Golden Gate University Environmental Law Journal

Volume 1
Issue 1 *Symposium Edition - 1982 Warren County Protests: Environmental Justice Twenty-Five Years Later*

Article 6

January 2007

Warren County's Legacy for the Quest to Eliminate Health Disparities

Charles Lee

ARTICLE

WARREN COUNTY'S LEGACY FOR THE QUEST TO ELIMINATE HEALTH DISPARITIES

*CHARLES LEE**

I. INTRODUCTION

Twenty-five years ago, those of us who participated in the 1982 protests against the dumping of PCBs in Warren County, North Carolina had no idea of the momentous changes that were to come.[1] Dollie

---

* Charles Lee is widely acknowledged as a pioneer in the arena of environmental justice. He has been a prime mover in most of the major events that caused environmental justice to emerge as an issue of national importance, including the now landmark report, *Toxic Wastes and Race in the United States* in 1987, the historic First National People of Color Environmental Leadership Summit in 1991, the establishment of the U.S. Environmental Protection Agency's (EPA) Office of Environmental Equity (now the Office of Environmental Justice) in 1992, and the signing of Executive Order 12898 in 1994. Mr. Lee has written and lectured extensively on the issue of environmental justice. He is currently the Acting Director of the EPA Office of Environmental Justice. *The views expressed in this article are solely those of the author. No official support or endorsement by the Environmental Protection Agency or any other agency of the federal government is intended or should be inferred.*

[1] PCBs, polychlorinated biphenyls, are mixtures of up to 209 individual chlorinated compounds (known as congeners). PCBs have been used as coolants and lubricants in transformers, capacitors, and other electrical equipment because they do not burn easily and are good insulators. More than 1.5 billion pounds of PCBs were manufactured in the United States prior to cessation of production in 1977. Concern over the toxicity and persistence (chemical stability) in the environment of PCBs led Congress in 1976 to enact Section 6(e) of the Toxic Substances Control Act (TSCA), which included, among other things, prohibitions on the manufacture, processing, and distribution in commerce of PCBs. Thus, TSCA legislated true "cradle to grave" (i.e., from manufacture to disposal) management of PCBs in the United States. *See* http://www.epa.gov/pcb/ (last visited Mar. 15, 2007). In the case of Warren County, a waste hauler illegally sprayed 30,000 gallons of PCB-laden waste oil along 210 miles of highway in 14 North Carolina counties. The guilty waste hauler eventually went to prison. For a synopsis of the landfill's history, including its eventual remediation,

Burwell, a local resident who went to jail five times (and a contributing author to this inaugural edition of the *Golden Gate University Environmental Law Journal*), described with unsurpassed eloquence the feelings of those arrested:

> [A]s we lay there, we knew that we were neither politically or economically empowered enough to stop the trucks... We only knew in our hearts that we were doing the right thing... We hoped and prayed that our going to jail would not be in vain. And we feel that it was not because many good things happened as a result... For the first time, blacks and whites in Warren County united. African Americans determined that henceforth and forever more we will have some say in the government that was controlling our destiny.[2]

Were it not for the protests, Warren County's legacy would likely have been a mere footnote in history, not unlike the many unnoticed sitings of noxious land uses in similar poor, people-of-color, and tribal communities. However, the Warren County protests filled a void at the fault line of three issues theretofore unconnected: race, poverty, and the environment. As such, Warren County staked out a trajectory leading to the convergence of two great social movements during the latter half of the twentieth century, i.e., civil rights and environmentalism.

One immediate legacy of Warren County was the publication of the United Church of Christ's landmark report *Toxic Wastes and Race in the United States*.[3] Many of the report's recommendations have now been implemented, including a Presidential executive order, a national advisory committee, a federal interagency working group, and an EPA office on environmental justice.[4] Nearly 40 states have taken significant

---

see Wastenotnc.org, *Warren County PCB Landfill Fact Sheet*, http://www.wastenotnc.org/WarrenCo_Fact_Sheet.htm (last visited Mar. 15, 2007).

[2] *See* Dollie Burwell, *Reminiscences from Warren County, in* PROCEEDINGS OF THE FIRST NATIONAL PEOPLE OF COLOR ENVIRONMENTAL LEADERSHIP SUMMIT 126 (Charles Lee ed., 1992).

[3] *See* UNITED CHURCH OF CHRIST COMM'N FOR RACIAL JUSTICE, TOXIC WASTES AND RACE IN THE UNITED STATES: A NATIONAL STUDY ON THE RACIAL AND SOCIOECONOMIC CHARACTERISTICS OF COMMUNITIES SURROUNDING HAZARDOUS WASTE SITES 126 (1987). This was the first national study of the demographic patterns associated with the location of hazardous waste sites. The United Church of Christ, of which Ms. Burwell is a member, played an instrumental role in the Warren County protests and subsequently developed a national program to address issues of environmental racism.

[4] These actions referred to are as follows: President Clinton issued Executive Order 12898 in 1994 and EPA established the National Environmental Justice Advisory Council in 1993 and an Office of Environmental Equity in 1992 (later renamed the Office of Environmental Justice). *See* Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Exec. Order No. 12,898, 59 Fed. Reg. 7629 (Feb. 11, 1994), *amended at* Exec. Order No. 12,948, 60 Fed. Reg. 6381 (Jan. 30, 1995).

actions to address environmental justice, in the form of legislation, policy, or program.[5] Moreover, PG&E, a Fortune 500 company, has adopted corporate policy, and the University of Michigan, a major university, has established a Ph.D. program in the area of environmental justice.[6]

In contrast to a time when many people questioned the very relevance of civil rights and social justice to the environment, numerous communities, nationally and internationally, now address their concerns under an environmental justice framework. Similarly, a number of university courses and conferences now discuss environmental justice issues; research is being conducted in multiple disciplines and at all levels. Warren County sparked an enduring discourse about social justice in environmental policy that has proven to be both widespread and deep-rooted. It inspired the development of a first generation of environmental justice leaders, both within communities and institutions.

