

IMPROVING ENVIRONMENTAL QUALITY THROUGH COLLABORATION
EPA EJ Collaborative Problem Solving Grant PS-8316101-1
Final Report

Description of Community-based Organization

Mothers for Clean Air (MfCA) is a non-profit, 501(c)(3) organization of 1500 parents and community members concerned about the adverse effects of Houston area air pollution, particularly on the health of children. With a small grant from the Galveston-Houston Association for Smog Prevention (GHASP), MfCA was created as its public outreach arm and was incorporated as a Texas non-profit educational corporation in 1996. MfCA is funded through private foundations, government grants, corporate sponsorships, and individual contributions.

MfCA educates the public on a community and regional level in the eight-county ozone non-attainment area. MfCA is one of a very few organizations in this area to assist communities that bear an unfair burden of environmental exposure. MfCA laid the groundwork for five chapter organizations in neighborhoods with high levels of air and/or hazardous waste pollution. The purpose of the chapters is to empower residents to identify, prioritize, and begin to solve their environmental justice and related children's health issues. MfCA also took a lead role in establishing a successful partnership with government agencies, universities and citizen groups to conduct citizen air monitoring where people live.

MfCA values the partnerships we have created in the last ten years. Without the assistance of organizations such as the University of Texas Medical Branch at Galveston, the University of Texas School of Public Health (UTSPH), the Galveston-Houston Association for Smog Prevention (GHASP), and the Citizens Environmental Coalition (CEC), MfCA would have been unable to accomplish nearly as much. In 2001, MfCA was a partner in the Houston-Galveston Citizen Air Monitoring Project (HGCAMP), a coalition of citizens, four governmental agencies (federal, state, county and city), and three universities. As part of this project, citizens collected air samples in their communities, which were analyzed in the EPA's Houston laboratory. HGCAMP partners recruited, trained, and supplied citizens with air monitoring equipment. This very successful collaboration of regulatory agencies, universities, and citizen groups formed the basis of this EPA Collaborative Problem Solving (CPS) project, Improving Environmental Quality through Collaboration (IEQC).

In 2000, MfCA received a grant from the EPA Office of Environmental Justice to identify local environmental justice problems and build community capacity through educational events in Southeast Houston. With additional funding from the North American Fund for Environmental Cooperation and the Bridgeway Charitable Foundation, we hired a full-time bilingual community organizer to work with the residents of Southeast Houston for one and a half years until the funding expired. Under the direction of the organizer, several residents coordinated educational projects for the community including an air-sampling project using citizen made buckets. This groundwork established air quality as a significant problem in Southeast Houston. This awareness and the partnerships MfCA developed through HGCAMP laid the foundation to develop a more thorough air sampling project involving key partners to assist in implementation of the project and to take follow up measures in response to the results.

Description of Community Being Served

Southeast Houston is a community with active civic clubs, numerous city parks, accessible and active community centers, the Glenwood Golf Course, Sims Bayou Urban Nature Center, and affordable homes. It is also a low-income, primarily Latino community of 30,000 people affected by air pollution from the highly industrialized Houston Ship Channel, vehicle emissions, and diesel emissions from various sources. It is bordered by three freeways that are used heavily by gasoline and diesel-powered vehicles, it is traversed by a railroad, and at its farthest point is less than four miles from a major airport. Part of the community has also been subject to ground and water contamination from a 13-acre Superfund site. However, the major concern is the 1.4 million pounds of toxic chemicals released into the air in 2001 from 4 industries located in this area, according to the self-reported Toxics Release Inventory.

Southeast Houston is considered an environmental justice community because it is a predominately low income and minority community bearing an unfair burden of the negative environmental consequences of industrial and commercial operations. According to 2000 census data, the community is 74% Hispanic, 19% White, 4% Asian and 3% African-American and 19% live below the poverty level. A majority speak a language other than English at home.

The community also has a young population with a fairly low level of formal education. One-third are under 18 years of age and of those over 25, one-half do not have a high school diploma. Unemployment in 2000 averaged 9.8%. Of those employed, most earn their wages through construction and extraction operations or sales and office occupations.

