

Community Voice, Vision, and Resilience in Post-Hurricane Katrina Recovery

Rachel Morello-Frosch, Phil Brown, Mercedes Lyson, Alison Cohen, and Kimberly Krupa

ABSTRACT

Hurricane Katrina has mobilized community-based environmental justice organizing and advocacy and injected a strong social justice analysis of extreme weather events and disaster recovery. Using interviews and observations with New Orleans activists and organizations, we examine three community and advocacy-based rebuilding and organizing projects that arose as a result of diminished local and federal government infrastructure and regulatory engagement: 1) a labor-environment coalition which rebuilt a single neighborhood block as a demonstration project that also provided safety and health training; 2) activists' analyses of sludge toxicity in diverse neighborhood and point source locations; and 3) community organizing to address the re-opening of public schools on contaminated land. This leads us to a broader examination of neighborhood activism regarding rebuilding, barriers and opportunities posed by political and state entities, and the connection between environmental hazards and public health infrastructure problems. An in-depth look at these three case studies underscores the importance of community-based environmental justice organizations for building grassroots infrastructure for effective disaster planning and to ensure that a foundation exists to advance recovery efforts, particularly in situations when government infrastructure and support is lacking.

[W]e're leveraging everything we have and what we really have is we have the voice of community, the voice of empowerment, of neighborhoods as a collectivization of, and democratization of New Orleans, and that is a very powerful tool.

—A leader of the Neighborhood Planning Network

THIS STATEMENT EXEMPLIFIES how grassroots environmental justice mobilization has helped rebuild New Orleans in the wake of Hurricane Katrina. Such community-based efforts often starkly contrast with governmental and corporate rebuilding efforts, which are often top-down processes implemented with little or no community input. Here, we examine three such environmental justice (EJ) approaches in post-Katrina New Orleans: the Deep South Center for Environmental Justice in a labor-environment coalition with the United Steel-

workers; activist science studies conducted by New Orleans-based EJ groups paired with the Natural Resources Defense Council (NRDC); and the case of the Agriculture Street Landfill school siting controversy involving the Center for Health, Environment and Justice (CHEJ). Ultimately, we argue that such EJ approaches to rebuilding have broadened public awareness about the inherent links between social justice and sustainability in the realm of recovery from environmental disasters.

Disaster vulnerability is largely rooted in disparate patterns of community settlement, political empowerment, civic engagement and access to economic capital, social networks, and information. Social disruption and inequities caused by disasters can galvanize communities to mobilize politically in the regulatory and policy arenas (Bolin and Stanford 1991) or to enhance movement-building and civic engagement through a collective sense of ethnic identity (Davis 1986). For example, after the 1989 Loma Prieta earthquake in Northern California, coalitions of community activists, federal agencies, and private organizations pushed to build low-income housing. This improved living conditions in affected Latino farming communities and fueled a movement to increase Latino political voice over the long-term (Bolin 1993). After Hurricane Andrew in 1992, Mexican farmworkers, Haitian immigrants, and African-American church women

Dr. Morello-Frosch is associate professor, Department of Environmental Science, Policy and Management and School of Public Health at the University of California, Berkeley. Dr. Brown is professor, Department of Sociology, at Brown University. Ms. Lyson is a doctoral student, Department of Sociology, at Brown University. Ms. Cohen is an MPH student, School of Public Health, University of California, Berkeley. Ms. Krupa is a doctoral student, Department of Planning and Urban Studies, at the University of New Orleans.

organized and mobilized their neighborhoods (Enarson and Morrow 1997) and several African-Americans were elected to office as a result (Peacock and Ragsdale 1997).

The ravages of Hurricane Katrina in 2005 starkly revealed to policymakers, the media, and the public how extreme weather events have their most devastating impacts on communities of color and the poor. Lacking adequate infrastructure, transportation access, and health care, these communities face disproportionate exposures to natural and anthropogenic environmental hazards. In the wake of Hurricane Katrina, the environmental justice movement in New Orleans has played a critical role representing the interests of vulnerable communities forced to embark upon and endure the painstakingly slow recovery process with a paucity of resources or coordinated government infrastructure. Although disasters have long been seen as catalysts for local activism and social reform, Stallings and Quarantelli (1985) have observed that most citizen groups that emerge to satisfy specific post-disaster needs tend to exist only for brief periods of time—perhaps as little as a few days or weeks.

