

Clean Air Initiative



CLEAN AIR INITIATIVE

Improving the air quality and health of citizens in Imperial County and the Mexicali border region through education, advocacy, and support.

Iniciativa de Aire Limpio

Second Community Survey Report Imperial County & Mexicali

June 2005

National Latino Research Center (NLRC)

California State University, San Marcos

Report Authors

Konane M. Martínez, Ph.D.

Carolyn Kitzmann, M.A.

National Latino Research Center

Cal State University San Marcos

760-750-3500 ♦ nlrc@csusm.edu

www.csusm.edu/nlrc



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The California Endowment

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THE CALIFORNIA ENDOWMENT

EXECUTIVE SUMMARY

This report presents the key findings of 306 household surveys completed in the Imperial County/Mexicali border region. The principal objective of the survey was to assess community perceptions and concerns regarding air quality issues in the Imperial-Mexicali border region.

Key findings of the second survey include:

- The majority of border residents surveyed are concerned with the impact air quality has on their health and that of their children. Residents also make a connection between air pollution and asthma.
- There is a lack of awareness about local asthma programs available in the community for the majority of households.
- Residents in this second sample felt that the government is not doing enough to protect residents from air pollution.
- While in the first survey Imperial County residents typically stated that neither residents nor individuals can play a role in improving air quality, in the second survey Imperial residents overwhelmingly felt that both residents and individuals can help improve air quality.
- In the 12 months prior to the survey the majority of participants had been exposed to radio, television, or newspaper advertisements regarding air pollution or ways to reduce it. Some participants in both regions were aware of the Clean Air Initiative and had been visited by a *promotora* regarding clean air or asthma. Participants in Imperial County, however, were more likely to have knowledge of the Clean Air Initiative and have been visited by a *promotora* (community health outreach worker) than residents of Mexicali. This finding is consistent with the finding that many Mexicali participants desired more home visits regarding clean air and pollution.
- When asked "Whose job is it to ensure clean air," over half of participants indicated that is everyone's responsibility.
- Community residents expressed a willingness to take certain steps in becoming involved in these efforts. Across the board 90-100% of participants stated that they could take steps such as driving less, using air friendly products, not burning trash, and contacting government officials as a way to help improve air quality.
- Participants expressed the need for continued public awareness campaigns regarding clean air, more home visits to educate households, air quality warnings for residents, and more enforcement of laws that aim to control air pollution (e.g. emission standards for cars and factories).

Based on the survey data, recommendations for enhancing community education and civic engagement are presented.

Clean Air Initiative



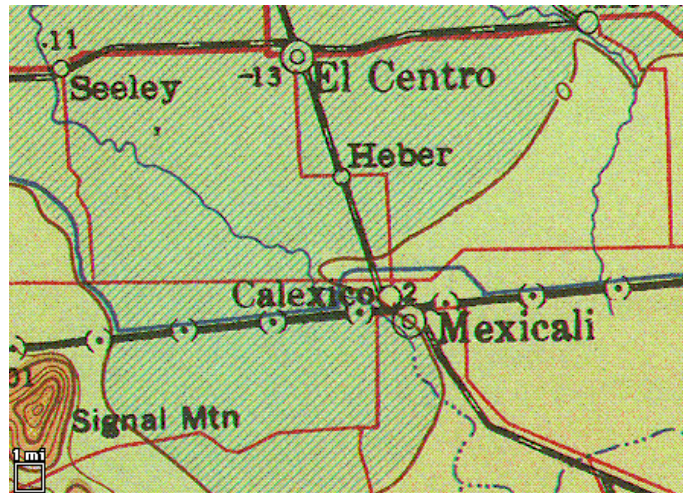
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Clean Air Initiative

The purpose of the Clean Air Initiative is to improve the air quality and health of citizens in Imperial County and the Mexicali border region through education, advocacy, and support.

INTRODUCTION

In response to the unhealthy air quality observed in the Imperial Valley and Mexicali border region, concerned individuals and organizations joined forces in 2003 to form the Clean Air Initiative. The coalition constitutes a binational partnership to address regional air quality issues and their effects on health. As part of its effort to inform and engage residents in advocating for improved conditions and regulations, the Clean Air Initiative developed a community survey to assess the perceptions and concerns of residents on both sides of the border. The results from the first Clean Air Survey were released in 2003.



The results of the survey helped the Clean Air Initiative prioritize and strategize their binational work regarding clean Air. Since then, the initiative has worked with stakeholders in the community to address clean air issues, with promotoras in outreaching to 3,015 border residents, advocated for systems change in air quality monitoring and control, held 3 binational community workshops and has actively engaged in public policy issues regarding clean air and public health.

The principal objective of the Second Clean Air Survey was to assess community perceptions and concerns regarding air quality issues in the Imperial-Mexicali border region. It is important to note that the second Clean Air survey is not comparable to the results from the first clean air survey because survey participants were drawn from different samples. The survey is not a pre and post study of perceptions of clean air from the first survey or a study of changes in perception of specific individuals due to interventions. Instead, participants in both surveys were chosen to represent the perceptions of their communities. This report summarizes the results of the second survey conducted in November 2004 through March 2005.

Air Quality ♦ An Urgent Issue

Imperial County suffers from some of the worst particulate air pollution in California, with some locations measuring above the maximum allowable federal standard. According to the Environmental Protection Agency (EPA), significant harm to health occurs when the air contains more than 600 micrograms of particulate matter per cubic meter during a 24-hour period. In the Imperial Valley, particulate matter concentrations have been measured at double this level and the County has consistently failed to pass federal and state standards for smog and airborne particulate pollution.¹ Data collected in 1996 indicates that Mexicali has similar air quality problems including measurable levels of particulate matter, carbon monoxide and ozone from sources such as industry, motor vehicles, and cross-border emissions.

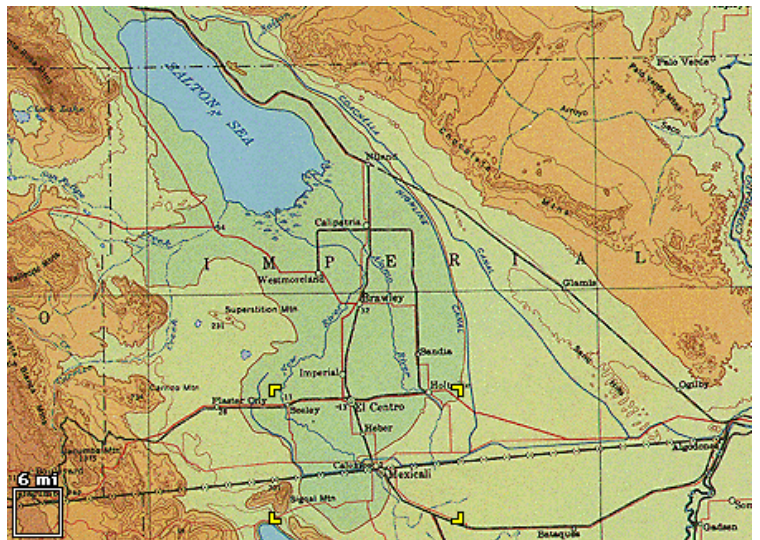
Residents on both sides of the border suffer the negative health effects of long term exposure to poor air quality. Children are especially at risk, as are the elderly, asthmatics, heavy outdoor exercisers, and those who have lung or heart disease.² According to state hospitalization data, Imperial County currently has one of the highest childhood asthma hospitalization rates in the state of California.

