

**TOWARD A DEMOCRATIC SCIENCE? ENVIRONMENTAL JUSTICE
ACTIVISTS, MULTIPLE EPIDEMIOLOGIES,
AND TOXIC WASTE CONTROVERSIES**

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(ABSTRACT)

Environmental justice activists defined an environmental justice, or community-led, research practice as an alternative conception of science to guide epidemiological investigations of the human health effects of hazardous wastes. Activists inserted their position into an ongoing scientific controversy where multiple epidemiologies existed—environmental, dumpsite, and popular—reflecting various understandings and interests of federal and academic epidemiologists, state public health officials, and anti-toxics activists. A 1991 national symposium on health research needs and the National Environmental Justice Advisory Council, established in 1993 to advise the Environmental Protection Agency, provided important locations through which activists advocated an environmental justice research approach and pressed for its adoption by relevant governmental public health institutions. The shaping of environmental justice research by activists raises intriguing issues about the role of science and expertise in political protest and the importance of democratic participation in the making of environmental policy.

Dedication

This dissertation is dedicated to my father, A.T., and my mother, Madolyn, who taught me the importance of responsibility, the irony of justice, and the necessity of a good education.

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During the summer of 1993, I had the privilege of working with East Austin Strategy Team members Ron Davis, Sue Spears, and Emmett Spears who warmly welcomed me as a volunteer. Their commitment and dedication to creating a safer and more livable environment for minority communities in East Austin, Texas, was organizationally impressive and emotionally moving. Ron, Sue, Emmett, and others like them who identify with the growing environmental justice movement give much of their own time and energy to a worthwhile struggle that is in need of even broader public support. Thanking them for their efforts does not feel adequate.

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Let's get on with it then...

Toward a Democratic Science? Environmental Justice Activists, Multiple Epidemiologies, and Toxic Waste Controversies

Table of Contents

	Acronyms	viii
Chapter 1	Introduction	1
	Environmental Justice Research: “A new paradigm”	3
	Roots of Environmental Justice Activism	9
	Public Health and Multiple Epidemiologies	14
	Overview of Study	18
Chapter 2	Literature Review and Methodology	22
	Defining Environmental Justice	23
	Social Movements and Scientific Knowledge	27
	Controversy Studies From Love Canal to AIDS	33
	Democratic Science and Technology	42
	Methodology	49
Chapter 3	Environmental Justice: Building a Movement	55
	The Tank Farm in East Austin, Texas	55
	Environmental Racism: At the heart	65
	Linking Local Struggles	75
	The 1991 Summit	82
	Weaving a Net That Works	85
	Confronting Mainstream Environmental Groups	89
	Going National, Remaining Local: Tensions Within the Movement	93
Chapter 4	Into the "Belly of the Beast": Environmental Justice and the Environmental Protection Agency	102
	Taking on the EPA	102
	EPA's Mission: To protect public health and the environment	106
	Toxic Terrain	112
	EPA 1992 Report on Environmental Equity	119
	“Among the Agency’s highest priorities”	123
	Placing Environmental Justice on the National Agenda	129
	The National Environmental Justice Advisory Council	140
	Environmental Justice and the Policy Process	145

Chapter 5	Amid Toxic Terrain and Multiple Epidemiologies: Advocating Environmental Justice Research	148
	The Legacy of Love Canal	148
	The Agency for Toxic Substances and Disease Registry	153
	Environmental Epidemiology	159
	Origins of Environmental Epidemiology	163
	Beyond Traditional Epidemiology	165
	Dumpsite Epidemiology	171
	Popular Epidemiology	177
	Endorsing Environmental Justice Research	182
	Environment as Place and Politics	185
Chapter 6	Environmental Justice Research: Toward a Democratic Science?	194
	Environmental Justice and Scientific Knowledge	194
	Power and the Regulatory Process	196
	Environmental Justice Research and Multiple Epidemiologies	198
	Redefining the Boundaries of Expertise	201
	Dilemmas of Democratic Science	204
	Bibliography	209
Appendix A	Principles of Environmental Justice	232
	Vita	234

Acronyms

ATSDR	Agency for Toxic Substances and Disease Registry
CCHW	Citizens Clearinghouse for Hazardous Wastes
CDC	Centers for Disease Control and Prevention
CERCLA	Comprehensive Emergency Remediation, Compensation, and Liability Act
EAST	East Austin Strategy Team
EPA	Environmental Protection Agency
GCTO	Gulf Coast Tenants Organization
HWS	Hazardous waste site
NEJAC	National Environmental Justice Advisory Committee
NEPA	National Environmental Protection Act
NPL	National Priority List
NRC	National Research Council
NTC	National Toxics Campaign
OEJ	Office of Environmental Justice
OE2	Office of Environmental Equity
PHS	Public Health Service
PODER	People Organized in Defense of Earth and its Resources
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SNEEJ	Southwest Network for Environmental and Economic Justice
SOC	Southern Organizing Committee
SWOP	Southwest Organizing Project

CHAPTER 1

Introduction

During the early 1990s, environmental justice activists reshaped policy and scientific debates over the human health consequences of exposures to toxic wastes. These activists exerted influence over federal policy, most notably through the Environmental Protection Agency. Their call for environmental justice research, a set of guidelines that broaden community involvement and control over health research, positioned them within an ongoing debates over scientific approaches to assessing community health problems related to pollution. Within the scientific debate, the existence of multiple definitions of epidemiology—environmental, dumpsite, and popular—reflected differing relationships among institutions and groups shaping the meaning and uses of such scientific knowledge. Environmental justice advocates challenged, as well as drew from, these definitions of epidemiology in evaluating the health impacts of environmental pollution. By posing a redefinition of epidemiology to include extensive community participation, environmental justice activists expanded upon the idea of popular or a “people’s” epidemiology and shaped it to fit within scientific policy discussions at the federal regulatory level. Through their demonstration of direct democratic participation in the making of science within a regulatory framework, activists emphasized alternative conceptions of environment and expertise from those predominantly held by the scientific and policy communities.

Since the late 1980s, throughout the United States a number of local minority and low-income community groups have identified themselves as uniting concerns for the environment with concerns for social justice. Many of these local groups joined together in regional networks to draw attention to the degraded conditions under which minorities and

the poor live and work in this country. The October 1991 First National People of Color Environmental Leadership Summit in Washington, D.C., provided a defining moment for what many believed was an emerging national social movement for environmental justice. At the Summit, 600 grassroots delegates adopted seventeen Principles of Environmental Justice (see Appendix A). Among these principles, activists asserted that efforts to achieve environmental justice must include developing public policy based on mutual respect and justice for all people, protecting communities from radioactive and toxic wastes and ideally for ceasing production of these materials, ensuring the right of workers to a safe and healthy work environment, and including those affected by toxic wastes in every level of decision-making regarding the environment and their communities.

Environmental justice activists bridged environmental and social justice issues by arguing that the burdens of pollution, particularly the siting of toxic wastes, were borne disproportionately by minorities and the poor. According to sociologist and activist Robert Bullard, the nation's history of discrimination, inequitable distribution of resources, and difficulties in enforcing regulations upon polluters have created "sacrifice zones" out of minority and poor communities that have the least political and economic resources to protest. Activists claimed that racism and classism pervade the manner in which environmental problems are defined and addressed. They criticized mainstream environmental organizations' lack of minority employees and lack of interest in connections between the health and economic welfare of minorities and the poor and the state of their environmental living conditions.

In addition, environmental justice activists contended that authoritative knowledge regarding the places where people live, work, and play—their environment—should not rest solely with experts, but must include contributions from community representatives.

Thus, activists asserted that experiential community knowledge had privilege in environmental decision-making. This idea that community members have their own expertise to bring to environmental discussions was at the root of activists' efforts to define an environmental justice research in which communities actively participated in the planning, conduct, and interpretation of public health research that directly affected them.

Environmental Justice Research: "A new paradigm"

In February 1994, more than 1,000 people from grassroots organizations, academia, government, labor and business met in Arlington, Virginia, for "the first federal symposium on environmental justice."¹ The symposium on *Health Research and Needs to Ensure Environmental Justice* was sponsored by the National Institute for Environmental Health Science, the National Institutes of Health Office of Minority Health Research, the Environmental Protection Agency, the National Institute for Occupational Safety and Health, the Agency for Toxic Substances and Disease Registry, the Department of Energy, and the National Center for Environmental Health. The symposium was a scientific follow-up session for an August 1992 meeting on "Environmental Health Equity: Research Issues and Needs" held in Research Triangle Park, North Carolina.

Roughly half of the symposium participants were government officials and personnel from the sponsoring agencies. Other participants came from grassroots organizations such as the Gulf Coast Tenants Organization, the Indigenous Environmental Network, the Citizens Clearinghouse for Hazardous Wastes, and Pesticide Action

¹A few years earlier, in 1990 a National Minority Health Conference sponsored by the Agency for Toxic Substances and Disease Registry had been held in Atlanta. The conference theme "Focus on Environmental Contamination" had attracted 300 community activists, physicians, and government officials. Grossman, Karl, "Environmental Racism."

Network. University representatives came from, among other institutions, Texas South University School of Law, the University of Michigan School of Natural Resources, and the University of California, Berkeley Labor Occupational Health Program.

Representatives of environmental organizations from the traditional Sierra Club, to the legal advocacy Natural Resources Defense Council, to the Huron Valley Greens of Michigan were also among those who participated in the three day meeting.

A major goal of the 1994 symposium was to involve the public in identifying research programs needed to fill data gaps in areas of health, exposure, prevention, and intervention. Participants at the symposium offered recommendations for increasing community participation in education and research. Working in small core groups, participants recommended the conduct of more meaningful health research in support of people of color, low-income communities and high risk workers. Participants stressed that "meaningful health research" should,

Develop new models for occupational and environmental science research that involve high risk communities and workers as active participants in every part of research including:

- making and testing of hypotheses,
- planning and putting into action creative research strategies and methodologies,
- interpreting and communicating research results, and
- translating research results into disease prevention and pollution prevention action.²

²U.S. National Institutes of Health. *Symposium on Health Research Needs to Ensure Environmental Justice: Recommendations - February 10-12, 1994, Arlington, Virginia*. Washington, DC: Sponsored by National Institute of Environmental Health Sciences (NIH), Office of Minority Health Research (NIH), EPA, NIOSH (CDC), ATSDR (CDC), DoE, and National Center for Environmental Health (CDC), 1994.

These new models should also include an examination of the ethics and social responsibility of research, standards of evidence, and the history of worker and community involvement in research and policy making. Participants advocated the development of new molecular technologies and tools to serve the at-risk workers and communities in risk assessment, disease etiology, and policy formation. They suggested that local and regional research centers should be created that develop partnerships with local communities who would active collaborate in all stages of research. The research resulting from these centers would be evaluated in the same peer review and site visitation process as the more traditional research projects.

In addition, participants recommended increasing the emphasis on occupational and environmental health in curricula and training programs for health care providers and increasing clinical studies in affected communities to provide people at risk with effective surveillance, monitoring, and treatment of adverse health effects. The latter recommendation would include initiating and funding birth and disease registries for all states. To ensure greater interagency coordination, participants recommended that changes encompass a wide variety of programs and called on the CDC, DoE, EPA, and NIH to increase funding for community/academic research partnerships and to make environmental justice an integral part of research and training grants sponsored by the government.

Symposium participants were fiercely critical of established environmental health science that they feel "systematically delegitimizes the realities of sickness and suffering" that affected communities experience. In one of the symposium's core groups, members of the Northeast Environmental Justice Network argued that, "traditional science has significantly underestimated health risks, and regularly omits, suppresses, or destroys information critical to our environmental health." The group argued that a community-

based approach to research incorporates both a method of practice and a shift in thinking that stands "side by side with 'mainstream western scientific research'" and addresses the failures of traditional science to address the health hazards of pollution. Most importantly, the members of this group reasoned, this new approach should serve a community's needs. As one core group of participants argued in forceful terms,

It recognizes that science is a tool for people and people are not a tool for science, or government, or researchers. The limits of scientific knowledge and the value of other ways of knowing are valued and utilized in this new paradigm....The new paradigm recognizes that research needs to serve the needs of the community.³

A pragmatic point of view was expressed in another core group's discussion of how to assess the validity of scientific research for a community's needs,

In those instances when information from "mainstream western scientific research" is simplified for common folks, this is to be done so that it can be used as a tool for the people's struggle. However, great care must be taken to see that it is not unthinkingly (uncritically) accepted as valid before it has been subjected to interrogation by communities at risk to identify its hidden agendas, values, assumptions, etc., if it "fits them" it is to be used - if not, discarded.⁴

Under this method, research projects must enhance knowledge and "empower rather than exploit" the community. Members of the Northeast Environmental Justice Network expressed the need to nurture the "scientific capacity" of communities and community-based expertise.

All of these concerns about how environmental science is done must be challenged and addressed in a new paradigm that is inclusive and respectful of community-based expertise and research techniques. Furthermore, we must support the scientific capacity of our communities by redressing the

³Ibid, from Core Groups 18-20; p. 53.

⁴Ibid, from Core Group 8; p. 28.

systematic exclusion of people of color from the practice of environmental science.⁵

Participants called for a shift in the burden of proof within environmental health science, "in epidemiology, assume that nature is polluted and look for evidence to the contrary; in toxicology, to assume a chemical is toxic unless there is evidence to the contrary." Some proposed that "people's epidemiology" be used to document a community's health problems and push for more comprehensive health studies. In addition to being involved in all stages of the research, community members should have joint ownership of the research projects. Ultimately, more open communication and greater collaboration among communities, public health agencies, and educational institutions was sought that would lead to effective action. Some participants challenged the ethical role of government scientists and researchers in toxic waste controversies by reminding them of the public interest which they served:

The scientists role is to recognize this and work to educate community leaders at the grassroots level in lay terms; disassociate their research and policy from industry influence; and guarantee impartial regulatory agencies in order to gain credibility as a governmental agency with the public's interest as its mandate within the communities it serves. Researchers should listen more to those who know first hand what's going on ...VICTIMS!⁶

Many participants made clear their distrust of science and government. Yet, the core group breakout sessions used at the symposium offered opportunity for the exchange of expertise and views which, some felt, had a positive effect in elevating dialogue between activists and government officials. JoLani Hironaka, of the Asian Pacific Island Caucus and the Santa Clara Center for Occupational Safety and Health as well as a member of Core

⁵Ibid; p. 82.

⁶Ibid, Core Group 1-3; p. 11.

Group 8, reported that confrontation at the symposium invigorated her core group to work together:

The chanting during the morning plenary session on Day Two (“We’re fed up! We’re fed up! and we’re fired up! And we’re fed up!”) caused streams of people of all colors to leave the Arlington Ballroom with disgusted or uncomfortable looks on their faces, reporting that a “demonstration” had erupted. What was seen by some as a negative event was a catalyst for cooperation in our core group.⁷

Hironaka described the dialogue process that her core group went through as one in which trust and respect had to be established among the members. All sorts of dynamics played into the discussion. Grassroots activists were frustrated by what they perceived as years of neglect by government officials and scientists toward the health problems of their communities. In expressing their frustration, a number of participants usurped the facilitator’s attempt to direct the group toward concrete recommendations or action items. Government officials felt maligned at being identified as “the government” when they were taking part in the symposium and had a strong desire to assist in creating more responsive agencies. Scientists, particularly minority scientists, were not happy with rhetoric which inferred that science is separate from the needs of the community. One member said, “I live on a contaminated landfill, I am an African American woman, and I am a scientist with a government agency.”⁸ These kinds of revelations provoked members to reassess relationships between science, government, and communities. One member asked the group for help for the Maori people who suffer reproductive and genetic defects from years of radiation exposure left by the United States’ atomic bomb testing at Bikini Atoll in the

⁷Ibid; p. 89.

⁸Ibid; p. 90.

1940s. The urgency of her account focused the group to think collectively about what actions they might take.

By the end of the summer of 1994, several high level agency officials endorsed the recommendations that came from the symposium. Kenneth Olden, director of the National Institute of Environmental Health Sciences, stated that he would use the recommendations to “help forge an environmental justice strategy” for the NIEHS. Thomas P. Grumbly, assistant secretary for environmental management at the Department of Energy, and Dr. David Satcher, director of the Centers for Disease Control and Prevention and administrator for the Agency for Toxic Substances and Disease Registry, both emphatically announced that they would “work to incorporate the thrust of the recommendations into our programs and will continue to work with other agencies, minority and underserved communities, and organizations to further the cause and goals of environmental justice.”⁹

Roots of Environmental Justice Activism

It took at least a decade of vocal protest before environmental justice activists found their way into the 1994 Arlington meeting and found their concerns of interest to national policy making circles. In 1982, a mass protest against EPA’s dumping of PCBs in primarily African-American Warren County, North Carolina, resulted in the arrest of 500 mostly minority activists. Warren County came to symbolize a resurgence in national discussion of civil rights and environmental quality, a discussion infused with and informed by contentious issues of race and ethnicity. Environmental historian Robert Gottlieb notes that the participation and leadership of African-Americans in that event

⁹Ibid, pp. 102-104.

demonstrated to policy makers that people of color were interested in environmental matters, especially when those matters were connected to defending their communities.¹⁰

The leadership of the environmental justice movement sought to meld concerns about nuclear and toxic poisoning with issues of racism, according to historian Hal Rothman. Their goal was to help the civil rights movement “recapture the moral high ground it enjoyed in the 1960s.”¹¹ This objective came in response to the chilly atmosphere against civil rights, as well as environmental issues, that characterized the administration of President Ronald Reagan in the 1980s. Leading environmental justice activist Reverend Benjamin Chavis, who coined the term “environmental racism,” and the United Church of Christ (UCC), which sponsored early research into discrimination in the siting of hazardous wastes, played important roles in the civil rights movement and drew upon their experiences to connect the legacy of racism with the failures of environmental protection policies. The UCC’s 1987 controversial study *Toxic Waste and Race in the United States* reported that three out of every five black and Hispanic Americans lived in communities with uncontrolled toxic waste sites.¹² Environmental racism served as a cry for solidarity among activists, with the issue of class initially seen as secondary among some environmental justice intellectual leaders.

Prior to the emergence of minority environmental justice activism, white middle-class environmental activists, who comprised the demographic of the environmental

¹⁰Gottlieb, *Forcing the Spring*; p. 264.