In post-Katrina New Orleans, the environmental justice movement has had an enduring impact on the disaster planning and recovery process; this is in large part because of a long legacy of EJ activism pre-Katrina, rather than due to groups created in response to Katrina. For example, the Deep South Center for Environmental Justice at Dillard University, whose founder and director Dr. Beverly Wright won a prestigious Heinz Award in 2009, has worked on EJ issues regionally for well over a decade. Similarly, for fifteen years, Agriculture Street Landfill activists have sought remediation and relocation from a contaminated landfill that had been converted into a residential development. More broadly, the social movement response to Hurricane Katrina has helped fuel a burgeoning climate justice movement, which has focused on the disparate health and economic impacts of climate change on communities of color and the poor, both nationally and globally (Morello-Frosch et al. 2009; Shonkoff et al. 2009). As more extreme weather/climate change events occur, the climate justice movement will become stronger because other strong justice-oriented responses will occur (Pastor et al. 2006).

An environmental justice framework considers two major issues for socially equitable disaster planning and recovery: first, the cumulative impact of myriad environmental assaults and both pre-existing and pursuant community vulnerability (Morello-Frosch and Lopez 2006); second, sources of community resilience in the face of disasters. In New Orleans, the double jeopardy of cumulative impact and social vulnerability was revealed by a legacy of race and class discrimination that concentrated African-Americans and low-income people into ecologically and economically vulnerable areas (Curtis, Warren Mills, and Leitner 2007). Here, they were disparately impacted because of previous inequities in storm protection infrastructure (e.g., drainage and levees), and the systemic racial segregation of neighborhoods into affluent high ground versus poor low lying areas (Colten 2005; Dawson 2006; Frymer, Strolovitch, et al. 2006). Although

there were some community assets, including both local environmental justice groups and national organizations that were mobilized to support community residents in the wake of the hurricane, there were also many unmet needs. For example, a common reason for not evacuating New Orleans, despite warnings about Katrina's potential severity, was that residents did not own a car or have access to other transit options to leave the city. Indeed, in one post-Katrina survey, 55% of respondents indicated lack of transit access as the main reason for not evacuating (Kaiser Family Foundation 2005). Moreover, 68% of respondents believed that the federal government would have responded more quickly to rescue people if more of them had been wealthier and white.

Wide public awareness of these exposure and resource inequalities has led to a broad national dialogue about how disaster relief, recovery, and rebuilding could begin to dismantle persistent socioeconomic and environmental inequalities plaguing the region. Sustained community organizing and political advocacy have become an essential part of getting recovery under way. While emergent community organizing was swift in the post-Katrina information void, serving as a vital conduit between returning residents and political leaders, the role of community organizing has remained important in New Orleans even five years after the storm because its leaders have insisted on a seat at the recovery table from the very beginning. As the recovery process has unfolded, expanding into multiple planning processes and occasionally overlapping efforts, the presence of community organizers has grown stronger, mobilized by the larger citywide movement to create a unified recovery and rebuilding plan. Community organizers and public officials alike agree that since the storm, there is an established expectation in New Orleans that grassroots activism exists to inform, shape, and guide rebuilding decisions. Many of the grassroots movements that emerged after Katrina continue to endure even as their roles have evolved, as they have become a critical part of the rebuilding conversation (Bullard and Wright 2009).

In this article, we apply an environmental justice framework of cumulative impact and social vulnerability to study community engagement and how it addresses rebuilding challenges in light of diminished local and federal government engagement and contested regulatory engagement. Using interviews and observations with community-based organizations and activists in New Orleans, we examine three local environmental justice projects that pose a popular alternative to traditional politics of experts and scientization in disaster recovery: 1) a model labor-environment coalition between the Deep South Center for Environmental Justice and the United Steelworkers, which rebuilt a single block in New Orleans East as a demonstration of community-based rebuilding efforts; 2) analyses of sludge toxicity performed by environmental advocates, including one by the Natural Resources Defense Council (NRDC) and another by a local scientist in collaboration with activists, which challenged state and federal regulatory risk estimates; and 3) community organizing over the re-opening of public

schools on contaminated land. This analysis demonstrates the increasing importance of environmental justice as a framework to mobilize organizing, advocacy, and scientific resources aimed at mitigating the disparate impacts of environmental disasters.

METHODS AND DATA

Our primary research question posits: how does an environmental justice framework explain local response to the disaster, and how can that framework be applied more generally to the assessment and study of other natural and anthropogenic disasters (for example related to climate change)?

In the three years following Katrina, we conducted 21 interviews of key informants, more than a dozen informal conversations with participants, and at least 54 observations of meetings and events. Since 2007, we have monitored both organizational activity and on-the-ground neighborhood recovery by maintaining contact with grassroots groups and tracking rebuilding activity at the neighborhood block level using photographs, meeting agendas, and an assortment of mainstream and independent media reports, which was used to supplement our case study data.

