

Sí Se Puede: Using Participatory Research to Promote Environmental Justice in a Latino Community in San Diego, California

Meredith Minkler, Analilia P. Garcia, Joy Williams,
Tony LoPresti, and Jane Lilly

ABSTRACT *Community-based participatory research (CBPR) increasingly is seen as a potent tool for studying and addressing urban environmental health problems by linking place-based work with efforts to help effect policy-level change. This paper explores a successful CBPR and organizing effort, the Toxic Free Neighborhoods Campaign, in Old Town National City (OTNC), CA, United States, and its contributions to both local policy outcomes and changes in the broader policy environment, laying the groundwork for a Specific Plan to address a host of interlocking community concerns. After briefly describing the broader research of which the OTNC case study was a part, we provide background on the Environmental Health Coalition (EHC) partnership and the setting in which it took place, including the problems posed for residents in this light industrial/residential neighborhood. EHC's strong in-house research, and its training and active engagement of promotoras de salud (lay health promoters) as co-researchers and policy change advocates, are described. We explore in particular the translation of research findings as part of a policy advocacy campaign, interweaving challenges faced and success factors and multi-level outcomes to which these efforts contributed. The EHC partnership's experience then is compared with that of other policy-focused CBPR efforts in urban environmental health, emphasizing common success factors and challenges faced, as these may assist other partnerships wishing to pursue CBPR in urban communities.*

KEYWORDS *Community-based participatory research, Environmental justice policy, Promotoras, Latinos*

INTRODUCTION

Visitors to the historic “Old Town” district of San Diego, CA, United States rarely venture beyond this chic tourist destination to the 6 × 15 block neighborhood 10 miles to the south, known as Old Town National City (OTNC). However, this formerly residential community, which “has for decades been treated by planners as a dumping ground for polluting industry and warehouses,”¹ provides researchers and environmental health advocates with a textbook example of the potential of community-based participatory research (CBPR), organizing and advocacy for studying urban environmental health problems, and working on the policy level to help effect change.

CBPR is concisely defined as “systematic inquiry, with the participation of those affected by the issue, for the purposes of education and action or effecting change.”²

Minkler, Garcia, and LoPresti are with the UC Berkeley, Berkeley, CA, USA; Williams and Lilly are with the Environmental Health Coalition, Old Town National City, CA, USA.

Correspondence: Meredith Minkler, UC Berkeley, Berkeley, CA, USA. (E-mail: mink@berkeley.edu)

With its emphasis on empowerment, co-learning, community capacity building, and balancing research and action,³ this orientation to research has shown particular promise in the areas of urban health and environmental justice.⁴⁻⁸

This paper explores a successful CBPR and organizing effort, the Toxic Free Neighborhoods Campaign, in OTNC, and its contributions to both local policy outcomes and changes in the broader policy environment laying the groundwork for a Specific Plan to address a host of interlocking community concerns. After briefly describing the broader research of which the OTNC case study was a part, we provide background on the Environmental Health Coalition (EHC) partnership and the setting in which it took place, including the problems posed for residents in this light industrial/residential neighborhood. The EHC's strong in-house research and its training and active engagement of *promotoras de salud* (lay health promoters) as co-researchers and policy change advocates are described. We explore in particular the translation of research findings as part of a policy advocacy campaign, interweaving challenges and success factors and multi-level outcomes to which these efforts contributed. The EHC partnership's experience then is compared with that of other policy-focused CBPR efforts in urban environmental health, emphasizing common success factors and challenges faced, as these may assist other partnerships wishing to pursue a CBPR approach in urban communities.

STUDY PURPOSE AND METHODS

The EHC partnership was one of six policy-focused CBPR partnerships in California included in a broader study, funded by The California Endowment, to explore the role of CBPR as a strategy for linking place-based work and policy to promote healthier communities. Following Yin's⁹ case study protocol, two members of the research team visited OTNC in 2008, conducting key source interviews with the lead community and academic partners and a focus group with four *promotoras*, each of whom signed a consent form approved by our university's Institutional Review Board. Phone interviews with three local policy makers and observation at a hearing also were undertaken, along with a guided tour of the neighborhood, and archival review and analysis of relevant internal documents and media coverage.

Data analysis followed a procedure developed and successfully used in an earlier, cross-site case study analysis of ten CBPR partnerships undertaking policy-focused work across the United States.^{10,11} A coding template developed for the national study included key domains that were also of interest in the present study (e.g., partnership genesis, research methods, policy goals, activities and outcomes, contextual factors, capacity building, and sustainability). In addition, and based on subsequent literature,^{12,13} new coding categories were added, including changes in the policy environment and what needs to be in place for successful work to occur at the policy level. Audiotapes of the interviews and focus group were professionally transcribed, and an initial round of coding was independently conducted by two of the authors, who identified key themes and codes, compared their findings, and returned to the data to reconcile any discrepancies.¹⁴ The qualitative software package, ATLAS.ti™ (version 5.5) was then used to group all key domains by site and generate reports. A second round of coding was conducted using the reports, and a similar reconciliation process was undertaken. Consistent with CBPR principles, a

preliminary case study report based on the findings was shared with partners at EHC for member checking to help ensure the accuracy of data interpretation.

BACKGROUND

The Environmental Health Coalition was founded in 1980 as a non-profit organization, to study and address environmental and social justice issues by building community capacity and providing an organizational base for neighborhood engagement in political decision making.¹⁵ The nonprofit's staff includes both professionally trained researchers and organizers and three to five community residents hired for their expert knowledge of the region and their skills in community building, organizing, and advocacy.