¹¹Rothman, Hal K. *The Greening of a Nation? Environmentalism in the United States since 1945*. New York: Harcourt Brace College Publishers, 1998; pp. 163-164.

¹²United Church of Christ Commission for Racial Justice. *Toxic Wastes and Race in the United States: A National Report on the Racial and Socio-Economic Characteristics of Communities with Hazardous Waste Sites*. New York, NY: United Church of Christ, 1987.

movement that gathered in strength during the 1960s and 1970s, took the lead in setting the tone and agenda for environmental philosophy and policy. The environmental movement, rooted in a long history of ideas about the conservation of natural resources and preservation of public lands, focused many of its activities on wildlife and wilderness issues, or what environmental justice activists criticized as the “bees and trees.” The environmental movement struck a chord with the white middle-class American public in the 1960s and 1970s in calling for cleaner air and water and restrictions on polluting activities by industry and municipalities. Minorities, however, were noticeably absent, or very few in number, from the membership and leadership of these environmental groups, such as the Sierra Club or World Wildlife Fund, that provided the movement with organizational backbone and shaped a new professional class of experts.

With the passage of the National Environmental Policy Act in 1970, a more centralized legislative, regulatory, and legal policy system began to emerge to control the environmental by-products of urban and industrial pollution. According to Gottlieb, environmental protection became an industry of "engineering companies, law firms, waste management operations, and consulting firms specializing in environmental review, standard setting, or other new environmental procedures." Along with this growing environmental industry and expanding environmental government bureaucracies, many Washington, D.C.-based mainstream environmental groups, which had so successfully lobbied for federal environmental legislation, positioned themselves as both involved in the making of environmental policy and as a watchdog for the process.¹³

The development, acquisition, dissemination, and application of information in this new policy arena and among the new expertise became paramount. Environmental

¹³Gottlieb, *Forcing the Spring*.

historian Samuel Hays maintains that inequality in access to information between citizens, corporations, and government institutions played “a central role in shaping the political structure of environmental affairs.” Some grew suspicious that this cooperative generated a more complicated, technical process that was increasingly prohibitive and hostile to public participation. Critics of the bureaucratic mainstreaming of environmentalism came to be found both among the political left, such as green socialists and deep ecologists, as well as the political right, as in wise-use conservatives and land rights advocates.

As a more technical environmental expertise gained credibility in policy circles in the 1980s, the Reagan administration advocated deregulation and attempted to dismantle twenty years of environmental policies, that for the most part had enjoyed broad public support. Among the contentious battlegrounds were the goals and responsibilities of the Environmental Protection Agency, established in 1970. The Reagan administration effectively took the teeth out of many environmental laws, including the 1980 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), known commonly as the Superfund Act. The result was that enforcement, cleanup, and filing of toxic waste sites were effectively ignored by EPA officials for at least two years, from 1981 to 1982. Under Reagan’s leadership, the EPA began a fall from grace in the public eye. The protest in Warren County, North Carolina, was a notable, but by no means singular, demand for agency accountability.

By the 1970s, public concern with the effects of toxic chemicals began to galvanize. Love Canal, New York, where working class residents learned that their homes and their children's elementary school were built over a toxic waste dump, was the most notorious case to provoke greater public awareness of the potential dangers and inadequate regulations surrounding hazardous wastes. Public knowledge about radioactive fallout

from atomic testing after World War II fed such public concern. Rachel Carson's popular 1962 book, *Silent Spring*, introduced radioactivity as a metaphor for the widening use of pesticides and the potential harm to human health.¹⁴ As Samuel Hays notes,

By the early 1970s the American people had experienced the toxic environment in a variety of ways - radiation from nuclear-testing fallout, pesticides in wildlife, chemicals in food, and fish kills. These were only the beginnings of confrontations with toxic chemicals that later were to emerge with greater force...Running through these episodes and reinforced by them was the perception of a wider toxic environment surrounding daily life that was both dangerous and difficult to bring under control. Events in the 1960s had begun to shape that perspective; in the 1970s it was to become a major political influence.¹⁵

By the 1980s, a resurgence of environmental and community organizations occurred in response to Reagan's deregulation stance, and a growing anti-toxics movement had begun. Organizations such as the Citizens Clearinghouse for Hazardous Wastes, begun by Love Canal protestor Lois Gibbs, and the National Toxics Campaign created an alternative activist network of experts and information to assist communities faced with toxic contamination to their health and homes. Law suits against government and industry over responsibility for toxic spills and dumps became known as "toxic torts." The potential universe of contaminated sites was unknown, but official estimates were enormous. The Office of Technology Assessment reported as many as 600,000 contaminated sites in the United States.¹⁶ The Environmental Protection Agency estimated anywhere from 131,000 to 379,000,¹⁷ with 34,000 of those sites posing possible human health risks because of

¹⁴Lutts, Ralph H. "Chemical Fallout: Rachel Carson's *Silent Spring*, Radioactive Fallout and the Environmental Movement." *Environmental Review* 9(1985): 210-225.

¹⁵Hays, Samuel P. *Beauty, Health and Permanence: Environmental Politics in the United States, 1955-1985*. New York, NY: Cambridge University Press, 1987, p. 177.

¹⁶Barnett, Harold C. *Toxic Debts and the Superfund Dilemma*. North Carolina: University of North Carolina Press, 1994.

their effects on ground water.¹⁸ At issue in the policy and legal realms was the claim by affected communities that the health and safety of their members were at risk, if not already damaged by diseases such as leukemia, or chronic conditions such as chloracne, or reproductive disorders indicated by high levels of miscarriage.

By the time the 1994 symposium was held in Arlington, Virginia, environmental justice activists had been building regional networks among minority communities and had pressured the EPA to seriously address the issues they raised—one of which was that the science used to study the health effects of toxic exposures was deficient and in need of change.

Public Health and Multiple Epidemiologies

The modern idea of public health is based upon the authority of government to protect its citizens from disease. The history of public health and epidemiology to assess the relationship between disease and the human-made environment extends back to the British and French sanitary movements of the 1800s. During that time, proponents of sanitary reforms, responding to the squalid living conditions of an expanding industrial working class, argued that the government's interest in the health of workers and their families was ultimately of benefit to the overall economic progress of society.¹⁹ As public health historian George Rosen argues, however, early legislation on health and sanitation,

¹⁷Office of Technology Assessment. *Technologies and Management Strategies for Hazardous Waste Control*. Washington, DC: Congress of the United States, 1983.

¹⁸U.S. Environmental Protection Agency. *Extent of the Hazardous Release Problem and Future Funding Needs CERCLA Section 301(a)(1)(C) Study, Final Report*. Washington, DC: U.S. Environmental Protection Agency, 1984.

¹⁹Rosen, George. *A History of Public Health*. Baltimore, MD: The Johns Hopkins University Press, 1993.

resulted less from a concern for the welfare of the poor than from a growing realization after 1850 that endemic and epidemic disease caused by defective sewerage or infected food was a problem for the entire community. Furthermore, there was an increasing awareness that the cost involved was a form of social waste that could be eliminated.²⁰

As industrialization and urbanization increased, so too did engineering efforts to reduce industrial waste and sewage from public drinking water. National and military needs and restrictions during World War II, however, placed few controls on industries such as metals, coal, food, and petroleum. In the post-war industrial boom, a host of new chemical and petroleum based substances were produced, such as DDT, chlordane, benzene, synthetic detergents, rayon, and artificial rubber, all emitting new sources of hazardous wastes.²¹ Historian Joel Tarr explains that as air and water pollution laws became more stringent, industry and municipalities turned to landfills as an “ultimate sink” for wastes.²² A disturbing result of this trend, according to policy analysts Craig Colton and Peter Skinner, was that prior to the creation of the Environmental Protection Agency a deeply flawed decision making process, favoring cost cutting and engineering shortcuts, evolved for site selection and treatment of hazardous wastes within the United States.²³ Colton and Skinner contend that from 1900 to the 1960s industries ignored or downplayed their own scientists’ toxicity research and public officials complacently believed that such industry’s were responsibly ensuring safe standards.

²⁰Ibid, p. 202.

²¹Tarr, Joel. “Risk Perception in Waste Disposal: An Historical Overview.” *Health Effects from Hazardous Waste Sites*. Ed. Julian B. Andelman and Dwight W. Underhill. Michigan: Lewis Publishers, 1988.

²² Tarr, Joel. *The Search for the Ultimate Sink: Urban Pollution in Historical Perspective*. Akron, Ohio: The University of Akron Press, 1996.

²³ Colton, Craig E. and Peter N. Skinner. *The Road to Love Canal: Managing Industrial Waste before EPA*. Austin, TX: University of Texas Press, Austin, 1996.

Serious study of the health effects of chemical, physical, or biological factors from toxics emerged in the United States early in the twentieth century through the efforts of physician Alice Hamilton, who pioneered investigations into worker health and safety. Within the history of occupational health and safety, the political and social dynamics of race, ethnicity, gender, and class have affected the way in which diseases are defined and sufferers are treated. For example, in the 1930s, 700 workers, most of them African Americans, died of acute silicosis contracted while building a tunnel for the Union Carbide Company at Gauley Bridge, West Virginia. Company doctors diagnosed the disease as “tunnelitis” and, as men literally died on the job, an undertaker was hired to bury the dead in nearby fields.²⁴ In the 1960s and 1970s, coal miners’ worked to change the definition of pneumoconiosis to include respiratory disabilities associated with black lung that are not diagnosable only through x-ray. Despite their efforts, many mine workers afflicted with black lung have been left with little or no form of disability compensation.²⁵

Generally, the definition of epidemiology is the study of the distribution of, and factors contributing to, a disease or a physiological condition in human populations.²⁶ While occupational epidemiology focused on worker health, attempts to assess the extent of broader public health problems posed by toxic wastes multiplied the traditional definition of epidemiology into at least three newer categories: environmental, dumpsite, and popular

²⁴Cherniack, Martin. “The Hawk’s Next Incident, America’s Worst Industrial Disaster. New Haven: Yale University Press, 1986. See also David Rosner and Gerald Markowitz, *Deadly Dust: Silicosis and the Politics of Occupational Disease in Twentieth-Century America*, New Jersey: Princeton University Press, 1991; pp.96-98.

²⁵ Smith, Barbara Ellen. *Digging Our Own Graves: Coal Miners and the Struggle Over Black Lung Disease*. Philadelphia, PA: Temple University Press, 1987.

²⁶Lillienfeld, Abraham, and Paul D. Stolley. *Foundations of Epidemiology*, third edition. New York, NY: Oxford University Press, 1994.

epidemiologies. Environmental epidemiology studied the effects on human health of physical, biological, and chemical factors in the external environment and it was attuned to the web of government regulations and agencies that address pollution and public health issues. The National Academy of Sciences defined this area of study in a two volume report emphasizing its scientific legitimacy and professional credibility.²⁷

Some public health epidemiologists who work with communities affected by hazardous wastes defined their approach as dumpsite or reactive epidemiology. The strength of dumpsite epidemiology for these practitioners was that it combines the "art" of epidemiology—effective communication and interaction with the affected community—with "sound application of scientific methods."²⁸ Issues over building trust with the community and involving community members in studies were important, as was keeping the community informed of research progress and results.

From the social dynamics of toxic waste controversies, sociologist Phil Brown defined a third form of epidemiology, popular epidemiology, which he argued provided "the process by which lay persons gather data and direct and marshal the knowledge and resources of experts in order to understand the epidemiology of disease, treat existing and prevent future disease, and remove the responsible environmental contaminants."²⁹ For Brown, who based his definition upon observations of community groups involved in protesting toxic waste sites, popular epidemiology is more than just greater public

²⁷National Academy of Sciences, National Research Council. *Environmental Epidemiology: Public Health and Hazardous Wastes*. Washington, DC: National Academy Press, 1991.

²⁸Anderson, Henry A. "Evolution of Epidemiologic Risk Assessment." *Environmental Health Perspectives* 62 (1985): 389-392.

²⁹Brown, Phil. "Popular Epidemiology and Toxic Waste Contamination: Lay and Professional Ways of Knowing." *Journal of Health and Social Behavior* 33 (1992): 267-281.

participation in epidemiology. Popular epidemiology emphasizes the social relationships and structural factors within the causal chain of disease—particularly, polluting facilities and the inability or unwillingness of regulators to enforce compliance.

Environmental, popular, and dumpsite epidemiologies emerged as critiques of and alternatives to "traditional" epidemiology, each holding to the idea that the traditional view did not allow for understanding the complexities of the health effects of hazardous wastes and pollution generally. These definitions reflect differing social and political positions of social groups as they vied for control of a science and its application to an ongoing technoscientific controversy. Many ideas embraced by the search for environmental justice research flowed from the concept of popular epidemiology advocated by anti-toxics activists as Brown described. However, environmental justice activists pressed to embed community members' experiential knowledge deeply within the regulatory decision-making processes surrounding research on the health consequences of pollution. Activists, like those who participated in the 1994 symposium on *Health Research and Needs to Ensure Environmental Justice*, thus contributed to yet another conception of epidemiology.

Overview of Study

This study explores how environmental justice activists influenced debate on assessing the effects of toxic wastes on human health and considers some of the possible historical contexts that locate these activists within this debate. While activists claimed that minority and low-income communities disproportionately bear the burdens of exposure to polluted environments, they particularly pressed their case with the Environmental Protection Agency, an institution responsible for regulating toxic wastes and for the science used to address these human health concerns. By weighing in on this controversy,

environmental justice advocates contributed to the redefining of epidemiology, a science that already had multiple definitions surrounding its approach and application.

Chapter 2 provides a literature review and explanation of my methodology. My examination of environmental justice research draws upon ideas on the importance of alternative conceptions of science in the policy process as well as the role of social movements and the fluid boundaries of expertise in the creation of science in a democratic society. I find great value in case studies from the public health literature, particularly historical accounts of occupational disease and more recently AIDS activism, that question how social movements, activists, and others shape conceptions of scientific knowledge.

Chapter 3 describes the activists and the philosophical stance that comprise environmental justice. Through a select history of organizations and events, I analyze how activist groups framed themselves as part of an emerging social movement that stood in opposition to government policies and practices for protecting public health from toxic wastes and pollution. An account of a controversy over a gasoline tank farm in Austin, Texas, illustrates the kind and extent of efforts environmental justice activists were involved in at the local level. The case depicts the interaction of politics and science typical of toxic waste controversies. I also describe the tensions activists had with mainstream environmental groups as well as tensions within the movement over its growth and vision.

Chapter 4 discusses how activists have gained access to the Environmental Protection Agency (EPA) and how the agency has responded to environmental justice issues. The EPA established an Office of Environmental Justice, vowed to make environmental justice a "priority" within the agency, and issued reports and studies. Further, EPA established a National Environmental Justice Advisory Council that included

representatives from a number of "stakeholder" positions involved in environmental controversies relevant to EPA.

Chapter 5 argues that various forms of epidemiological knowledge exist in practice, and in tension with one another. Such tension highlights the political and social positions of those involved and the issues at stake in toxic waste controversies. An anti-toxic activist group may advocate "popular" epidemiology; a state public health official "reactive or dumpsite" epidemiology; and a federal public health official "environmental" epidemiology. Environmental epidemiology was the predominant body of inquiry that the Agency for Toxic Substances and Disease Registry—set up to gather health data on for EPA—and the National Academy of Sciences recognized as within the official government domain.

Mapping the plural positions on epidemiology in the regulatory environment offers a way to frame the emergence of an alternative form of epidemiology and research practice, an "environmental justice research," advocated by activists. Chapter 5 thus describes how environmental justice concerns redefined the "official" scientific approach to addressing the implications between health and toxic wastes. It analyzes the role of the National Environmental Justice Advisory Committee (NEJAC), consisting of representatives from academia, local governments, non-governmental organizations, industry, and Native American tribes, in translating and negotiating a vision for how epidemiological studies on the health impacts of hazardous wastes should be approached.

Chapter 6 critiques the interaction between the environmental justice movement, the scientific community, and government with regard to the issue of using and reconstructing science, in this case epidemiology, in a regulatory environment. I emphasize the importance of the environmental justice movement in creating knowledge involved in resistance to, and reform of, aspects of the policy processes surrounding how hazardous

waste and human health issues are defined and addressed. In the last chapter, I explore how the environmental justice movement contributes to ideas on the possibility of constructing a more democratic science.

CHAPTER 2

Literature Review and Methodology

Environmental justice activists levelled provocative criticisms during the 1994 symposium in Arlington at the failures of “traditional science” to understand the relationship between toxic wastes and disease. Equally compelling was the framework of environmental justice research that activists offered up to redress what they perceived to be the uselessness of science as usual coming from the federal regulatory world ostensibly designed to identify the harms of undue exposures to toxics. This study explores environmental justice activists’ perspective on science in the health and toxic wastes realm and analyzes how activists have pressed their view of science into ongoing scientific debate in the regulatory arena. I provide an account of activists’ involvement in the making of scientific knowledge and assert that they were anything but anti-science, anti-technology, or ideologically naive.

My analysis and critique of environmental justice and science are indebted to a number of theoretical influences. I draw from social movement literature; science studies literature as it pertains to understanding the sociology of scientific knowledge, expertise, and science in controversy; and histories of environmentalism and public health that provide narratives of how social movements and activists confront dominant views about science and nature to bring about social, political, and scientific change. Thus, to frame this study, I reflected on three broad questions: Who and what comprise the environmental justice movement? What role historically have social movements had in the making of scientific knowledge and how does the environmental justice case compare? And how do

ideas on democratic science or the democratization of science, a goal toward which activists strive for more just directions and uses of science and technology, affect understandings of scientific and expert knowledge in policy controversies such as that over health and toxic wastes?