Southeast Houston is located outside the I-610 Loop and bordered by I-45 on the West, State Highway 225 on the North, the City of Pasadena on the East, and the City of South Houston on the South.

Project Activities

State of the Community Report

In order to more fully understand the needs of the community, MfCA prepared a State of the Community report. We researched the demographics, history, services, businesses and industry, air pollution, health risks and concerns of the community. The report provided useful background information for the partners who were not completely familiar with the area. It was updated midway through the project for the benefit of partners who joined later. (See Attachment A. State of the Community)

Partner and Community Meetings

The partners began meeting monthly in February 2005. (See Attachment B. Meeting Minutes) Initially, representatives of regulatory agencies and universities met with residents and community groups. After the first year, elected officials were invited to join and in the third year, industry representatives also began attending. (See Attachment C. List of Partners)

A community meeting was held in March 2005 to introduce the project to the residents and solicit their input. The partners were introduced as well as representatives from the EPA's Office of Environmental Justice and EPA Region 6. Questions from the community were addressed and attendees were asked to write questions on cards so that those not answered at the meeting could

be responded to later. Fifteen residents and 45 parents of middle school students attended. The meeting was held at Stevenson Middle School in Southeast Houston.

Survey of Residents' Perceptions

At the time we started this project in Southeast Houston, the City of Houston Health Department was involved in the Environmental Public Health Tracking Network (EPHTN) survey that asks about environmental issues and chronic diseases that are of greatest concern. Since Southeast Houston was not an area where the City was conducting the survey, we offered to translate it into Spanish and conduct it in this community. We trained high school students to distribute and collect surveys at the kick-off meeting and we also distributed the survey at other community events. (See Attachment D. Environmental Health Survey) The top five environmental issues marked were trash and litter in public areas, health effects of chemicals, outdoor air pollution, lack of enforcement of environmental law, and lack of environmental education. The top three chronic diseases marked were cancers, heart disease and asthma. These 47 respondents indicated that there is an awareness of air pollution and a lack of a response to the issues. They also indicated concern about chronic diseases that have environmental causes and exacerbations. (See Attachment E. Environmental Public Health Tracking Network - 77017 Survey)

Strategic planning

The first task for the partners was to prepare a strategic plan. Discussions about vision, goals, objectives and activities took place from February to July 2005 until an agreeable plan was developed. The vision of the project was "Improved environmental health for residents exposed to air toxics." Four goals were achieved through objectives and several actions and steps. The goals were 1) Survey community understanding of environmental health risk; 2) Increase awareness of environmental health risks; 3) Enhance communication with regulatory authorities to improve community health; and 4) Reduce exposure of residents to outdoor toxic air pollution. The strategic plan was reviewed and revised periodically through the duration of the project. (See Attachment F. 2005-2007 Strategic Plan)

2000-2005 Emissions Events Report

In the summer of 2005, MfCA hired an intern who was funded through the ECO Community Organization Internship program to investigate upset emissions and unauthorized releases of toxic chemicals from six industrial plants in Southeast Houston. Her research showed that from January 2000 to July 2005, 441 emission events released 3,420,000 pounds of excess chemicals into the air. Most of the releases were due to accidents and not because of routine operation and maintenance. Of the six plants, one was responsible for 40% of the upset emission events.

In addition, the intern interviewed 11 residents of the community to survey their perception of environmental health risk. The respondents felt that they were not being informed about industrial accidents and were concerned about their health. Most felt that both government and industry had a responsibility to protect public health. The report concluded that the community needs a better emergency communication system because an effective one is not in place. (See Attachment G. Emissions Events Affecting Southeast Houston)