A quarter century ago, nobody could have predicted that words like race, equity, and justice would become standard lexicon in the environmental discourse. Nobody could have predicted that a leading environmental health expert, Dr. Howard Frumkin, would be making the following observation:

> At least two paradigm shifts have revolutionized the field of environmental health since Rachel Carson's day. One occurred when environmental health encountered civil rights, forming the environmental justice movement. We are in the midst of the second, as environmental health reunited with architecture and urban planning.[7]

Significantly, these two paradigm shifts are converging. This article will examine how this convergence is taking place, and its significant

---

[5] AM. BAR ASS'N & HASTINGS LAW SCH., ENVIRONMENTAL JUSTICE FOR ALL: A FIFTY-STATE SURVEY OF LEGISLATION, POLICIES AND INITIATIVES (Steven Bonorris ed. 2004), www.abanet.org/irr/committees/environmental/.

[6] Pacific Gas & Electric, Inc. adopted its environmental justice policy in October 2000, with a directive to "conduct its operations in a manner that is consistent with and promotes environmental justice principles." *See* PGE.com, *PG&E Corporate Environmental Justice Policy,* http://www.pge.com/docs/pdfs/about_us/environment/PGE%20EJ%20Policy.pdf (last visited Mar. 15, 2007). Under the leadership of Bunyan Bryant, the School of Natural Resources, University of Michigan, established an environmental justice doctoral program. *See* Sitemaker.Umich.edu, *Environmental Justice Program,* http://sitemaker.umich.edu/snre-ej-program/doctoral_program (last visited Mar. 15, 2007).

[7] Howard Frumkin, *Health, Equity, and the Built Environment,* 113 ENVTL. HEALTH PERSP. A290, A290 (2005).

implications for efforts to achieve environmental justice, community health and sustainability, and the elimination of health disparities.

II. CONVERGENCE OF ENVIRONMENTAL JUSTICE AND THE BUILT ENVIRONMENT

Dr. Frumkin's observation speaks to the essential vision of environmental justice, i.e., community health and sustainability, as well as the Warren County protests' enduring legacy. Most affected communities and environmental justice advocates are interested not merely in alleviating environmental burdens, but also in bringing about environmental and economic benefits. From that perspective, many definitions of environmental justice, particularly broad-based ones, speak of "cultural norms and values, rules, regulations, behaviors, policies, and decisions to support sustainable communities where people can interact with confidence that the environment is safe, nurturing, and productive."[8]

This perspective is consistent with the goal of the National Environmental Policy Act, and its state counterparts, to "assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings" and to "utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment."[9] NEPA's language aligns with the text of *Healthy People 2010*, the nation's plan to eliminate health disparities: "Physical and social environments play major roles in the health of individuals and communities. The physical environment includes air, water, and soil through which exposure to chemical, biological, and physical agents may occur. The social environment includes housing, transportation, urban development, land use, industry, and agriculture and results in exposures such as work-related stress, injury, and violence."[10] Launched by the U.S. Department of Health and Human Resources in January 2000, *Healthy People 2010* is a comprehensive, nationwide health-promotion and disease-prevention agenda. It contains 467 objectives designed to serve as a road map for improving the health of all people in the United States during the first decade of the 21st century.[11] *Healthy People 2010*

---

[8] BUNYAN BRYANT, ENVIRONMENTAL ADVOCACY: WORKING FOR ECONOMIC AND ENVIRONMENTAL JUSTICE 17 (Morgan James Pub., 2d ed. 2002).

[9] 42 U.S.C.A. §§ 4331(b)(2), 4332(A) (West 2007).

[10] Healthypeople.gov, *Healthy People 2010: Understanding and Improving Health*, 41, *available at* http://www.healthypeople.gov/Document/pdf/uih/uih.pdf.

[11] CDC.gov, *About Healthy People 2010,*

builds on initiatives pursued over the past two decades. The 1979 Surgeon General's Report, *Healthy People*, laid the foundation for a national prevention agenda. The 1980 *Promoting Health/Preventing Disease: Objectives for the Nation,* and *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*, both established national health objectives and served as the basis for the development of State and community plans.[12]

It has been noted that the grassroots environmental justice movement has redefined the environment as "the place where we live, where we work, and where we play."[13] In keeping with this holistic conceptual framework, environmental justice organizations advocated for an environmental justice executive order that called on multiple federal agencies to identify and address, as appropriate, "the disproportionately high and adverse human health and environmental effects of their programs, policies, and activities on minority populations and low-income populations."[14]

Indeed, environmental justice represents a unified vision of health and the environment. While the decades-old fragmentation of public health, environmental protection, and urban planning has contributed to inappropriate and noxious land uses and other negative impacts, the consequences for low-income, people-of-color communities have been especially grievous.[15] Similarly, the concept of social determinants of

---

http://www.cdc.gov/nchs/about/otheract/hpdata2010/abouthp.htm (last visited Jul. 6, 2007).

[12] Healthypeople.gov, *Healthy People: What is its History?*, http://www.healthypeople.gov/About/history.htm (last visited Jul. 6, 2007).

[13] Jean Gauna, a co-founder of the Southwest Organizing Project, articulated this definition of the environment in a presentation to the National Advisory Committee of the First National People of Color Environmental Leadership Summit, to be repeated by Dana Alston in her speech at the Summit. Julian Agyeman wrote, "The grassroots redefinition of environmental issues to include not only wildlife, recreational, and resource issues but also issues of justice, equity, and rights gave birth to the environmental justice movement. In so doing, *environment* became discursively different: it became an issue not just for the Sierra Club, National Wildlife Federation, and the National Audubon Society but also for the civil rights movement. This linkage between a redefined environment ("where we live, where we work, and where we play") and a social-justice analysis from the civil rights movement produced the dynamic movement in evidence today." JULIAN AGYEMAN, SUSTAINABLE COMMUNITIES AND THE CHALLENGE OF ENVIRONMENTAL JUSTICE 24 (New York University Press 2005).

[14] Exec. Order No. 12,898, 59 Fed. Reg. 7629 (Feb. 11, 1994), *amended at* Exec. Order No. 12,948, 60 Fed. Reg. 6381 (Jan. 30, 1995). Executive Order 12898 identifies 11 federal agencies and several White House offices. The federal agencies identified include the Environmental Protection Agency and the Departments of Agriculture, Commerce, Defense, Energy, Health and Human Services, Housing and Urban Development, Interior, Justice, Labor, and Transportation.