Defining Environmental Justice

In the last several years, there has been great growth in literature that defines, analyzes, and critiques environmental justice. Primary literature on environmental justice comes from regional groups and grassroots organizations and clearinghouses that not only publish newsletters to exchange information among local communities, but also engage in research on the implications of environmental and social policies and practices on minority communities. A number of edited volumes, cases studies, and policy analyses have appeared under sociology and environmental studies headings. Interest in environmental justice as an area of research became more intense after the 1991 First National People of Color Environmental Leadership Summit. Most of this work was written and compiled by activists, mostly academic, but also some from grassroots groups, to document the successes of local efforts and the problems that the movement as a whole face locally, nationally, and globally. A few authors have attempted to offer a theoretical explanation of environmental justice, a framework reflecting the movement's social justice vision that demands greater democratic participation. A much larger body of work exists surrounding the legal discourse of the siting of toxic facilities in minority communities. These efforts react to the studies that claim environmental racism is at work in the making and carrying out of environmental policies which result in the disparate impact of pollution on minorities.

Vocal in the process of academic research and activism in defining environmental justice, sociologist Robert Bullard argues that "The goal of an environmental justice framework is to make environmental protection more democratic."³⁰ The framework, he contends, has five basic elements. (1) It incorporates the principle of the right of all individuals to be protected from environmental degradation. (2) The framework adopts a public health model of prevention that seeks elimination of a threat before harm occurs. (3) It shifts the burden of proof to polluters. (4) It allows disparate impact and statistical weight, as opposed to intent, to infer discrimination. (5) It also redresses disproportionate risk burdens through targeted action and resources. Bullard maintains that, "The question of environmental justice is not anchored in a scientific debate but rests on an ethical analysis of environmental decision making."

According to other social theorists, environmental justice emphasizes citizens rights, the democratic process, and respect for grassroots knowledge by engaging in the democratization of knowledge production.³¹ Community knowledge is a political resource and scientific knowledge is a critical resource in the political struggles over environmental policy regarding toxic wastes. In this regard, those in the environmental justice movement see science and technology as politically influenced services. The creation and uses of science and technology are embedded in local development politics. Mobilization and critique of scientific data combine with community knowledge to apply pressure effectively to local, state and federal institutions. As sociologist Stella Capek argues, activists within

³⁰Bullard, Robert D., ed. *Unequal Protection: Environmental Justice and Communities of Color*. San Francisco, CA: Sierra Club Books, 1994, p. 11.

³¹Capek, Stella M. "The 'Environmental Justice' Frame: A Conceptual Discussion and an Application." *Social Problems* 40.1 (1993): 5-24. Perrolle, Judith A. "Comments from the Special Issue Editor: The Emerging Dialogue on Environmental Justice." *Social Problems* 40.1 (1993): 1-4.

the movement recognize that science is not neutral, but is biased and political, thus shattering any naive faith in scientific objectivity. Judith Perrolle views the movement as striking because it builds interconnections among communities with different racial and ethnic compositions who confront similar environmental hazards with a common perspective. She argues that the environmental justice movement's struggle is primarily for the democratization of knowledge production. Richard Hofrichter contends that the environmental justice movement challenges market values and the globalization of capital and questions the fundamental principle of unlimited economic growth.³² Another sociologist, Andrew Szasz, argues that the hazardous waste movement more broadly, which minority environmental justice activists revitalized, articulates a new radical environmental populism that broadens environmentalism's tactics and choices by expanding its demographic base and by creating a radicalizing experience in which local problems are seen as part of a much larger, systemic problem. He believes that the movement has the potential to take on a leadership role in challenging the existing organization of society.³³

By contrast, Christopher Foreman, Jr., a senior fellow in governmental studies at the Brookings Institution, is more critical of the environmental justice movement and perspective as being "highly opportunistic and improvisational." Foreman argues that activists' use of technical rhetoric—such as discussions of risk, uncertainty, and the siting of toxic wastes—is misleading because they have no interest in scientific data that conflicts

³²Hofrichter, Richard, ed. *Toxic Struggles: The Theory and Practice of Environmental Justice*. Philadelphia, PA: New Society Publishers, 1993.

³³Szasz, Andrew, *Ecopopulism: Toxic Waste and the Movement for Environmental Justice*, p. 166.

with their assertion that minority and low-income people are disproportionately victimized.

He contends that,

The environmental justice perspective is powerful not because it speaks honestly to technical questions of harm or risk—it often does not—but because it appears to promise something larger, more uplifting, more viscerally engaging than mere careful calculation can offer. It effectively speaks to the fear and anger among local communities feeling overwhelmed by forces beyond their control, and outraged by what they perceive to be assaults on their collective quality of life.³⁴

Foreman believes that activists' disdain for technocracy and for the complexities of the policy making process ultimately will make an environmental justice perspective unworkable and irrelevant politically.

While these analyses argue that environmental justice poses an important challenge to prevailing ideas on environment and policy, there is debate about the long-term success of the movement and the ideas it has to offer. What is interesting is how these analyses characterize environmental justice activists' understanding of and contributions to the scientific and technical debates that underlie the political controversies surrounding health and toxic wastes. Although environmental justice activism is not anchored solely in scientific debate, it does forcefully engage debates regarding the health of affected communities. How the environmental justice vision affects the creation and practice of science and technology, by redrawing the boundaries between activists and experts around new forms of organization and knowledge, is worth exploring as relevant to discussions on how democratic values shape scientific and technological knowledge.

³⁴ Foreman, Jr., Christopher H. "The Clash of Purposes: Environmental Justice and Risk Assessment." *Risk Policy Report* 5 (March 20, 1998): 34-37. Foreman's arguments are to be more fully expressed in his forthcoming book *The Promise and Peril of Environmental Justice*, Washington, DC: Brookings Institution, June 1998.

Social Movements and Scientific Knowledge

How we define science and who participates in the making of scientific knowledge are important issues in tracing relationships between science and different publics in our society. While the fields of science studies and sociology of science tend to focus on these issues, Steven Epstein points out that there have been few studies that “have explored the role of movements in the construction of credible knowledge, and few sociologists of scientific knowledge that have engaged significantly with the sociological literature on social movements.”³⁵ Sociologists of scientific knowledge primarily focus on how such knowledge is intertwined with definitions of expertise and how expertise is distinguished from other forms of knowledge, particularly lay knowledge. Social movement theorists tend to focus on how social movement activists construct political and social identities that may allow them to become influential voices in affecting change. The overlap these areas share is in the relationship between identity and knowledge, particularly in the identities of expert and other, “other” or “lay” usually characterizing activists knowledge, that can shift with time and place.

Within controversies, the social context of scientific research and how the content of the scientific issues may be used to express positions and strategies of those involved create a "power picture of science."³⁶ The social context of research on toxic wastes and health is a turbulent interaction among the interests of government, industry and the public. In affected communities, residents may face enormous resistance to their health claims in large part because of the money and reputations at stake for government and corporate

³⁵ Epstein, Steven. *Impure Science: AIDS, Activism, and the Politics of Knowledge*. Berkeley, CA: University of California Press, 1996; p. 19.

³⁶ Martin, Brian. *Scientific Knowledge in Controversy: The Flouidation Debate*. Albany, NY: SUNY Press, 1991.

interests in acknowledging these claims. As Lois Gibbs remarked about her activism at Love Canal, "If I've learned anything from this experience, it's that science is not separate from politics, no matter how much the scientists pretend it is."³⁷

Recognizing that experts are not detached in controversies and that their knowledge claims are premised upon particular values and assumptions are important in demystifying scientific and technological issues and revealing their political dimensions. In her work on technological controversies, sociologist Dorothy Nelkin argues that experts become politicized in controversy, acting much the same way as other participating contestants. Value judgments and moral arguments become masked by technical issues. Yet, scientific and technological expertise continue to retain a central place of authority in these disputes. Nelkin argues that power, responsibility, and accountability drive scientific and technological controversies. These disputes raise important questions over the appropriate roles of government, expertise, and citizens in making policy decisions.³⁸

One approach to understanding how this authority is retained is through the concept of "boundary-work." This approach explores how scientists construct and demarcate their knowledge and identities in relation to tensions from other types of knowledge claims through rhetoric. Sociologist of science Thomas Gieryn contends that demarcation descriptions of science by scientists "may best be analyzed as ideologies: incomplete and ambiguous images of science nevertheless useful for scientists' pursuit of authority and material resources." Gieryn argues that the boundaries of science "are drawn and redrawn in flexible, historically changing and sometimes ambiguous ways." Further, the boundary-

³⁷Gibbs, Lois. *Love Canal: My Story*. Albany, NY: SUNY Press, 1982, p. 142.

³⁸Nelkin, Dorothy. "Science Controversies: The Dynamics of Public Disputes in the United States." *Handbook of Science and Technology Studies*. Ed. Sheila Jasanoff, et al. Thousand Oaks, CA: Sage Publications, 1995.

work done by scientists to create a public image for science may reflect ambivalence or strains within the institutions that support them.³⁹

In social controversies, identifying what counts as science and expertise and what does not involves examining the language that scientists, as well as policy makers, use to create boundaries that allow them to maintain authority and control over policy issues. From her analyses of science and policy debates over health and safety issues within government agencies, Sheila Jasanoff cites examples such as "risk assessment," "peer review," and "science policy" as boundary-defining terms that affect the allocation of power among experts. She argues that "their meaning cannot be established independently of the political process." Furthermore, these processes are carried out in the regulatory science arena that exists on the margins of existing knowledge, where science and policy are difficult to distinguish.

For the purposes of this study, Jasanoff's definition of regulatory science is useful to identify "science." She argues that regulatory science can encompass "'techniques, processes, and artefacts' that further the task of policy development."⁴⁰ and is noted for heavy involvement by government and industry in producing and certifying knowledge. Jasanoff also argues that this concept is often described as separate from what she calls "research science" or science undertaken to understand phenomena without such directed ends in mind. While she notes that the boundaries between regulatory and research science can be murky, they are especially so in the case of epidemiology and public health sciences. Research on the etiology of disease or a health condition usually is undertaken in the hopes

³⁹Gieryn, Thomas. "Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional Ideologies of Scientists." *American Sociological Review* 48 (1983): 781-795.

⁴⁰Jasanoff, Sheila. *The Fifth Branch: Science Advisers as Policymakers*. Cambridge, MA: Harvard University Press, 1990; p. 77. Jasanoff, Sheila. "Contested Boundaries in Policy-Relevant Science." *Social Studies of Science* 17 (1987): 195-230.

that the results can foster prevention, therapy, or further research to get to such ends. Thus, while the use of regulatory science is helpful, it remains somewhat ambiguous.

In identifying the boundaries of expert knowledge, the issues of control and trust are integral conceptual themes. Experts may engage in tactics to maintain control of their role and keep the public on the fringes of the process. Studies on local toxic waste controversies focus on the interests and claims made by various groups involved and the differing forms of communication that experts use—their technical jargon—to keep the interested public from entering into the debate.⁴¹ Officials within the bureaucracies of government institutions regulate public participation, such as voting and public meetings, as well as set the agendas for discussion. Political, social, and ethical questions are reduced to technical and administrative ones, "technocratic techniques," within which policy decisions then are defined. Such techniques maintain a gap between the allowance of public participation in decisions and the placing of such decisions under direct democratic control.⁴² Seeking out sympathetic scientific expertise to help translate and refute official scientific information may also pose problems as scientists can confuse rather than clarify. Activists enrolling scientists and other experts to assist in gathering data and create analyses to advance the community's position learn that scientists come with a "canon, strictures, procedures, and paradigms."⁴³ They also learn that the scientific data

⁴¹Kaminstein, Dana S. "Toxic Talk." *Social Policy* Fall (1988): 5-10.

⁴²Dickson, David. *The New Politics of Science*. New York, NY: Pantheon Books, 1984.

⁴³Couto, Richard A. "Failing Health and New Prescriptions: Community-Based Approaches to Environmental Risk." *Current Health Policy Issues and Alternatives: An Applied Social Science Perspective*. Ed. Carol E. Hill. Athens, GA: University of Georgia Press, 1986. Freudenberg, Nicholas. *Not in Our Backyards! Community Action for Health and the Environment*. New York, NY: Monthly Review Press, 1984.

on correlations between disease and hazardous wastes is sketchy at best and that the affected community will probably provide more information to the scientists than they will receive from them.

The strengths of identifying the rhetorical and organizational boundaries of expertise helps to demystify the characteristics of expert knowledge, placing it in context with other forms of social knowledge and recognizing its ambiguity in controversies. The concept of boundary-work makes more apparent the ways in which experts may control information and access to it. Expertise is shaped as a way to keep others out, to demarcate social and political positions. These theoretical explanations of the interactions between activists, experts, and officials in toxic waste controversies are useful in assessing the dynamics of environmental justice activism in similar controversies.

The extent to which social movements resist and reshape prevailing ideas of expertise is caught up in efforts to understand how these movements act as catalysts for social change. A functional or structuralist school of thought, prevalent in the United States, analyzes the membership, motivating factors, strategies, and institutional impacts of social movements. Using the idea of resource mobilization, these analyses identify the structural conditions and resources that support the growth of movements as important in assessing their success or failure.⁴⁴ However, some scholars reject resource mobilization as too limiting in that it can reduce the identities of movements and their members to their material success in gathering support. Instead, they point out that social movements are as concerned with influencing cultural meanings as with affecting structural changes.⁴⁵

⁴⁴Zald, Mayer N. and John D. McCarthy. *Social Movements in an Organizational Society*. New Brunswick, NJ: Transaction Books, 1987.

⁴⁵Downey, Gary L. "Ideology and the Clamshell Identity: Organizational Dilemmas in the Anti-Nuclear Power Movement." *Social Problems* 33.5 (1986): 357-373.

Through "the politics of imagination" these movements act on visions of how they believe social order should be transformed.⁴⁶ Sociologist Mario Diani emphasizes the connection between ideology and structure in his definition of a social movement as "a network of informal interactions between a plurality of individuals, groups, and/or organizations, engaged in a political or cultural conflict, on the basis of a shared collective identity."⁴⁷

The discussion on social movements includes intellectual debate over how to define the characteristics of "new" versus "old" movements within industrial societies and their significance for the dynamics of social order and change. Discussion hinges on whether some societies ought to continue to be considered "modern" or "postmodern." The characteristics of modernity include globalization, centralization, and rationalization of control and information. Ideas on the characteristics of a postmodern, postindustrial, or poststructural society, however, embrace the fragmentation of control and power and the profusion of multiple symbolic meanings. Unlike the labor movements in the early part of this century that pressed for safer and fairer working conditions, and which exemplify the idea of an old social movement, newer social movements are criticized by some as unable to sustain a cohesive challenge to postindustrial society because they have no single issue or means, such as their labor power, to demand sweeping social change. The realm of concern for these movements consists of personal identity issues, personal life, neighborhood, sexuality, and life-style. Sociologist Ron Eyerman argues that they exist outside of labor-market politics or representative democracy and are postmodern in that

⁴⁶Epstein, Barbara. *Political Protest and Cultural Revolution*. Berkeley, CA: University of California Press, 1991.

⁴⁷Diani, Mario. "The Concept of Social Movement." *Sociological Review* 40 (1992): 1-25.

they reject class identities and the ideology of political modernism.⁴⁸ Conversely, political scientist David Plotke argues that social movements occur within a polity where a group's autonomy and identity is in constant negotiation with other groups. These movements are immersed in politics in their interactions with national, state, and local governments, with legislatures and courts and other routine forms of political decision-making bodies.⁴⁹

Analyses of social movements recognize the legitimacy of members of the public and protest groups in challenging expertise and redefining scientific and technological knowledge. They explore the importance of social movements in critiquing and making apparent inconsistencies and injustices in existing social orders. The problems of defining identity are central to most discussions of new social movements. In the case of environmental justice, activists initially identify themselves as a people of color movement distinct from the traditional environmental movement and anti-toxics activists. However, environmental justice does not fit neatly into the new or old social movement categories. While racial and class identities are strongly held among activists, the language of rights and the desire to connect local to national political arenas and build a larger movement that confounds dominant views are reminiscent of more old style social movement practices.

Controversy Studies From Love Canal to AIDS

In the infamous case of Love Canal, sociologist Adeline Levine argues that variations in the definition of health problems were intimately tied to the social and political positions of those involved,

⁴⁸Eyerman, Ron. "Modernity and Social Movements." *Social Change and Modernity*. Ed. Hans Haferkamp and Neil J. Smelser. Berkeley, CA: University of California Press, 1992.

⁴⁹Plotke, David. "What's so new about new social movements?" *Social Movements: Critiques, Concepts and Case Studies*. Ed. Stanford M. Lyman. New York, NY: New York University Press, 1994.

The battle...was a gloves-off, no-holds-barred struggle. Those involved used the power of government and access to the press to write their own versions of what happened at Love Canal. From the very beginning, the definitions of the Love Canal health and environmental problems—where they are, what they are, how serious they are—have varied considerably, depending on who defined the problem, when, to whom, and what they stood to gain or lose from the definition. The words, however, were usually spoken in the language of science.⁵⁰

Levine notes that "a semiofficial contemporary legend" about Love Canal claimed that there were no proven physical health effects only psychological damage to the people.

"Fumbling bureaucrats, overzealous scientists, the mass media, corporate enemies, screaming housewives, rabid environmentalists, or any or all of the above" were blamed for the psychological distress residents experienced. According to this interpretation, the residents of Love Canal were moved mostly for compassionate reasons.

The case of Love Canal is a template for a classic mode of interaction and confrontation between activists, officials, and scientists at the local level. In Chapter 3, the case of a gasoline tank farm in Austin, Texas, and the environmental justice group, the East Austin Strategy Team, illustrates how the sympathies, antagonisms, and role of science in more current toxic waste cases are still similar to Love Canal.