Sewage Treatment Plant Odors Report

During the 2005-2006 school year, MfCA met with students from an environmental law class at the University of Texas Environmental Law Clinic in Austin and gave them a tour and overview of environmental conditions in East Houston. One of the students chose to do a project on the waste water treatment plant in Southeast Houston because residents had been complaining of odors coming from the plant. The report stated that the odors were most likely due to “incidents of collection system blockages causing overflows (that) would result in raw sewage backing up in cleanout lines in residents’ front yard and sewer access ports.” However, when MfCA plotted 25 random addresses of unauthorized discharges in 2002, only 4 were in Southeast Houston with the remainder scattered throughout south Houston. Therefore, the conclusion that the odors were coming from overflows was not consistent with the complaints. To help address the unresolved odor complaint issue, the City of Houston began training its operators to distinguish between sewerage and industrial odor complaints.

Community Air Sampling Project

One of the major activities was a community air sampling project conducted with our partner Dr. Thomas Stock from UTSPH. This project involved locating Organic Vapor Monitors (OVMs) to sample the air at 25 locations in the community for a period of 72 hours. A grid of the community was created with 25 equal-sized sections and twenty-three volunteers who lived in each of the sections were recruited to place air samplers at their homes. The remaining two air samplers were placed at stationary air monitors operated by the state to test the accuracy of the air samplers. Sampling was repeated once a quarter from November 2005 to August 2007 with the intent to capture variations in temperature and wind direction for a total of 200 samples. In accordance with EPA requirements, a Quality Assurance Project Plan (QAPP) of project details was submitted and approved. (See Attachment H. QAPP)

Using Theater as Outreach

Another major activity involved our partner John Sullivan from the University of Texas Medical Branch Sealy Center for Environmental Health and Medicine (UTMB) and a contract with Texans for Environmental Justice Advocacy Services (TEJAS). After two unsuccessful attempts to draw community members to training workshops, Mr. Sullivan suggested creating a film about the community to draw people in and then solicit their involvement in our project. We recruited six high school students who were trained by MfCA, TEJAS and UTMB to film environmental problems in East Houston and to conduct interviews with community members and local experts in the summer of 2006. The result was a DVD called “Wish You Were Here...Stories from the East End” that was screened 9 times and viewed publicly by approximately 150 people. (See Attachment I. Wish You Were Here DVD) The final film screenings were used as a way to recruit participants in our next activity, Community Environmental Forum Theater.

In addition to the student film project, UTMB partnered with MfCA to conduct a 3-day environmental forum theater workshop to increase community capacity. Twenty-three participants learned about environmental hazards in their community and built confidence and skills in communicating their concerns to regulatory authorities and elected officials. In the first two days of the workshop, participants discussed community concerns and prepared skits. On the

third day, they presented a public performance and members of the audience were invited to replace the lead actor in the skit and act out a different solution to the problem.

The forum was so successful that after the concluding performance, an extemporaneous discussion energized the community to organize for more action. A new mother's group called "Familias Unidas" was formed that met monthly to educate themselves and plan programs. Both the environmental forum theater workshop and the student environmental film were funded by the Catholic Campaign for Human Development.

Improved Emergency and Environmental Communication

Other activities included improving communication through the Community Awareness and Emergency Response (CAER) line and making recommendations to improve the Texas Commission on Environmental Quality (TCEQ) website. MfCA met with representatives of the East Harris County Manufacturer's Association to present the problems residents were having with the CAER line, an emergency-reporting phone recording, and suggested specific improvements to the CAER line to make it more user-friendly. After several months, the changes were eventually made.

However, response from the TCEQ regarding changes to their website has not been as timely. The partners devoted three monthly meetings to discussing improvements to the website to make information more accessible to the public and compiling recommendations. Our partner, Donna Phillips from TCEQ submitted them to the appropriate department and is committed to seeing them acted on accordingly although her official involvement in this project has ended.