DEMOGRAPHICS OF THE IMPERIAL-MEXICALI BORDER REGION

This section provides a demographic profile of the border region and highlights important characteristics and differences between Mexicali and the Imperial County communities that border Mexico.

Imperial County is located in the southeast corner of the state of California and extends over 4,597 square miles with the Salton Sea and Riverside County to the north, San Diego County to the west, Arizona to the east and Mexico to the south. The Imperial Valley is largely dependent on agriculture and has been described by some as a 100-mile long “trench” below sea level that contains over 500,000 acres of farmland.³

Mexicali is the capital of the state of Baja California Norte, situated east of Tijuana. The rapidly-growing Mexican city is separated from the U.S. border city of Calexico by only an iron fence. Like most border communities, Mexicali and Imperial have an



¹ Airborne particulates include soot, soil, dust, metals and other particulates emitted by agricultural operations, industrial facilities, motor vehicles, mines and other sources.

² http://www.lungsandiego.org/environment/article_imperial_mexicali.asp

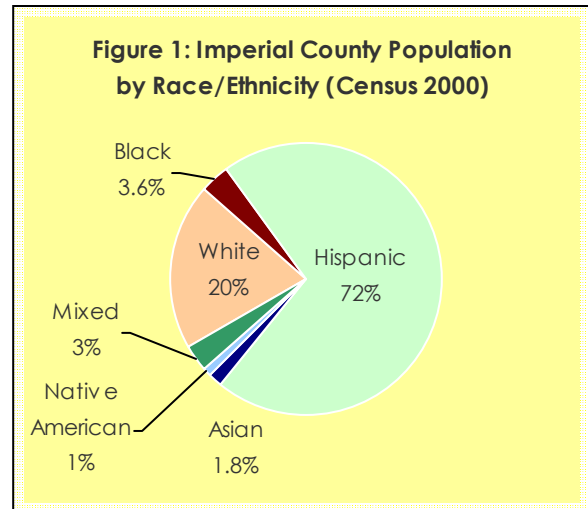
³ Martin, P. (2003) "Impact on Farm workers of Proposed Water Transfer from Imperial County: A Memorandum to the Latino Legislative Caucus of the California State Senate." UC Comparative Immigration and Integration Program, Department of Agricultural and Resource Economics, University of California, Davis.

intense interrelationship and share similar economic, health, and environmental challenges. At the same time, their needs, priorities, and circumstances are unique. Mexicali, a comparatively large urban area, struggles with the infrastructure constraints and problems inherent to rapid growth and industrialization. Imperial Valley on the other hand, is a largely agricultural and sparsely populated area plagued by high unemployment and low household incomes.⁴

POPULATION PROFILES

Imperial County: According to the Census 2000, Imperial County is the 9th largest county in California with approximately 142,000 people. Seventy-seven percent of the population lives in the incorporated cities of Brawley, Calexico, Calipatria, El Centro, Holtville, Imperial and Westmorland. The remaining 23% live in unincorporated rural areas. The largest municipality is El Centro (with 37,835 residents) followed by Calexico (with 27,109 residents). Approximately 72% of Imperial County residents are of Hispanic/Latino origin (compared to 32.4% for California). In the border city of Calexico, 95% of the population is Latino.

Mexicali, Mexico: With nearly 800,000 inhabitants, Mexicali is the third largest municipality on the Mexican border with the United States. The municipality grew rapidly from 25,000 residents in 1955 to 764,396 as of the 2000 Mexican Census and is projected to increase to approximately 1.2 million by 2020.⁵ Approximately 73% of the population lives in the city of Mexicali and the remainder are dispersed in outlying areas of the Valley of Mexicali and San Felipe.⁶



SOCIO-ECONOMIC INDICATORS:

Imperial County: With some of the highest poverty and unemployment rates in the state, Imperial ranks among the poorest counties in California. According to the Census 2000, approximately 23% of the total population lives below the national poverty level and 43.8% of children under seventeen live in poverty. In 1999, the median household income in Imperial County was \$31,870 compared to \$47,493 for the state. Unemployment rates are exceptionally high and frequently range between 20% and 30%. Agriculture and government are the primary employers in Imperial County. In March 2002, approximately 25% of the labor force was engaged in agriculture, and 32% was employed in government positions. The remaining 43% was service and manufacturing.

Mexicali: In contrast to the U.S. side of the border, Mexican border states have higher per capita incomes, lower unemployment rates, and lower rates of poverty (as defined by the Mexican government) than the Mexican national average (although comparatively low by U.S. standards). Between January 1998 and January 2002 unemployment rates in Mexicali seldom exceed 3%.⁷ Commerce and manufacturing were the dominant sectors, employing

⁴ Source of map: 1M USGS map Los Angeles (International Map of the World, 1947)

<http://geochange.er.usgs.gov/sw/changes/anthropogenic/imperial/>

⁵ <http://typhoon.sdsu.edu/Research/Projects/Imperial/impweb.html>

⁶ CCBRES Bulletin (Nov 2002), "Government in the Imperial Valley-Mexicali Region", Vol. 3, No. 11

⁷ Instituto Nacional de Estadística, Geografía e Informática (INEGI), 2000

approximately 46% of the labor force in 2000, followed by agriculture, forestry, fishing and hunting which accounted for 10%.⁸

EDUCATION & LANGUAGE: Nearly a quarter (23.8%) of the population 25 years and older in Imperial County has an elementary education, 59% have a high school education and 10.3% have bachelor's degree or higher. Close to 68% of the population speaks a language other than English in the home.⁹ In Mexico, data is collected for persons 15 years and older. Forty-one percent of the Mexicali population 15 years and older has attained an elementary education, nearly 26% have high school education and approximately 32% have a bachelor's or advanced degree.¹⁰

REGIONAL HOUSING INDICATORS: Imperial County has approximately 56,500 housing units of which 68% are single family homes and 18% are multi-unit complexes.¹¹ Mexicali has approximately 190,343 housing units, 86% of which are single family homes. Approximately 3% are low-income apartment complexes (vecindarios), 1% are apartments, and 10% are unspecified units.¹²

⁸ CCBRES Bulletin (May 2003), "An Analysis of Imperial County's Unemployment Rate," Center for Border and Regional Economic Studies, Vol. 4, No. 5. and Sistema Municipal de Base de Datos.