While toxic waste controversies exemplify the strengths and limitations of expert knowledge, they also exemplify the impact of the public and social movements in defining and redefining expertise. Public understanding of science, according to sociologist Brian Wynne, is an interactive process whereby people judge whether to trust expert knowledge partly by measuring it against elements of their own already tested knowledge and direct experience. Wynne, who studied public controversies over nuclear energy, believes that there is no consensus among scientists or the public as to what constitutes scientific

⁵⁰Levine, Adeline. *Love Canal: Science, Politics and People*. Boston, MA: Lexington Books, 1982, p. 168.

knowledge. The public views science as "useful knowledge" when it has personal or practical uses and is astute at taking up science as a means to such uses, but wary about its ends and interests when these have been defined by officials and experts.⁵¹

In the social history of medicine and labor, there are numerous examples illustrating this interactive process between social movement advocates and experts in defining scientific knowledge. Many recent histories of public health and disease use a historiographic approach that emphasizes the political and social framing, construction, and interpretation of diseases. For example, historians David Rosner and Gerald Markowitz, who researched silicosis among U.S. workers in the 20th century, argue that,

Over the course of the twentieth century, workers, management, government officials, and professional groups have negotiated over fundamentally different approaches to the problem of occupational disease....Each group's changing perspective gained ascendancy and legitimacy at different historical moments and under particular social and economic circumstances.⁵²

Similar to the presence of multiple understandings of epidemiology at play in the current debate over the health effects of exposure to hazardous wastes, social historian of medicine David S. Barnes argues that multiple etiologies of tuberculosis existed in nineteenth century France. From the 1880s to early 1890s, the dominant etiology of tuberculosis characterized it as a "social disease" thought to be caused by exposure to the tubercle bacillus, unsanitary housing, and immoral behavior. By the late 1890s, and with the strengthening of the French workers' movement, at least two alternative understandings of tuberculosis began to be developed. A socialist or reformist view accepted the dominant

⁵¹Wynne, Brian. "Knowledges in Context." *Science, Technology & Human Values* 16.1 Winter (1991): 111-121.

⁵²Rosner, David and Gerald Markowitz. *Deadly Dust: Silicosis and the Politics of Occupational Disease in Twentieth-Century America*. Princeton, NJ: Princeton University Press, 1991, pp.11 and 12.

etiology's emphasis on unsanitary housing and exposure to the bacillus, but downplayed alcoholism and immoral behavior as causes. The socialists "sought to represent the workers' viewpoint by demanding that government attenuate those aspects of capitalism that they felt most directly threatened workers' health." A far Left, revolutionary syndicalist perspective rejected the dominant etiology and instead viewed tuberculosis as inherent in the logic of capitalism. The syndicalists focused "on the fight for shorter workdays and higher wages in the short run and for the complete overthrow of the capitalist system in the long run." Thus, Barnes contends, "a scientific disagreement over the relative importance of exposure versus resistance to the tubercle bacillus becomes much more—truly a debate over the entire social and political order of modernity."⁵³

Coal miners and activists of the black lung movement, in the 1960s and early 1970s, struggled to broaden the definition of an occupational disease defined by medical and industrial authorities as "pneumoconiosis." In her analysis of the movement, Barbara Ellen Smith, an occupational health and safety activist in West Virginia, argues that,

Miners and other activists contested the narrow, scientific construction of black lung by insisting on the legitimacy of their own experience. In so doing, they implicitly challenged the exclusive ideological authority of medicine to control the definitions of disease and disability....These challenges to physicians did not arise from fundamentalist religious beliefs or other anti-scientific sensibilities, but from the anger of individuals who believed that the superior legitimacy automatically granted scientific medical knowledge represented a complex and powerful form of social control.⁵⁴

Although the movement was able to affect a broader definition of eligibility for compensation with the 1972 Black Lung Benefits Act, the victory was short lived. By

⁵³Barnes, David S. "Dissenting Voices: Left-Wing Perspectives on Tuberculosis in the Belle-Epoque." *The Making of a Social Disease: Tuberculosis in Nineteenth Century France*. Berkeley, CA: University of California Press, 1995.

⁵⁴Smith, Barbara Ellen. *Digging Our Own Graves: Coal Miners and the Struggle over Black Lung Disease*. Philadelphia, PA: Temple University Press, 1987, p. 211.

1982, the U.S. Congress passed legislation to restrict the disease to coal workers' pneumoconiosis, a condition believed to be caused by coal dust that is usually identifiable by lung x-rays. This move severely restricted eligibility for benefits for black lung claims and continued to reject workers' arguments that they suffered from respiratory disabilities that are not diagnosable merely from x-rays. Smith points out that the medical community was divided on the causes and symptoms of black lung. This uncertainty provided physicians and industry and government officials with economic interests in coal production a window through which they claimed authority and control to insist that there was no reliable scientific evidence for the existence of black lung and that workers' complaints were due to their own individual lifestyles choices, such as smoking, drinking or poor nutrition. Smith contends that the controversy was not just stimulated by medical uncertainty and disagreement, but was shaped by "distinctive class positions and social experience." Thus, Smith argues, "The result was an ideological struggle between two different views of the world, both which were intensely political." Coal miners' definition of black lung exemplified a subjugated form of knowledge that, although it did gain some legitimacy for a short time, was unable to sustain important policy changes for its victims.

Expansion of expertise to attend to social problems often can remove decision making from public view and help to obscure responsibility and accountability on the part of institutions. Accounts of pollution and the engineering of sanitation reforms explore how the rise of professionalization and experts expanded techniques and policies to deal with environmental health problems while simultaneously limiting public participation and debate over such issues.⁵⁵ The history of radium poisoning of women watch dial workers

⁵⁵ Melosi, Martin V. "Environmental Reform in the Industrial Cities: The Civic Response to Pollution in the Progressive Era." *Environmental History: Critical Issues in Comparative Perspective*. Ed. Kendall E. Bailes. Landham, MD: University Press of America, 1985. Tarr, Joel A. "Searching for a 'Sink' for an Industrial Waste: Iron-Making Fuels and the Environment." *Environmental History Review*

in the 1920s provides another such example. Historian Angela Nugent argues that well-intentioned activism by middle-class women reformers instigated a shift of authority to interpret worker health information from corporate spokesmen to an emerging professional community of specialists in industrial medicine, hygiene and radiation. The irony, Nugent explains, is that,

In the case of radium poisoning, scientists' authority to define the disease gave them power to influence workmen's compensation laws, workers' suits for equity, and workplace practices. Their epidemiological research undoubtedly helped to reduce risks for dial painters, but their burgeoning influence muffled public debate and helped to derail a tradition of early twentieth-century lay involvement in decisions about occupation safety and health.⁵⁶

Thus, she maintains that the new scientific authority displaced worker participation. Those directly affected, in this case radium watch dial workers, were removed from defending their own health, provided with surrogates who were entrusted to do this for them.

Historian Christopher Sellers argues, however, that public health hygienists professionalized in response to such occupational health tragedies and their expertise provided a means to “unsettle, destabilize, or subvert” existing power relations between workers, industry, and government. Sellers looks at the political and social forces shaping occupational health over the course of the twentieth century. He contends that workers, particularly during the Progressive era, continued to play an active role in defining occupational diseases. However, the relationship between workers and occupational health scientists underwent shifts as the discipline became first more conservative of the corporate

18.1 (1994): 9-34.

⁵⁶ Nugent, Angela. “The Power to Define a New Disease: Epidemiological Politics and Radium Poisoning.” *Dying for Work: Workers' Safety and Health in Twentieth-century America*. Ed. David Rosner and Gerald Markowitz. Bloomington, IN: Indiana University Press, 1987, p. 177.

impact on health in the 1940s and 1950s, and then more radically critical of industry's overall influence on environmental and human health in the 1960s and 1970s.⁵⁷

On the other hand, in cases where activists or social movements create and control their own expertise, a different problem arises. Many mainstream environmental groups, such as the Natural Resources Defense Council and Greenpeace, have created their own expertise in order to sustain legitimacy in affecting social change. As science studies researcher Steven Yearley argues, these environmental groups may use science as a resource primarily because spiritual and moral arguments do not evoke the same kind of attention in the discussions that pervade the regulatory and environmental policy-making arenas. However, he points out that the very characteristics that give scientific knowledge this kind of cognitive authority, particularly its empirical basis, may be a weakness for these groups because science alone cannot provide them with the kind of knowledge or outcome they desire.⁵⁸

In following AIDS activists' interaction with the biomedical community researching the disease, science studies researcher Steven Epstein argues that AIDS activists have developed an alternative network of expertise that privileges the experiences of those who are affected by the disease. The impact of AIDS activism on medical authorities has been influential in expanding the definition of AIDS to include those who die from HIV-related illnesses; in recognizing that participants in drug trials should be representative of the patient population where there is no such thing as "clean data" or a "pure" subject who only takes one drug at a time; and in exploring the use of surrogate markers, such as T-cell

⁵⁷ Sellers, Christopher C. *Hazards of the Job: From Industrial Disease to Environmental Health Science*. Chapel Hill, NC: University of North Carolina Press, 1997; p. 228.

⁵⁸Yearley, Steven. "The Environmental Challenge to Science Studies." *The Handbook of Science and Technology Studies*. Ed. Sheila Jasanoff, et. al. Thousand Oaks, CA: Sage Publications, 1994.

decline or increase over time, to measure a drug's success, instead of simply the number of deaths that occurred.

Epstein argues that social movements that challenge scientific knowledge "on scientists own terrain," particularly on issues of truth and method,

seek not only to reform science by exerting pressure from the outside, but also to perform science by locating themselves on the inside. They question not just the *uses* of science, not just the *control* over science, but sometimes even the very *contents* of science and the *processes* by which it is produced. Most fundamentally, they claim to speak credibly as experts in their own right - as people who know about things scientific, and who can partake of this special and powerful discourse of truth. Most elusively, they seek to change the ground rules about how the game of science is played.⁵⁹

While there was a spectrum of AIDS movement approaches, Epstein points out that these were united by two tendencies: "the deliberate invasion of scientists' and doctors' traditional territory; and the maintenance of a tension between faith in, and suspicion of, science and medicine." Thus, AIDS activists' relationship with experts was ambivalent and variable.

Further, Epstein asserts that the AIDS movement split between two philosophical positions. One standpoint asserted that knowledge was power and emphasized access to knowledge as important to monopolize and share knowledge. The second perspective questioned who controlled and created science and asserted that different ways of generating knowledge could establish different sorts of power relations. This view raised challenges to the power picture perspective on science and technology. It contended that the possession of scientific information heightened dependence on the technoscience that mediated understanding what counted as facts. Thus, there were risks of cultural co-optation in trying to participate in the definition of science, since the more expert

⁵⁹Epstein, Steven. "Democratic Science? AIDS activism and the contested construction of knowledge." *Socialist Review* 21.2 (April - June 1991): 35-64.

knowledge was distributed, the more solidified became the cultural hegemony of science over peoples' lives. Despite this paradox, Epstein declares that,

These activists have been successful in reframing scientific issues as political or ethical questions, forcing researchers to acknowledge the human implications of their methodologies. But what's equally, if not more, impressive is that activists also have accomplished the reverse: They have reframed political and ethical issues as scientific or methodological questions, by arguing that only if a study acknowledges the legitimate treatment needs of its participants is it capable of generating unbiased data. The AIDS movement has turned science into politics, but also turned politics into science; and the combined effect is to carve out a large space of scientific inquiry within which grassroots participation comes to be seen as useful, desirable, and even necessary.⁶⁰

Epstein argues that AIDS activists genuinely participated in the construction of "credible knowledge" within an "arena of fact-making that encompasses a wide number of people, disciplines, and perspectives." Credibility for AIDS activists, he maintains, came from acquiring familiarity with the language of science, establishing themselves as representatives of others with the disease, taking sides in a pre-existing scientific debate, and by bringing together methodological and moral arguments persuasively.⁶¹ Epstein finds the new social movement literature of use to him in helping to explain the importance of identity for AIDS activists and in their persistence in engaging the scientific community. He draws on the view that because new social movements focus on identity they are concerned with questions of representation and meaning and, therefore, are more sensitive to imposed norms and outside authority. Thus, activists were not satisfied to leave the construction of scientific knowledge about their health to experts.

⁶⁰Ibid, p. 60.

⁶¹Epstein, Steven. "The Construction of Lay Expertise: AIDS Activism and the Forging of Credibility in the Reform of Clinical Trials." *Science, Technology, and Human Values* 20.4 (Autumn 1995): 408-437. For a more in depth discussion, see Epstein, *Impure Science: AIDS, Activism, and the Politics of Knowledge*.

Democratic Science and Technology

Ideas on democratizing science and technology are concerned fundamentally with ensuring public involvement in decision making about the risks of science and technology, as well as equitable access to the benefits of this knowledge. The philosophical basis of these ideas on democratic science incorporates standpoint theory, the argument that socially subjugated or oppressed individuals or groups know more about the realities of social situations than those who are in positions of social privilege. Philosopher of science Sandra Harding connects standpoint theory with the need for greater public participation and argues that a stronger understanding of objectivity in science would result through the representation of diverse interests. Harding claims that, “A stronger, more adequate notion of objectivity would require methods for systematically examining all of the social values shaping a particular research process, not just those that happen to differ between the members of a scientific community.”⁶²

There are at least four approaches to achieving more democratic science, all of which may intersect with or depend upon one another. First, calls for greater inclusion of women and minorities in science and engineering education and professions seek to democratize science by securing more equitable representation of those who have long been underrepresented. Second, inclusion of lay people on citizen advisory committees and panels offers a much used democratic model. For example, to change the social uses of science from within the policy making arena, David Dickson argues for democratizing science laboratories and institutions through open public discussions and ad hoc or standing committees of citizens and nonscientists. Dickson believes that a truly democratic strategy for science and science policy “means changing the conditions of access to the

⁶² Harding, Sandra. *The Racial Economy of Science*; p. 18.

fruits of publicly funded research so that those social groups that lack the economic or political power currently required to exploit such research are placed in a position to do so.”⁶³

Third, the active involvement of activist or lobby groups as watchdogs to the science policy process inserts opportunities for outside critique and influence on policy decisions surrounding the making of science. The efforts of environmental justice activists to insert themselves as watchdogs in toxic wastes controversies and the success of representatives of the movement to gain access into EPA as part of the National Environmental Justice Advisory Committee are examples of how these approaches to democratization translate into practical actions.

Fourth, there is the need for scientists and experts to become more sensitive to the needs of people and social problems and, thus, guide scientific knowledge accordingly. What adopting this approach means for scientists and experts, however, varies from radical to more conservative outlooks. In the late 1960s, early 1970s, the group Science for the People encouraged scientific workers to redirect their research to further meaningful social change to serve oppressed and impoverished classes. Bill Zimmerman *et al.* voiced this view as a means to expose ruling class ideology that favors capitalist interests over social needs and to demystify science and technology. They proposed that “people’s research” would be more critical, more interdisciplinary, and aid in social change by relying upon the knowledge of communities involved in local struggles. Scientists and experts, according to this view, must consciously make the effort to be part of the leadership in a larger movement for social change. Zimmerman *et al.* argued that,

⁶³ Dickson, David. “Towards a Democratic Strategy for Science: The New Politics of Science” in *The Racial Economy of Science*, Sandra Harding, ed.; pp.

Research projects should both flow out of the needs and demands of the people, and be relevant to their political struggles. This requires consulting with and relying on the experience of community and movement groups, and taking seriously the criticisms and suggestions that they put forth. Scientists must succeed in redirecting their professional activities away from services to the forces and institutions they oppose and toward a movement they wish to build.⁶⁴

Since science and technology tend to be valued resources by all sides in a controversy, debates often focus on who should be involved in the decision making process. As Nelkin states,

Despite the intensity of some disputes, few people seek to impose major restrictions on science and its applications; most areas of science and technology are valued as instrumental in achieving important social goals. Rather, the negotiation is over who should participate in establishing policies and controls, how these controls will be organized, and how much they should influence decisions concerning the direction and conduct of research.⁶⁵

The right of the public to participate in decisions on matters directly affecting them is a deeply held American value.⁶⁶ Discussion on the problems of democratic control of science and technology often involve debate over the level of and models for "public participation" in science and technology policy making, such as where the public participates or should participate in various policy processes. Some researchers of controversy, such as sociologist Allan Mazur, argue that citizens should have no more say in making policy decisions in scientific or technological controversies than they do in any other arena of policy making. Mazur contends that attempts to include lay citizens in

⁶⁴ Zimmerman, Bill *et al.* "People's Science," in *The Racial Economy of Science*, Sandra Harding, ed.; pp. 440-455.

⁶⁵Nelkin, Dorothy. "Science and Technology Policy and the Democratic Process." *Technology and Man's Future*, third edition. Ed. Albert H. Teich. New York, NY: St. Martin's Press, 1981.

⁶⁶Petersen, James, ed. *Citizen Participation in Science Policy*. Amherst, MA: University of Massachusetts Press, 1984.

decision-making are usually failures. Given the complexity of the issues to be decided, experts are more capable of making such decisions.⁶⁷

Jasanoff's research leads her to argue that by retraining experts to be more interdisciplinary, many of the problems of experts being unfamiliar with public interests will dissipate. She believes that the most valued expert is one who transcends disciplinary boundaries, synthesizes knowledge from several fields, and understands the limits of regulatory science and the policy issues confronting the agency for which they work. On the issue of public participation, she maintains that experts can be trusted to speak for the public,

the lay public's interests can be served in many instances through good faith efforts to consult a broad cross-section of the expert community, so that agency conclusions are not tainted by marginal science and extremist politics. For instance, participation by scientists from federal agencies and research institutions may effectively substitute for direct involvement of citizens. Agencies can also expand the roster of potential advisers by seeking nominations through varied channels,... Finally, even limited opportunities for the public to participate may be adequate when science advice is not closely tied to specific regulatory decisions, as for example in the development of research policy guidelines.⁶⁸

Reinvesting trust in more enlightened expert judgment, however, does not fully address the political character of scientific and technological controversies and why it is that members of the public, through social movements or protest groups, feel they must be involved in the decision making process. Simply arguing for greater participation may not be enough to ensure that scientific and technological knowledge are more relevant to pressing social needs and problems. To include other perspectives may mean that the

⁶⁷Mazur, Allan. *The Dynamics of Technical Controversy*. Washington, DC: Communications Press, 1981.

⁶⁸Jasanoff, *The Fifth Branch: Science Advisers as Policymakers*, p. 248.

definition of science or technology is also fundamentally altered. The idea of democratic science and technology places value upon broader input to create a new kind of knowledge that fundamentally concerns issues of social justice within its framework.

The importance of grappling with the interconnections between histories of public health, social movements, and notions of democratic science is made eloquently clear by Christopher Sellers as he concludes his history of occupational health. Sellers writes that,

If we can no longer settle for the bargain that emerged between aspiring professionals and corporate leaders in the earlier part of this century, we must broaden it not just in terms of health effects or locales but in terms of participants. At stake is not only how much we can internalize the environmental costs of our economy, but also how far we can realize our ideals of democracy. The time has come to seal a new, more inclusive *pax toxicologica*, one involving the voices as well as the bodies of those who stand at risk, of all genders, races, and classes, in the workplace and the community alike.⁶⁹

Sellers refers to a *pax toxicologia* as a kind of epistemological and methodological style that occupational health scientists came to associate with their field.