[15] Charles Lee, *Environmental Justice: Building a Unified Vision of Health and the Environment*, 110 ENVTL. HEALTH PERSP. 141, 141 (Supp. 2, Apr. 2002); *see also* Michael

health[16] calls on public health professionals "to critically examine the scope and focus of public health research and practice. Research and intervention paradigms that emphasize individual factors as risks for specific diseases have not sufficiently addressed the growing health inequalities between racial and socioeconomic groups. . . ."[17]

This article, will examine three examples of this paradigm shift: (1) community involvement in environmental decisionmaking; (2) analysis of environmental justice impacts; and (3) equity in community design.

III. COMMUNITY INVOLVEMENT IN ENVIRONMENTAL DECISIONMAKING

Warren County presaged a veritable explosion of grassroots environmental activism in people-of-color, low-income, and tribal communities. Community-based efforts seeking to address environmental concerns created a generation of community organization

---

Greenberg, Frank Popper, Bernadette West, & Donald Krueckeberg, *Linking City Planning and Public Health in the United States*, 8 J. PLAN. LITERATURE 235, 235 (Feb. 1994) (Professional fields of planning and public health both have progressive roots and the fields share many common concerns, including air and water pollution, disposal of hazardous waste, the sick building syndrome, and the aging of building stock. Despite this, the article compares articles and book reviews published between 1978 and 1990 in the flagship publications of the two professions—the Journal of the American Planning Association and the American Journal of Public Health—suggesting only minor overlaps between the two fields today. Similarly, a review of the linkages between planning departments and schools of public health at eleven U.S. universities with accredited graduate programs in both fields suggests only limited interactions.)

[16] The Centers for Disease Control and Prevention define social determinants of health as "factors in the social environment that contribute to or detract from the health of individuals and communities. These factors include, but are not limited to, the following: socioeconomic status; transportation; housing; access to services; discrimination by social grouping (e.g., race, gender, or class); and social or environmental stressors." *See* CDC.gov, *Social Determinants of Health*, http://www.cdc.gov/sdoh/ (last visited Jul. 6, 2007).

[17] *See* Amy Schulz., James Krieger & Sandro Galea, *Addressing Social Determinants of Health: Community-Based Participatory Approaches to Research and Practice*, 29 HEALTH EDUC. & BEHAV. 287, 288 (Jun. 2002). This article is part of a special issue entitled, "Community-Based Participatory Research–Addressing Social Determinants of Health: Lessons from the Urban Research Centers." In Amy Schulz & Mary E. Northridge, *Social Determinants of Health: Implications for Environmental Health Promotion*, 31 HEALTH EDUC. & BEHAV. 455, 456 (Aug. 2004) (special issue on Environmental Health Promotion), the authors expound on the link between social and environmental inequalities and health disparities:

> Our particular interests lie in understanding how social and environmental inequalities contribute to health disparities. For instance, inequalities resulting from racism and the distribution of material resources lead to unequal burdens of physical, chemical, and biological exposures (both geographically and social defined). Social inequalities also contribute to unequal impacts of environmental exposures as communities experience differential access to resources that help mitigate the negative effects of unequal burdens (e.g., nutritious foods and quality medical care).

and leadership that has matured significantly. The following table provides some examples of how these efforts build a community's capacity to meaningfully engage the environmental decisionmaking process.[18] Such community efforts have increased community involvement in environmental decisionmaking by enabling heretofore excluded groups to participate (procedural justice) and developing solutions that address heretofore unacknowledged concerns (distributive justice).[19]

IV. ANALYSIS OF DISPROPORTIONATE IMPACTS

Twenty-five years after Warren County, much progress has been made in assessing evidence that hazardous environmental exposures and their health consequences differed among different populations, based on race, ethnicity, and income. This pattern was first described in racial terms (hence the term "environmental racism"), when early studies such as the 1987 *Toxic Wastes and Race* report suggested that people-of-color communities were disproportionately exposed to environmental hazards.[20] Since the 1980s, studies have documented serious environmental inequities in the areas of lead poisoning; air pollution and ambient air quality; groundwater contamination and drinking water safety; proximity to noxious facilities, mining waste and nuclear plants; location of municipal landfills, incinerators, and abandoned toxic waste sites; placement of transportation thoroughfares; illegal dumping; occupational health and safety; use of agricultural chemicals; contaminated fish consumption; habitat destruction; cleanup of Superfund sites; and unequal enforcement of environmental laws.[21] The

---

[18] Charles Lee, *Environmental Justice, in* ENVIRONMENTAL HEALTH: FROM GLOBAL TO LOCAL 175-76 (Howard Frumkin ed., 2005).

[19] Jason Corburn, *Bringing Local Knowledge into Environmental Decision Making: Improving Urban Planning for Communities at Risk,* 22 J. PLAN. EDUC. & RESEARCH 420 (2003). *See also* Table 1: Examples of Community-Based Environmental Justice Issues *infra* pp. 71-72.

[20] *See* UNITED CHURCH OF CHRIST COMM'N FOR RACIAL JUSTICE, TOXIC WASTES AND RACE IN THE UNITED STATES: A NATIONAL STUDY ON THE RACIAL AND SOCIOECONOMIC CHARACTERISTICS OF COMMUNITIES SURROUNDING HAZARDOUS WASTE SITES (1987).