Central to EHC's *modus operandi* has been its *Salud Ambiental, Lideres Tomando Accion* program (SALTA, or Environmental Health, Leaders Taking Action) through which lay health promoters have been trained since 1995. The SALTA trainings' dual components focus on (1) skill building in community organizing and advocacy, media, and the political process, and (2) specific issues, such as land use, air quality, and energy. Each *promotora* goes through the skill-based SALTA program, and a separate SALTA program focused on the issue set most relevant in her neighborhood. Although EHC has undertaken campaigns in a variety of topical areas in both San Diego and the border regions of Tijuana, Mexico, we focus here on its Toxic Free Neighborhoods Campaign in OTNC, and subsequent efforts to help enact a Specific Plan that would help address this and other concerns of the area's approximately 1,600 residents.¹⁶ Founded in 1887 and known historically as the center of the area's large Latino community, Old Town National City lost many of its residential property rights in the 1950s and 1960s, when an all-white City Council passed measures that encouraged industries to move into the neighborhood.¹ During this same era, Interstate 5 was constructed, demolishing homes, cutting through the original neighborhood, and becoming the western boundary of the neighborhood. As a result of these developments, OTNC suffers from a disproportionate burden of toxic air contaminants. According to a 2006 audit, just eight of 133 businesses in this community had all necessary operating permits, and EHC's own research suggested that well over two thirds of the toxic pollutants in this community come from its many, often noncompliant autobody and paint shops.¹ A truck-driving school situated across the street from an elementary school and other stationary and mobile polluting facilities also contributed to the fact that OTNC had asthma rates significantly higher than those of San Diego at large, or the state. **Fourteen percent of children under 18 in OTNC were reported by their parents to have been diagnosed with asthma in EHC's 2005 community survey.¹ In contrast, Behavioral Risk Factor Surveillance Survey data from 2005 found that 11% of boys and 6% of girls aged 0–17 in California had this condition.¹⁷ Numerous studies have shown strong associations between high levels of diesel exhaust and elevated rates of respiratory ailments and asthma.^{18,19} Similarly, many of the chemical emissions from autobody and paint shops have been shown to cause or exacerbate asthma, key among them diisocyanates, the major cause of occupational asthma in the United States.²⁰**

Although as noted above, OTNC suffers disproportionately from environmental hazards and related adverse health outcomes, it also has many assets, particularly in the area of civic engagement. An active neighborhood council and church organizing ministry, a local school with substantial parental involvement, and the EHC itself are

among key building blocks that have enabled the community to stand up for its rights and work to effect change. Finally, the very small size of the community, which occupies just 0.036 square miles, means that “everybody knows everybody,” and city council members and other community leaders are easily accessible to residents.

THE PARTNERSHIP

Although the EHC had not historically targeted particular health issues, the high level of community concern over asthma and its potential links to industry in the neighborhood made this an important focus of attention. With support from The California Endowment, the James Irvine Foundation, and two environmental justice grants from the National Institute of Environmental Health Sciences (2000–2004 and 2004–2008) focused on land use, air quality, and children’s health, EHC formed a partnership with the Southern California Environmental Health Sciences Center at the University of Southern California (USC) to help address these concerns. Later, during the policy phase of the work in 2005–2006, a partnership with the University of San Diego’s (USD) Environmental Law Clinic was formed as well.

RESEARCH METHODS, ROLES, AND FINDINGS

EHC’s Toxic Free Neighborhoods Campaign involved a range of research approaches from secondary data analysis to Geographic Information Systems (GIS) mapping, survey research, air sampling using ultra-fine particulate (P-trak) counters, and legal and policy analysis. Children’s Health Study researchers at USC made available to the Coalition their own work on air quality and children’s health, as well as on the links between proximity of sources of diesel pollution and children’s respiratory health.^{21,22} The burden of disease analyses conducted by these researchers indicated estimates of excess respiratory illnesses attributable to nitrogen dioxide, ozone, and particulate matter in local communities.^{21,22} These outside academic colleagues’ successful efforts to quantify excess cases of asthma symptoms (manifested in school absenteeism, etc.) that could be attributed to excess particulate matter exposures “did apply specifically to National City” and provided important context for the current study.

Coalition members also did their own air quality measurements, using P-trak counters to measure the smallest and most dangerous particles, both near the Momax truck-driving school (located opposite an elementary school) and at a control site (City Hall). This simple comparison showed a dramatic difference in air quality, from 25,000 particles per cubic centimeter at City Hall to 150,000 near a moving Momax truck.²³

EHC’s in-house academic researcher then conducted GIS mapping to quantify toxic emissions exposures on a larger scale (see Figure 1). Data on local air toxics “hot spots” were collected from the California Air Resources Board’s inventories of toxic emissions by facility (<http://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php>) and the San Diego County Air Pollution Control District. Using the ESRI mapping program ArcView TM, boundaries of OTNC were used to create a “footprint” of the neighborhood and three other similarly sized (0.036 square miles) footprints adjacent to OTNC, in order to compare the annual number of pounds of toxic emissions to which residents were exposed. As indicated in Figure 1, the “footprint” around