To realize democratic ideals, however, involves revisioning such style in a broader political way. Theorizing what such change encompasses in the case of communities and toxic wastes, sociologist of science Phil Brown frames the actions of anti-toxic grassroots activists seeking to understand the health implications of toxic wastes upon their communities as the practice of "popular epidemiology." Brown worked with residents of Woburn, Massachusetts, in defining a cluster study of child leukemia cases. Popular epidemiology, he argues, is "the process by which lay persons gather data and direct and marshal the knowledge and resources of experts in order to understand the epidemiology of disease, treat existing and prevent future disease, and remove the responsible

⁶⁹ Sellers, Christopher C. *Hazards of the Job*, p. 240.

environmental contaminants."⁷⁰ Brown makes the case that popular epidemiology presents an alternative structure of scientific knowledge that places social and political conflicts at the contextual core of its methodological approach.

In some of its actions, popular epidemiology parallels scientific epidemiology, such as when lay people conduct community health surveys. Yet popular epidemiology is more than public participation in traditional epidemiology, since it emphasizes social structural factors as part of the causal disease chain. Further, it involves social movements, utilizes political and judicial approaches to remedies, and challenges basic assumptions of traditional epidemiology, risk assessment, and public health regulations. In some cases, traditional epidemiology may reach similar conclusions as popular epidemiology. Yet scientists generally do not become political activists in order to implement their findings, ...⁷¹

Further, Brown contends that activists themselves seek to become "popular scientists" who can win the support of scientific experts for the sake of creating useful knowledge. The goal for activists, he argues, is to get their claims accepted by government agencies that have the power to take action to monitor or cleanup the threat. Sociologist Michael Heiman embraces Brown's concept of popular epidemiology as it pertains to the study of water monitoring by citizen activists.⁷²

Sociologist David Pellow, however, is less enthusiastic over the idea of popular epidemiology as somehow liberating those who engage in it. Pellow's study of an African-American environmental justice group in Southeast Chicago concludes that activists accepted "technical rationality" and fostered a belief that science can ameliorate the problem. Pellow, argues that the process as described by Brown only serves to move activists from

⁷⁰Brown, "Popular Epidemiology and Toxic Waste Contamination: Lay and Professional Ways of Knowing."

⁷¹Ibid, p. 269.

⁷²Heiman, Michael K. "Science by the People: Grassroots Environmental Monitoring and the Debate Over Scientific Expertise." Paper presented at the Public Interest Science Conference, Eugene, Oregon, May 1997.

cultural to technical rationality, in that they become tied into justifying their claims via scientific discourse, using science to legitimate their experiential knowledge in order to provoke policy changes. Thus, activists are symbolically, but not structurally or materially empowered. They are disempowered in the structural sense because they do not have resources, training, or legitimacy to carry out health studies independent of university or public officials. They may question authority, ideology, and data, but remain committed to the technically rational use of science and scientific methods. Further, he contends the racist, classist, and sexist values within science, make use of scientific approaches qualitatively and fundamentally disempowering. For activists to use scientific approaches to seek emancipation, Pellow believes, means that they become complicitous in the epistemological project of those who dominate them. Thus, "popular epidemiology is an unequal, unliberating exercise from its inception."⁷³

These analyses of democratic science and technology recognize that scientific and technological controversies are as much about access to the production of knowledge as to access to the results of that knowledge. While Brown sees activists as "lay scientists" and Epstein sees them as "experts in their own right," these efforts locate activists both in tension with experts and on the inside in creating scientific knowledge and expertise. At the same time, Epstein contends that the creation of a group of activists who have become expert in understanding the scientific as well as social aspects of AIDS, gives rise to tensions among activists themselves. There is danger of reconstructing a new internal division between "lay experts and lay lay activists." Given the dilemmas posed by the power picture, further studies are needed of what this relocation, or redrawing of the

⁷³Pellow, David. "In Whose Interest? Seeking Environmental Justice Through 'Popular Epidemiology'." Unpublished paper, 1994. Sociological Abstracts, San Diego, CA.

boundaries of expertise, means for increasing democratic participation in science and technology policy issues.

Methodology

My approach for this study integrates analytical and critical ideas that flow from controversy studies of expertise, social movement analyses, and the calls for more democratic science and technology. As anthropologist Emily Martin suggests, I try to "deliberately cross back and forth across the borders" between different groups and perspectives in order to examine how concepts on health and environment are entwined and expressed in tension with other knowledge claims.⁷⁴ This study describes, analyzes, and critiques the involvement of environmental justice advocates in the research debate over the health consequences of toxic wastes and pollution, and how their ideas gained some measure of legitimacy within the government policy apparatus. The borders that are in flux are those among activists, EPA officials, and members of the scientific community who focus on gathering health data regarding environmental disease.

The idea of identifying how experts and non-experts "draw" boundaries rhetorically and organizationally, that is how they frame the characteristics of their knowledge claims and themselves in relation to those claims within controversies, can demonstrate how knowledge coincides with social and political positions. It also provides a useful way to explore how knowledge boundaries are drawn and redrawn by groups in tension with one another in a controversy. Thus, knowledge is never static; new knowledge is being created from the interaction.

⁷⁴Martin, Emily. *Flexible Bodies: Tracking Immunity in American Culture - From the Days of Polio to the Age of AIDS*. Boston, MA: Beacon Press, 1994.

Identifying boundaries around scientific and technical knowledge, however, presupposes that science and technology are ubiquitous within our culture. Structural critiques concerning the place of authority that science and technology hold in our society address this issue. Why do we even worry about affecting changes in our scientific and technological knowledge? Why would those in social movements take it on? Structural analyses help to explain why rhetorical and organizational boundaries may not change or appear changed but have the same implications for those outside the bounds. Finally, ideas on creating more democratic science and technology are fundamental in that they seek ways in which to balance the role of science and technology with other social knowledge to create fairer, more just public policies and processes.

Overall, I map environmental justice advocates, public health officials, and epidemiologists involved in health issues surrounding exposure to hazardous wastes in relation to their views on epidemiological knowledge and practice. In doing so, I draw out the categories of "traditional," "environmental," "dumpsite," and "popular" for epidemiology that already exist in the literature and provide definitions, historical contexts, and theoretical content for each. These views are involved in defining the standards and practice of epidemiological studies that focus on hazardous wastes. I chose epidemiology to represent "science" in this study because of the interesting inferences and comparisons that can be made among different descriptions of epidemiological knowledges surrounding toxic wastes. While environmental justice research encompasses the idea of popular epidemiology, it is very much part of a broader portrait of science held by activists.

Research into environmental justice for this study began in October 1991, when I attended the First National People of Color Environmental Leadership Summit in Washington, D.C. as an observer. To gain a better understanding of the impact that

environmental justice activists and issues are having upon the EPA, I attended two National Environmental Justice Advisory Council meetings—in December of 1995, in Washington, D.C., and in December of 1996, in Baltimore, Maryland. At these meetings, I sat in on the sessions and took notes of the NEJAC's Subcommittee on Health and Research.

In the summer of 1993, I volunteered with the East Austin Strategy Team in Austin, Texas, a group that successfully fought for the shutdown of a large and leaking gasoline tank farm located near primarily Hispanic and black neighborhoods. By attending weekly EAST meetings from May to August, I observed the dynamic and organizational strategies of a local environmental justice group. I participated with activists on the East Austin Watershed Task Force researching information on the discrepancies between the amount of capital improvement project moneys spent for flood and drainage control in watersheds in the western and eastern sides of the city. As part of this project, I also worked with officials in the city's Department of Public Works to compile information to make it accessible to residents. To draw city council members' and other officials' attention to the erosion and pollution of creeks in east Austin, I helped to organize an EAST Toxic Tour of neighborhoods and parks where erosion problems were most dangerous. While in Texas, I gathered local news articles on the tank farm controversy which brought EAST and the Hispanic community group People in Defense of Earth and Its Resources together, as well as documents from non-profit groups that research environmental justice issues in the state of Texas more broadly.

As I researched the National Environmental Justice Advisory Council, I subscribed to the EPA's Office of Environmental Justice mailing list, thus receiving all NEJAC meeting minutes and documents since its inception in 1993. By conducting research at EPA's public information office at the agency's headquarters in Washington, D.C., I

gathered many materials on variety of programs and regulatory efforts. Specifically, I looked for documents written to familiarize a wide public audience to EPA's activities on environmental justice, public participation, and toxic waste issues. I also requested documents from other federal agencies regarding their environmental justice initiatives mandated by President Clinton's 1994 Executive Order.

Documents from the Environmental Protection Agency, such as the 1992 report *Environmental Equity: Reducing Risk for All Communities*, exemplify how the regulatory community responds to environmental justice issues particularly with regard to the uses of epidemiological knowledge in understanding the health effects of hazardous waste exposures. Minutes of seven National Environmental Justice Advisory Council meetings that took place between May 1994 and December 1996, provide information on how activists work with the regulatory system to press for change. I examined the minutes for the NEJAC's subcommittee on Health and Research to assess how activists taking part in this participatory mechanism understand and suggest changes to the health research surrounding toxic wastes.

For background on epidemiology and public health, I rely largely on histories of the field such as Charles Rosen's *A History of Public Health*. A number of documents identify and justify classifying epidemiology into the categories of traditional, environmental, and dumpsite. To gauge the traditional view, I use Abraham Lillienfeld's *Foundations of Epidemiology*. In defining environmental epidemiology, my primary sources include the 1983 World Health Organization's *Guidelines on Studies in Environmental Epidemiology*, the National Research Council's 1991 report on *Environmental Epidemiology: Public Health and Hazardous Wastes*, and several recent introductory texts. *The American Journal of Public Health, Environmental Health*

Perspectives, the *Journal of Environmental Health*, and *Public Health Reports* provide articles on epidemiology and toxic wastes that explain the idea of dumpsite epidemiology and discusses attitudes on the part of epidemiologists and public health officers toward research on toxic wastes and health controversies, more generally. Defining popular epidemiology comes mainly from work by sociologist Phil Brown. A number of case studies regarding communities exposed to toxic wastes existing in the literature represent the concept of popular epidemiology in practice, such as Lois Gibbs' *Love Canal: My Story*, Brown's *No Safe Place*, and *Toxic Nation* by Fred Setterberg and Lonni Shavelson. Excellent studies by Steven Epstein and Christopher Sellers, on AIDS activism and history of industrial hygiene respectively, greatly influenced my overall approach to situating environmental justice in relation to epidemiological knowledge.

For this analyses, I examined materials that document environmental justice activism, arguments, and ideas, such as the seventeen "Principles of Environmental Justice." Documentation of the disproportionate impact of toxic wastes on minority communities in the 1986 report by the United Church of Christ on *Toxic Waste and Race* provides an example of how activists create their own expert information and critique. I examined articles from activist oriented journals, such as *Southern Exposure*, as well as assorted newsletters and pamphlets published by local and regional environmental justice groups. Edited volumes by Robert Bullard and one by Bunyan Bryant illustrate cases of community activism on environmental justice as well as local, national, and international policy critiques and considerations. From these documents I gleaned something of who environmental justice activists are, what they believe in, and how they have taken actions locally, regionally, and nationally to further their cause. This study begins with such a

description of environmental justice as defined by a local grassroots organization in Austin, Texas, through regional organizations, and finally as a national network.

CHAPTER 3

Environmental Justice: Building a Movement

"There are two kinds of power. You've got to have money or you've got to have people."
John McCowan, Sierra Club, Birmingham, Alabama⁷⁵

The Tank Farm in East Austin, Texas

The African-American and Latino communities of Austin, Texas predominantly live in the eastern part of the city, geographically separated from west Austin by Interstate 35. The state capitol building, the University of Texas and several small colleges, the night life and bars along 6th Street, and the scenic public swimming pool fed by Barton Springs are west of I-35. The city's airport, electric power plants, and warehouses are east of the interstate. Over the years, East Austin has become increasingly zoned for commercial and industrial uses. In the early 1980s, African-American residents from East Austin neighborhood associations formed an umbrella organization, the East Austin Strategy Team, to protest the building of a new airport that would route flight paths over their homes. EAST was unable to stop construction of the airport. However, the coalition remained alive to take on other issues.

In 1991, EAST, chaired by a very vocal African-American activist Ron Davis, teamed up with a newly formed Latino group, People Organized in Defense of Earth and Its Resources (PODER), to advocate the shutdown of a 52-acre petroleum tank farm operated by six major oil companies: Exxon, Star Enterprises (Texaco), Coastal States, Mobil Oil, Chevron USA, and Citgo Petroleum. The tank farm, housing 10 million gallons of fuel, was located near seven area schools. The closest, Govalle Elementary, sits 3,000 feet from

⁷⁵Madison, Isaiah. "To Forge a Movement." *Southern Exposure* 21.4 Winter (1993): 30-33.

the Mobil tanks. PODER began by investigating the city's tax incentives to high tech companies who then located in East Austin's "enterprise zones." Many of these companies are responsible for Superfund sites in California. The group, co-chaired by Susana Almanza, Sylvia Herrera, and Antonio Diaz, aimed "to increase Austin residents' participation in corporate and governmental decisions related to toxic industrial pollution and its impact on our neighborhoods." Both Almanza, mother of four children, and Diaz had experience working with Chicano activist organizations. Herrera, the mother of two, did research on women's and worker's health. Working together, EAST and PODER sought to "ensure environmental and economic justice issues for communities of color in East Austin are addressed."⁷⁶

The tank farm became a public focal point when Herrera of PODER noticed an announcement in the daily newspaper, the *Austin American-Statesman*, that Mobil had applied for a permit from the Texas Air Control Board to expand its operations. East Austin residents near the tank farm, separated from many backyards by a chain-link fence, complained for some time of smells and the leaking of gasoline into their yards and wells, and reported frequent illness, such as respiratory problems and rashes. EAST and PODER targeted the responsible state agencies—the Texas State Water Commission, Texas Air Control Board, the Texas Department of Health, and the Travis County Health Department—to address these complaints and deny expansion of the facility. EAST and PODER established a co-chaired 25-member Tank Farm Citizen Monitoring Committee to monitor these agencies' responses to their contamination inquiries and to ensure community awareness and participation in the process. Activists demanded that the facilities not only

⁷⁶People in Defense of Earth and its Resources. "Press Statement: Community Concerned About Safe Environment." Austin, TX: PODER, February 10, 1992.

be shutdown and moved to unpopulated areas, but also that residents be compensated for the lowering of their property values, a clinic be established to monitor health problems, soil and ground water in the area be cleaned up, legislation be created that mandates automatic cutoff of tank farm activities when environmental monitoring of emissions or safety equipment is not working, and creation of a countywide hazardous material buffer zone ordinance.⁷⁷

The Texas State Water Commission studied soil and water at the site and in February 1992 announced that they had found toxic contamination as high as 720 times the federally acceptable level. The Commission determined that contamination of the soil reached 25 feet deep and underground water 20 feet below the surface contained such carcinogens as benzene, toluene, and xylene. As a precaution, the Commission ordered the six oil companies to cooperate with each other in clean-up efforts. Two weeks after the study was made public, EAST and PODER sponsored a Toxic Waste Tour of East Austin, taking local city and state officials to visit the tank farm and talk with neighboring residents.⁷⁸

In early May, the *Austin-American Statesman* reported the results of its own health survey of 1,153 adults and children in 304 households within 3,000 feet of the tank farm and reported a higher incidence of respiratory problems, rashes, nose bleeds, and other symptoms as compared to other parts of the community. Using the Texas Open Records Act, the newspaper requested the Texas Department of Human Services to review 5.2

⁷⁷Ward, Mike and Scott W. Wright. "East Austinites push for buffer from tank farm." *Austin American-Statesman* March 22, 1992: A1. Matustik, David. "Tank farm neighbors make plea for help." *Austin American-Statesman* August 14, 1992: B1.

⁷⁸Wright, Scott W. "East Austin soil, water contaminated." *Austin American-Statesman* February 14, 1992: A1. Apodaca, Daniel. "East Austin at Risk: The Bus Stops Here." *The Austin Chronicle* February 25, 1992, A1, A13.

million computerized Medicaid records for information on illness from January 1990 to March 1992. The newspaper's analysis reported that 64% of all Medicaid treatments in Travis County for acute bronchiolitis were for residents of the tank farm neighborhoods.⁷⁹

By late May 1992, the Texas Department of Health indicated in a preliminary report that the tank farm "may be a potential public health hazard" and recommended that noxious emissions be cut as a precaution. Shortly thereafter, the corporations beleaguered by the tank farm controversy took out a large public advertisement in the local newspaper stating that,

On May 27, 1992, the TEXAS DEPARTMENT OF HEALTH released its report on the Austin Fuel Storage Terminals. The new health report cites NO EVIDENCE of a link between the terminals and the health concerns of local residents. Here's how the Health Department put it: Air - 'Sampling has been conducted, but has not detected (emission) concentrations above normal urban background levels.' Water - 'There is groundwater contamination... (but) no exposure is presently occurring from this contamination.'⁸⁰

Activists from EAST, PODER and the Sierra Club countered that the Health Department's report was not strong enough. In particular, they were concerned with the use of sampling data for airborne contaminants gathered by the Texas Air Control Board since February. The Sierra Club's clean air director, a former Air Control Board investigator, helped to interpret the data for the opposition, arguing that the agency's 24-hour monitoring only measured eight percent of the time and provided "useless information."⁸¹

⁷⁹Ward, Mike and Scott W. Wright. "State to urge cut in tank farm emissions." *Austin American-Statesman* May 29, 1992, A1. Ward, Mike and Scott W. Wright. "Survey details illness among Austin families living near tank farm." *Austin American-Statesman* May 10, 1992, A1, A13.

⁸⁰The advertisement, sponsored by Citgo, Chevron, Exxon, Star Enterprises, Texaco, and Mobil was published in the *Austin American Statesman* on May 28, 1992.