⁹ U.S. Census Bureau, 2000.

¹⁰ Instituto Nacional de Estadística, Geografía e Informática (INEGI), 2000

¹¹ U.S. Census Bureau State and County QuickFacts, Imperial County, California, 2000.

¹² CCBRES Bulletin (May 2003), "An Analysis of Imperial County's Unemployment Rate," Center for Border and Regional Economic Studies, Vol. 4, No. 5. and Sistema Municipal de Base de Datos.

SURVEY METHODOLOGY & DATA COLLECTION PROCESS

Purpose: The primary purpose of the survey is to assess community perceptions, awareness, and concerns about air quality issues in the Imperial-Mexicali border region. The survey is not a pre and post study of perceptions of clean air from the first survey or a study of changes in perception of specific individuals due to interventions. Instead, participants in both surveys were chosen to represent the perceptions of their communities. Survey data was collected between November of 2004 and March of 2005 by community health workers (promotoras) from **Comité Cívico Del Valle**. The promotoras conducted a total of 306 door-to-door surveys in Mexicali (N=151) and Imperial Valley (N=155).¹³

Survey participation focused on persons 18 years of age or older and participation was strictly voluntary. The survey instrument consisted of 56 questions (mostly discrete choice) that requested information about:

- Household demographics and characteristics (socio-economic, education, etc)
- Health status of household members
- Awareness and perceptions about air quality and pollution
- Perceptions and beliefs about collective and individual efforts to improve air quality
- Concerns and priorities regarding air quality issues

The interviews were approximately 25 to 30 minutes in length and were mostly conducted in Spanish. They were carried out at various hours of the day both during the week and on weekends. The majority of participants (68.7%) were female. Fifteen (5%) of participants reported having taken the first Clean Air Survey.

Data Collection Sites: Three data collection sites were chosen on each side of the border. These sites were the focus of the first Clean Air Survey in 2003 as well as the Clean Air Initiatives' intervention sites for the dissemination of information and educational activities. Sites were chosen in an attempt to have a cross section of different living conditions (urban/rural), as well as socio-economic levels. The data collection sites include:

- **Imperial County Locations:** **(1) Seeley** is a rural community and has a population of 1,624 that is surrounded by agricultural fields. Data was collected in the neighborhood near Seeley Elementary School. The neighborhoods surrounding **(2) St. Mary's School** are located in an affluent area in El Centro that includes a private catholic school as well as a public elementary school. The **(3) Jefferson Elementary school area** is located next to the U.S. Mexican border in Calexico and is considered a low income community.
- **Mexicali Locations:** The **(1) Marcelino Magana area** is located in a rural area and is adjacent to power plants and near the highway from Mexicali to Tijuana. **(2) Villafontana** is located in an affluent area of Mexicali. **(3) Escuela Leona Vicario** is a school neighborhood located in the center of Mexicali near the border. This area is subject to cross border traffic, pesticide drift, and smoke from agricultural burning in Calexico.

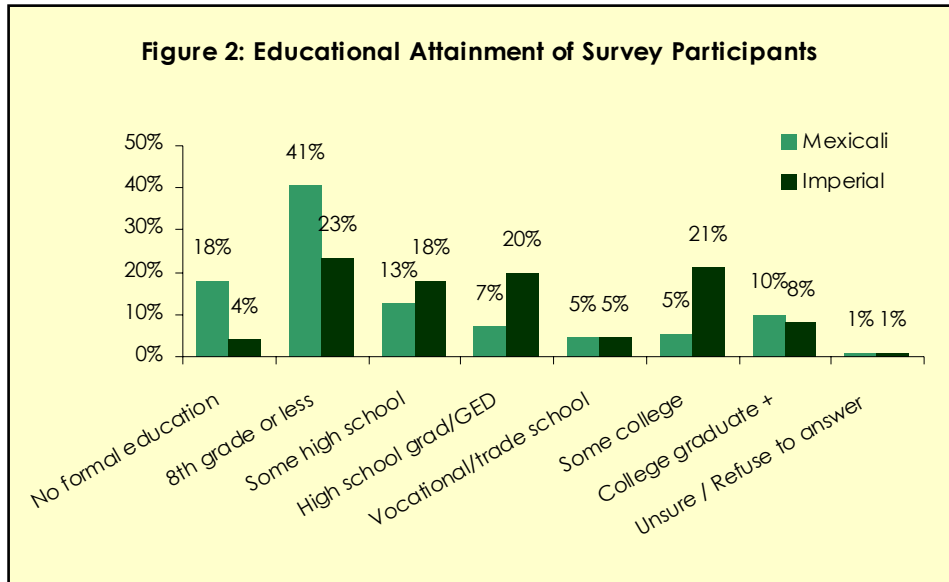
¹³ The second differs from the first survey in that the second was administered in the winter months rather than in the heat of the summer. This might account for participants being less likely to complain about certain air quality issues and health conditions such as trouble breathing and wheezing.

PARTICIPANT DEMOGRAPHICS

This section reviews the demographic characteristics of survey participants including educational attainment, housing characteristics, household income, employment status and modes of transportation.

Ethnicity & Country of Origin (Birth): The majority (89%) of participants from Imperial identified themselves as Latino as did 100% of participants from Mexicali. The majority of participants from Imperial were born in the United States (61.9%) while nearly all of participants from Mexicali were born in Mexico (97.4%)

Education: In Mexicali, 18% of participants reported having no formal education, 40.7% of the participants had 8th grade education or less, 12.7% had some high school, 7.3% are high school graduates, 6.7% were college graduates, and 4.0% had a postgraduate education. In Imperial County, 3.9% of participants had no formal education, 23.2% had an 8th grade education or less, 20% were high school graduates, and 7.7% had a college degree and less than 1% had a postgraduate education. **(Figure 2)**



Home Ownership & Type of Housing:

- 83.4% of participants in Mexicali owned their home while 76.7% of the participants in Imperial were home owners.
- Households in Mexicali had 1-7 adults per household; 53% of all households had 2 adults
- Households in Imperial had 1-5 adults per household; 53% of all households had 2 adults
- In Mexicali: 55% of households had children ages 0-6 children living at home.
- In Imperial: 61.3% of households had children ages 0-5 children living at home.

Household Income: A significant percent of all survey participants in Mexicali (42.2%) were unable or unwilling to divulge information about family income. In Imperial 14.9% of the participants declined to answer this question. Of the participants who provided information, 31.6% reported an annual family income under \$10,000. Approximately 17% had an annual family income between \$10,000 and \$20,000, while an estimated 13% had incomes over \$30,000.

Figure 3 illustrates annual family incomes for Imperial and Mexicali participants.