[21] *See* PJ Landrigan, SH Gehlbach , BF Rosenblum et al., *Epidemic Lead Absorption Near an Ore Smelter: The Role of Particulate Lead,* 292 N ENG. J. MED. 123 (1975); M. Davis, *The Impact of Workplace Health and Safety on Black Workers: Assessment and Prognosis,* 31 LAB. L.J. at 4, 29 (1981); Robert Bullard, *Solid Waste Sites in the Black Houston Community,* 53 SOC. INQUIRY 273 (1983); U.S. DEP'T OF HEALTH AND HUMAN SERVS., REPORT OF THE SECRETARY'S TASK FORCE ON BLACK AND MINORITY HEALTH, (1985); R. WASSERSTROM & R.WILES, FIELD DUTY, U.S. FARM WORKERS AND PESTICIDE SAFETY (World Resources Institute, 1955); UNITED CHURCH OF CHRIST COMM'N FOR RACIAL JUSTICE, TOXIC WASTES AND RACE IN THE UNITED STATES: A NATIONAL

concept of disproportionate impacts, however, is far more complicated than exposures alone. There is a complex interplay of factors at work in communities with a history of social and economic disadvantage, inadequate services, and environmental exposures. Thus, disproportionate impacts may refer to inequities in levels of harmful environmental exposures, deficient services or benefits, and/or differentials in the ability to withstand or mitigate harms. This section briefly discusses the components of disproportionate impact and their implications for future research.

A. EXPOSURE TO POLLUTION SOURCES

At the simplest level, adverse human health and environmental effects can be understood in terms of differential proximity to environmental hazards. During the 1980's, most environmental justice research focused on the proximity of people-of-color and low-income populations to environmental hazards. These studies examined a wide spectrum of exposures, including waste sites, industrial facilities, ambient air pollution, transportation thoroughfares, garbage transfer stations, hog farms, and all types of noxious and incompatible land uses. Over time the studies established a pattern of disproportionate exposure that convinced even skeptical observers.[22] However, proximity to a

---

STUDY ON THE RACIAL AND SOCIOECONOMIC CHARACTERISTICS OF COMMUNITIES SURROUNDING HAZARDOUS WASTE SITES (1987); AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY, THE NATURE AND EXTENT OF LEAD POISONING IN CHILDREN IN THE UNITED STATES (1988); M. Moses, *Pesticide Related Health Problems in Farm Workers*, 37 AM. ASSOC. OCCUP. HEALTH NURSES J. 115 (1989); K. Weiss & D. Wagener, *Changing Patterns of Asthma Mortality: Identifying Target Populations at High Risk*, 264 J. AM. MED. ASSOC. 1683 (1990); R. BULLARD, DUMPING IN DIXIE: RACE, CLASS, AND ENVIRONMENTAL EQUITY (Westview Press, 1990); U.S. ENVTL. PROTECTION AGENCY, REPORT TO THE ADMINISTRATOR, EPA230-R-92-008, ENVIRONMENTAL EQUITY: REDUCING RISK FOR ALL COMMUNITIES (1992); P.C. West et al., *Minority Anglers and Toxic Fish Consumption: Evidence from a State-Wide Survey of Michigan*, *in* RACE AND THE INCIDENCE OF ENVIRONMENTAL HAZARDS: A TIME FOR DISCOURSE, (B. Bryant & P. Mohai eds., 1992); M. Lavelle & M. Coyle, *Unequal Protection: The Racial Divide in Environmental Protection* 15 NAT. L. J. (Special Issue) 3 (1992); LOUISIANA ADVISORY COMM. TO THE U.S. CIVIL RIGHTS COMM'N, THE BATTLE FOR ENVIRONMENTAL JUSTICE IN LOUISIANA: GOVERNMENT, INDUSTRY AND THE PUBLIC (1993); *Equity in Environmental Health: Research Issues and Needs*, 9 TOXICOLOGY & INDUST. HEALTH 679 (K. Sexton & Y. Anderson eds., 1993) (Special Issue); D. Wernette and L. Nieves, Breathing polluted air, 18 EPA J. 16 (1992); J. Friedman, *Achieving Environmental Justice: The Role of Occupational Health*, 21 FORDHAM URB. L.J. 605 (1994); C. O'Neill, *Variable Justice: Environmental Standards, Contaminated Fish, and 'Acceptable' Risk to Native Peoples*, 19 STAN. ENVTL. L.J. 1 (2000).

[22] *E.g.*, political scientist James Lester and colleagues wrote that "We must admit that at the outset in 1994 we were skeptical of many of the *strident* claims regarding environmental injustice. However, our analyses (as well as our findings) over the past five years have caused us to reconsider our original positions." *See* JAMES P. LESTER ET AL., ENVIRONMENTAL INJUSTICE IN THE UNITED

source may be an inexact surrogate of actual contact with a toxicant.[23] For a full and accurate picture of human health and environmental effects, proximity data must be augmented with exposure studies, based on modeling, actual monitoring, and/or other approaches.

B. UNIQUE EXPOSURE PATHWAYS

Some communities sustain unique environmental exposures because of practices linked to socioeconomic status or cultural background. A good example is subsistence fishing. For some indigenous peoples, and for some Asian and Pacific Island immigrant populations, this is a culturally specific practice based upon a worldview that values a human connection to the environment in both physical and spiritual well-being.[24] On the other hand, economic deprivation may compel rural or urban poor people to fish in polluted waters to supplement their diets. Patrick West and his colleagues found that African Americans in Detroit engaged in higher levels of subsistence fishing from the contaminated Detroit River.[25] Another example is pica, the habit among malnourished young children of eating dirt or paint chips because they are hungry. The issues of socioeconomic status and racial discrimination are embedded within unique exposure pathways. In describing the famous 1982 case involving contamination and subsistence fish consumption in Triana, Alabama, a resident called this yet another example of how "pollution follows the path of least resistance."[26]

C. SUSCEPTIBLE AND SENSITIVE POPULATIONS

Susceptible populations are groups that are at a high risk of suffering the adverse effects of environmental contamination. Certain factors render different groups less able to resist, or tolerate, an environmental stressor. Such factors may include "intrinsic" factors

---

STATES: MYTHS AND REALITIES, xv (2001).

[23] INST. OF MED., COMMITTEE ON ENVIRONMENTAL JUSTICE, TOWARD ENVIRONMENTAL JUSTICE: RESEARCH, EDUCATION, AND HEALTH POLICY NEEDS 16 (1999).

[24] Mary Arquette et al., *Holistic Risk-Based Environmental Decision-Making: A Native Perspective,* 11 ENVTL. HEALTH PERSP. Supp. 2, 259 (2002).