In addition to our interviews, we also acquired data through ongoing contacts with organizational representatives. To study the labor-environment coalition between the Deep South Center for Environmental Justice and the United Steelworkers, which rebuilt a single block in New Orleans East, data came largely from one of our research assistants who participated directly in this demonstration rebuilding project, and from additional conversations with the staff of the Center. For the analyses of sludge toxicity, additional data came from a series of conversations with Wilma Subra, former head of the Louisiana Environmental Advocacy Network (LEAN) and a member of the National Environmental Justice Advisory Commission (NEJAC). For local organizing over the reopening of public schools on contaminated land, interviews of local activists were supplemented with data from discussions with Lois Gibbs, head of the Center for Health, Environment and Justice, an organization that has been involved in school and children's environmental health issues, and Steve Fischbach of Rhode Island Legal Services, a national leader in school siting litigation.

BACKGROUND

Environmental justice as a historical legacy

Ever since sociologist Kai Erikson's (1978) groundbreaking work on the deadly Buffalo Creek, West Virginia flood, in which a Pittston Coal Company impoundment dam burst—four days after it was declared safe by a federal mine inspector, researchers have sought to elucidate the social structural components in the cause, effect, and recovery from disasters. Scholars have also developed more interdisciplinary approaches for exploring a disaster's cumulative impact on community vulnerability and resiliency. An environmental justice

framework offers a useful way to understand pre-disaster vulnerabilities and post-disaster recovery capacity (Bolin 2006). Historically environmental justice advocacy has pushed environmental health scientists and regulatory authorities to incorporate concepts of social inequality, economic disparities, and residential segregation into assessments of community vulnerability to pollutant exposures (Bolin 2006; Gee and Payne-Sturges 2004; Morello-Frosch and Lopez 2006; Morello-Frosch, Pastor, and Sadd 2002; NEJAC 2004). Environmental justice activists and scholars also note that cleaning up hazardous waste sites can prevent disaster-exacerbated outcomes. For example, tornadoes in 2008 hit the Tar Creek Superfund site in Oklahoma, one of the nation's worst mining waste sites, spreading mounds of mine tailings, contaminated with heavy metals and other toxic contaminants, throughout the area (Lester and Rabe 2009). Such examples in Louisiana abound in the wake of Katrina, as scientist Wilma Subra noted:

There is an area in Mississippi near Moss Point that has been historically contaminated with dioxin due to a pulp/paper mill operation. The sediments in the river are contaminated with dioxin and that sediment was washed on shore by the hurricane tidal surge. Community people fish in the water body and consume the fish and shell fish. This is an ongoing exposure that was broadened by the hurricane moving the contaminated sediment on shore.

Because the Gulf Region has been a historical epicenter of environmental justice advocacy (Bullard 1990; Markowitz and Rosner 2002; Roberts and Toffolon-Weiss 2001), long established activists have been prominent in debates over post-Katrina recovery (Bullard and Wright 2009). Before the hurricane struck, area residents and activists had struggled to address the disparate social, economic, and health impacts of chemical facilities and sprawling industrial and residential development on poor African-American residents in the Gulf Coast, particularly in the impoverished petrochemical corridor of Louisiana along the Mississippi River between Baton Rouge and New Orleans nicknamed "Cancer Alley" (Allen 2003; Bullard 1990, 1993; Lerner 2005; Roberts and Toffolon-Weiss 2001). The evolution of this corridor, which included major corporations buying out large swaths of small towns to build petrochemical complexes (Markowitz and Rosner 2002) and building along community fencelines, has been driven by the availability of oil, natural gas, and sulfur. Moreover, two other important factors have shaped the political economy of this region: first, state government proactively pursued the jobs and tax revenue promised by the petrochemical industry (Freudenburg and Gramling 1994); and second, the legacy of a plantation system has left poor African-American residents hostage to hazardous working conditions, eroded labor rights, and political disenfranchisement that hindered their capacity to protect their communities from environmental hazards (Lerner 2005). This evolution is in opposition to the collective commons approach to land use predominant in many small, largely black communities,

which have an intense place-based sense of belonging, due to a history rooted in the land and in slavery, and a strong opposition to health hazards (Bullard 1990).