⁸¹Wright, Scott W. and Mike Ward. "State affirms tank farm risk." *Austin American-Statesman* May 27, 1992: B1, B5. Ward, Mike and Scott W. Wright. "Activists challenging state experts on tank

Also in May, the Health Department sent its controversial report to the Agency for Toxic Substances and Disease Registry in Atlanta for review. A panel of federal health experts with the agency recommended biological testing. By June, the Austin-Travis County Health Department's chief stated that the tank farm posed "an unacceptable health risk" and should be moved. The Texas Health Department estimated that 150 families near the tank farm would be tested to look "for objective direct evidence of adverse health effects." Activists, however, argued that as many as 1,000 households were being affected. In early August, state and county health officials and specialists from the University of Texas Medical Branch at Galveston met with neighborhood leaders and representatives. Free medical tests for 350 residents occurred in October with follow-up testing on 144 residents in November.⁸²

While debate over health testing ensued, the Air Control Board and the oil companies reached an "unprecedented agreement" to voluntarily reduce gasoline fume emissions up to two-thirds in June of 1992. Activists remained determined that the tank farm should be relocated. At a July 23 city council meeting, all of the local environmental organizations—Sierra Club, Save Barton Creek Association, Travis Audubon Society, SOS, and Clean Water Action—"were present in a show of force to support moving the tank farm." In early August, EAST and PODER mounted a citywide petition that included the call to close the tank farm immediately, as well as seek compensation for homes, cleanup of contamination, tighter pollution controls and a buffer zone requirement.

farm." *Austin American-Statesman* June 11, 1992.

⁸² Ward, Mike. "Tank farm poses 'unacceptable health risk,' county officer says." *Austin American-Statesman* June 26, 1992: A1. Wright, Scott W. "Health agency to test tank farm neighbors." *Austin American Statesman* July 29, 1992. Ward, Mike. "Tank farm neighbors to be tested." *Austin American-Statesman* October 2, 1992: A1. Ward, Mike. "New exams set for neighbors of tank farm." *Austin American-Statesman* November 4, 1992: B1.

Nonetheless, the Board began to reduce air quality testing around the tank farm by arguing a lack of findings and lack of resources to continue the effort.⁸³

In October, however, a toxicologist with the Texas Air Control Board concluded that the strong fumes from the tank farm could indirectly contribute to the adverse health effects complained of by residents. EAST activists were incensed that such information was not disclosed to the public sooner and voted to push for an investigation into the Air Control Board's handling of the matter. The hardline taken by activists, as well as the unflattering publicity generated by the controversy, had begun to produce results and many of the oil companies agreed to relocate. By October, EAST and PODER began a boycott of Exxon, the last holdout. The Southwest Network for Environmental and Economic Justice, based in New Mexico, supported the boycott and extended it into other parts of Texas, New Mexico, Arizona, California, and Colorado. Activists initiated a letter-writing campaign to Exxon asking the company to sign an agreement to move their petroleum facility.⁸⁴

East Austin activists also found aid for their efforts in the form of the Travis County Attorney Ken Oden. In May 1992, they offered their support to Oden's announcement that he had begun an investigation of possible criminal and civil violations by the oil companies at the tank farm. Oden also pledged to review past inaction by state regulatory agencies as

⁸³Ward, Mike. "Tank farm fumes likely to decrease." *Austin American-Statesman* June 19, 1992: A1. Wightman, Alice. "Getting Screwed, All Around the Town: East Side, West Side." *The Austin Chronicle* July 31, 1992; p. 10. Matustik, David. "Tank farm neighbors make plea for help." *Austin American-Statesman* August 14, 1992; B1. Ward, Mike. "Air board to reduce testing at tank farm." *Austin American-Statesman* August 21, 1992: A1.

⁸⁴Wright, "Health agency to test tank farm neighbors." "East Austin coalition seeks air board probe." *Austin American-Statesman* October 29, 1992, B12. Ward, Mike. "5-state Exxon boycott planned." *Austin American-Statesman* Oct. 2, 1992: A12. Taylor, Coretta. "Letter-writing campaign aims for relocation of Exxon tanks." *Austin American-Statesman* Oct. 23, 1992: B3.

part of his inquiry. This move incited a feud with state Senator Gonzalo Barriento who stated that the announcement damaged his secret negotiations with the oil companies over moving the facility.⁸⁵

In February 1993, days after Exxon became the last company to agree to cease its operations by January 1996, Oden made public a summary of his ten-month investigation. The study conducted by a team of hydrologists, geologists, and other experts reconfirmed the Texas Water Commission findings and noted contamination in 71 of 116 wells tested in the area, one with a level of benzene 7,100 times the federal safety limit for drinking water and 700 times the Water Commission's limit for cleanup.⁸⁶ Unhappy with Oden's vigilance, the chair of the Texas House Environmental Regulation Committee introduced a bill in April to strip county attorneys across Texas of their power to prosecute polluters. The bill intended to stop local prosecutors from "using their office to unfairly push around oil companies." Oil companies and trade groups hailed the bill as a way to remove "political posturing and ambitions" from the environmental regulatory process. A senior vice president of the Texas Chemical Council stated that, "such recent overt displays as have been demonstrated locally make a mockery of environmental law..."⁸⁷

As a result of the furor over the tank farm and other complaints state-wide, chairs of the Texas Air Control Board and Texas Water Commission appointed a state task force in January 1993 to investigate environmental racism throughout Texas. The Texas Task

⁸⁵ Wright, Scott W. and Mike Ward. "Group asks Oden to take over tank farm inquiry." *Austin American-Statesman* May 23, 1992. Ward, Mike and Scott W. Wright. "Exxon to move terminal." *Austin American-Statesman* February 19, 1993: A1.

⁸⁶ Ward, Mike. "Report: Tank pollution exceeds estimates." *Austin American-Statesman* February 21, 1993.

⁸⁷ Ward, Mike. "Bill curbs powers to pursue polluters." *Austin American-Statesman* April 8, 1993.

Force on Environmental Equity and Justice included lawmakers, activists, and representatives from local regulatory agencies, EPA, industry, labor and environmental groups. The 27 member task force released its study and recommendations in August 1993 amid criticism that it was weakened by pressure from oil industry and business interests. The report recommended a database to provide information on industries, including permitting, enforcement actions, complaints, and health data. It also recommended placing more emphasis on the potential impact on resident's health, making the complaint process more accessible, and meeting public requests for sampling, testing, and prompt explanation of results. Local governments and community groups should be included in development and permitting processes, minority recruitment should be strengthened, and multi-lingual translations of hearings and notices should be available.

The majority of the panel declared that environmental racism could not be conclusively found to exist in Texas due to a lack of studies on the issue. The Texas Center for Policy Studies released a study in March, however, that argued "it is obvious that communities of color in Texas are disproportionately impacted by polluting facilities and industries." The Center reported that of 743 industrial solid waste sites in Texas, 415 (56%) were located in areas with 33% or greater people of color population. Three members of the state task force issued a dissenting report arguing that the panel's inconclusive finding was evasive. The dissenters contended that "We know there is too much pollution in our neighborhoods because we see it, smell it, hear it and are affected by it... We are offended by the implication...that our experiences are not credible enough to justify strong action."⁸⁸

⁸⁸Almanza, Susana, et. al. *Toxics in Texas and Their Impact on Communities of Color*. Austin, TX: Texas Center for Policy Studies, March 1993. Wright, Scott W. "Report on ecological racism draws fire." *Austin American-Statesman* August 22, 1993: A1.

The tank farm controversy brought to light inadequacies in the state's oversight and reporting mechanisms for control of toxic wastes. Texas industries release on-site some 352 million pounds of toxics and conducts on-site waste management of more than 3.5 billion pounds of toxic chemicals, ranking the state second nationally for total releases to air, water, and land. Investigative reporting by the *Austin American-Statesman* maintained that the Texas Water Commission repeatedly failed in 1992 to report ground water contamination coming from the tank farm to the Texas Department of Health, the local county health department, or the affected neighborhoods. The Texas Air Control Board was lax in its inspection and licensing of industrial facilities. In hopes to correct such deficiencies, the two agencies were merged into a Texas Natural Resource Conservation Commission in September 1993.⁸⁹

Despite the state task force's inability to agree on the nature and prevalence of environmental justice, EAST and PODER activists continued to monitor cleanup of the tank farm and turned their energies to a number of other issues as well. The removal of the Holly Street Power Plant, which like the tank farm had been located in an East Austin neighborhood for a number of decades, the removal of the Hargrave Solid Waste Facility from an adjacent neighborhood, and the eroding and dangerous condition of creeks and parks, although less politically explosive than the tank farm, demanded attention. Health complaints from residents of low-income housing built over landfills, a proposal made by city officials to designate a major thoroughfare as a major highway that would add a second concrete barrier between east and west parts of the city, and the possible closing of the East

⁸⁹Ward, Mike. "Tank farm problems left off list in official 'slip-up.'" *Austin American-Statesman* March 20, 1992; A1. Ward, Mike and Scott W. Wright. "State files show lax oversight of tank farm." *Austin American-Statesman* August 23, 1992; A1. U.S. EPA, Office of Pollution Prevention and Toxics. *1993 Toxics Release Inventory: Public Data Release - State Fact Sheets*. Washington, DC: U.S. EPA, 1995. Wright, Scott. W. "Report on ecological racism draws fire," 1993.

Austin branch of the city's community college were other issues on which EAST took public stands.

EAST attacked these issues through a number of tactics: public protest at sites; political protest during the open public forum at city council meetings; gathering information from city agencies, experts, and citizens; writing letters to appropriate city officials and corporate heads; filing lawsuits; use of the media; and sponsoring 'toxic tours' through neighborhoods and parks. Regular group meetings provided a vehicle for open forums bringing together affected citizens, city employees, and environmental professionals from other state or non-profit organizations. PODER and EAST also gathered information to investigate the health effects of electro-magnetic fields in neighborhoods criss-crossed by heavy power lines.

In May 1993, EAST and PODER formed an East Austin Watershed Task Force to address the severely eroded, unsafe, and polluted conditions of the creeks running through East Austin's parks and neighborhoods. The Task Force was established after 10-year old Jonathan Whatley fell from the side of a steep eroded creek bank in a popular neighborhood park and drowned. The mission of the Task Force was "to address severe erosion, to look into vegetation and health violations in the East Austin Watershed, to make our parks safe and to fight against environmental racism and hazards."⁹⁰ The Task Force requested information from the city's Department of Public Works and Transportation with regard to plans and funds allocated and spent on creek control over the last decade. They also requested that a liaison from Public Works attend task force meetings and provide updates on the status of problems and projects. Tactics such as consistent letter writing and

⁹⁰East Austin Watershed Task Force. Press Statement: "Community Addressing Environmental and Watershed Hazards in East Austin." Austin, TX: EAST. June 21, 1993.

demands for written response, organization of a toxic tour for city officials through East Austin's parks and neighborhoods to illustrate creek conditions, creation of a video tour of these same areas, and use of the media to cover the issues were effectively employed by the task force. EAST pressure was influential in swaying the city council to vote in September 1993 for the appropriation of approximately \$9 million to begin to address the creek control problems in East Austin.⁹¹ As local and state efforts occurred to make Austin the "new silicon Valley" by attracting diverse high technology industries, such as Motorola and SEMATECH, the Task Force took on the role of watchdog over the effect of these industries on the urban watershed.

EAST and PODER framed themselves and their opposition to the tank farm within a broader critique of the history of negligent treatment of minority communities by experts and officials in the local decision-making process. Activists regarded environmental and health questions as reflective of racial problems within the dynamic of local development politics. Antonio Diaz expressed the philosophical force behind activists' efforts,

I think traditional environmental groups have focused on the environment - water, soil, air, wildlife. The point we have been trying to make is that the city's policies of zoning, land use and economic development perpetuate environmental racism.⁹²

Environmental Racism: At the Heart

The charge of "environmental racism," fundamental to environmental justice activism, was coined by Reverend Benjamin Chavis, former head of the NAACP and previous executive director of the United Church of Christ's Commission for Racial

⁹¹This information is from notes taken at EAST meetings during the summer of 1993. Emmitt Spears, chair of the Watershed Task Force, related the appropriations decision to me in a personal telephone conversation in September 1993.

⁹²Almanza, *et. al.*, *Toxics in Texas*, p. 33.

Justice. The term environmental racism implies that racial discrimination exists in environmental policy making; in the enforcement of regulations and laws; in the deliberate targeting of communities of color for toxic waste disposal and the siting of polluting industries; in the official sanctions of the life-threatening presence of poisons and pollutants in communities of color; and in the history of excluding people of color from mainstream environmental groups, decision-making boards, commissions and regulatory bodies.⁹³

Activists have cited numerous incidents as examples of environmental racism. In 1979, a massive uranium tailings spilled into the Rio Puerco in northern New Mexico. The spill, three weeks after the accident at Three Mile Island, contaminated significant stretches of Navaho lands, but unlike Three Mile Island, it received limited attention from the press, policy makers, and environmentalists.⁹⁴ Limited public attention, however, was not the case in 1982, when residents from Warren County, North Carolina, lay down in the road to block trucks filled with 40,000 yards of PCB laden soil from entering a state- and EPA-sanctioned toxic waste dump. 500 minority activists were arrested, including Reverend Ben Chavis and Walter E. Fauntroy, congressperson from the District of Columbia. The state of North Carolina, backed by the EPA, was eventually successful in opening the toxic dump in mostly poor and 64% African-American Warren County.⁹⁵

To support the claim that environmental racism is a fundamental factor in environmental decision making, activists pointed to a number of studies on the demographics of toxic waste dump siting. After the Warren County PCB protest, a report

⁹³Bullard, Robert D., ed. *Confronting Environmental Racism: Voices from the Grassroots*. Boston, MA: Southend Press, 1993.

⁹⁴Gottlieb, *Forcing the Spring*.

⁹⁵Kerr, Mary Lee, and Charles Lee. "From Conquistadors to Coalitions." *Southern Exposure* 21.4 (1993): 9-19.

by the U.S. Government Accounting Office analyzed four offsite (not connected to industrial facilities) hazardous waste landfills: Chemical Waste Management in Sumter County, Alabama (est. 1977); Industrial Chemical Company in Chester County, South Carolina (est. 1972); SCA Services also in Sumter County, South Carolina (est. 1977); and the Warren County PCB landfill in North Carolina (est. 1978). Using 1980 census data, the GAO report correlated the location of these hazardous waste landfills and the racial and economic status of surrounding communities. At three of the four sites, the majority of the population in census areas where the landfills are located were black. At all four sites, the black population in the surrounding census areas had a lower mean income than the mean income for all races combined and represented the majority of those below poverty level (\$7,412 for a family of four in 1980; \$15,141 in 1994). The GAO study indicated disproportionate siting of hazardous waste landfills in African American communities at the time the facilities sited with levels of poverty and percentage of African-Americans in host neighborhoods increased after siting. Critics of the study contended that the GAO sample was too small to establish conclusively the cause of the disproportionate siting and did not get at the question of market dynamics.⁹⁶

In *Dumping in Dixie*, sociologist Robert Bullard reported a disproportionate impact of incinerators and landfills on minority neighborhoods in Houston, Texas.⁹⁷ Bullard argued that between 1953 and 1978, with regard to landfills, four host neighborhoods had the same or lower percentage of African Americans than the twenty-five percent of the population figure for the whole city. Three neighborhoods had percentages of African

⁹⁶U.S. Government Accounting Office. *Siting of Hazardous Waste Landfills and Their Correlation with Racial and Economic Status of Surrounding Communities*. Washington, DC: U.S. GPO, 1983.

⁹⁷Bullard, Robert D. *Dumping in Dixie: Race, Class and Environmental Quality*. Boulder, CO: Westview Press, 1990.

Americans above twenty-five percent. During this time period, one mini-incinerator was sited in an all white neighborhood and the other two were in neighborhoods with more than twenty-five percent African Americans. From 1970 to 1980, the proportion of African Americans increased in all neighborhoods surrounding the landfills. By 1980, four of seven neighborhoods hosting landfills and two of three neighborhoods hosting incinerators had percentages of African Americans that were greater than the percentage in the population of Houston. Bullard may have been the first to define the emerging minority activism around toxic wastes as an “environmental equity movement” focusing on the disparities and deprivations of minority communities’ right to a clean and healthy environment.

The 1982 protest in Warren County also provoked the 1987 United Church of Christ Commission for Racial Justice (UCC) study on *Toxic Waste and Race*. The report argued that race was more significant than socio-economic status in the location of commercial hazardous waste facilities across the U.S. Examining 415 offsite operating commercial hazardous waste facilities, the 1987 study reported that in communities with two or more hazardous facilities or one of the nation's five largest landfills, the minority percentage of the population in that area was more than three times that of communities without such facilities. Further, three out of every five Black and Hispanic Americans, meaning more than 15 million Blacks and more than 8 million Hispanics, lived in communities with one or more uncontrolled toxic waste sites. Uncontrolled sites referred to “indiscriminately placed dumps, abandoned or closed disposal facilities, accidental spills, illegal discharges or closed factories and warehouses where hazardous materials have been produced, used or stored.” Using 1980 census information to define race and five-digit zip code areas to delineate communities, the study also reported that in communities with two

or more facilities or one of the nation's five largest landfills, the average minority percentage of the population was thirty-eight percent compared to the national demographic of twelve percent.⁹⁸

An update of the 1987 report, *Toxic Wastes and Race Revisited* claimed that the situation was getting worse.⁹⁹ The updated report analyzed 530 commercial (offsite) hazardous waste treatment, storage, and disposal facilities in operation as of early 1992. The analysis did not include Superfund sites, facilities, closed prior to the 1990s, on-site (non-commercial) hazardous waste facilities or municipal solid waste facilities. The report used 1990 census data and zip codes as units of comparison and focused on the changes in racial disparities over time. The report found that between 1980 and 1993, the concentration of people of color living in zip codes with commercial hazardous waste facilities increased from twenty-five percent to almost thirty-one percent of the average population around facilities. In 1993, people of color were forty-seven percent more likely than whites to live near a commercial hazardous waste facility. As in 1980, the percentage of people of color in 1993 remained three times higher in areas with the highest concentration of commercial hazardous waste facilities than in areas without commercial waste hazardous facilities. The authors argued that changes from the 1987 report could be due to migration, birth or death of individuals, and relocation, start-up, or closure of toxic

⁹⁸United Church of Christ Commission for Racial Justice. *Toxic Wastes and Race in the United States: A National Report on the Racial and Socio-Economic Characteristics of Communities with Hazardous Waste Sites*. New York, NY: United Church of Christ, 1987. The largest hazardous waste facilities was in Emelle, Alabama where blacks comprise seventy-nine percent of the local population. The fourth and fifth largest sites were in Scotlandville, Louisiana and Kettleman City, California with a black population of ninety-three percent and an Hispanic population of seventy-eight percent respectively.