[25] P.C. West et al., *Minority Anglers and Toxic Fish Consumption: Evidence from a State-Wide Survey of Michigan, in* RACE AND THE INCIDENCE OF ENVIRONMENTAL HAZARDS: A TIME FOR DISCOURSE (B. Bryant & P. Mohai eds., 1992).

[26] *See* R.A. Taylor, *Do Environmentalists Care About the Poor?*, U.S. NEWS AND WORLD REPORT, April 2, 1982, at 51.

related to susceptibility, such as age, sex, genetics, race or ethnicity, or "acquired" factors, such as chronic medical conditions, health-care access, nutrition, fitness, other pollutant exposures, and drug and alcohol use.[27] Issues of environmental justice strongly implicate the relationship of socioeconomic status to susceptibility. A recent paper on susceptibility to air pollution related to social position suggested several other ways in which people in lower socioeconomic circumstances may be more susceptible: (1) exposure to multiple sources of pollution, both indoor and outdoor; (2) lack of healthy goods, such as fresh fruits and vegetables, resulting in reduced intake of anti-oxidant vitamins that can help protect against adverse consequences of air pollution exposure; (3) psychosocial stress; and (4) neighborhoods deficient in social capital.[28]

D. MULTIPLE AND CUMULATIVE EFFECTS

Disadvantaged and underserved communities are likely to suffer a wide range of environmental burdens, ranging to poor air to poor housing. The label "toxic hotspots" is often associated with environmental justice, because of a community's proximity to multiple pollution sources. Numerous empirical studies and anecdotal accounts describe low-income and people-of-color communities that are saturated with environmental hazards, such as industrial facilities, landfills, transportation-related air pollution, poor housing, leaking underground tanks, pesticides, and incompatible land uses.[29] Environmental scientists have only recently begun to tackle the problem of cumulative risk. EPA's recent *Framework for Cumulative Risk Assessment* represents a milestone for both cumulative risk assessment and environmental justice (EPA 2003) because it:

- Takes a broad view of risk, including areas outside of EPA's regulatory authority and poses questions for which quantitative methods do not yet exist;
- Utilizes a population-based and place-based analysis, rather than

---

[27] *See* Ken Sexton, *Sociodemographic Aspects of Human Susceptibility to Toxic Chemicals: Do Class and Race Matter for Realistic Risk Assessment?*, 4 ENVTL. TOXICOLOGY & PHARMACOLOGY 261 (1997).

[28] Marie S. O'Neill et al., *Health, Wealth, and Air Pollution: Advancing Theory and Methods*, 111 ENVTL. HEALTH PERSP. 1861, 1865 (2003).

[29] NAT'L ENVTL. JUSTICE ADVISORY COUNCIL, ENSURING RISK REDUCTION FOR COMMUNITIES WITH MULTIPLE STRESSORS: ENVIRONMENTAL JUSTICE AND CUMULATIVE RISKS/IMPACTS (2004), *available at* http://www.epa.gov/compliance/resources/publications/ej/nejac/nejac-cum-risk-rpt-122104.pdf.

an agent-to-receptor analysis;
• Promotes a comprehensive and integrated assessment of risk;
• Recognizes multiple stressors, including chemical and non-chemical, as well as social factors; Posits an expanded definition of vulnerability to include both biological and social factors;
• Places a premium on community involvement and partnerships; Emphasizes the importance of planning, scoping, and problem-formulation; and
• Links risk assessment to prevention and intervention strategies to meet community health goals.[30]

E. SOCIAL VULNERABILITY

Underserved and disadvantaged communities have numerous liabilities that may contribute to the way environmental exposures affect health. These factors may affect a community's ability to prevent, withstand, or recover from the effects of environmental insult. Social factors may include the inability to participate meaningfully in the environmental decisionmaking process. For example, James Hamilton found that the percentage of community members who were registered voters was statistically significant in predicting hazardous waste facility expansion.[31] The physical infrastructure, such as poor housing or proximity to transportation hubs, are factors that make a community more vulnerable. Lastly, as evidenced by research by Dr. Manuel Pastor and his colleagues, social capital can play a critical role. They found a strong correlation between periods of greatest community demographic change and the introduction of noxious land uses. These transition periods seem to be low points for community social capital, in terms of stable leaders, networks, and institutions. Pastor and his colleagues coined a term to describe this phenomenon: "ethnic churning."[32]

---

[30] *See* ENVTL. PROTECTION AGENCY, FRAMEWORK FOR CUMULATIVE RISK ASSESSMENT (2003). A helpful paradigm for understanding vulnerability, provided by Roger Kasperson, includes the following: differential exposure, susceptibility, differential preparedness, and differential ability to recover.

[31] *See* James T. Hamilton, *Politics and Social Costs: Estimating the Impact of Collective Action on Hazardous Waste Facilities*, 24 RAND J. ECON. 101 (1993).

[32] Manuel Pastor Jr. et al., *Which Came First? Toxic Facilities, Minority Move-In, and Environmental Justice*, 23 J. URB. AFF. 1 (2001).

F. IMPLICATIONS

Several important conclusions are embedded in the concept of disproportionate impacts. First, while the concept of disproportionate impacts is a cornerstone to understanding environmental justice, researchers and practitioners are only now appreciating its complexity. A comprehensive, robust, conceptual framework for understanding disproportionate impacts—one that includes disparities in exposure, susceptibility, health, and enforcement of environmental regulations, and accounts for multiple and cumulative impacts—is just beginning to emerge. This conceptual framework will greatly enhance the development of research and policy agendas needed to redress such impacts.

Second, a narrow focus on controlling and preventing pollution may be ineffective; it is necessary concurrently to address the myriad social, economic, and cultural realities of disadvantaged, underserved, and overburdened communities. A community's well-being depends on the health of many different sectors, including economic development, housing, transportation, arts, green space, and recreation. Public health and environmental justice advocates must think holistically, seeking comprehensive, integrative paradigm changes to promote truly healthy and sustainable communities for all peoples.