Organizing efforts in Louisiana have permeated national discourse on the intersection of environmental issues and social inequality (Pastor et al. 2006). When government agencies were slow to respond to Katrina, myriad environmental and social organizations stepped in. Those regional and national environmental organizations' attention and assistance has in turn increased local campaigns' visibility and bolstered an already powerful civil society infrastructure working on recovery. The presence of "outsiders" is not always welcomed, nor does it always strengthen local capacity. However, in the urgency of post-Katrina recovery, many grassroots groups benefited from external support, exposure, and monetary assistance. This support helped local groups challenge unequal and unjust zoning laws, widespread demolition of homes, delays in building permits, and land use development proposals that would have severely hindered the ability of poor communities to recover (Pastor et al. 2006). For example, organizations such as the Natural Resources Defense Council, Sierra Club, Physicians for Social Responsibility, the Louisiana Environmental Action Network, and the Deep South Center for Environmental Justice have provided extensive assistance to local communities in the immediate aftermath of Katrina, often when official aid from disaster relief and environmental agencies was completely lacking (Bullard and Wright 2009).

Recovery efforts are most effective when government agencies engage with community groups that can provide local knowledge, mobilize resources, recruit volunteers, and highlight priorities that fall below the technocratic and regulatory outlook. When planning efforts intersected with community participation after Katrina, residents were invited to participate to some extent in urban governance at the neighborhood level, but not enough to suit most activists. Geographer Ben Wisner argues that vulnerability in risk-prone regions can be reduced by initiating informed actions at the local level. Local initiatives and participation can be facilitated by training, capacity building, and resource transfers, sustainable through networks of organizations engaged in economic, social, political, and scientific activity, and inter-organizational learning (Wisner 1999; Wisner et al. 2005). Community-based knowledge shortens the decision-making chain and increases regulatory and policy accountability and effectiveness (Fung and Wright 2002). Rather than experts pre-empting popular participation, community organizations provide active input to create lay/expert synergies. Although agencies charged with overseeing recovery and rebuilding claimed to have promoted community engagement, our findings indicate deep community skepticism about the extent of their participation in decision making. The processes of recovery and rebuilding have historically been formalistic and procedural, lacking a democratic, deliberative process or equitable outcomes in land use planning and development decisions.

Contesting and (re) shaping scientific expertise

Although scientific analysis is critical to informed decision making about how, where, and whether to rebuild, environmental justice advocates have argued that this expertise should not be the sole driver of how agencies set priorities, allocate resources, and address community health concerns (Loh and Sugeran-Brozan 2002). Environmental regulation is often contested and situated within the realm of scientific uncertainty (Jasanoff 1987). As such, there must be a role for community voice, in addition to the factors of scientific reasoning, social mores, and politics (Jasanoff 1990). Government officials, advocates, and academic researchers all produce different forms of scientific data and expert knowledge that shape the regulation of environmental hazards and the assessment of health risks. This scientific contestation is highlighted in debates between community advocates and government regulators regarding the potential health risks posed by the contamination of air, soil, and drinking water due to Katrina-related flooding of contaminated sites, brownfields, and active industrial facilities. Jasanoff's concept of "civic epistemology" shows how knowledge claims regarding environmental health and the impacts of natural disasters are made and contested through regulatory processes and institutions. Stakeholders in the regulatory process—scientists, advocacy groups, and regulators—are practicing civic epistemology as they make decisions about issues such as what and whose environmental sampling data counts as credible for conducting risk assessments of sediment exposures and shaping disaster clean-up and recovery strategies. It also influences what studies are conducted and who can be legitimate participants in collecting and evaluating data. Stakeholders vary in their interpretation of the significance of environmental sampling data and the degree to which information about potential health risks should be made publicly available. Civic epistemology can transform these norms by pushing for new institutions and procedures for data gathering, scientific assessments of hazard exposures, and regulation to protect environmental health.

Environmental justice in action: three case studies

Our awareness of prior environmental justice influences in New Orleans and throughout Louisiana led us to investigate how the environmental justice infrastructure shaped advocacy related to post-Katrina recovery efforts across a wide array of issues. Semi-structured interview and informal conversation data from community groups and activists illustrate how these actors sought to frame environmental justice issues in the wake of Katrina. For example, a respondent from an organization that began post-Katrina (the Neighborhood Partnership Network) highlighted the centrality of race, stating "race is absolutely at the forefront of every conversation that we're having." It was evident that race was deeply intertwined with issues of class, education, and the environment. As this respondent stated:

Katrina put everything on the table. All the big issues face the whole work and face New Orleans ... So we're dealing with issues of racism, classism, illiteracy, environment—these are big issues ... So race is absolutely at the forefront of every conversation that we're having. We believe that we need to establish real relationships that build respect and get people to begin to talk to each other in meaningful dialogue that doesn't co-opt people's voices, but actually becomes a platform for including all voices together.