⁹⁹Goldman, Benjamin A., and Laura Fitton. *Toxic Wastes and Race Revisited: An update of the 1987 report on the racial and socioeconomic characteristics of communities with hazardous waste sites*. Washington, DC: Center for Policy Alternatives, 1994.

waste facilities. As in the 1987 study, the 1994 report maintained that socioeconomic disparities were not as statistically significant as were racial disparities.

Environmental justice activists criticized EPA's historically poor record for responding more slowly, if at all, to minority communities' need for monitoring and clean-up of hazardous waste sites. A 1992 *National Law Journal* study reported that clean-up at Superfund sites began twelve percent to forty-two percent later at minority sites than at white sites. Penalties imposed on polluters under hazardous waste laws were 500 percent higher at sites near white populations than at sites near black communities. Abandoned hazardous waste sites in minority communities took twenty percent longer to be placed on the national priority action list than those sites in white areas. Also, the EPA chose "containment," the capping or walling off of a hazardous dump site, seven percent more frequently at minority sites than the legally preferred permanent "treatment" method which eliminates the waste or rids it of toxins. The EPA ordered treatment twenty-two percent more often than containment at white sites.¹⁰⁰

Rae Zimmerman, professor of planning and public administration at New York University, reported in her 1993 study of National Priority List, or Superfund, sites that communities with these sites typically had a greater percentage of African-Americans than the percentage of African-Americans nationally. Her study also found that this disproportionate relationship was true for Hispanic populations, though less pronounced. She argued that income and percentage of the population below the poverty line were not prominent indicators of disproportionate impact in this study. Zimmerman contended that

¹⁰⁰Lavelle, Marianne and Marcia Coyle. "Unequal Protection: The Racial Divide in Environmental Law." *National Law Journal* 15 (1992): S1-S12.

the higher the African American population of a community with an NPL site, the less likely the site was to have a Record of Decision (ROD) or clean-up plan.¹⁰¹

Discriminatory zoning and planning that separates minority communities from white communities, and underlies the argument of the disparate impact of pollution, has a long history. Minority communities, particularly black communities, often were deprived of land use protection basic to the zoning principles found in *Village of Euclid v. Ambler Realty Co.* 272 U.S. (1926). In *Euclid*, the Supreme Court upheld the government's use of police power to separate incompatible uses, particularly to protect residential lands from industrial and commercial uses for general public welfare purposes. The legacy left by *Euclid*, however, focused on zoning as a means to protect single-family residences, not multi-family dwellings, from the encroachment of industry and commerce. Expulsive zoning practices of superimposing incompatible uses on minority communities by using lower grade zoning, or zoning authorizing noxious commercial or industrial uses, was the result. Further, inferior municipal services, selective use of annexation and boundary line changes to disenfranchise and deny services, inequitable relocation or non-relocation of important public institutions (i.e., hospitals, libraries), regressive and disparate property tax assessments, encouragement of mortgage and insurance redlining, and disproportionate displacement of minority families through urban renewal, highway and local redevelopment projects increasingly diminished the quality of life for minority communities.¹⁰²

Zoning complements a variety of other bureaucratic techniques, such as permitting, licensing, and taxing, that serve to organize information to be used for the practical

¹⁰¹Zimmerman, Rae. "Issues of Classification in Environmental Equity: How We Manage is How We Measure." *Fordham Urban Law Journal* 21 (1994): 633-669.

¹⁰²Dubin, Jon C. "From Junkyards to Gentrification: Explicating a Right to Protective Zoning in Low-Income Communities of Color." *Minnesota Law Review* 77 (1993): 739-801.

purposes of industrialization. Zoning practices historically favor free enterprise, downplay hidden social costs, and equate progress with increased material consumption based on advancements in science and technology.¹⁰³ Land use policies reflect social values, not just regarding land, but also regarding communities. Geographers Logan and Molotch argue "that places are defined through social relationships, not through nature, autonomous markets, or spatial geometry." The physical aspects of a place, such as topography and mineral resources, interact with social organization. Thus, "the social and physical worlds mutually determine the reality of one another."¹⁰⁴

Discriminatory zoning and planning practices create a kind of "economic red-lining" for minority and poor communities. The industrialized zoning designation near these communities may discourage more desirable, less polluting companies from locating there, thus reinforcing a lack of opportunities for the local economy. These communities become "sacrifice zones," saturated with hazardous industries and targeted for more. The petrochemical industry corridor known as "Cancer Alley" in Louisiana is such an example. In terms of physical geography, some minority and poor communities become located in "toxic doughnuts," literally surrounded on all sides by polluting facilities. The white working class community of Wagner's Point in south Baltimore is such a case. The solution to many of these situations has been to relocate the communities, buy them out and move them elsewhere. The south Baltimore community of Fairfield, an old agricultural minority community rezoned M3 for intensive industry, became surrounded by petroleum tanks, scrap and tire yards, and Buffalo Tank Steel. Having no storm water management

¹⁰³Gelobter, Michel. "The Meaning of Urban Environmental Justice." *Fordham Urban Law Journal* 21 (1994): 841-856.

¹⁰⁴Logan, John R. and Harvey L. Molotch. *Urban Fortunes: The Political Economy of Place*. Berkeley, CA: University of California Press, 1987.

nor city services, most of the community took a buy out leaving a church and twenty houses still occupied by those who refused to leave their homes.

Many communities face what they call “environmental job blackmail.” Minority and poorer workers may be willing to take and keep jobs, despite environmental and health problems, because of fear that employers will move elsewhere. Willie Simms of Athens, Texas, a town of 10,000 with 11% unemployment, and a member of the North Athens Concerned Citizens fighting the proposed location of Recontek a waste management firm, expressed frustration with the toxic wastes versus jobs "choice" that is given to many communities by local officials and developers,

...not for 70 jobs do we need to put hazardous waste in our communities, not for 70 jobs. There's more to it than this. There's a dead cat somewhere down the line.¹⁰⁵

Jobs such as those that concern Simms, may have been brought in by local minority leaders to help create economic growth and opportunities for depressed areas.¹⁰⁶ There is a pessimistic sense that minority leaders are “bought off” by developers and industrialists at the expense of the communities they claim to represent. Virginia Sexton, an activist with Wake Up in Cherokee, North Carolina, argued that this tradeoff happens because,

Governments need revenues and the communities are poor, so they see it as a means to better themselves. Companies promise jobs and grease palms. That's their payoff - to talk all of us into what's already been decided.¹⁰⁷

¹⁰⁵Almanza, *et. al.*, *Toxics in Texas*; p. 20.

¹⁰⁶Bullard, *Confronting Environmental Racism*.

¹⁰⁷Madison, “To Forge a Movement,” p. 33.

Efforts to educate and make local officials aware of the problems posed a never-ending battle. As Cynthia Smith, with the Citizen's Clearinghouse for Hazardous Wastes in Atlanta, remarked about her efforts,

The frustrating thing in Hancock County was that black elected officials refused to hear the facts about environmental racism. We educated them about the incinerator in 1987, and they went right back in 1988 for a 900-acre landfill because they wanted the jobs.¹⁰⁸

It is not only black local officials, but the same pattern has been repeated in some Native American politics as well, where the tribal council may do "just does what it wants" in terms of development plans within a community.¹⁰⁹ Native Americans have even more complex problems fighting environmental justice issues due to the sovereign nation status of reservation lands, which makes them exempt from state regulation. Benishi Albert, an activist with the Southern Organizing Committee and the Indian Lands Toxic Campaign in Tulsa, Oklahoma, argued that Native American communities can not get legislation passed like other communities to stop landfills, incinerators, or nuclear waste storage siting because of their status as sovereign nations. However, sovereignty is problematic according to Mike Sexton with Wake Up in Cherokee, North Carolina,

In the 15 years I've lived in Cherokee, the government has kept saying that we're a sovereign nation. Then they try to put an incinerator on our land, saying they can do it because they're the trustee. The only time I've seen that tribe really sovereign was last week when the snow fell. Snow plows came to the edge of the reservation and stopped.¹¹⁰

This pattern of development and industrialization is reproduced throughout the world in what activists identified as "toxic colonialism" or "toxic imperialism." Toxic

¹⁰⁸Ibid.

¹⁰⁹Ibid.

¹¹⁰Ibid, p. 32.

colonialism includes the deliberate targeting of poor communities in developing countries with waste dumping and the introduction of risky technologies. Activists point to the 1,900 U.S.-owned or subsidized maquiladoras, or factories, along 2,000 miles of the U.S.-Mexico border, which employ roughly 500,000 Mexicans, as an example of toxic colonialism. These plants, which are mostly without health, safety, or pollution regulations, assemble products and ship them back to the U.S. The workers find themselves subjected to adverse working conditions that include low pay, overcrowding, poor sanitation, and compromised health at the hands of industrial employers.¹¹¹ Toxic colonialism within the United States, activists argued, has occurred in the targeting of Native American lands for nuclear waste disposal facilities.

Environmental justice activists defined opposition to local planning policy, particularly around toxic facility siting, by locating their analysis of the process around charges of racial discrimination. This strategy provided them with a means of gaining visibility in the policy arena and a focal point to reinforce the idea that the prevalence of local situations belies a deeper structural social problem. Academic activists played a large role in instigating this body of research on the racial disparities of toxic wastes to inform the national policy dialogue on the impacts of pollution.

Linking Local Struggles

Warren County, North Carolina, and East Austin, Texas, are examples of hundreds of local communities where environmental justice activism occurred. Grassroots groups such as EAST, PODER, the West Harlem Environmental Action (WHE ACT), the Mothers of East Los Angeles (MOELA) and Native Americans for a Clean Environment made up the backbone of local and regional networking by minority activists. These activists

¹¹¹Bullard, *Confronting Environmental Racism*.

viewed the prevalence of toxic contamination and its disproportionate impact on minority and low-income communities as symptomatic of inequities in the history of social relations and industrial development in the U.S. They worked to configure a movement in which there was a conscious effort to retain a grassroots democratic process where recommendations from the grassroots were given legitimacy and support came through communication efforts from the network.

The incident in Warren County, North Carolina, marked for many activists a point at which national awareness of the connection between race and environment began. The civil disobedience there also marked for some a significant event in the emergence of environmental justice as a social movement. This process of defining environmental justice as a social movement continued to unfold among activists. Five years after Warren County, activist Larry Wilson, Director of the Community and Environmental Health Program of The Highlander Research and Education Center in Kentucky, expressed hesitation at calling environmental justice a movement. He argued that,

What we have is a large number of people moving; we do not yet have a people movement. Thousands of people are engaged in fights in their own backyards; however, they appear to feel inadequate and/or are too consumed by their local struggle to see national strategies as a viable solution. In order to change people moving into a people movement, we must accomplish two things. First, we must find a way to broaden understanding and awareness to encompass enough people to attain a critical mass. Second, we must link the local fights to national and global struggles.¹¹²

Attaining a critical mass and linking local struggles to national and global issues were at the forefront of many activists' concerns to build a movement that derived its strength from the work of local grassroots groups. The local struggles, however, must be connected with each other in order to create networks of support and resources. Anne

¹¹²Wilson, Larry. "Moving Toward a Movement." *Social Policy* Summer (1989): 53-57.

Braden, a community activist with the Southern Organizing Committee in Louisville, Kentucky explained that,

We need to develop the machinery where if something's happening in Noxubee, Mississippi, other people will show up in Noxubee, and the country's going to hear about Noxubee. When they hear about that, they're going to know about Hancock County, too. We've got to build a regional struggle around specific local struggles.¹¹³

Many of the groups that identify with environmental justice have established histories of organizing and actively pursuing a variety of social justice issues. The Gulf Coast Tenants Organization (GCTO) in New Orleans, formed in the early 1980s, created a federation of African Americans in public housing projects and communities along the Mississippi River from Louisiana, Mississippi, and Alabama. Tenants concerns ranged from poor housing conditions and maintenance to lead poisoning and ground water contamination. The area from Baton Rouge to New Orleans, known as “Cancer Alley,” has more than 130 petrochemical facilities. In 1989, the then called Gulf Coast Tenant Leadership Development Project organized the Great Louisiana Toxics March from Baton Rouge to New Orleans, the first of several 200-mile marches through the cancer alley corridor to protest the connections between race and environmental degradation. The GCTO incorporated the idea of petrochemical companies as the “new masters” and worked closely with churches in the communities, often using religious imagery in framing environmental justice problems. One current GCTO campaign was to change Earth Day from April 22 to March 7, to commemorate the day in 1965 when 600 civil rights marchers were attacked by state police and sheriff deputies in Selma, Alabama.¹¹⁴

¹¹³Madison, “To Forge a Movement.” Noxubee is 72% African-American and fighting two toxic waste incinerators. Hancock County, Georgia fought a \$50 mil hazardous waste incinerator and a 900 acre landfill.

¹¹⁴Novotny, Patrick. “Where We Live, Work and Play: Reframing the Cultural Landscape of Environmentalism in the Environmental Justice Movement.” *New Political Science* 32 Summer (1995):

Spurred by the tank farm controversy in East Austin and complaints of similar problems across the state of Texas, the Texas Network for Environmental and Economic Justice formed in 1991 as a coalition-building effort between African American, Latino, and other people of color communities throughout the state. The Texas Center for Policy Studies facilitated the initial gatherings of people that led to the network. Activists in the network met with policy makers from the Governor's environmental staff, the Texas Water Commission, and the Environmental Protection Agency's Region 6 office. The Texas Network organized media actions, briefings by SWOP and GCTO about their efforts, and visits to West Dallas, Houston, Austin, Brownsville, and border cities near Mexico.

The Southern Organizing Committee for Economic and Social Justice (SOC) headquartered in Birmingham, Alabama, defined itself as,

a Southwide multi-issue, multi-racial network of people working in their communities against racism, war, economic injustice, and environmental destruction. We have been building this network since 1975 and work with grass-roots groups throughout the region. Our board of 41 people includes local activists and leaders of 16 other Southern social-justice organizations....Our three co-chairs are long-time civil-and-human-rights activists Rev. Ben Chavis, Rev. Fred Shuttlesworth, and Anne Braden.¹¹⁵

In 1988, the Southern Environmental Assembly held a forum in Atlanta, Georgia on the environment in conjunction with the presidential primaries. Nearly 1,000 activists attended the forum at which Benjamin Chavis gave the keynote address on the findings of the *Toxic Wastes and Race* report by the United Church of Christ Commission on Racial Justice.¹¹⁶ Prior to the Summit, in 1990, the Commission for Racial Justice organized a

61-79.

¹¹⁵Southern Organizing Committee for Economic and Social Justice. "Dear Friend letter and flyer for Southern Community/Labor Conference for Environmental Justice." Birmingham, AL: SOC, April 1992.

¹¹⁶Ferris, Deeohn, and David Hahn-Baker. "Environmentalists and Environmental Justice Policy." *Environmental Justice: Issues, Policies, and Solutions*. Ed. Bunyan Bryant. Washington, DC: Island

workshop on race and environment for the Congressional Black Caucus, rated by the League of Conservation Voters as having one of the most pro environmental Congressional voting records. In 1990, twenty years after the first Earth Day, Reverend Jesse Jackson, John O'Connor, founder of the National Toxics Campaign, and Denis Hayes, an organizer of the original Earth Day, made a week-long tour of communities suffering from environmental racism. Jackson remarked that cooperation among these differing strands posed "a new day and a new way."¹¹⁷

Community groups affiliated with the Southwest Organizing Project (SWOP) in Albuquerque, New Mexico, worked for over twenty years with low-income and working-class barrios on social and economic issues. SWOP members identified themselves as,

a multi-racial, multi-issue community-based organization... Our mission is to empower the disenfranchised in the Southwest to realize racial and gender equality; and social and economic justice... At the South West Organizing Project, we are working for the self-determination of all peoples. Self-determination is when we take direct responsibility in running our communities. We work for social and economic justice at home and abroad, and live by the principle that as community and working people, we have the right to control our own lives and resources.¹¹⁸

Established in 1981, SWOP first focused on hazardous emissions from a particle board company in a working-class Latino neighborhood in Albuquerque's South Valley. From this work local activists turned their attention to patterns of environmental problems throughout New Mexico. Similar to the GCTO's attention on the petrochemical industry, SWOP became increasingly focused on the growing semiconductor industry in the

Press, 1995.

¹¹⁷Grossman, Karl. "The People of Color Environmental Summit." *Unequal Protection: Environmental Justice and Communities of Color*. Ed. Robert Bullard. San Francisco, CA: Sierra Club Books, 1994.

¹¹⁸Southwest Organizing Project. *Voces Unidas* 2.1 (1992).

southwest. SWOP activists connected environmental degradation their communities with the history of colonialism and exploitation of indigenous peoples.¹¹⁹ The organization's quarterly publication, *Voces Unidas*, describes local, regional, national, international and labor news, as well as stories of individual organizers. Struggles to maintain cultural heritage framed environmental justice for SWOP activists. In 1992, the quincentenary of the 1492 "discovery" of the Americas by Christopher Columbus, SWOP joined in a call to change October 12 to "dia de la raza" as commemorated south of the U.S. border in order to mark the European conquest and the subsequent history of oppression and colonization suffered by indigenous peoples.¹²⁰

The Southwest Network for Environmental and Economic Justice (SNEEJ), a more extensive regional organization, began in April 1990 at a SWOP People of Color Regional Activist Dialogue for Environmental Justice in Albuquerque. SNEEJ brought together over fifty grassroots and indigenous organizations from Texas, Oklahoma, New Mexico, Colorado, Arizona, Nevada and California. According to SNEEJ Director Richard Moore, 60 to 70 percent of organizations in the regional network are multiracial, most members were working-class and unemployed, and 50 percent of its members were women. SNEEJ created a Coordinating Council of 23 people and combined the interests of rural migrant farm workers, urban Chicanos, Native Americans, African-American, and a Laotian community in industrial Richmond, California in its overall outlook.