In addition to household income, participants were also asked whether they had “extra” money at the end of the year or whether they received an “aguinaldo” (year-end bonus). The “aguinaldo” was only relevant to the

participants in Mexicali, where employers customarily give employees a year-end bonus that is usually equivalent to one month’s wages. Twenty percent of the Mexicali participants reported receiving an “aguinaldo.” Not including the participants who received an “aguinaldo,” only 20.8% of the participants on both sides of the border reported having “extra” money at the end of the year.

As a way to further gauge household income we added a new question to the second community survey that asked “At the end of each month, how much money does your family have?” Roughly half of all participants (49.3% in Mexicali and 49.7% in Imperial) stated “Just enough to pay the bills”.

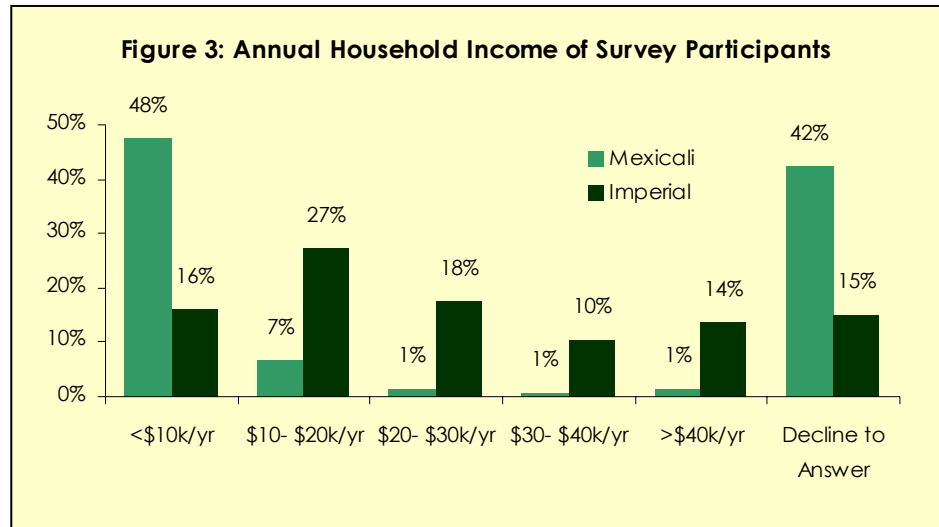


Table 1: Income		
At the end of each month, how much money does your family have?	Mexicali	Imperial
Not enough to pay the bills	22.7%	7.1%
Just enough to pay the bills	49.3%	49.7%
A little extra after the bills are paid	4.0%	20.6%
A lot extra after the bills are paid	0.7%	4.5%
Refuse to answer	23.3%	18.1%

Employment status

- Overall, 13% of the survey participants had one or more household members that were agricultural or migrant workers (19.7% in Imperial and 6.1% in Mexicali).
- An average of 51.1% of the participants overall were employed and 83% reported that there was at least one other member of their household that was employed.

Main Modes of Transportation (Mexicali and Imperial)

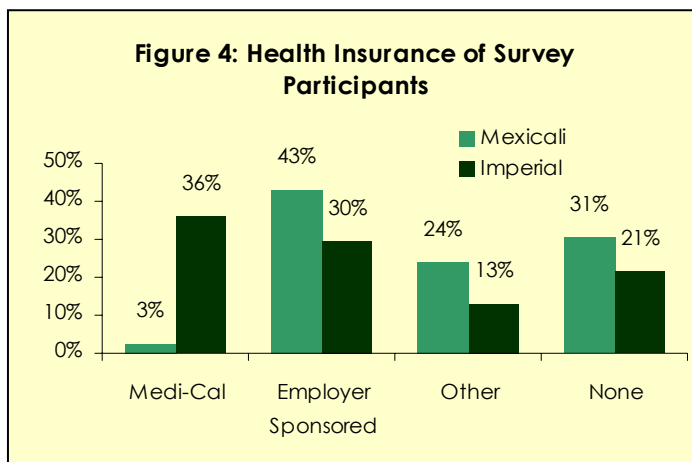
- 75.7% of participants used cars as their main mode of transportation and 8.8% used a combination of car and walking.
- The survey collected data for 181 children. The survey found that 49% walk to school, 36% ride in a car to school and 14% take the bus.

HEALTH STATUS

The following section summarizes the responses regarding health status including types of insurance, health care utilization, exposure to tobacco smoke, occupational exposure to chemicals, health conditions and symptoms exacerbated or triggered by poor air quality, exercise and outdoor exposure.

Health Insurance

When asked about health insurance coverage in Mexicali 3% of respondents reported having Medi-Cal coverage, 43% reported having employer sponsored insurance, 24% reported having "other" insurance and 31% reported having none (Figure 4). In total 69.5% of the participants reported having health insurance coverage. Of those with insurance coverage, the majority (60.4%) had employer sponsored insurance, a large group of participants (37.5%) listed "other," and 2.1% of Mexicali participants listed having Medi-Cal.



In Imperial County 36% of respondents reported having Medi-Cal coverage, 30% had employer sponsored insurance, 13% reported having "other" insurance and 21% reported having none (Figure 4). In total, 78.7% of the participants reported having health insurance coverage. Of those with insurance coverage, approximately 45.9% listed Medi-Cal, 37.7% listed employer sponsored insurance and 16.4% listed another type of insurance.

Health Care Utilization

Most Mexicali residents (74.5%) report having a regular source of medical care. 39.6% regularly use a private doctor, 18.8% use a clinic, and 10.7% use the emergency room. An additional 5.4% report regularly using home remedies, and 25.5% report either "other" or no source of regular medical care.

In Imperial County 92.8% of Imperial residents reported having a regular source of medical care. 49.7% use a private doctor regularly, 37.9% a clinic, and 5.2% the emergency room. Only 7.2% of Imperial residents reported either "other" or no source of regular medical care.

Smoking & Exposure to Second Hand Smoke

- 14.4% of all participants (Imperial and Mexicali) reported being smokers.
- 29.8% of all participants (Imperial and Mexicali) reported that there is at least one smoker in their household.
- 90.2% of participants reported that smoking is *not* allowed in their homes. 8.8% reported that smoking is allowed in their homes. The remaining 1% of participants either did not know or preferred not to answer this question.