Deliverables

Community Air Quality Tool Kit

In order to summarize practical information gained from the project and to provide resources for the community after the project ended, MfCA created a "Community Air Quality Tool Kit for Southeast Houston Residents." The toolkit is in the form of a booklet and provides instructions, examples, and contacts for communicating environmental concerns to regulatory authorities, elected officials, industry, media and other community members. The resources in this booklet are intended to give Southeast Houston residents the tools they need to work at reducing their exposure to toxic air pollution. (See Attachment J. Community Air Quality Tool Kit)

Printing of 200 copies of the booklet was donated by our partner, Texas Petrochemicals, and distributed to air sampling volunteers and other concerned individuals within the community.

The toolkit can also be downloaded from our website:

<http://mothersforcleanair.org/about/comments/MFCA%20Community%20Tool%20Kit%202007.pdf>

Community Air Sampling Project Data

A total of 200 OVM air samples were collected and TCEQ data from two stationery monitors during the eight sampling periods was obtained from TCEQ. Three analyses were conducted on the data collected: mapping of OVM measurements and industrial emissions inventory using GIS information, a time series analysis for 25 compounds to show variations in OVM measurements

over the 8 sampling periods, and a wind bin analysis to apportion average concentrations to 8 wind directions.

Results of the analysis showed that pentane is the most abundant VOC species measured with the OVMs. Toluene, methyl tertbutyl ether (MTBE), and m/p-xylene are other abundant VOC species in the 77017 zip code. Although the most abundant, these compounds are not the most likely to pose a significant health risk. Benzene, p-dichlorobenzene, and carbon tetrachloride were most likely to pose a health risk for the residents.

High concentrations of styrene were picked up by OVMs near Goodyear Tire and Rubber, the only industrial source of styrene emissions in the community. From this information it is reasonable to assume that the source of styrene emissions in this community is Goodyear. No other information provided as clear a connection to a source.

Attachment K. Community Air Toxics Sampling in Southeast Houston provides a technical presentation of this community air monitoring project.

More work remains to be done to determine the effect of the wind on measured air concentrations. Also, TCEQ data from the Milby and Chavez stationary sites will be compared with OVM data from those sites to verify accuracy of the OVMs. Two interns spent three semesters analyzing the collected air sampling data and the City of Houston also performed some spatial analyses. Despite this additional help, a project of this magnitude needs many more resources and funding than that provided only by the CPS cooperative agreement.

Project Accomplishments

The most significant accomplishments of this IEQC project can be measured through the attention that it brought to elected officials, regulatory agencies, and policy makers. As a community organization, Mothers for Clean Air does not have much authority to make significant changes. However, by bringing problems to the attention of agencies and individuals who can make change, significant progress can be made. Much of this communication happened at the monthly partner meetings. Additionally, MfCA's attendance at other air quality-related meetings, and information that MfCA delivered in person or by e-mail, website, mail, and media increased attention to the air toxics problem in Southeast Houston.

Reduced exposure of residents to outdoor toxic air pollution

Several improvements were made during the time that Mothers for Clean Air has been working with the residents of Southeast Houston that resulted in a 50% decrease in 1,3-butadiene emissions. In 2007, concentrations of this toxic pollutant in the ambient air were reduced to half of what they were in 2004. Several changes were responsible for this notable accomplishment.

- The Houston Chronicle published a 4-day series about toxic air emissions called In Harm's Way in January 2005. The articles focused on communities along the Texas Gulf Coast that had high emissions of air toxics, including Southeast Houston. The Chronicle conducted air sampling using the same OVM monitors that MfCA had described in our CPS proposal and had shared with the reporter who wrote the story. This particular series of articles had a tremendous impact on awareness of air toxic pollution in the greater Houston area and is still referred to today, four years later.

- Shortly after In Harm's Way appeared in the Houston Chronicle, the TCEQ set up two air toxics monitors in the community. One was placed at an existing ozone monitoring station in March 2005 and the other at a new site on property donated by the Valero refinery in May 2005. Each of the monitors uses a different mechanism for measuring air toxics and they are located about a mile and a half apart.
- The City of Houston and Texas Petrochemicals (TPC) entered into an enforceable agreement in December 2005 for TPC to make significant reductions in its emissions of 1,3-butadiene. In addition to reducing emissions to 5700 pounds per year from 34,313 pounds in 2004, the agreement called for enhanced monitoring and notifying the City if monitors indicated concentrations above a certain level.
- A new City of Houston Mobile Air Monitoring Lab (MAML) measured concentrations of air toxics in Southeast Houston on one of its inaugural trips into the community.