Another respondent representing ACORN (an organization that was already active in New Orleans pre-Katrina) pointed to the continuity of community concerns both pre and post-Katrina:

The same issues that we were dealing with, the same things that we brought to the forefront before Katrina, you know, living wage jobs, housing situation, you know, the economic disparities that exist in the City of New Orleans, rights for people who are low to moderate income. These are all things that we were working on before the storm, and I think after the storm it just became more immediate, more intense, and that's all there is to it.

Additionally, activists framed post-Katrina environmental justice issues within a larger context of sustainability, social justice, and human rights discourse. One of the salient threads throughout our interviews and conversations was the imperative of sustainability and human rights for developing equitable recovery strategies. At a September 2006 conference of academics, scientists, and community advocates in New Orleans, "Race, Place and the Environment: Looking Back to Look Forward," numerous speakers explicitly argued that a human rights approach was critical to rebuilding. Michel Gelobter, former director of Redefining Progress and co-founder of the Environmental Justice and Climate Change Initiative, challenged the audience to re-imagine New Orleans reconstruction in a normative light—as a unionized rebuilding effort to construct green physical infrastructure (in terms of housing, new businesses, and a sustainable economic foundation) and justice-based social infrastructure. Our three case studies, discussed below, exemplify this sustainability and environmental justice approach to community-post Katrina recovery in New Orleans.

Labor-environment coalitions in rebuilding New Orleans. Labor-environment coalitions have historically collaborated to address environmental and occupational health, and increasingly work within an environmental justice framework to consider the environmental health of fenceline communities and consumers, in addition to the health and well-being of workers (Mayer 2008; Senier et al. 2007). In one post-Katrina rebuilding effort, the Deep South Center for Environmental Justice (DSCEJ) and the United Steelworkers, a 1.4 million-member union, secured funding and launched a partnership to implement large worker and community safety training initiatives and

provide personal protective equipment for construction workers, contractors, and residents who were doing clean-up, demolition, and reconstruction (DSCEJ 2006). The DSCEJ has a history of developing and implementing Minority Worker Training Programs, and this history of collaborating with the Steelworkers allowed them to launch safety training programs to help community members protect themselves as they worked to remediate and rebuild their properties and businesses.

One high-profile example of their collaboration was the *A Safe Way Back Home* campaign where they rehabilitated several properties and cleaned up contaminated debris and soil on the 8100 block of Aberdeen Road, located in a New Orleans East community (DSCEJ 2006). Frustrated with the inaction of city officials towards expediting recovery efforts in their neighborhoods, the *Safe Way Back Home* was an example of a successful, holistic grassroots recovery effort that entailed a community-labor partnership. For their *Safe Way Back Home* project, local people were hired and many volunteers both within and outside New Orleans were recruited. All project participants were trained using stringent occupational safety and health protection protocols for hazardous waste clean up, which was much more protective than the training protocols used for government-led clean-up projects. Project participants highlighted the community-based, environmental justice emphasis of the project by pointing to the need for community mobilization and partnerships with labor to expedite recovery in marginalized neighborhoods that had been ignored by government agencies.

DSCEJ staff publicized the project nationally as a way to educate the public and government about effective, practical, and politically feasible paths for post-Katrina recovery. They prefigured a deliberative democracy approach to urban recovery by demonstrating how environmental justice principles could be applied to leverage the human resources necessary to move forward with community-based remediation efforts. By remediating and rebuilding one block to test a clean-up model for replication elsewhere, the DSCEJ and the United Steelworkers directly challenged government claims that remediation was not feasible in communities such as New Orleans East. Further, since 2005, the DSCEJ has extended its environmental justice efforts to include environmental clean up and coastal restoration related to the closing of the seventy-six mile Mississippi River Gulf Outlet shipping channel, which has been blamed for massive wetlands loss, coastal erosion, and the flood-related deaths of hundreds of people in eastern sections of New Orleans and neighboring St. Bernard Parish (Johnson 2009).

Environmental justice challenges to official science—**toxic sludge and health risks.** Environmental justice activist science projects focused on the potential health risks associated with the aftermath of Katrina and identified pollutants worth monitoring, like mold and arsenic. Lead poisoning was the primary pre-Katrina environmental health concern, but post-Katrina, mold became more

pressing, due to extensive flood damage in homes and public buildings and the mountains of debris left behind. An ACORN member noted "... we are literally disturbing the homes for the first time since the storm, and the stuff's been sitting there for ten months now. So you got mold growing, you got spores, mold spores... in the air." Another ACORN member, who works exclusively on environmental health concerns, asserted:

From before the storm we were working primarily on lead poisoning prevention, so we're certainly out right now. We're sampling people's houses for the lead dust hazards, and we're working to close some of the loopholes in the city's ordinance banning of the dry-sanding of lead-based paint.