Third, cumulative effects should be viewed in a temporal context. Such a perspective makes it possible to appreciate that the legacy of racial and economic discrimination is one dimension of environmental injustice that results in a high prevalence of certain diseases and increases a population's susceptibility to environmental harms. Hence, health disparities are both an outcome of and a contributor to environmental vulnerability.[33] This phenomenon is otherwise known as health disparities, a condition that the Nation has made a commitment to eliminate.

Last, research is beginning to examine multi-level and multi-factorial methods of analysis to study environmental health disparities and the impact of racial segregation on exposure to environmental hazards. These methods recognize that upstream social factors, including racial segregation, social determinants of health, and other "root causes" of differential exposure to environmental hazards may

---

[33] *See* NAT'L ENVTL. JUSTICE ADVISORY COUNCIL, ENSURING RISK REDUCTION FOR COMMUNITIES WITH MULTIPLE STRESSORS: ENVIRONMENTAL JUSTICE AND CUMULATIVE RISKS/IMPACTS, (2004), *available at* http://www.epa.gov/compliance/resources/publications/ej/nejac/nejac-cum-risk-rpt-122104.pdf.

contribute to adverse health outcomes. Recent research, by Dr. Rachel Morello-Frosch, shows a persistent relationship between increased levels of racial/ethnic segregation and increased levels of estimated cancer risk from ambient air toxics. These studies offer powerful new directions for understanding the juncture between socioeconomic inequality, environmental protection, and public health.[34]

V. EQUITY IN COMMUNITY DESIGN

In recent years, the built environment has been recognized as a significant factor in determining health.[35] Issues like obesity have ascended to the top of the environmental health agenda. Similarly, the negative social and health outcomes of urban sprawl have spawned movements like New Urbanism and Smart Growth. Attention is increasingly focused on how to design the built environment to prevent the ill-conceived land use decisions of the past and to create healthful, productive, and nurturing environments. Given that over 80 percent of the U.S. population and approximately half of the world's population now live in metropolitan areas, upstream decisions regarding social equity in community design and development portend to be ever stronger determinants of community health.[36]

The environmental justice movement's contributions to environmental decisionmaking and analysis of disproportionate impacts

---

[34] *See* Rachel Morello-Frosch & Bill Jesdale, *Separate and Unequal: Residential Segregation and Estimated Cancer Risks Associated with Ambient Air Toxics in U.S. Metropolitan Areas*, 114 ENVTL. HEALTH PERSP. 386, 392 (2006). This is the first study that has correlated the actual measures of inequality with environmental risk.

[35] The built environment is defined as manmade surroundings that provide the setting for human activity, ranging from large-scale civic surroundings to personal places.

> There is growing recognition that the built environment–the man-made physical structures and infrastructure of communities–has an impact on our health.... Because low-income communities are more likely to be sites of hazards and less likely to be conducive to physical activity and healthy eating, profiles focus on interventions that have occurred in low-income communities and are most likely to contribute to reducing health disparities in the United States.

Preventioninstitute.org, *The Built Environment and Health: Program Profiles,* http://www.preventioninstitute.org/builtenv.html#related (last visited Jul. 6, 2007).

[36] U.S. GEOLOGICAL SURVEY, RATES, TRENDS, CAUSES, AND CONSEQUENCES OF URBAN LAND-USE CHANGE IN THE UNITED STATES PROFESSIONAL PAPER 1726 at 1 (William Acevedo et al. eds., 2006) ("nearly 80 percent of the U.S. population resides in urban areas"), *available at* http://pubs.usgs.gov/pp/pp1726/; UN POPULATION FUND, STATE OF WORLD POPULATION 2007 at 1 (2007) (In 2008 more than half the human population of the world will live in urban areas.), *available at* http://www.unfpa.org/swp/2007/presskit/pdf/sowp2007_eng.pdf

have laid a solid foundation for meeting the challenge of equitable development. The environmental justice movement seeks both to reduce environmental degradation, in the form of hazardous waste, air pollution, contaminated drinking water, and lead poisoning, and to promote environmental amenities, in the form of mass transit, decent housing, energy efficiency, food security, green space and recreation. An important goal is to integrate the upstream factors mentioned above in environmental decisionmaking early in the planning/design process.

Public health experts increasingly recognize that a coordinated, multi-disciplinary approach is necessary to eliminate health disparities. Evidence suggests that disparities in health between whites and people-of-color are "increasingly linked to the physical and social environments that fall under the traditional domains of housing, transportation, streetscapes, and community or social capital."[37] Three emerging tools critical to bringing about this goal are: (1) systematically addressing land use and planning considerations; (2) codifying comprehensive, multi-disciplinary public policy; and (3) strengthening communities' ability to participate in collaborative decisionmaking.

A. LAND USE AND PLANNING

The underlying importance of land use planning and zoning issues is reflected in the notion that, at its core, environmental justice deals with the geo-spatial distribution of environmental benefits and burdens.[38] Land use planning and zoning therefore are underlying drivers for disproportionate impacts. Local land use planning and zoning have been described by some scholars as not only "a root enabling cause of disproportionate burdens and environmental injustice," but also "the most fundamental and potentially most powerful of the legal weapons deployed in the cause of racism."[39] For example, the use of local police powers for zoning was affirmed in the landmark 1926 Supreme Court decision, *Village of Euclid v. Ambler Realty Company*.[40] In a penetrating analysis on the legacy of *Euclid*, Yale Rabin coined the term "expulsive zoning."[41] Environmental justice issues profoundly affect land use

---

[37] Jason Corburn, *Confronting the Challenges in Reconnecting Urban Planning and Public Health*, 94 AM. J. PUB. HEALTH 541, 543 (2004).

[38] *See* CAL. AIR RESOURCES BOARD, AIR QUALITY AND LAND USE HANDBOOK: A COMMUNITY HEALTH PERSPECTIVE 1-3 (2005), http://www.arb.ca.gov/ch/handbook.pdf.

[39] NAT'L ACAD. OF PUB. ADMIN., ADDRESSING ENVIRONMENTAL JUSTICE CONCERNS: HOW ENVIRONMENTAL JUSTICE RELATES TO LAND USE PLANNING AND ZONING 25 (2003).

[40] *Vill. of Euclid v. Ambler Realty Co.*, 272 U.S. 365, 397 (1926).