Increased awareness of environmental health risks

Three projects were quite successful at involving the community and educating residents about health risks associated with breathing air contaminated with toxic emissions from industry and transportation sources: air sampling, the student environmental film, and environmental community forum theater. However, none of these projects would have been possible without the participation of the CPS partners. Although the air sampling project was funded through our CPS cooperative agreement, an additional \$10,000 was sought and received from the Catholic Campaign for Human Development for the other two projects.

- New data from 200 samples collected at 25 locations during eight-72 hour periods over 2 years was made available through the efforts of 23 volunteers and the UTSPH. Intensive sampling of this kind had never occurred in this community and provided insight into how weather patterns and emissions from nearby industrial and transportation sources affect micro-environments in the community.
- Involving teens in a film project about the environmental health threats in their community not only educated them about the issues, but also informed their families, friends, and other community members who saw the film about the problems. In addition, the film served to start a dialogue among community members and interest residents in participating in an environmental community forum theater workshop.
- Obviously, the 23 residents who took part in the 3-day forum theater workshop became much more aware of environmental health threats in their community. They also role-played communication skills in the skits they performed. An additional 25 residents in the audience for the performance also had their awareness increased and a few had the opportunity to practice communication skills by replacing a lead actor. A good measure of the success of the forum theater project was the spontaneous and passionate discussion that occurred at the end of the performance. This energy manifested itself in a mothers' group that began monthly meetings to get themselves organized.

Performance Measures

Anticipated performance measures and their quantitative and qualitative measures are listed in Attachment L. Performance Measures. Overall, expected outputs and outcomes were achieved with a few exceptions.

- As mentioned above, the theater outreach activities conducted were very successful with 9 film screenings reaching 150 people and 23 residents performing in the forum theater and another 25 in the audience. Both of these activities increased awareness and spurred discussion as measured by the comments made at these forums.
- The 23 volunteers who participated in the air sampling project also received education about environmental issues at an initial training, quarterly interactions with MfCA's Community Outreach Coordinator, and a thank-you event where results were presented and discussed. Volunteer feedback indicated that they were eager to do something to help clean up the air in their community.
- The first monthly IEQC meeting was on February 2, 2005 and the final on December 12, 2007 for a total of 28 meetings. These meetings provided a safe atmosphere for stakeholders to express their opinions. An amazing outcome of these meetings was other collaborations between the partners that were formed as a result of meeting together for an extended period of time.
- During the three years that the partners met monthly, a total of 13 residents and 7 community representatives attended at least one meeting. Community members were both Hispanic and Anglo, young and old, and either professionals, students or retirees. One resident was very loyal and attended almost every meeting and event.
- Twenty partners participated in regulatory decision-making (Attachment C. List of Partners) and although there were occasional disagreements, most were worked out at the meetings.
- Of the twenty partners, four partner programs were provided in Southeast Houston. UTMB provided Environmental Community Forum Theater and led the student film project. Mothers for Clean Air provided an air quality educational program called Ozone Theater to 40 classes in 3 of 4 elementary schools. The City of Houston developed and implemented a community outreach program known as the Community Environmental Health Coalition.
- The air sampling project was conducted according to schedule with very few glitches. All 200 samples were collected and analyzed at UTSPH as described in the QAPP and data analysis was conducted by interns. Finding free labor to conduct the analysis was time-consuming and delayed result reporting until after the project was completed.
- Due to the delay, problems were encountered with posting results on the web and finding another partner to host the website. Therefore, information will not be available on the web until this report is completed.

In addition, other performance measures are listed in the strategic plan developed by the partners. (See Attachment F. 2005-2007 Strategic Plan) An evaluation of the following four goals from that plan is listed below: 1) Survey community understanding of environmental health risk; 2) Increase awareness of environmental health risks; 3) Enhance communication with regulatory authorities to improve community health; 4) Reduce exposure of residents to outdoor toxic air pollution.