One such collaborative effort paired environmental justice organizations in New Orleans with the Natural Resources Defense Council (NRDC) in the fall of 2005. Environmental health scientists from the NRDC, one of the ten largest environmental organizations in the U.S., led the effort, and local community organizations offered on-site logistics, including choosing sampling locations (Solomon and Rotkin-Ellman 2006). These organizations are all environmental justice groups: the Deep South Center for Environmental Justice (DSCEJ), the Louisiana Environmental Action Network (LEAN), and the Louisiana Bucket Brigade (Solomon and Rotkin-Ellman 2006). NRDC subsequently conducted soil and sediment samples, in collaboration with Wilma Subra, an environmental chemist who works primarily with communities experiencing environmental injustices, related to environmental hazards in their neighborhoods. The team found levels of certain contaminants, including arsenic, to be significantly higher than the amount deemed safe by the EPA, and used this data to challenge EPA officials to clean up the contamination and to question the EPA's lack of concern regarding health risks (Noble and Heyd 2005). NRDC provided recommendations to community members about how best to protect their health while renovating their homes, given the results of mold tests at homes in various stages of remediation (Negin, Solomon, and Dashiell 2005). Their findings drew both media and academic attention: they published their study results in *Environmental Health Perspectives* (a leading environmental health journal) and issued a number of press releases and online reports to publicize their study results (Solomon, Hjelmroos-Koski, et al. 2006; Solomon and Rotkin-Ellman 2006).

In addition to collecting their own data, the NRDC reviewed sampling data from U.S. Environmental Protection Agency (EPA) and the Louisiana Department of Environmental Quality (LDEQ), and reached different conclusions about the health risks of contaminant exposures (Noble and Negin 2006); by leveraging state and federal agencies' own data to challenge their conclusions that New Orleans residents were not experiencing significant health risks, this collaborative team conducted "data judo" to push for improved regulatory attention to remediate potential hazards in impacted communities. Data judo uses technical knowledge, often from secondary sources like government data, to engage communities

and community advocates in the regulatory process (Morello-Frosch et al. 2005).

In a Louisiana Environmental Action Network study of sediments in Louisiana, Alabama, and Mississippi, arsenic was one of the most prevalent pollutants observed. Seventy-three percent of LEAN's Louisiana sediment samples exceeded the EPA standard for arsenic; one sample in the Lower Ninth Ward had arsenic at a level 74 times higher than the EPA standard. High arsenic levels were found in neighborhoods including the Ninth Ward and Agriculture Street, each of which has experienced a variety of environmental injustices (Subra 2006).

These activist science studies challenged regulatory science and encouraged government to clean up and remediate these sites. Nevertheless, this was a contested process between EJ activists, and their scientific partners on one hand and the EPA and LDEQ on the other. A PBS news segment directly compared the NRDC and Subra's analysis to the EPA's own work and emphasized differences in interpretation of data (Bowser 2005). Although the scientific work of the EJ advocates and their collaborators was broadly publicized by the media and validated by peers, government agencies sought to downplay and contest their significance. When environmental health scientists and lawyers from NRDC conducted further soil sampling at schools and found contamination levels above government safety standards, however, neither LDEQ nor EPA chose to respond when presented with the data in advance of a public press release (Fields et al. 2007). Similarly, when Subra and her colleagues presented their data at a CDC/Agency for Toxic Substances and Disease Registry Conference showing high levels of contaminants in sediment, EPA scientist John Rauch and then-EPA Administrator Stephen Johnson maintained their position that sediment samples were not sufficiently high to warrant regulatory concern. Subra recalls: "As we sat in this large ballroom and he [then EPA Administrator Johnson] made his statements, a large number of people turned to me and I just shook my head no. Sooner or later the Agency will have to admit what everyone else knows is the truth and admit the huge human health impacts due to the hurricanes."

School siting and safety. School siting and safety are longstanding environmental health and justice issues (Neal 2008), particularly in New Orleans. Just as homes were destroyed by Katrina, so too were schools: only 13 percent of New Orleans public schools survived Katrina unscathed, and just 17 percent of schools were deemed usable post-Katrina (Hill and Hannaway 2006; Merrow 2005).