Occupational Health (Imperial County and Mexicali)

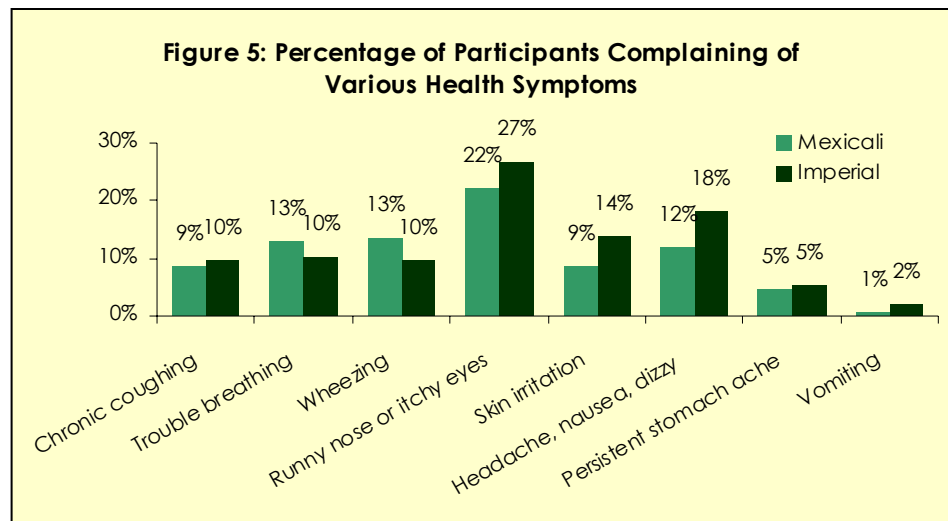
Participants were asked whether any members of their household worked at a place where they were regularly exposed to chemicals (e.g. dust, paint, pesticides, fumes).

- In both regions, one fourth (25.1%) of employed participants reported that they are commonly exposed to chemicals at work.
- Among participants who have at least one employed household member, 35.1% reported that at least one household member is commonly exposed to chemicals at work.
- Commonly listed chemical exposures include: pesticides, gasoline, paints, solvents, bleach, ammonia, and other cleaning products.

Health Symptoms

Participants were asked if they experienced chronic coughing, trouble breathing, wheezing, runny nose or itchy eyes, skin irritation, and/or headache, nausea, dizziness, and vomiting. These health symptoms are frequently associated with (or can be exacerbated by) environmental pollutants.

As observed in **Figure 5**, Imperial County participants overall reported higher health complaints in most categories than Mexicali participants. Among the most common complaints are runny nose or itchy eyes; headache, nausea and dizziness, wheezing and trouble breathing.



Asthma (Table 2)

Approximately 7.5% of participants reported having been diagnosed with asthma. 15% of households in Mexicali and 26.8% of households in Imperial reported having one or more members diagnosed with asthma.

Table 2: Cases of Diagnosed Asthma			
Mexicali		Imperial	
Participants with diagnosed asthma	Households with 1 or more diagnosed	Participants with diagnosed asthma	Households with 1 or more diagnosed
7.9%	15.2%	7.1%	26.8%

Although participants with diagnosed asthma in the home are more likely than other participants to be aware of asthma programs in their neighborhood, a *startlingly large percentage of participants with diagnosed asthma in the home (89%)* report having no knowledge of such programs. **(See Table 3.)**

Are you aware of any asthma programs in your neighborhood?	Yes	No	Don't know
Participants with diagnosed asthma (n=23)	4.3%	95.7%	0.0%
Households with diagnosed asthmatic(s) (n=64)	10.9%	89.1%	0.0%
Households with no diagnosed asthmatic(s) (n=239)	3.8%	95.8%	0.4%
All households (regardless of asthma diagnosis) (n=305)	5.2%	94.4%	0.3%

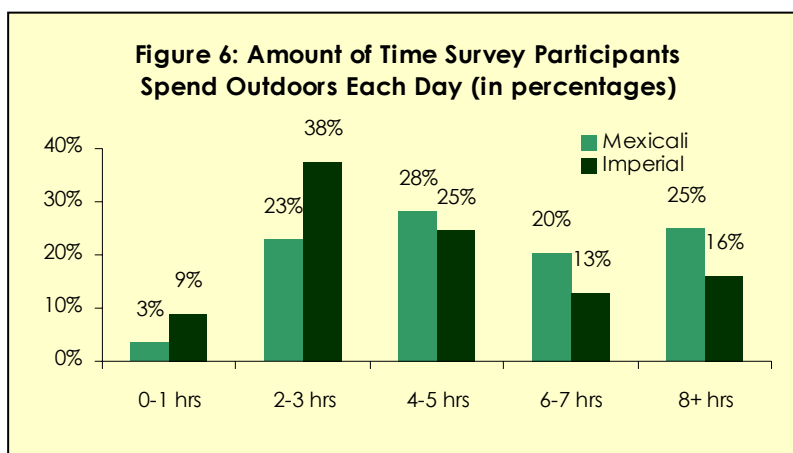
AIR QUALITY & EXPOSURE

Time spent outdoors

On average, participants in both regions reported spending about 5 hours outdoors daily. Few participants (8%) spend less than two hours outdoors daily and 41% spend between 2 and 4 hours outdoors each day. One out of every five participants (21%) reported spending 8 or more hours outdoors daily; this exceeds the proportion of participants who are employed in agriculture (13%).

When compared by region, Mexicali participants reported to spend more time outdoors (70 minutes more, on average) than Imperial County participants.

(See Figure 6)



In addition to participant data, the survey captured information for 362 children living within the participating households. Like adults, the children in participants' households spent roughly 5 hours outdoors each day. Additionally, among those households with children present, 36% reported having at least one child participating in organized sports. Across regions it was reported that children in Mexicali spend approximately 30 minutes more time outside than children in Imperial.

Exercise & Organized Sports

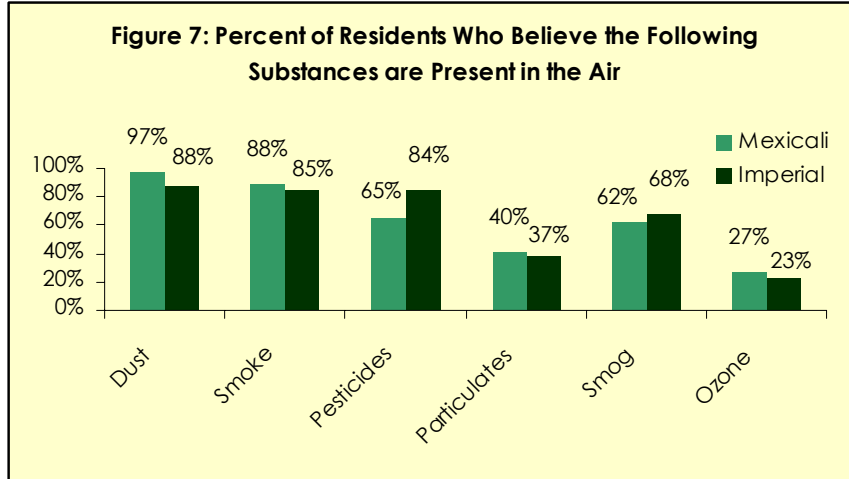
Participants were asked whether they or other adult members of their household participated in organized sports such as soccer, baseball, or other activities. Overall, the vast majority (87%) of participants did not participate in any sort of organized sports, and 84% of households had no adults participating in organized sports.