- Survey community understanding of environmental health risk. The first objective was to collect 250 completed surveys (1% of households) by June 30, 2006. The problem that we ran into was collecting surveys for our target area at area events. Although we attended events in zip code 77017, when the results of the surveys were tabulated, only a small proportion were from zip code 77017. Therefore, we did not collect the intended number. What did go well however, was the detailed phone survey taken by our ECO intern in 2005 (Attachment G. Emissions Events Affecting Southeast Houston).
- Increase awareness of environmental health risks. This goal had several broad objectives that included activities such as the air sampling project and theater outreach activities (student film, forum theater, Ozone Theater), all of which were very successful. Where we were not successful was in developing Spanish language materials; we simply did not have the resources to do this. Our Community Outreach Coordinator was fluent in Spanish and she was able to communicate environmental health risks verbally. Regarding making air quality data available, we are awaiting TCEQ's action in response to our specific requests regarding changes to their website.
- Enhance communication with regulatory authorities to improve community health. The City of Houston took their commitment to this goal very seriously and formed a Community Environmental Health Coalition in 2006 to develop a community outreach strategy. MfCA participated in the coalition and the activities it conducted. With leadership from the City, the coalition conducted a wide door-to-door survey of residents asking questions about city services. The coalition also organized a series of health forums to hear residents concerns and develop strategies to address them.
- Reduce exposure of residents to outdoor toxic air pollution. Through the survey conducted by our ECO intern and informal communication we learned about residents experiences with the CAER line and shelter-in-place. Although we partnered with the Local Emergency Planning Committee to educate about shelter-in-place, very little was done. However, we met one of our objectives to improve emergency communication by successfully making changes to the CAER line. We also informed residents of local opportunities to testify before the EPA and provided them with a list of their elected officials. However, the greatest effect on reducing exposure to toxic air pollution came from Texas Petrochemicals measures to reduce emissions of 1,3-butadiene.

Programmatic Goals

The following section will address how this project has achieved four programmatic goals: empowerment, consensus, environmental and/or public health results, and sustainability.

- Empowerment. Residents and representatives of the community were brought into the process from the beginning of the proposal preparation and their thoughts and concerns were solicited throughout the project. The ECO intern's survey, EPHTN survey, question and answer session at the kick-off meeting, invitations to partner meetings, and opportunities for public comment helped residents feel that their opinion was important and that they were valued. In addition, activities such as environmental community forum theater, the student environmental film, discussions, air sampling project, and the Community Air Quality Tool Kit provided education about environmental hazards and communication training and resources to address community issues. Finally, elementary children were taught about air pollution and what they could do about it through our Ozone Theater program.

- **Consensus.** The strategic planning process is a very good example of consensus building. Initially, some of the members were anxious to start activities rather than take the time to develop a strategic plan. After other members discussed the value of a plan, four meetings were devoted to discuss and agree upon goals, objectives, and actions. This was a laborious and time-consuming process, but completing it was valuable to gain the commitment of each of the partners and is reflected in the results realized by the project. Another example of consensus building occurred when the partners reviewed the TCEQ website and made recommendations to improve it. Varied perspectives from agencies, residents, and academia were important to create a website that would meet the needs of everyone who would access it.
- **Environmental and/or Public Health Results.** The 50% reduction in 1,3-butadiene from 2004 to 2007 is the most significant result of this project. When conducting a community project of this type, it is often difficult to measure environmental or public health results. However, because of the timing of this project, the commitment for clean air voiced by the mayor of Houston and our previous environmental education in the community, these remarkable results were achieved within a three year time frame. The likelihood of this occurring was addressed in our proposal and at best, emission reductions of a single pollutant were predicted, which is exactly what happened.
- **Sustainability.** Keeping an effort like this going without further funding is often a problem for community organizations. Although MfCA submitted four proposals to the EPA and applied for grants from private foundations, we did not receive any funding. However, other organizations and other projects will sustain the effort that we started. For example, a Brown Foundation grant to GHASP is funding a project to present specific emission reduction measures to industrial facilities, including two in Southeast Houston. The City's Community Environmental Health Coalition is an on-going program and Mothers for Clean Air will continue to provide education and resources through the schools. Finally, the Community Air Quality Tool Kit is a reference specific for Southeast Houston that will serve the residents of this community for years to come. Two-hundred copies were printed and it is also available on the Mothers for Clean Air website; www.mothersforcleanair.org