The Center for Health, Environment and Justice (CHEJ), led by Lois Gibbs, who organized her fellow residents to address the toxic contamination found in the Love Canal community in 1978, has worked with other groups to push for more federal and state guidance on school siting, since there are no regulations preventing schools from being built on our near toxic sites in the majority of U.S. states (Fischbach et al. 2006). Additionally, NRDC soil studies described earlier found that

New Orleans schoolyards in use were highly contaminated post-Katrina, and that governmental agencies were not remediating problem areas (Fields et al. 2007). A prime example of this school siting problem is the Agriculture Street Landfill of New Orleans East, which is home to 900 African-Americans and the Moton Elementary School. In 1994, the federal government declared the area a Superfund site. The case of the Agriculture Street Landfill and others regarding school siting and clean-up were pending before Katrina, but the full ramifications of the storm on previous school remediation conflicts have become even more salient. In July 2008, after nearly 15 years, the Louisiana Supreme Court granted a legal victory to the nearly 8,000 people who lived or worked on top of the Agriculture Street Landfill and sued the City of New Orleans, its public housing authority, and its school board for putting their homes and school on a toxic waste site without informing them (Hammer 2009).

Throughout the Gulf Coast, school rebuilding—with a particular emphasis on green/sustainable design—has been viewed as the key to post-Katrina recovery. The future of the Orleans Parish public school system, plagued by corruption in management and poor academic performance among students before Katrina, is inextricably intertwined with the fate of New Orleans as a whole (Hill and Hannaway 2006). School reconstruction and remediation helps families return to the city and reconnect into the civic life of their neighborhoods. Moreover, high quality schools lift property values, which can help lower income communities most affected by Katrina, and the construction of green schools can encourage more green building efforts in other public buildings throughout the city. Indeed, CHEJ has pointed to Katrina reconstruction as an opportunity to build green and safe schools, along with Global Green's Green Schools Initiative (Center for Health Environment and Justice 2003; Global Green USA 2006). Hurricane Katrina has created an opportunity for advocates to bring the school siting issue to a national stage and broaden government agencies' attention beyond environmental justice concerns to also include issues related to green design and educational access. Federal legislation, including the 21st Century Green High-Performing Public Schools Facilities Act (HR 3021) in 2008 and the 2007 energy bill, are now, for the first time, helping ensure healthy and green schools, spurred in part by Katrina (Collaborative for High Performance Schools 2008). HR3021 provided funding for green building projects for schools, offered an additional source of funds for school rebuilding post-Katrina, and instructed the U.S. EPA to develop the first-ever voluntary guidelines to protect the school environment (Collaborative for High Performance Schools 2008; Committee on Education and Labor 2008). This is important insofar as it provided a crucial link between environmental justice and sustainable design and rebuilding, forging a synthesis between the "green" and EJ movements. Supported by teachers' unions, construction worker associations, environmental organizations, and educational associations (Committee on Education and Labor 2008), the bill represents the type of cross-movement collabora-

tion observed in other post-Katrina response efforts that is much more limited in the realm of school building policy (Cohen In press).

In addition, \$700 million in FEMA recovery funds is being directed towards a series of public school construction and renovation projects over the next five years. It will include 32 projects total, 19 new campuses, and major renovations or expansions at 13 additional school sites. This is the largest school-building initiative in New Orleans' modern history—the last significant investment was in the 1800s through the bequest of a plantation owner-philanthropist (Simon 2009).

The school facilities master plan for the New Orleans public school system aims to create a more effective and equitable distribution of schools throughout New Orleans and provide for new and renovated facilities that can accommodate the educational needs of the twenty-first century. Although the plan does not mention soil contamination or school siting issues, it does include detailed building standards that include specifications for building materials and systems that address issues of building aesthetics, "green" environmentally sustainable design, and lessons learned from past construction and maintenance.

Particularly in the current tide of severe economic downturn, the school rebuilding project is anticipated to bring major investment to dozens of sites, yielding up to 17,500 jobs of varying duration. Greater New Orleans, Inc., an economic development organization, projects that in addition to construction jobs, other jobs will be created as contractors purchase supplies and as the project spending circulates in the local economy (Simon 2009). In addition, many of the newly built campuses could attain LEED certification as part of an emphasis towards energy-efficient, storm-resistant green campuses. This indicates a shift from using Katrina to spur clean up of existing school sites to acting more preventively to ensure healthy environments for all schoolchildren.

Policy implications

Our case studies of three local environmental justice projects leads to several policy implications: mandated public participation, zoning and planning reform, long-term capacity building of environmental justice organizations and resource centers, and integration of environmental justice principles into urban and disaster planning legislation and regulation.