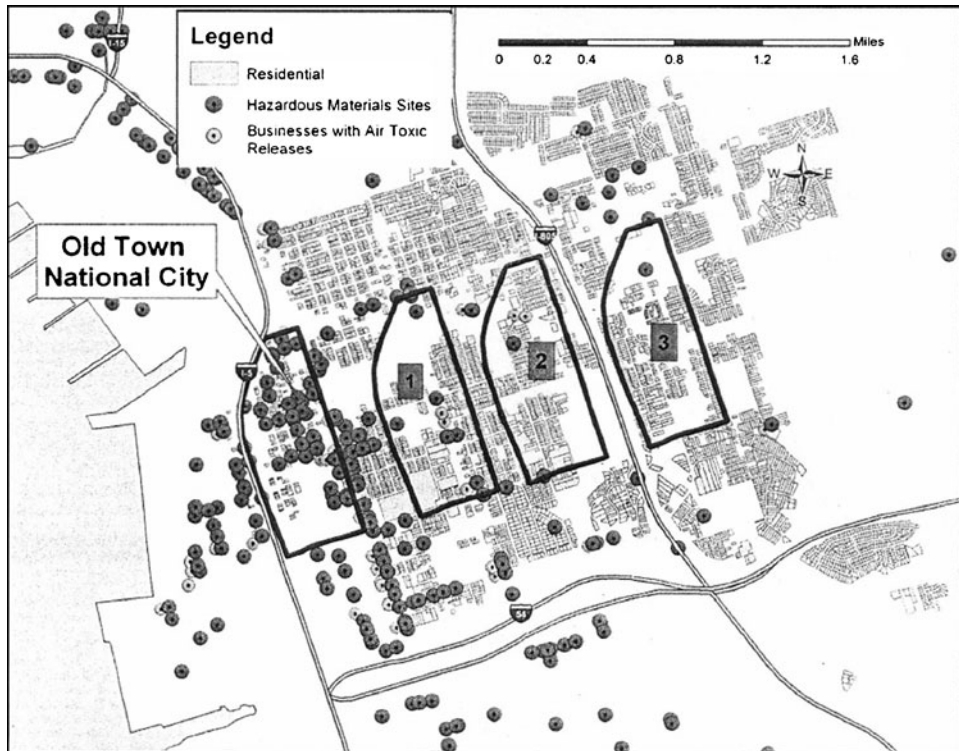


FIGURE 1. Comparing emissions: Old Town National City and three adjacent footprints.

Toxic Air Contaminant Emissions (lbs. per yr.)

Old Town	23,114
Footprint 1	5,963
Footprint 2	3,674
Footprint 3	0

Source: J. Williams, in EHC Report, *Reclaiming Old Town National City*, 2005. Based on data from County Department of Environmental Health and California Air Resources Board, available through Right to Know legislation.

Note: Does not include acetone and other gases and particulates that are not regulated as “toxic air contaminants” in California

OTNC is far more densely packed with hazardous materials sites and businesses with toxic air releases, with over 23,000 lbs of toxic air contaminants released in OTNC in 2005, with comparison figures of 6,000, 3500, and zero lbs, respectively, in the three adjacent footprints.¹ The far higher rates of air toxics in the OTNC footprint were attributed largely to the more than 20 autobody shops in this area, which together account for 70% of the reported toxics in this area.¹

Complementing the academic partners’ studies was a third prong of the research: a 56-item survey of 119 adult residents of OTNC conducted by bilingual

teams of trained *promotoras* with guidance from EHC staff. Seventeen *promotoras* completed the full, six-session training, which included sessions on topics including land use and environmental health and on how to conduct surveys and minimize bias. Six of the *promotoras* then conducted the survey with a nonrandom convenience sample obtained primarily through door-to-door canvassing, with additional parents contacted in front of the local school and invited to participate. An estimated 66% response rate was achieved, with 110 of the 119 surveys having all questions answered. Following survey data collection, two EHC members with formal research training conducted preliminary data analysis creating simple frequencies, breaking the data down, where appropriate, by categories (e.g., renter versus homeowner), and putting the findings into graphs and pie charts to facilitate the *promotoras*' involvement in the interpretation process. In the words of one staff member, "We pasted the entire large conference room with those pie charts," and the *promotoras* engaged in lively discussions of their meaning and resultant recommendations for action. Community meetings were then held to further disseminate the study findings and elicit additional input.

Survey results indicated that 14% of the respondents' children had been diagnosed with asthma and that 32% of children and 51% of adults lacked health insurance. Survey respondents reported a high level of support for a proposed Specific Plan, which would end the neighborhood's designation as a "light manufacturing/residential" area, and they had strong feelings about what the Plan should include. Over 90% of respondents, for example, supported a Plan that would involve relocating industry to a new industrial park outside the neighborhood. Finally, and despite widespread concern with addressing air pollution, the number one priority item turned out to be affordable housing—a finding that helped broaden the action agenda of EHC.

The findings of the survey, along with the principles developed by the *promotoras*, other community members and EHC staff, were published in August, 2005 as part of a widely publicized report entitled, *Reclaiming Old Town National City: A Community Survey*.¹ Although the town's mayor occasionally made comments like, "Anyone can conduct a survey and get any result," an EHC leader reported that few accusations of bias were made. In contrast, as noted below, a number of newspaper articles and editorials, and even the draft Specific Plan itself, cited the study in positive ways, and the report's principles or recommendations were used to develop the formal land use map that in turn helped shape the final Specific Plan.

From Research to Policy Action

Although the action component of CBPR can take many forms, policy- or systems-level change frequently is critical for affecting the lives of large numbers of people.²⁴ For EHC, policy level advocacy, drawing on the research findings and related recommendations, has been a particularly important avenue for working to address environmental injustice and quality of life in OTNC. Following publication of the report and its "Principles for Revitalization in Old Town," EHC and its partners undertook a number of policy related steps and activities to help effect change. Although the nonlinear nature of policymaking process was clearly evidenced in EHC's experience in this regard, key policy steps and activities identified by Kingdon²⁵ and others^{26,27} were in evidence. Briefly, Kingdon discusses the three "policy streams" that need to converge for successful policy-making efforts: a *problem stream*, in which issues are identified as problems and included in the policy

agenda; a *policy stream*, in which different policy solutions are considered; and a *political stream*, in which policy makers provide their support in favor of a particular solution. He and other policy analysts^{26,27} also discuss the steps in the policy process as including problem definition, setting an agenda and creating awareness, considering policy alternatives and deciding on which to pursue, policy enactment, implementation, and modification.