AWARENESS ABOUT AIR POLLUTION

In an effort to assess participants' understanding and awareness about air pollution they were asked a series of questions about air quality and its potential effects on health.

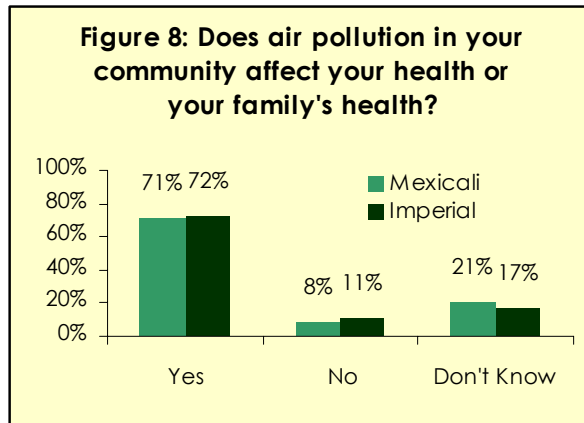
Substances in the Air

Survey participants were asked about the types of substances they believed were in the air they breathe. Across both regions the majority of residents identified the presence of dust, smoke, pesticides and smog in the air. Fewer participants were likely to identify the presence of particulates or ozone in the air. (See Figure 7.)



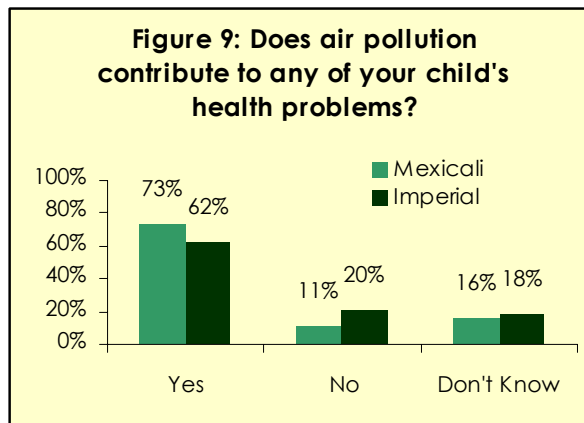
Does air pollution in your community affect your health or your family's health?

A great majority of the participants (71% in Mexicali and 72% in Imperial) believed that air pollution affects their or their family's health. (See Figure 8)



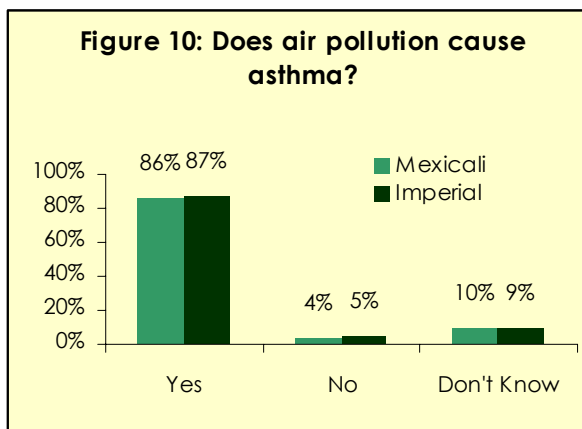
Does air pollution contribute to any of your child's (children's) health problems?

In this survey Mexicali participants were more likely than Imperial County residents to believe that air pollution contributes to their child's health problems (73% versus 62% respectively). (See Figure 9)



Does air pollution cause asthma?

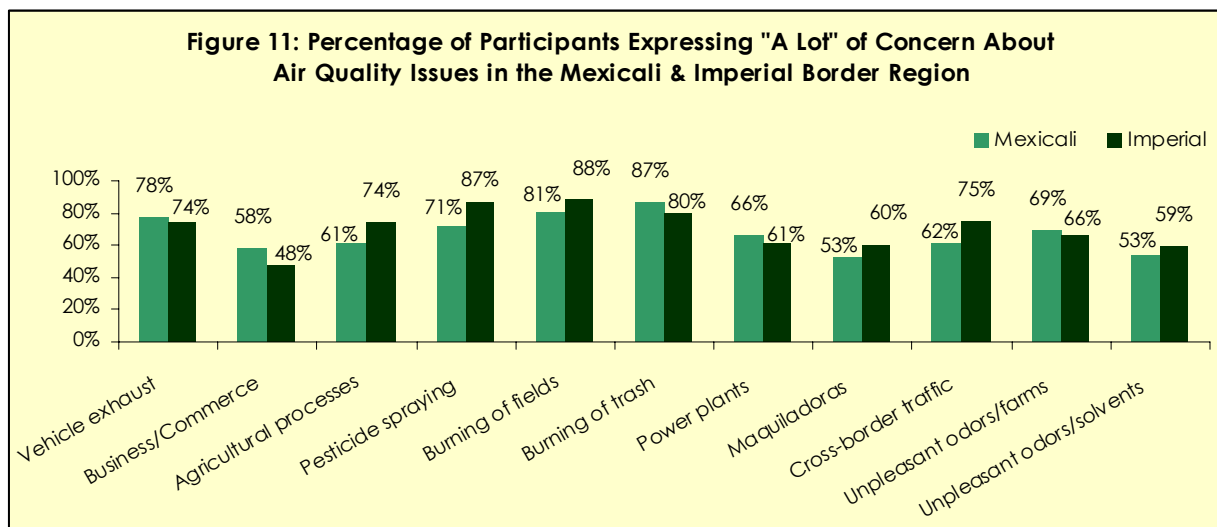
Overall, the vast majority of all participants believed that air pollution was linked to asthma. In both sites the vast majority of participants (approximately 86%) responded “yes” when asked whether they think that air pollution causes asthma. **(See Figure 10)**



Common Air Quality Concerns

Participants were presented with a list of common air quality issues and were asked to indicate their level of concern by choosing “Not at All”, “A Little”, “A Lot” or “Don’t Know”.

As **Figure 11** illustrates, the majority of border residents expressed “a lot” of concern regarding a range of air quality issues. Pesticide spraying as well as trash and field burning were the top three air quality concerns among residents.

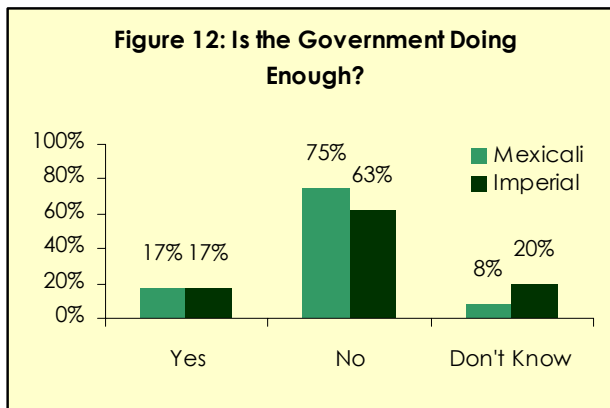


EMPOWERMENT & ADVOCACY

The survey examined issues of responsibility for air quality. Participants were asked whether they felt their respective governments were doing enough to protect them from poor air quality. They were also asked whether they felt individuals as well as residents working collectively could have an impact on air quality. Finally, they were asked about their own willingness to get involved and become better informed.