[41] YALE RABIN, EXPULSIVE ZONING: THE INEQUITABLE LEGACY OF EUCLID, IN ZONING AND

planning in the following ways:

> • Choosing sites for locally unwanted land uses (geographic equity);
> • The process for deciding where to site these unwanted land uses, including the location and timing of public hearings (procedural equity); and
> • Sociological factors, including which groups hold the political power inherent in land use decisions (social equity).[42]

While environmental justice groups have devoted significant attention to land use issues, a systematic suite of tools, widely used by communities and local decisionmakers, has yet to emerge. Some maintain that "a renewed interest in modernizing and reforming outmoded planning and zoning laws in many states" presents "a unique opportunity for environmental justice advocates to provide leadership by securing the passage of revised state enabling statutes that empower local governments to address these issues more effectively through land use planning and zoning."[43]

B. COMPREHENSIVE, MULTI-DISCIPLINARY PUBLIC POLICY

In June 2000, the Institute of Medicine conducted a workshop regarding a unified approach toward health, planning, and environmental protection. Subsequent symposia, such as "The Built Environment–Healthy Communities, Healthy Homes, Healthy People: Multi-Level, Interdisciplinary Research Approaches" (National Institute for Environmental Health Sciences) and "Building Healthy Environments to Eliminate Health Disparities" (Interagency Working Group on Environmental Justice), continued to explore this thematic approach. As a result, concepts like Healthy Homes, Healthy Places, and Healthy Communities now shape many government strategic planning and program development initiatives. For example, Healthy Places, consisting of Healthy Homes, Healthy Workplaces, Healthy Schools, and

---

THE AMERICAN DREAM: PROMISES STILL TO KEEP 107 (Charles M. Haar & Jerold S. Kayden eds., 1989). Even "social reformers" viewed zoning as a tool "to not only exclude incompatible uses from residential areas but also to slow the spread of slums into better neighborhoods." This reasoning was used to justify excluding immigrants, Afrian-Americans, and other people-of-color or low-income groups from white residential areas.

[42] *See* NAT'L ACAD. OF PUB. ADMIN., *supra* note 39, at 37.

[43] Patricia Salkin, *Environmental Justice and Land Use Planning and Zoning*, 32 REAL EST. L.J. 429 (2004).

Healthy Communities, constitutes one of the projected strategic goals for the Centers for Disease Control and Prevention.[44] These developments reflect the growing understanding that a comprehensive, multi-disciplinary approach is necessary to eliminate health disparities.

The Healthy Places Act of 2006, introduced by Senator Barack Obama (D-Ill.) and Representative Hilda Solis (D-Cal.), takes several important steps to address these health concerns, by bringing together all levels of government to address environmental health issues through:

> (1) the establishment of health impact assessment programs to proactively examine the potential health effects of major policy or programmatic changes;
> (2) the creation of a grant program to assist states and local communities to address environmental health hazards, particularly those that contribute to health disparities; and
> (3) the acceleration of research on the relationship between the environment and health.[45]

C. COLLABORATIVE DECISIONMAKING

Addressing the complex issues related to environmental injustice will require many tools, one of which is the ability to negotiate effectively to advance the impacted community's interests. Not all situations are suitable for negotiations. However, some have the potential to yield collaborative decisions that produce mutual gains. In this context, the following definition of collaborative decisionmaking, by noted scholar on the subject of collaboration Barbara Gray, resonates fully:

> Collaboration is a process through which parties who see different aspects of a problem can constructively explore their differences and

---

[44] INST. OF MED., REBUILDING THE UNITY OF HEALTH AND THE ENVIRONMENT: A NEW VISION OF ENVIRONMENTAL HEALTH FOR THE 21ST CENTURY (2001); John Tibbetts, *Building Awareness of the Built Environment*, 110 ENVTL. HEALTH PERSP. A670, A670 (2002); U.S. DEP'T OF HEALTH & HUMAN SERVS., OFFICE OF MINORITY HEALTH & U.S. ENVTL. PROTECTION AGENCY, OFFICE OF ENVIRONMENTAL JUSTICE, BUILDING HEALTHY ENVIRONMENTS TO ELIMINATE HEALTH DISPARITIES (2003), *available at* http://www.epa.gov/compliance/resources/publications/ej/health-disparities-symposium-2003.pdf.

[45] Healthy Places Act of 2006, S. 2506,109th Cong. §§ 4, 5, 6 (2006), *available at* http://www.govtrack.us/congress/bill.xpd?bill=s109-2506 (last visited Jul. 6, 2007); Healthy Places Act of 2006, H.R. 5088, 109th Cong. §§ 4, 5, 6 (2006), *available at* http://www.govtrack.us/congress/bill.xpd?bill=h109-5088 (last visited Jul. 6, 2007); *See* AM. PUB. HEALTH ASS'N, FACT SHEET ON HEALTHY PLACES ACT OF 2006, http://www.apha.org/NR/rdonlyres/C9A73E84-B6B0-47BC-9786-18395C8CFEBB/0/SupportInitiatives.pdf (last visited Jul. 6, 2007).

> search for solutions that go beyond their own limited vision of what is possible.[46]

Among the most notable such collaborative decisions, in an environmental justice context, is the Los Angeles International Airport (LAX) Expansion Community Benefits Agreement.[47] The legally binding agreement was signed in December 2004. A product of months of discussions among the City of Los Angeles, Los Angeles World Airports, Inc., and more than 20 community groups, environmental organizations, school districts and labor unions, the agreement will establish a national precedent for community improvements around large-scale development projects. Community benefits agreements are legally enforceable contracts typically negotiated between a developer and community organizations that specify benefits that the developer must provide to the community. These benefits include local employment opportunities, affordable housing units, mitigation of environmental impacts, recreational and greenspace development, and other items of importance to the community. Communities began to view them as a viable tool after the Figueroa Corridor Coalition for Economic Justice negotiated a major community benefits agreement with developers for the Los Angeles Sports and Entertainment District in May 2001. Because public dollars were involved and City Council approval was required, the neighborhood coalition enjoyed a window of opportunity when they enjoyed some comparative negotiating advantages.[48] The LAX Expansion Community Benefits Agreement, at $500 million, represents the largest and most comprehensive community benefits agreement ever negotiated. Its provisions are designed to address known impacts to surrounding communities through improvements to environmental, labor, noise and health conditions.[49] According to Jerilyn López Mendoza, director of Environmental Defense's environmental justice program, "This agreement can now serve as a national model for other large-scale development projects and

---

[46] BARBARA GRAY, COLLABORATING: FINDING COMMON GROUND FOR MULTIPARTY PROBLEMS 5 (1989).