Problem Definition/Identification Studies by USC researcher Jerrett and his colleagues²¹ had shown an association between traffic-related pollution and the onset of asthma, while the work of Guaderman et al.²² suggested that current levels of air pollution had chronic, adverse effects on lung development of children ages 10–18, leading to significant deficits in lung functioning in adulthood. This academic research, coupled with EHC’s survey findings of children’s asthma rates well above the state average and residents’ shared personal experiences, helped shine a spotlight on asthma and its likely relationship to poor land use planning. Together with the Coalition’s powerful GIS data (see Figure 1), the research further helped demonstrate a broader problem: environmental injustice in the location of autobody shops and other toxic release facilities, with OTNC bearing the brunt of resultant pollution and other adverse human and environmental costs of the neighborhood’s designation as a “light manufacturing/residential” area.¹ Together, this research played an important role in providing credible evidence during the problem identification/problem-stream phase of the policy process.

Setting an Agenda and Creating Awareness As part of the problem stream, agenda setting takes place when a problem is recognized as an issue that calls out for government attention and potential action.²⁵ Using both quantitative data and residents’ stories regarding poor land use planning and its consequences, including high rates of asthma linked in part to toxic releases from autobody shops, EHC and its partners initiated a broad-based and multi-faceted public and policy maker awareness campaign. Effective use of media advocacy, with articles in the *San Diego Union Tribune*²⁸ and on popular city blogs²⁹ as well as stories in EHC’s newsletter *Toxinformer*, published in English and Spanish, were among the strategies used to create awareness. A *Union Tribune* article thus reported the survey’s finding that 14% of local children had diagnosed asthma but also cited EHC’s belief that poor access to care probably meant that this was a very conservative figure. The article further quoted a USC academic partner’s findings regarding the relationship between proximity to diesel sources and adverse childhood health outcomes, including both asthma and stunted lung development.^{22,28}

Door knocking by EHC volunteers, passing out flyers, and urging attendance at hearings and community and house meetings also were employed, as was residents’ and staff members’ testimony at public meetings, and briefing of elected officials.

EHC’s success in creating awareness and organizing OTNC was greatly aided by its relationships with key institutions in the neighborhood, chief among these the local elementary school (one of whose teachers chaired EHC’s board), the church-based Saint Anthony’s Organizing Ministry, and the Old Town Neighborhood Council. The *promotoras*’ frequent involvement with the school and church, and their bridge building with such institutions, helped EHC reach local families effectively and efficiently.

Although the academically trained research partners frequently played key roles in providing testimony and in other ways helping get on the policy makers’ agenda,

a special effort was made by EHC to enable the “front and center” participation of *promotoras* and other residents, who described in detail having been taught “how to look at the TV cameras, speak to reporters... reach a wider audience with our message.”

Constructing Policy Alternatives and Deciding on a Policy to Pursue As Themba et al.³⁰ point out, developing good policy requires a careful exploration of the larger context in which an issue is embedded. In a process similar to what policy makers themselves go through as part of the policy stream in the policymaking process, EHC used strategic planning and other means to help community members think through their priorities, and the policy strategies most likely to be effective in helping achieve them. With respect to the signature goal of reducing neighborhood pollution, EHC leaders thus helped residents review the pros and cons of a variety of policy alternatives, among them eminent domain (state power to take private property for public use, compensating the owner), code compliance, re-zoning, relying on market forces, and amortization. The latter approach sets a reasonable time period for an individual whose business is inconsistent with current zoning to “recoup” his or her investment before that use is terminated. Since residents trusted neither the government (regarding eminent domain and code enforcement) nor market forces, and believed re-zoning was necessary but not sufficient to bring about change, working for an amortization ordinance was deemed the best immediate policy option for which to work. This effort in turn led EHC and its community residents and partners to focus on a larger policy goal: getting a Specific Plan for OTNC, which would address not only the toxic emissions issue but also other hot-button concerns of residents, among them limiting gentrification pressures and increasing access to housing which is affordable to the mostly low-income residents of OTNC.

Policy Advocacy EHC staff, *promotoras*, and other partners and allies engaged in a variety of activities to help achieve their policy objectives and impact on the political stream of the policymaking process. Using “power mapping”³¹ (a process in which groups select the specific policy objective they seek and identify policy targets and other key players, their strength and stance on the issue, etc.), they literally mapped out on butcher block paper key allies and opponents and their policy targets, e.g., the City Council and other organizations and individuals with the power to make desired changes. EHC then worked with the USD Environmental Law Clinic to develop the legal grounds for the amortization ordinance and help advocate for its adoption.

Presentations at City Council meetings were described by policy makers and others as particularly effective, and included the *promotoras*’ sharing of “statistics and stories” (e.g., their survey findings and their lived experience as residents and mothers), EHC staff and researchers’ presentations of visually compelling GIS and other data, and the *promotoras*’ then giving Council members a handout or “leave behind” summarizing the problem, the evidence, and their proposed solutions. A “great relationship with the local media” and strong alliances with advocates well beyond OTNC further contributed to the successful passage of an amortization ordinance in August 2006. Maintenance of strong lines of communication with key policy makers was also described as a key strategy, as was mobilizing the community to be present at hearings and other events and show their support on this and related issues. Although one policy maker interviewed commented that amortization had

already been under consideration by the City Council when the EHC became involved, two others who were intimately involved in the process, as well as mass media accounts, stressed the important role which the partnership played during the convergence of the three policy streams resulting in an actual policy change. One policy maker remarked that:

“They [EHC] played a major role because as policymakers when we see a community of 15–30 fill up a meeting room, and 30 different leaders come from the community at large, we see that it is a concern. We as policymakers see that we really need to look into [it] before we can make decisions.”

Another City Council member commented that EHC “influenced the policy environment” largely because of its effectiveness in “bringing all of the parties together to resolve whatever issues were at stake. Without that approach... usually change does not happen.”

Similarly, policy advocacy through these and related channels was used to help make the case for a Specific Plan. In the words of a City Council member we interviewed, “They [EHC] brief me, share concerns... one-on-one, through phone calls...” and by inviting her to be part of relevant community events. This policymaker also noted the value of EHC’s data in policy advocacy, commenting that “numbers and statistics make or break an argument.”

