectively addressed 160 colonia residents. Topics included the prevention of groundwater pollution, soil contamination and a series of educational lectures on topics chosen by the colonia residents that included gastrointestinal infections, tuberculosis and diabetes. Other topics such as emergency preparedness and response were addressed. At the close of the project, a public ceremony was held that included songs written for the occasion, dancing and food. Women celebrated wearing colorful skirts, a style of dress



Tarahumara women dressed in traditional colorful clothing listen during one of several Border 2012-sponsored environmental health workshops.

customary to the tribe. A sign-in sheet at the close-out event identified 133 names, a number that represented 38% of the Colonia Tarahumara's total estimated population.

Project Highlights

- At one point during the project, an outbreak of ticks forced a colonia-wide ban on domestic and farm animals from entry into homes. Mothers were urged not to place their infants on floors or on the open ground to prevent exposure to pesticides intended for the ticks.

Clean Drinking Water Comes to San Francisquito

The Sonoran community of San Francisquito with a population of twenty-five people and twelve residences maintains strong ties to the Tohono O'odham Nation in Arizona despite the international border that lies between them. Tribal members in Arizona travel to San Francisquito each year to participate in cultural celebrations at the start of October. During this time, it is reported that up to 1,000 additional people visit the San Francisquito community.

Largely agricultural, this community depended on groundwater extracted from a

failing 20-year-old agricultural well. Well water was not piped to the homes nor treated or filtered. Drinking water contained traces of fecal elements that surpassed U.S. and Mexican standards and high concentrations of arsenic that surpassed U.S. drinking water standards.

With \$90,000 from Border 2012 and in coordination with the EPA Office of International and Tribal Affairs, the Tohono O'odham Nation's Office of Environmental Protection, the Border Environment Cooperation Commission, and the EPA Region 9 a domestic drinking



Clean water is supplied to the tiny community of San Francisquito across the border in Sonora.

water well with a filtration and disinfection system was installed. Infrastructure to connect the well water to homes was provided, as well as state-of-the-art solar panels to power the treatment system. The project also funded a community bathroom facility.

Project Highlights

- The success of this tri-national project is attributed to the cooperation of the San Francisquito community, the Tohono O'odham Nation, the Chukut Kuk District of the Tohono O'odham Nation, the Border Environment Cooperation Commission, the local water agency OOMAPAS, and U.S. EPA's Office of International and Tribal Affairs.