In a proactive planning capacity, FEMA and related state and federal agencies should be mandated to have representation from community groups based in areas with histories of disasters and high environmental hazards. The lack of a formal citizen advisory board during the recovery planning processes in New Orleans has motivated residents to push for a permanent agency that would directly link citizens to their elected officials in a more reciprocal exchange of ideas. In July 2008, neighborhood organizers held the first "Citizen Participation Summit" in New Orleans to begin the process of developing a formal citizen-driven rebuilding initiative in New

Orleans. The result of the summit focused on the creation of nine action teams to develop the actual citizen participation structure. Once a disaster has occurred, there should also be representation from environmental organizations like DSCEJ that have extensive experience in disaster recovery and worker protection training.

Second, regulations need to be more inclusive of the specific needs and economic aspirations of affected groups, rather than relying primarily on major political and business leaders to develop plans with cursory community input. Post-Katrina New Orleans can serve as an example of this, and there has been an increase in citizen involvement in planning processes. To be effective, federal funding for housing, transportation, urban development, and other areas needs to be contingent on appropriate state and local responsiveness to community-identified needs. This is a point the citizen participation movement in New Orleans is attempting to address and rectify.

Third, in the future it will be important for foundations and existing large environmental organizations to support the long-term development of local environmental health and justice groups. A recent example of this comes from the Greater New Orleans Foundation, which in May 2009 provided \$500,000 in capacity-building grants to organizations struggling to deal with post-Katrina environmental issues in the New Orleans area, including remediating lead-contaminated soil in child play areas and turning an industrial area into a recreation- and environment-friendly space (Schleifstein 2009). In particular, foundations should provide long-term financial support for key groups to focus on long-term issues of land use, neighborhood development, zoning, transportation, and housing, since these are the issues that come to the fore in major disasters. Philanthropic and government investments in turn should bolster the work of regional resource centers to train and support local groups and build their capacity for regional and state-level advocacy and organizing.

Fourth, environmental justice and sustainability should be integrated into disaster planning policies, disaster prevention policies (including climate change and climate justice), and urban planning policies, including land-use/zoning, school siting, and green building policies. In the time since Hurricane Katrina devastated New Orleans, environmental justice activists have continued their efforts to represent the interests of vulnerable populations who suffer from differential exposure and unequal protections. Moreover, EJ advocates have sought to transition recovery efforts from addressing acute environmental hazards toward shaping the development of more sustainable infrastructure in neighborhoods. Following the release of the "New Orleans Green Building Assessment" in June 2009, the Sierra Club Delta Chapter, the United Steel Workers Local 620, and various community and environmental organizations organized a November 2009 conference to discuss green rebuilding in New Orleans. The conference was the first of its kind specifically designed to track efforts to rebuild New Orleans neighborhoods using sustainable construction practices. According to green-rebuilding activists, Katrina

served as a catalyst to develop in the Crescent City a national model for rebuilding low-income neighborhoods using sustainable technology (McKee 2009). Since the storm, several new environmental justice collaboratives have formed to unite the interests of diverse grassroots groups engaged in similar efforts, foster environmental stewardship, and use the EJ and sustainability approach as an economic and social development tool for marginalized neighborhoods.

CONCLUSION

The sustainability and environmental justice framework elucidates the pre-existing orientation of many community-based organizations and activists who have worked on post-Katrina recovery. These groups have highlighted the race and class inequalities in exposure to and remediation of those hazards, "where people live, work, and play." This framework expands the environmental justice focus beyond a traditional emphasis on disparate exposure to toxics by considering a holistic approach to sustainable and socially just recovery efforts within the totality of people's milieu: housing, transportation, planning, recreation, education, governance, scientific research, and transformative civic engagement.

ACKNOWLEDGMENTS

This research is supported by National Science Foundation grants BCS-0555025 and HSD 0624088. We thank Mara Averick, Angela Hackel, Bill Kern, Lauren Las-trapes, Sarah Lewis, Lindsay Ryckman, and Catherine Trimbur for research assistance. We thank our co-PIs Steve Hamburg, John Logan, and John Mustard for many valuable discussions on these issues. We thank Beverly Wright for help in developing the interview instrument. We thank Crystal Adams, Alissa Cordner, Laura Senier, Ruth Simpson, and Scott Frickel for insightful comments on the manuscript.

AUTHOR DISCLOSURE STATEMENT

The authors have no conflicts of interest or financial ties to disclose.

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Address correspondence to:

Rachel Morello-Frosch
 Department of Environmental Science
 Policy and Management and School of Public Health
 UC Berkeley
 137 Mulford Hall
 Berkeley CA 94720

E-mail: rmf@berkeley.edu