Is the Government Doing Enough to Protect Residents from Air Pollution?

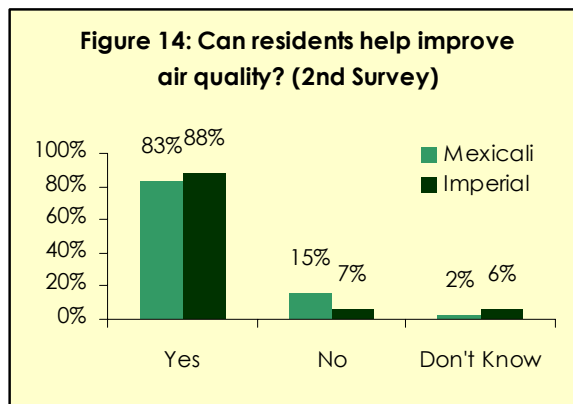
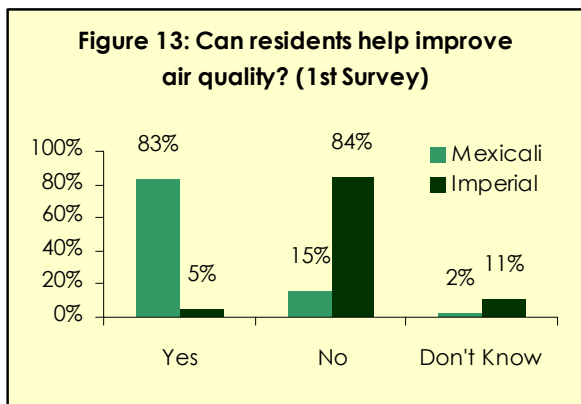
The vast majority of participants (69%) on both sides of the border believed their respective governments are not doing enough to control air pollution. In Imperial 63% were disappointed with government efforts compared to 75% of their Mexicali neighbors. (See Figure 12.)



Can Residents Help Improve Air Quality?

In the first survey, some of the most striking differences between Mexicali and Imperial participants concerned their opinions about advocacy and civic participation (both as individuals and collectively). In Mexicali 83% of the survey participants believed that residents could help clean up air pollution in their neighborhood. In contrast, in Imperial Valley, the overwhelming majority (84%) believed that residents could do very little to make a difference (Figure 13).

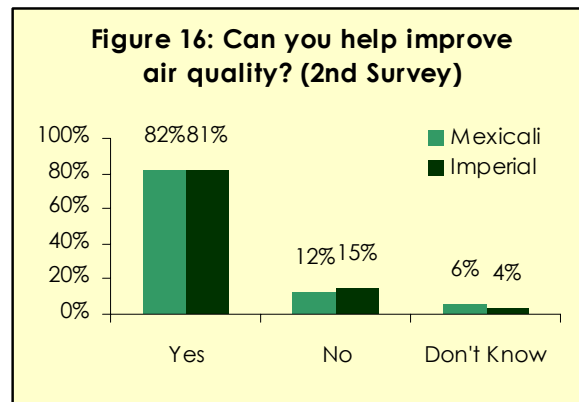
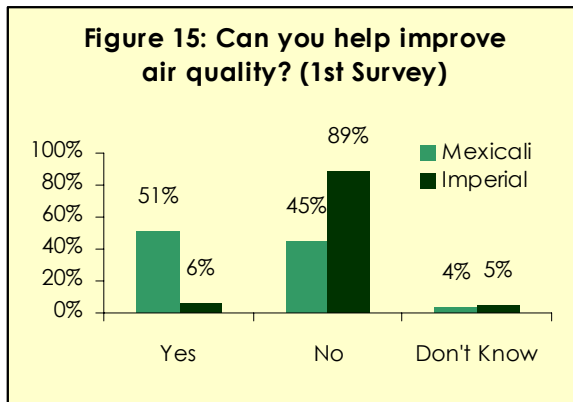
In the second survey, Mexicali participants remained positive about community residents' ability to improve air quality, with 83% believing that residents can make a difference. Unlike the first survey, 88% of Imperial residents also expressed their belief that community residents can help to improve air quality (Figure 14).



When asked in the first survey whether they personally (as individuals) could help improve air quality in their neighborhood, Mexicali participants were again more optimistic than Imperial participants, although less confident than they were with collective efforts to

improve the environment. Fifty-one percent of Mexicali participants believed they could personally contribute while 45% said they were unwilling or unable to have an impact as individuals. In Imperial, 89% felt that they personally could not do much to improve air quality (Figure 15).

On both sides of the border, participants in the second survey were more optimistic than participants in the first survey about their abilities to personally improve air quality. In the second survey 82% of Mexicali participants stated that a person as an individual can improve air quality. In Imperial there was a drastic difference in the second survey. In the first Clean Air Survey only 6% of respondents believed that an individual can help improve air quality while in the second survey the large majority (82%) believed that an individual can contribute to improving air quality (Figure 16).



As a way to measure participants' willingness to contribute to improving air quality we asked "In what ways do you think you can help to clean up your neighborhood's air pollution" and gave them a list of specific ways to help. As figure 17 illustrates, a larger percentage of participants identified ways to help improve air quality than when they were asked if they believe that residents and individuals can help improve air quality. (See Figures 14 and 16)



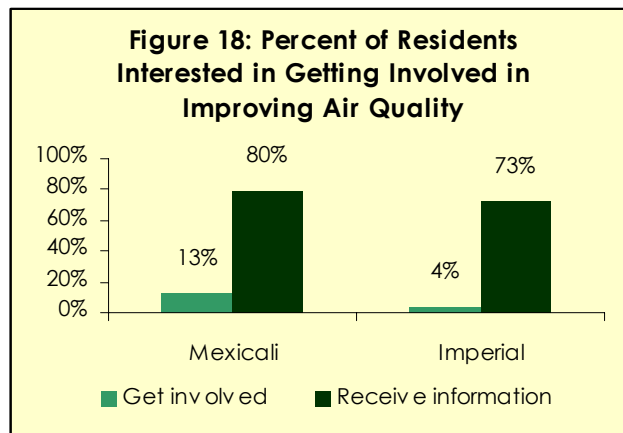
As a way to learn participants' opinions about whose responsibility it is to ensure clean air, an open ended question was added to the Second Clean Air Survey. When asked whose responsibility it is to ensure clean air, the majority of respondents (63.4%) stated that it is "everyone's". A substantial percentage (30%) felt that it is government's responsibility to ensure clean air as well.