POLICY IMPLEMENTATION AND OUTCOMES

Credible research and follow-up actions by EHC and its allies were described by policy makers and others as having had a substantial impact on several policy-related outcomes. As one EHC leader commented with respect to the coalition’s footprints graphic, for example, (Figure 1), the map was “the scientific articulation” of what the residents and the local church and school “had been calling out [and] when politicians saw that, they went, ‘Oh wow. This is actually an issue for us and we really need to deal with it. We’re going to look real bad if we don’t.’” Passage of the amortization ordinance in August 2006 would allow Council members to phase out polluters. EHC’s data on the extremely high rates of ultra fine particulate matter in diesel exhaust from Momax trucks near the local elementary school, together with effective advocacy by EHC and its allies at the school and a nearby church, also were credited with helping limit the operation of the truck-driving school.

EHC was further described by key informants we interviewed as “a major force” in getting a \$180,000, City-funded feasibility study on the creation of an industrial park outside the city limits where polluting industries could relocate. Furthermore, and in response to the *promotoras*’ survey finding that affordable housing was the number one concern of residents, EHC and its allies were successful in getting an agreement from the City to convert a 10-acre brownfield in the middle of Old Town into a 250-unit affordable housing project, which would include five acres of restored marshland and recreational space. The City’s hiring of an architect in September 2008 to conduct a community outreach process for site development, and inclusion of the site plans in the bidding process to select a developer in December 2008, also were described as stemming in substantial measure from the work of EHC and its allies on this issue.

In October 2009, the OTNC City Council voted to include a Health and Environmental Justice Element in its General Plan to better address the way land use

practices affect community health. In so doing, National City became the first municipal area in California to include environmental justice as a full element of its general plan. Following additional community meetings and a City Council meeting in which EHC members, residents, teachers, scientists, and other supporters offered testimony, the Council unanimously adopted the Westside (Old Town) Specific Plan in March 2010. The Specific Plan will slowly relocate industrial businesses out of the neighborhood while allowing businesses that provide residents with “goods and services, recreation and public transit.”³² Several policy makers we interviewed described the EHC partnership as a major contributor to both the form and content of the Plan and its eventual passage. EHC’s survey findings on community preferences regarding building heights (e.g., two or three versus five stories), density, and provisions for affordable housing thus provided some of the data needed to ensure that the Plan reflected resident concerns and desires. As a city councilmember commented:

“EHC [kept] the City Council informed on key changes identified by the community to be included in the Specific Plan. They get residents to be involved [and] bring up issues that without their participation or input, we as the City Council would not have thought about. EHC and its partners bring to the forefront key examples of changes we can make to create and design a better, more inclusive plan.”

An op ed piece by the current mayor and a long-time resident announcing passage of the Specific Plan further both cited EHC’s GIS data and emphasized the role of community involvement in achieving this historic victory.³³

Not all of the outcomes of this project have been positive, however: while expressing her support for the amortization ordinance, for example, another policy maker commented that this tool “has a negative association” [and] “when we talked to gross polluters and specific businesses, they accused us of being anti-business.” Furthermore, without the needed zoning changes, actual enforcement of the amortization ordinance proved impossible. As a Council member remarked, the presence of just two code enforcers for the entire city precluded enforcement of even the existing codes—a particular problem given that the vast majority of the businesses operating in OTNC are not in compliance.

Of even greater concern to an EHC leader was the worry that with its emphasis on new housing with recreational spaces and other desirable features, as well as offering a profit-making opportunity for developers, it may have an undesirable consequence, since “You’re creating an atmosphere that’s ripe for gentrification.” He added that it was critical, therefore, that the Specific Plan be developed and implemented in such a way that “the folks who have been suffering these injustices for decades and fighting for change are the ones who benefit from it, and that they’re not just simply displaced.”

ADDITIONAL OUTCOMES: BUILDING COMMUNITY CAPACITY FOR SUSTAINABLE CHANGE

Although this paper has focused primarily on environmental justice research and policy advocacy and its outcomes, EHC’s contributions to individual community capacity building also should be underscored, as this too is a key goal of CBPR.^{3,24,30} As noted earlier, integral to the Coalition’s work has been the training and continued

mentoring of *promotoras* who received small stipends, meals, and childcare and have been actively engaged in EHC's community outreach and organizing work. Describing the intensive training in which she had participated as part of her preparation for participation in the Toxic Free Neighborhoods Campaign, one *promotora* remarked that participants learned not only about EHC's history and mission but also "how to educate ourselves, how to keep our homes healthy... how to talk to [people], how to get them involved." Another *promotora* described how they learned to design and conduct credible surveys based on community-identified concerns, how to approach potential participants and later, "how to express yourself within City Council." In the latter regard, an important part of the training involved preparation for participation in Council meetings and similar public venues and debriefings, which were held immediately afterwards. In conducting such sessions, however, EHC staff had to walk a difficult tightrope. As one staff member remarked,

"I think there's a tension between helping people structure and organize their presentation and making sure that folks don't get so caught up in the technical side of it that they lose the emotion in what they're saying. It's the emotion behind the stories that carries the potential to impact the decision makers. I think that we had to pull back at certain times when it came off like over-preparation, and just tell them to let it fly."

As assessed by both staff members and the *promotoras* themselves, however, the trainings were successful in helping participants feel more empowered and capable of helping make a difference. As one *promotora* reflected, "One of the things I learned from the training is that we, as a community, have the *power* to make changes... that if the entire community is united and we are all in agreement and want that change, we have the power to have *them* [city officials] change their minds."

The *promotoras* also faced challenges, however, among them frustrations caused by slowness of change, particularly with respect to long term goals and objectives. Reflecting on this problem, an EHC staff member commented that, in retrospect,

"I would have liked to have worked with them on smaller, practical, get-it-done-quickly projects during the course of the Specific Plan. We knew it would be long, but we didn't know it would be over five years from start to finish. You can use every organizing trick in the book, but after that much time, it gets very difficult to sustain interest."