Unforeseen Circumstances

Several unforeseen circumstances had a very positive effect on the outcome of our IEQC project. Number one was the awareness that was created by the Houston Chronicle series, In Harm's Way. For four days the Chronicle ran extensive stories about toxic air pollution along the Texas Gulf Coast and they became a topic of conversation. Since a good portion of the series was devoted to Southeast Houston, a lot of attention was drawn to the community where we were starting our project.

Secondly, the two new air toxic monitors that the state set up in Southeast Houston provided new data that was analyzed to determine the source of the pollution. This new information made it much easier to gain commitments from the offending industries to reduce their emissions.

Thirdly, having Bill White as mayor of Houston during this time was an added bonus. Mayor White has a business background and is comfortable dealing with major industries. He put together a staff of talented and environmentally committed professionals in his office and he is

not afraid to craft enforceable agreements or to file suit if terms are not met. Bill White is a very well-liked, strong mayor who can stand up to big business and a state government that isn't protecting the health of its citizens. Although we were fortunate to have him as mayor during this project, he is now serving his final two-year term.

A couple other circumstances had a negative effect on our project, but in overcoming them we actually came out ahead. Originally, we had intended to conduct three leadership development workshops with additional money received from a private foundation. However, the first workshop drew only one resident and when the second attracted only two we revised our proposal and developed the student environmental film and the forum theater workshop. Both of these projects were innovative and well-received by the community and accomplished many of the same goals of the leadership workshops.

Another problem we encountered was where to place the air sampling data on the web. Originally the EPA lab had agreed to put clickable maps on their website, but in the end could not do it. Instead, the City of Houston prepared static geographic information systems (GIS) maps that we can post in pdf format on the Mothers for Clean Air website.

All in all, the positive circumstances encountered in this project far outweighed the negative ones.

Lessons Learned

In selecting Southeast Houston as the community to focus our project, we knew that there would be challenges in involving the community. Knowing the extent of the hazardous air pollution in that community, however, we felt that it was important to overcome those challenges. What we learned in the three years of this project is that it is very difficult to make a problem a priority if it isn't perceived as one.

A majority of the residents in Southeast Houston are Hispanic and have lived in far worse conditions in Mexico and Central America. They either do not notice that the air is polluted or feel that there is nothing they can do about it. Many have other pressing priorities such as jobs, children, housing, and food, and air pollution is very low on their list. Although we educated community members at PTO meetings, soccer parent meetings, civic clubs, and school health fairs and science nights, very few became involved. Even if they have a child with respiratory problems or whose asthma is getting worse, they do not make an association with air pollution.

There is also a smaller population of Anglos who have lived in the community for many years and have seen many people in their neighborhoods die of cancer. Many of these individuals have been fighting with industry and the regulatory agencies for several years without perceived success and are ready to give up. Attendance at civic clubs is dwindling because the older Anglos are dying and the younger Hispanics are not feeling welcomed.

Despite these challenges, the IEQC project has brought the problem to the attention of the elected officials, government and the regulatory agencies. It is at this level where change needs to take place to see real and sustained improvement in air quality, and that is what we have seen happen in Southeast Houston.

Appendices

- Performance Measures
 - Attachment L. Performance Measures
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 - Attachment B. Meeting Minutes
 - Attachment F. 2005-2007 Strategic Plan
 - Attachment J. Community Air Quality Tool Kit
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- Other exhibits
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