Table 4 Responsibility and Clean Air			
Whose responsibility is it to ensure clean air?	All	Mexicali	Imperial
Everyone	63.4%	63.6%	63.2%
Government	30.1%	27.8%	32.3%
Ours	7.5%	9.9%	5.2%
People/citizens	6.9%	7.3%	6.45%
Community	3.9%	2.0%	5.8%
Businesses/Ag/Industry	1.6%	1.3%	1.9%
Farm workers	0.3%	0.7%	-----
Nobody	0.3%	0.7%	-----
Don't know	0.3%	-----	0.6%

Note: Participants were allowed to list multiple responses to this question, so a single participant may be represented in more than one row, and percentages in each column will not add to 100%.

How participants can become involved

At the end of the survey participants were asked if they would like to "sign up" to get involved with Clean Air Initiative efforts and receive informational mailings. Only 13% of Mexicali participants responded that they would like to get involved and 80% stated that they would like to receive more information about clean air. Four percent (4%) of Imperial county participants responded that they were interested in getting involved in improving air quality and 73% stated they would like to receive more information. **(Figure 18)**



Priorities

When asked what air quality problems the Clean Air Initiative should prioritize, participants often cited the need for more public awareness campaigns to provide information about air pollution, especially with door-to-door home visits. Participants also mentioned their desire for more brochures, school visits, workshops, and air quality warnings. Several participants also mentioned advocacy, hoping that the Clean Air Initiative could work with the government and industry to get solutions in place, such as paving streets and increasing smog checks.

EDUCATION ABOUT AIR POLLUTION

The following section of questions was added to the second survey as a way to assess participants' exposure to media messages concerning clean air as well as their exposure to Clean Air Initiative activities.

Media Advertising

Overall, 64% of participants had been exposed to radio, television, or newspaper advertisements about air pollution or ways to reduce air pollution during the previous 12 months. On either side of the border, residents were most likely to be exposed to such advertising on television. In addition, more Mexicali than Imperial residents were exposed to air pollution ads via radio and television while more Imperial than Mexicali residents were exposed to such ads in the newspaper. (See table 5)

Table 5			
Exposure to Clean Air Messages on Radio, Television and Newspaper			
Have you seen or heard air pollution advertising in the last 12 months?	All participants	Mexicali	Imperial
	Yes	Yes	Yes
Radio	25.0%	28.0%	21.9%
Television	53.7%	57.7%	49.7%
Newspaper	28.0%	26.4%	29.7%

Clean Air Initiative: Promotoras and Name Recognition

Imperial residents were twice as likely as Mexicali residents to recall having been visited by a promotora about air pollution or asthma. Imperial residents were *six times* more likely than Mexicali residents to say that they had heard of the Clean Air Initiative. In addition, while Mexicali residents were about as likely to have heard of the Clean Air Initiative as they were to have received a promotora visit, Imperial residents were more than twice as likely to have heard of the Clean Air Initiative than to have received a promotora visit. Consistent with this finding is the fact that many Mexicali participants expressed the need for more home visits regarding clean air and pollution.

Table 6			
Frequency of Promotora Visits and Clean Air Initiative Name Recognition			
	All participants	Mexicali	Imperial
	Yes	Yes	Yes
Have you been visited by a promotora about air pollution or asthma?	6.3%	4.0%	8.5%
Have you heard of the Clean Air Initiative?	11.8%	3.3%	20.0%

RECOMMENDATIONS

As the survey results illustrate, the majority of border residents in the Imperial-Mexicali region are concerned about the impacts of air quality in their community. Participants feel that air quality is impacting the health of their families and that not enough is being done to address the issue locally. The belief that they can contribute to improving air quality is a hopeful sign that the community can be a part of making changes to air quality in the region.

Based upon the findings of the survey we offer the following recommendations:

Awareness of asthma programs: The majority of households in the survey, including households with diagnosed asthma sufferers, were unaware of asthma programs in their neighborhood. Given this finding, and the high documented incidence of asthma in the region, outreach regarding the availability of local asthma programs needs to be a priority.

Government responsibility: Based on the fact that the majority of participants surveyed (69%) believed that the government is not doing enough to ensure air quality it will be critical for local, state and federal government representatives to address the issue.

Clean air messages: Overall, 64% of participants had been exposed to radio, television, or newspaper advertisements about air pollution or ways to reduce air pollution during the previous 12 months. This is a positive indication that local efforts to spread awareness are reaching a good proportion of the community. The survey also found that more Mexicali than Imperial residents were exposed to air pollution ads via radio and television while more Imperial than Mexicali residents were exposed to such ads in the newspaper. This finding gives insight into the types of messages that are reaching local residents and how media messages could be reinforced or diversified. Finally, it was found that Imperial participants were more likely to have been visited by a *promotora* than participants in Mexicali. Based upon this finding, and the fact that Mexicali participants expressed the need for more *promotora* visits, we recommend more outreach visits by *promotoras* in Mexicali.

Outreach and involvement of the community: While the majority of participants did not express an immediate interest in getting involved in Clean Air Initiative activities the fact that the majority stated that they believe they can contribute to improving air quality, and identified ways in which to do so, is encouraging. We recommend *specific and culturally appropriate* outreach efforts in involving the community in clean air efforts.

REFERENCES & RESOURCES

- California Center for Border and Regional Economic Studies (CCBRES), San Diego State University, Imperial Valley Campus website, Data Indicators (www.ccbres.sdsu.edu/Data)
- "Government in the Imperial Valley-Mexicali Region" (Nov 2002). California Center for Border and Regional Economic Studies (CCBRES) Bulletin Vol. 3, No. 11
- "An Analysis of Imperial County's Unemployment Rate" (May 2003). California Center for Border and Regional Economic Studies (CCBRES) Bulletin Vol. 4, No. 5.
- California County Fact Book 2003. California Institute for County Government. (<http://cicg.org/publications/profiles/factbook.php>)
- California Health Interview Survey, CHIS (2002). UCLA Center for Health Policy Research. Available: <http://www.healthpolicy.ucla.edu/chis/index.html>
- "County Snapshot: Imperial 2002." California Employment Development Department, Labor Market Information Division (LMID). (www.calmis.ca.gov)
- Instituto Nacional de Estadística Geográfica e Informática (<http://www.inegi.gob.mx/>)
- Martin, P., (2003) "Impact on Farmworkers of Proposed Water Transfer from Imperial County: A Memorandum to the Latino Legislative Caucus of the California State Senate." UC Comparative Immigration and Integration Program, Department of Agricultural and Resource Economics, University of California, Davis.
- Sistema Municipal de Base de Datos (<http://www.inegi.gob.mx/difusion/espanol/fsimbad.html>)
- U.S. Bureau of the Census (<http://www.census.gov>)
- <http://typhoon.sdsu.edu/Research/Projects/Imperial/impweb.html>