Although some shorter term projects were undertaken, e.g., the amortization ordinance and efforts to close the trucking school across the street from the local elementary school, "more small, hands-on stuff that energized people, such as community gardens, neighborhood watch [and] alley restorations" could have helped them achieve smaller victories along the way.

The *promotoras* also noted personal problems, including being labeled *chismosas* (gossips) by some other women in the community, facing distrust and resentment from their husbands and sometimes incurring bad feelings from their children for being out of the house. Although none of the *promotoras* quit because of family pressures, according to EHC staff, "there were definitely some very rough patches, and a lot of tearful office conversations where that decision was contemplated." To help address these challenges, one of EHC's most successful strategies was to recruit and involve husbands. As a staff member noted,

“Those that got up close to it realized that it was noble, respectful, important work, and had pride. I also think that inviting the guys to the celebrations and graduations helped.” This male staff member also mentioned the importance of just meeting and hanging out with the husbands, “in part because it defused any sort of suspicion they had about their wives working with a guy.” Emphasizing that men were involved in the work, too, also helped dispel stereotypic notions some of the men had that their wives were simply “gossiping.”

Most of the women interviewed reported that, with time, their family members became not only accepting of their roles but proud of them and sometimes actively engaged in the campaign themselves. As one *promotora* commented,

“Every time we go to a City Council meeting and see the reports on TV, my kids will say, ‘Mom, that is not true what the City Council members are saying.’ Because they are also educating themselves alongside us and that is something very beautiful.”

Finally, and of particular importance from the perspective of sustainability, five trained *promotoras* have been hired onto EHC staff as community organizers. Furthermore, one of the community residents who had worked closely with the EHC and its allies at the local church subsequently was elected to the City Council and now serves as Vice Mayor of OTNC. In helping to groom current and future civic leaders, EHC and its partners have further helped improve the prospects for policy-level changes that can in turn promote health and environmental justice.

DISCUSSION

Fleishman³⁴ has noted that “Meaningful community engagement in urban health research is an aspirational goal that deserves the attention of the research community and the public at large.” As illustrated in this and other case studies,^{6-8,35-37} the form of engagement known as CBPR also merits, and is receiving, increased attention from policy makers. The EHC partnership is an example of a CBPR effort that appears to have both produced credible science and helped bring about environmental health policy change. EHC’s in-house research, including toxic release footprints of OTNC and adjacent areas, provided visually powerful data on the toll that disproportionate exposure was taking on this community. Similarly, both quantitative data from university-based colleagues and a *promotora*-led survey of residents received good media coverage and frequently were cited in testimony before the City Council and other bodies to help capture the key concerns and priorities of residents and in turn help shape the Specific Plan.

From a policy perspective, passage of the amortization ordinance, the passing of a law to limit the operation a truck-driving school adjacent to the local elementary school, and the securing of funds for a feasibility study for an industrial park outside the city limits all were described by local media and relevant policy makers and other stakeholders as having been substantially related to the work of EHC and its partnership.^{23,28} These incremental changes, moreover, were important in helping achieve the longer term goal of putting into place a Specific Plan, whose content and passage were described as reflecting substantially the contributions of EHC and its allies.

Although the findings of the case study presented in this article are, by definition, not generalizable, they reinforce those of a number of other studies involving policy-focused CBPR in environmental justice. The Trade, Health and Environment (THE) Impact Project, for example, a regional coalition comprised of community-based organizations (CBOs) and academic partners in Los Angeles, Long Beach, and the Inland Valleys, trained community members to serve on neighborhood assessment teams and gather data through traffic counts and the measurement of particle concentration.³⁷ Their collaboration, with academic partners at USC, contributed to the passing of the Clean Truck Plan and to a successful delay of the expansion of a major freeway to allow more public participation and consideration of its community and health impacts.³⁷ In Northern Manhattan, NY, United States, impressive CBPR by a partnership between West Harlem Environmental Action (WE ACT) and epidemiologists at the Mailman School of Public Health at Columbia University³⁸ was described by EPA policy makers as having played a key role in helping to secure tighter air-quality standards, as well as the placement, by the EPA, of permanent air monitors in Harlem and other “hot spots” around the country.^{10,35} Furthermore, several of these efforts have been credited with helping change the broader policy environment. THE Impact Project has been described as having helped “change the debate” on neighborhood contamination through increased community participation.³⁷ Similarly, the Southern California Environmental Justice Collaborative was given substantial credit for the fact that the state EPA and other decision-making bodies increasingly think in terms of *cumulative* rather than individual risk in their policy deliberations.^{7,10,39} Although National City represents a much smaller geographic area, the work of the EHC partnership likewise was described by policy makers and others interviewed as having helped change the policy environment, with the organization and its active community base identified as an important force influencing governmental planning efforts.

Several of the factors that appeared critical to the success of the EHC partnership also have been observed with respect to other environmental health CBPR partnerships. The need for strong alliances and a solid community base has been widely cited,^{6,7,10,30,39,40} as has the importance of credible science that can “stand up to careful scrutiny.”^{7,10,24,35,36,41} The powerful combination of research, community organizing and policy advocacy in this work also frequently has been emphasized. As Morello-Frosch and her colleagues⁷ argue:

[Strong CBPR partnerships] “promote not only good science, but science that is focused on important problems that affect the lives of real people, and they do so while enhancing community capacity and participation in research and advocacy—all of which can ultimately improve the regulatory and policymaking process”

The combining of several kinds of data collection, and of balancing “statistics and stories,” similarly has been highlighted as enhancing efforts to move policy.^{7,10,24,30,42,43} Indeed, EHC and each of the other abovementioned projects both undertook quantitative data collection and provided training for community members in public speaking and in other ways communicating their personal stories and messages as a key component of the work.

The importance of making the time to engage in substantial background work, including strategic planning, power mapping, and researching policy options and alternatives as a prelude to policy action, has been widely discussed in the literature^{6,24,30,35–37,40,43} and was well-demonstrated in the EHC partnership.