[47] *See* Laane.org, *Council Approves $500 Million Agreement to Help Communities Near LAX*, http://www.laane.org/pressroom/releases/lax041214.html (last visited Mar. 15, 2007).

[48] *See* Saje.net, *Huge Victory in Miami*, http://saje.net/programs/fccej.php (last visited Mar. 15, 2007).

[49] *See supra* note 46. *See generally* JULIAN GROSS, GREG LEROY & MADELINE JANIS-APARICIO, COMMUNITY BENEFITS AGREEMENTS: MAKING DEVELOPMENT PROJECTS ACCOUNTABLE (Good Jobs First & the California Partnership for Working Families 2005), http://www.communitybenefits.org/downloads/CBA%20Handbook%202005%20final.pdf

affected communities to bring economic and environmental benefits to their own neighborhoods."[50]

VI. CONCLUSION

While we can look at the legacy of Warren County retrospectively, we should also look at it prospectively. As this article shows, the legacy of Warren County is a continuing story. Indeed, the trajectory set in motion by the events of Warren County, 25 years ago, will lead to environmental justice being a truly unified vision of public health, planning and the environment for the 21st century.

It would be fitting to conclude by recalling a conversation among residents of Warren County in 1982. They first inquired about shipping the PCBs, not a problem of their making, to an existing hazardous waste landfill in Emelle, Alabama. They learned later that Emelle was another poor Black community, similar to Warren County. Twelve years later, water penetrated the landfill, causing its contaminants to leach. Local residents convinced the North Carolina State legislature to appropriate funds for remediation. The local advisory group, co-chaired by Dollie Burwell and made up of Warren County residents, insisted that the appropriate remediation be on-site detoxification. Warren County residents did not want the cleanup of contamination in their community to become a problem for another one. This story is a powerful reminder that Warren County's ultimate legacy may well be the importance of informed, empowered communities to the quest to eliminate health disparities.

[50] *Id.*

TABLE 1: EXAMPLES OF COMMUNITY-BASED ENVIRONMENTAL JUSTICE ISSUES

Community	City, State	Organization(s)	Demographics	Issues
Altgeld Gardens	Chicago, Illinois	People for Community Recovery	African American, Poor, Urban, Industrial	Public housing project, with population of 10,000, built on top of landfill in 1940s and now surrounded by polluting industries, landfills, incinerators, smelters, steel mills, chemical companies, paint manufacturing plant, municipal sewage treatment facility. Also known as Chicago's "toxic donut." Led to formation of nation's first environmental organization in a public housing project.
Barrio Logan	San Diego, California	Environmental Health Coalition	Latino, Urban, Border	City zoning decisions of 1950s made neighborhood a repository for incompatible noxious land uses (metal plating, auto body shops, highways) and air pollution. In 2002, community-led effort resulted in City Council resolution to develop new land use and zoning plan for area.
West Harlem	New York, New York	West Harlem Environmental Action	African American, Urban	Northern Manhattan is site of North River Sewage Treatment Plant and hosts 5 of 6 bus depots in Borough of Manhattan, with high rates of asthma and respiratory illness. Partnership between WE ACT and Columbia University School of Public Health is a leading example of community-based participatory research.
Norco	Norco, Louisiana	Concerned Citizens of NORCO	African American, Industrial	Homes sandwiched within feet of mammoth Shell oil refinery and chemical plant concerned about health and safety. Area subjected to major explosions and spills. After community residents traveled to the Netherlands to confront company executives at a conference, Shell agreed to relocate residents in 2002.
Alaska Native Villages	Alaska	Alaska Federation of Natives	Alaska Native, Rural Villages	More than 648 military installations, active and abandoned, pollute land, groundwater, wetlands, streams, and air with fuel spills, pesticides, solvents, munitions, and radioactive materials. Unique and intractable cleanup issues confront the Alaska Native population of approximately 101,000.

Triana	Triana, Alabama	Not Applicable	African American, Rural	DDT and PCB contamination of Alabama River, affected nearly 1,200 local residents who use the river for subsistence fishing. Some of the highest levels of DDT in humans ever recorded. In 1982, lawsuit against Olin Corporation resulted in $24 million settlement.
Townships of North Carolina	North Carolina	Concerned Citizens of Tillary	African American, Rural	Proliferation of "Hog Farms" in Concentrated Animal Feeding Operations (CAFOs) throughout state led to major multiple health and environmental impacts. Study by Concerned Citizens of Tillary and University of North Carolina found CAFO's more likely to be located in poor and non-white areas of North Carolina.
Asian Immigrant Women Workers	San Francisco, California	Asian Immigrant Women Advocates	Asian, Urban	Non-English speaking immigrant workers in garment industry, hotel, electronics industries suffer assorted health impacts ranging from exposure to toxic substances, work conditions, long hours, and accidents. Participatory action research conducted by hotel workers, union, and University of California Labor Occupational Health Program led to demands for workload reductions at contract negotiations.
Barrio Boca	Guanyanilla, Puerto Rico	Centro de Accion Ambiental, Inc.	Puerto Rican; Rural	Pesticide drift caused by aerial spraying on mango and banana plantation owned and operated by Tropical Fruit Company. Community actions resulted in court order to restrict spraying to only optimal weather conditions.
Tucson Airport Superfund Site	Tucson, Arizona	Tucsonians for a Clean Environment	Latino, Urban	TCE, an industrial solvent, seeped into aquifer and created toxic groundwater plume five miles long and two miles wide–designation by EPA as a Superfund Site. Class action lawsuit resulted in a settlement with Hughes of $84.5 million. Local residents also secured a health clinic.