Relatedly, effective use of the mass media has proven an important feature of policy-oriented CBPR in environmental justice and related areas.^{6,7,10,30,40}

Although attention to and skills in the above areas served the EHC partnership well, a number of challenges and barriers were uncovered in this case study, many of which also have been reported in other policy-focused CBPR partnerships working to promote environmental justice in low income urban areas.

In both OTNC and West Oakland, CA, United States, for example, a policy win (OTNC's amortization ordinance and West Oakland's 2006 truck ordinance) proved difficult to enforce due to either zoning that precluded enforcement or inadequate staff for providing oversight.⁴⁴ In New York City, the WE ACT partnership's successful efforts to help close a bus depot in Northern Manhattan (which was home to seven of the City's eight depots) similarly was described as involving a shell game, with the City soon opening another depot in a different part of this community.

Time and role constraints and complications, particularly for community partners, also have been widely reported^{10,34,42-47} and were a particular issue for EHC *promotoras* in the early stages of the work. Resentment from husbands and children, and being labeled as "gossips" by some community women not involved in the work, were of particular concern and are a reminder of the need to address the fact that training and hiring community members as team members may make them "outsiders within" or as Freire⁴⁸ remarks, "strangers in their own community." Substantial time for trust building,^{34,45,47} special training, and mentoring of community partners with respect to these and other challenging aspects of their roles, and, in the case of communities like the heavily Latino OTNC, outreach to participants' husbands, are an important part of individual and community capacity building. Provision of meals and childcare, as well as a modest stipend also can be important in helping to lessen some of the burdens that community partners often face in this work. Finally, training for academic and other outside partners is needed so that they can better understand, and where possible avoid or ameliorate, such problematic aspects of participation for their community partners.^{10,45-47}

Interestingly, one widely cited limitation faced by many CBPR partnerships, namely, inadequate financial support, particularly for community partners,^{10,34,45-47} appeared not to have presented a major obstacle to the EHC partnership. EHC's earlier noted ability to bring in substantial funding from The California Endowment and The James Irvine Foundation, as well as eight years of NIH funding in support of its work, was a major contributor to its fiscal viability and its consequent ability to foster sustainability. The EHC partnership's experience, like that of WE ACT and the Southern California Environmental Justice Collaborative highlighted above, underscores the importance of foundation and federal funding that makes "long term investment in change,"⁷ including support for developing the internal capacity of CBO partners to bring in and administer large federal or foundation grants over a long time period. The value of having strong, in-house researchers who can both help design rigorous research and write competitive grant proposals also was pointed out.

Policy-focused CBPR is labor and time intensive and, as indicated above, may face numerous barriers and obstacles at each step of the process. At the same time, however, partnerships like that of the EHC in OTNC remain important examples of the potential of CBPR for producing sound research and at the same time helping to amplify community voice toward the end of helping to promote policies that can improve the prospects for environmental justice in urban communities.

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REFERENCES

1. Environmental Health Coalition. *Reclaiming Old Town National City: a community survey*. National City: Environmental Health Coalition; 2005.
2. Green LW, George MA, Daniel M, et al. *Study of participatory research in health promotion*. Ottawa: The Royal Society of Canada; 1994.
3. Israel BA, Schulz AJ, Parker EA, et al. Review of community-based research: assessing partnership approaches to improve public health. *Annu Rev Public Health*. 1998; 19: 173-202.
4. Brugge D, Hynes PH. *Community research in environmental health: studies in science, advocacy and ethics*. Burlington: Ashgate; 2005.
5. O'Fallon LR, Dearth A. Community-based participatory research as a tool to advance environmental health sciences. *Environ Health Perspect*. 2002; 110(S2): 155-159.
6. Corburn J. *Street Science: community knowledge and environmental health justice*. Cambridge: MIT Press; 2005.
7. Morello-Frosch R, Pastor M Jr, Sadd J, Porras C, Prichard M. Citizens, Science and data judo: leveraging secondary data analysis to build a community-academic collaborative for environmental justice in Southern California. In: Israel BA et al., eds. *Methods in community-based participatory research for health*. San Francisco: Jossey-Bass; 2005: 371-393.
8. Shepard PM, Northridge ME, Prakash S, Stover G. Preface: advancing environmental justice through community-based participatory research. *Environ Health Perspect*. 2002; 110: 139-140.
9. Yin R. *Case study research: design and methods*. Thousand Oaks: Sage; 2003.
10. Minkler M, Brechwich Vásquez V, Chang C, et al. *Promoting healthy public policy through community-based participatory research: ten case studies*. Oakland, CA: PolicyLink; 2008. <http://www.policylink.org>. Accessed November 16, 2009.
11. Minkler M, Brechwich VA, Tajik M, Petersen D. Promoting environmental justice through community-based participatory research: the role of community and partnership capacity. *Health Educ Behav*. 2008; 35(1): 119-137.
12. Guthrie K, Louise J, Foster CC. *The challenge of assessing policy and advocacy activities: moving from theory to practice*. Los Angeles: The California Endowment; 2006.
13. Wallerstein N, Oetzel J, Duran B, Tafoya G, Belone L, Rae R. What predicts outcomes in CBPR? In: Minkler M, Wallerstein N (eds.) *Community-based participatory research for health: from processes to outcomes*, 2nd edn. San Francisco: Jossey-Bass; 371-388.
14. Patton M. *Qualitative research and evaluation methods*. 3rd ed. Thousand Oaks: Sage; 2003.

15. Environmental Health Coalition. *Building power to win: strategic vision 2008–2018*. National City: Environmental Health Coalition.
16. San Diego Association of Governments. Publications; 2005. http://www.sandag.org/resources/demographics_and_other_data/demographics/fastfacts/index.asp. Accessed January 16, 2010.
17. Environmental Health Investigations Branch, California State Department of Health Services. *The burden of asthma in California: a surveillance report*. Sacramento, CA: California State Department of Health Services; 2007.
18. Diaz-Sanchez D. The role of diesel exhaust particles and their associated polyaromatic hydrocarbons in the induction of allergic airway disease. *Allergy*. 1997; 52: 52-56.
19. Kagawa J. Health effects of diesel exhaust emission—a mixture of air pollutants of worldwide concern. *Toxicology*. 2000; 181–182: 349-353.
20. Bernstein JA. Overview of diisocyanate and occupational asthma. *Toxicology*. 1996; 111 (1-3): 181-189.
21. Jerrett M, Shankardass K, Berhane K, et al. Traffic-related air pollution and asthma onset in children: a prospective cohort study with individual exposure measurement. *Environ Health Perspect*. 2008; 116(10): 1433-1438.
22. Guaderman WJ, Avol E, Gilliland F, Vora H, Thomas D, Berhane K. The effect of air pollution on lung development from 10–18 years of age. *N Engl J Med*. 2004; 351(11): 1-11.
23. Sierra T. Fumes from business spur residents to act. *San Diego Union Tribune*, February 10, 2007, B1, B7–B8.
24. Minkler M. Linking science and policy through community-based participatory research to address health disparities. *Am J Public Health*. 2010; 100(1): S81-S87.
25. Kingdon JW. *Agendas, alternatives, and public policies*. 2nd ed. New York: Addison-Wesley; 2003.
26. Longest BB Jr. *Health policymaking in the United States*. 3rd ed. Chicago: AUPH/Health Administration Press; 2006.
27. Bardach E. *A practical guide for policy analysis: the eightfold path to more effective problem solving*, 2nd edn. Washington: CQ Press; 2005.
28. Taylor M. *Neighbors grow into activist role*. *San Diego Union-Tribune* (Our South County), April 12, 2008, 1 and 4.
29. Davis RA. Schizophrenic neighborhood hoping for change. *Voices of San Diego.org*. Available at: <http://www.voiceofsandiego.org>. Accessed on: August 24, 2006.
30. Themba Nixon M, Minkler M, Freudenberg N. The role of CBPR in policy advocacy. In: Minkler M, Wallerstein N, eds. *Community-based participatory research for health: from process to outcomes*. 2nd ed. San Francisco: Jossey-Bass; 2008: 307-320.
31. Ritas C, Minkler M, Ni A, Halpin H. Using CBPR to promote policy change: exercises and online resources. In: Minkler M, Wallerstein N, eds. *Community-based participatory research for health: from processes to outcomes*, 2nd ed. San Francisco: Jossey-Bass; 459–464.
32. Zuniga J. City adopts renewal plan for Westside. *Sign On San Diego, Union Tribune*. <http://signonsandiego.com>. Accessed May 16, 2010.
33. Morrison R, Richardson D. A healthier Old Town National City. *Sign on San Diego*. <http://signonsandiego.com>. Accessed March 31, 2010.
34. Fleishman AR. Community engagement in urban health research. *J Urban Health*. 2007; 84(4): 469-471.
35. Vásquez VB, Minkler M, Shepard P. Promoting environmental health policy through community based participatory research: a case study from Harlem, New York. *J Urban Health*. 2006; 83(1): 101-110.
36. Freudenberg N, Rogers MA, Ritas C, Nerney M. Policy analysis and advocacy: an approach to community-based participatory research. In: Israel B et al., eds. *Methods in community-based participatory research for health*. San Francisco: Jossey-Bass; 2005: 349-370.

37. Hricko A. Global trade comes home: community impacts of goods movement. *Environ Health Perspect.* 2008; 116(2): A79-A81.
38. Kinney PL, Aggarwal M, Northridge ME, et al. Airborne concentrations of PM_{2.5} and diesel exhaust particles on Harlem sidewalks: a community-based pilot study. *Environ Health Perspect.* 2000; 108: 213-218.
39. Petersen D, Minkler M, Breckwich VA, Corage Baden A. Community-based participatory research as a tool for policy change: a case study of the Southern California Environmental Justice Collaborative. *Rev Policy Res.* 2006; 23(2): 339-353.
40. Wing S, Horton RA, Muhammad N, et al. Integrating epidemiology, education, and organizing for environmental justice: community health effects of industrial hog operations. *Am J Public Health.* 2008; 98(8): 1390-1397.
41. Buchanan D, Miller F, Wallerstein N. Ethical issues in community based participatory research: balancing rigorous research with community participation in community intervention studies. *Prog Commun Health Partner* 2007; (1.2): 153-160.
42. Israel BA, Krieger J, Vlahov D, et al. Challenges and facilitating factors in sustaining community-based participatory research partnerships: lessons learned from the Detroit, New York City and Seattle Urban Research Centers. *J Urban Health.* 2006; 83(6): 1022-1040.
43. Ritas C. Speaking Truth, Creating Power: a guide to policy work for community based participatory research practitioners; 2003. http://futurehealth.ucsf.edu/pdf_files/Ritas.pdf. Accessed January 15, 2008.
44. Gonzalez P, Minkler M, Gordon M, et al. Community-based participatory research and policy advocacy to reduce diesel pollution in West Oakland, California. *Am J Public Health* (in press); 2010
45. Seifer SD. Building and sustaining community-institutional partnerships for prevention research: findings from a National collaborative. *J Urban Health.* 2006; 83(6): 989-1003.
46. Minkler M. Ethical challenges for the "outside" researcher in community based-participatory research. *Health Educ Behav.* 2004; 31(6): 684-697.
47. Israel BA, Parker EA, Rowe Z, et al. Community-based participatory research: lessons learned from the centers for children's environmental health and disease prevention research. *Environ Health Perspect.* 2005; 113(10): 1463-1471.
48. Freire P. *Pedagogy of the oppressed*. New York: Continuum; 1971.