Among SNEEJ's campaigns and projects was an EPA Campaign initiated in 1991. During that Campaign, SNEEJ submitted an open letter to EPA criticizing the agency for its

¹¹⁹Novotny, "Where We Live, Work and Play."

¹²⁰Koning, Hans. "No More Columbus Days!" *Voces Unidas* 2.1 (1992): 14-15.

lack of enforcement of regulations in communities of color in the region.¹²¹ One SNEEJ effort to democratize the control and use of resources is the Campaign for Responsible Technology (CRT) in which affiliate organizations are working with the Silicon Valley Toxics Coalition and others "...to confront the poisoning of workers and communities by the microelectronics industry, which has fled to the Southwest in search of lower wage scales, tax breaks, and weak enforcement practices by state regulatory agencies in the region." The CRT lobbied Congress in 1992 to divert \$10 million of Department of Defense appropriations funds toward research to develop safe technologies for microelectronics production.¹²² For SNEEJ, international contacts like Global Toxics Network concerned with workers and communities in Philippines, Malaysia, Africa, and other countries is also an important part of outreach and exchange. On the national front, SNEEJ began a dialogue with the Green Party USA, as of 1994, over interest in a green cities project for use as a possible model for minority communities in the southwest.

Environmental justice activists link local community activism into organized regional networks to share information and resources and to build cohesive solidarity among activists through actions such as conferences, projects, and protest events. This regionalism connects issues among local groups across state lines, framing environmental questions in terms of the history of race, class, ethnicity and industrial development policies of large geographic areas in the United States.

¹²¹Moore, Richard and Louis Head. "Acknowledging the Past, Confronting the Present: Environmental Justice in the 1990s." *Toxic Struggles: The Theory and Practice of Environmental Justice*. Ed. Richard Hofrichter. Philadelphia, PA: New Society Publishers, 1993.

¹²²Moore and Head, "Acknowledging the Past, Confronting the Present."

The 1991 Summit

From local groups to regional networks, a national movement for social change has begun to coalesce. Activist Connie Tucker, with the Southern Organizing Committee in Atlanta, emphasized the rationale behind these efforts,

We need to bring the forces of all these local struggles together into a regional effort that will evolve into a national effort for social change. We have to build local leadership, no question about it. But we also have to link the struggles so they are born into a movement that can seek out resources and fight to impact public policy.¹²³

The building of a national network was made apparent in October 1991 at the First National People of Color Environmental Leadership Summit in Washington, D.C. The Summit brought together 600 primarily minority grassroots delegates, from communities across the country, to begin to develop an agenda of action on a national scale that redirects U.S. environmental policy to embrace the concerns of people of color. The Summit, sponsored by the United Church of Christ Commission for Racial Justice, meant to galvanize the loose coalition into a more cohesive network of opposition to mainstream approaches to understanding environmental problems. A broader understanding of environment as where people "live, work and play" became a motto. Activists developed Principles of Environmental Justice as a guiding manifesto. The Preamble to the Principles stated,

We, the people of color, gathered together at this multinational People of Color Environmental Leadership Summit, to begin to build a national and international movement of all peoples of color to fight the destruction and taking of our lands and communities...¹²⁴

¹²³Madison, "To Forge a Movement."

¹²⁴First National People of Color Environmental Leadership Summit. "Principles of Environmental Justice." Washington, DC: United Church of Christ Commission for Racial Justice, 1991.

The Summit affirmed solidarity among local struggles of many minority and poor communities. It was an event in mass democratic participation, as many of the 600 delegates, skilled in seizing such fora to inform and network with others, wished to speak publicly about their communities' experiences, successes, and frustrations. In a sweeping statement, Pat Bryant, director of the Gulf Coast Tenant Organization and a member of the summit's national planning committee, declared that activists present at the Summit, "...confirmed the existence of an international, multi-cultural, multi-issue movement; adopted 17 Principles of Environmental Justice; and changed the environmental movement in the U.S forever."¹²⁵

Articulation of the environmental justice position is found in the *Principles of Environmental Justice* and *A Call to Action*, both of which were drafted at the 1991 Summit. The Principles defined environmental justice very broadly to include social, economic, political, and ecological rights.

The Principles redefined "environment" as "wherever we live, work, and play," expanding the concept of environmental hazards to include unsafe jobs, unemployment, inadequate housing, poor health care and education, unresponsive government, police brutality and crime.¹²⁶

The *Call* was a political manifesto demanding, among other things, an end to global environmental genocide, a ban on the export of hazardous and radioactive wastes to Third World countries, full reparations for past injustices, and the end to war, violence and militarism. The Call stated that,

¹²⁵Bryant, Pat. "Tenants and Toxics." *Southern Exposure* 21.4 (1993): 27-29.

¹²⁶Madison, Isaiah, and Mary Lee Kerr. "Clean Dream: Special Section." *Southern Exposure* 21.4 (1993): 7-34.

We are a new movement which raises the life and death struggles of indigenous and grassroots communities of color to an unprecedented multi-national integrated level. The fight against the disproportionately harmful impact of environmental degradation upon peoples of color is not new. We have always been in this struggle, we have always known what is at stake. This movement addresses every aspect of our quality of life. Unlike traditional mainstream environmental and social justice organizations, this multi-racial, multi-cultural movement of peoples of color is evolving from the bottom up and not the top down. It seeks a global vision based on grassroots realities.¹²⁷

Activists sought a restructuring of the existing environmental policy through the formulation of industrial, energy, and health care policies that address the sources of environmental degradation and the disproportionate effects felt by minority and poor communities. Their global vision required a change in the pattern of production and consumption that dominates current economic order. Isaiah Madison and Mary Lee Kerr of the Institute for Southern Studies asserted that,

The environmental justice movement recognizes that widespread environmental degradation is an inevitable outcome of our current mode of economic production. Until we adopt different ways of meeting our material needs, we will make no appreciable headway in reducing toxic contamination.¹²⁸

The 1991 Summit was an important event to define environmental justice as a national issue and as an emerging social movement. By meeting in Washington, D.C., the conference demonstrated against what activists saw as the insular concerns of mainstream environmental groups and governmental institutions in developing social and economic policy to address environmental problems. The Principles of Environmental Justice provided activists with a document symbolizing their commitment to continue to frame local struggles as the core of a national and even global call for change.

¹²⁷First National People of Color Environmental Leadership Summit. "A Call to Action." Washington, DC: United Church of Christ Commission for Racial Justice, 1991.

¹²⁸Madison and Kerr, "Clean Dream: Special Section."

Weaving A Net That Works

While the 1991 Summit helped to attract more national attention to the "emerging movement for environmental justice," it did not lead to the creation of a national organization or organizing body. Instead, delegates opted for mandated regional initiatives to respond to community crises.¹²⁹

The building of regional networks and meetings of activists continued to provide momentum. Early in 1992 a "Conference on Environmental Justice: A Learning Experience" was held at Xavier University, an historically black college in Louisiana. Faculty members and students from other historically black colleges and universities attended, as did activists. After the Summit, an Indigenous Environmental Network formed to promote the environmental interests of Native Americans.

The Southern Organizing Committee responded to the Summit's call to address community crises by sponsoring a Southern Community/Labor Conference for Environmental Justice. Held in New Orleans in 1992, the conference discussed the issues of safe and healthy workplaces, jobs for all, clean air, healthy communities, equity and justice. GCTO and Xavier University hosted the conference. SOC also worked in collaboration with SNEEJ and the Indigenous Environmental Network to gather participants from other parts of the country. Organizers found that response to the conference was tremendous. All interested activists were invited, but especially those from fourteen southern states: Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Oklahoma, Arkansas, Tennessee, North and South Carolina, Virginia, West Virginia, and Kentucky. Organizers moved the conference date and place from September 18-20 in

¹²⁹Bryant, "Tenants and Toxics."

Baton Rouge, Louisiana, to December 4-6 in New Orleans "because interest is so great all over the South, and people are asking for more time to organize in preparation for it."¹³⁰ 2,500 activists from African-American, Latino, Native American, and working class communities, as well as more than 500 youth attended.

Publicized as a follow-up to the 1991 Summit which had "signaled the development of a whole new mass movement that offers hope to all our people, white as well as people-of-color," the Southern Community conference was the second for SOC's five-year program Project Southern Vision 2000, that encouraged southern people to come together and define their social visions for the 21st century. The goal of the 1992 conference was to continue "to build a new movement" by bridging chasms of geography, race, and workplace versus community issues that often separate local struggles combating similar dangerous environmental conditions. The death of 25 workers in a poultry processing plant fire in Hamlet, North Carolina, in the summer of 1991 reinforced organizers argument that the South has become the most dangerous place in the nation to work and live. Illegally locked fire exits trapped workers in the plant.

Participants at the conference introduced a Southern Manifesto that,

...calls for a total moratorium on new poisoning facilities in the South; massive clean-up of damage already done, tied to training, jobs, and economic development; drastic cuts in military spending; massive housing construction; an overhaul of our educational system; health care for all; and foreign policy that precludes dumping on and exploitation of developing countries.¹³¹

Participants also developed a Code of Environmental Ethics to demand that elected officials be accountable to environmental health. The Code noted that most polluted areas may often

¹³⁰Southern Organizing Committee for Economic and Social Justice. "Dear Friend letter and flyer for Southern Community/Labor Conference for Environmental Justice." Birmingham, AL: SOC, June 1992.

¹³¹Bryant, "Tenants and Toxics."

be same areas where most African-American and Latino officials have been elected. Delegates at the conference recommended information exchange and action networks; technical assistance, including funding and computer support; leadership development; and support to groups developing sustainable community-based economic enterprises.

Within the overall network, a number of organizations and non-profit groups provided information, expertise and training to environmental justice. The Center for Third World Organizing in Oakland, California, and The Highlander Center in Kentucky provide training, workshops, and expertise for community activists seeking social change. Begun in 1980, the Center for Third World Organizing provides training in "campaign planning and development, grassroots and institutional fundraising, and organizational and project development."¹³² Particularly, CTWO has two programs that are focused on "building a movement." A paid summer-long Minority Activist Apprenticeship Program gives interns classroom instruction and places them with labor and community organizations across the country. A Community Partnership Program is a year-long program that nurtures new organizers by providing them with hands-on experience in host organizations throughout the CTWO network.

The rise of publications and newsletters played an important role in providing a flow of information and ideas among those interested in environmental justice. In April 1990, the Earth Island Institute's Urban Habitat Program in San Francisco in April began publishing the quarterly newsletter *Race, Poverty and Environment*. Non-profit research organizations, such as The Panos Institute, "an independent information and policy studies organization dedicated to working in partnership with others to raise public understanding

¹³²Center for Third World Organizing. "Center for Third World Organizing: We will either find a way or make one." Oakland, CA: CTWO, 1995.

of sustainable development," also claimed allegiance to environmental justice issues. In 1990, the institute established an Environment, Community Development, and Race Project to increase public understanding of the environmental threats facing people of color, expand accurate investigation and reporting of these issues by the media, promote widespread information exchange among those affected and among the general public, and highlight the link between environmental concerns and community and national development strategies. Project director Dana Alston noted that the institute's publication "*We Speak for Ourselves* documents the marriage of the movement for social justice with environmentalism." The movement, she argued, was "as diverse as the communities and individuals affected, ranging from inner city youth in Brooklyn, N.Y., to an African American community which dates to the pre-Civil War era in the Georgia Sea Islands, to the Western Shoshone in Nevada."¹³³

This diversity claimed by environmental justice activists grew, according to sociologist Dorceta Taylor, to include professional networks, community gardens and farm cooperatives, business-environmental forums, Greens, water and energy conservationists, wilderness activists, research, advocacy and training organizations, as well as educators.¹³⁴ By reaching out to include all these groups, and even environmental groups that they once had criticized, environmental justice activists continued to build a network of resources and information that supports local and regional efforts.

¹³³Alston, Dana, ed. *We Speak For Ourselves: Social Justice, Race and Environment*. Washington, DC: The Panos Institute, 1990.

¹³⁴Taylor, Dorceta E. "Environmentalism and the Politics of Inclusion." *Confronting Environmental Racism: Voices from the Grassroots*. Ed. Robert Bullard. Boston: South End Press, 1993.

Confronting Mainstream Environmental Groups

Activists enhanced the recognition of environmental justice as a national issue by publicly denouncing traditional environmental organizations' lack of interest in minorities. In January 1990, the Gulf Coast Tenant Leadership Development Project, focusing on tenant's rights in the heavily polluted petrochemical corridors along the southern Mississippi, authored a letter to the "Big Ten" national environmental groups—National Wildlife Federation, Friends of the Earth, Wilderness Society, National Audubon Society, Sierra Club, Sierra Club Legal Defense and Education Fund, Natural Resources Defense Council [NRDC], and Environmental Defense Fund—challenging them to increase the representation of minorities and community activists within their organizations and to deal with environmental and social justice issues relevant to communities of color.

Also in January of 1990, the University of Michigan hosted a Conference on Race and the Incidence of Environmental Hazards in Ann Arbor. Bunyan Bryant and Paul Mohai, sociologists at the university and co-organizers of the meeting, argued that people of color view national environmental organizations with suspicion as these organizations strive to develop an urban agenda in the 1990s. Bryant and Mohai asserted that,

To champion old growth forests or the protection of the snail darter or the habitat of spotted owls without championing clean safe urban environments or improved habitats of the homeless, does not bode well for future relations between environmentalists and people of color, and with the poor. It is not that forming positive relations with people of color and the indigent are impossible, but environmental organizations will have to earn their respect by being deeply committed to working with people of color to improve their biophysical environment, by responding to their quest for social justice.¹³⁵

¹³⁵Bryant, Bunyan, and Paul Mohai. *Race and the Incidence of Environmental Hazards*. Boulder, CO: Westview Press, 1992, p. 6.

The New York Times ran an article on February 1, 1990, covering the allegations and the environmental organizations' response acknowledging their exclusively white staff and lack of perspective on issues facing people of color.¹³⁶ Minority environmental justice activists criticized the mainstream environmental movement for being a white middle class movement unconcerned with the social conditions of minorities. As Pat Bryant of GTCO remarked, "When they roll in to defend the world against poison-mongers, minority communities can hardly miss the fact that environmental groups have less inclusive affirmative action policies than the toxic-producing companies themselves."¹³⁷ The record of minority hiring at many of the mainstream groups was sparse. As environmental historian Robert Gottlieb notes that among the 250 person professional staff of the Sierra Club, only one was Hispanic. No African-Americans nor Asian Americans were employed with the organization. The National Audubon Society had only three African-Americans among its 315 person staff. Among newer organizations, the Natural Resources Defense Council and Friends of the Earth each had only five people of color among a 140 person and a 40 person staff respectively.¹³⁸

In March 1990, the Southwest Organizing Project sent an open letter to these same environmental groups. Both letters denounced the racism and "whiteness" of the environmental movement and the lack of accountability the mainstream environmental organizations have to poor and minority communities. The SWOP letter expressed frustration with the mainstream's conservative mode of operation,

¹³⁶Shabecoff, Philip. "Environmental Groups Told They Are Racists in Hiring." *The New York Times*, February 1, 1990.

¹³⁷Bryant, Pat. "Toxics and Racial Justice." *Social Policy* Summer (1989): 48-52.

¹³⁸Gottlieb, *Forcing the Spring*, p. 261.

Your organizations continue to support and promote policies which emphasize the clean-up and preservation of the environment on the backs of working people in general and people of color in particular. In the name of eliminating environmental hazards at any cost, across the country industrial and other economic activities which employ us are being shut down, curtailed or prevented while our survival needs and cultures are ignored. We suffer the end results of these actions, but are never full participants in the decision-making which leads to them¹³⁹

Criticism over neglect of minority concerns was leveled not only at the large mainstream environmental organizations. In May 1990, the Southwest Network for Environmental and Economic Justice sent a letter to several alternative environmental groups, such as Greenpeace, the National Toxics Campaign, and the Citizen's Clearinghouse for Hazardous Wastes, also questioning the ethnic and racial composition of their organizations and calling for them to strive for a 50 percent target for people-of-color on their staffs and boards. While these groups are committed to multiracial organizing and social justice agendas, the environmental justice activists challenged them to do more to provide resources and training for people of color dealing with community issues.

The National Toxics Campaign responded by securing multiyear funding from several foundations to support an effort to address environmental racism. SNEEJ and other activists welcomed the initiative, but pushed NTC to recognize that minority activists needed to be the primary decision makers in such an initiative's planning and implementation. NTC placed more people of color on its board of directors and a caucus was formed by environmental justice activists on the board to strategize how to move the diversification process forward. An Environmental Justice Project (EJP) was created with a program to give aspiring grassroots organizers a month of intensive training and then

¹³⁹Austin, Regina, and Michael Schill. "Black, Brown, Red, and Poisoned." *Unequal Protection: Environmental Justice and Communities of Color*. Ed. Robert Bullard. San Francisco: Sierra Club Books, 1994, p. 69.

place them back in their own organizations and communities. Although NTC dissolved in April 1993, the EJP continued to operate.¹⁴⁰

Environmental justice activists further defined the boundaries of their political and philosophical stance by criticizing mainstream and alternative environmental groups as having neglected the concerns of minority communities. These actions reinforced environmental justice activists claims to offering an approach to environmental problems that come from an alternative perspective, from the knowledge claims of those whom they argued are most effected by environmental degradation.

Both the National Toxics Campaign, and the Citizens' Clearinghouse for Hazardous Wastes (CCHW) came to play informational and support roles in the network. The Citizen's Clearinghouse for Hazardous Waste, begun by Love Canal activist Lois Gibbs in 1981, even proclaimed its identity as a Center for Environmental Justice "working with over 7,000 local grassroots groups" with the mission of providing of these groups with "organizing and technical assistance through 60+ manuals and handbooks, over the phone and through site visits from our organizers."¹⁴¹ CCHW also claimed to be "the only national environmental organization founded and led by grassroots leaders." Notably,

CCHW believes in environmental justice, the principle that people have the right to a clean and healthy environment regardless of their race or economic standing. Our experience has shown that the most effective way to win environmental justice is from the bottom up, through community organizing and empowerment. When local citizens come together and take an organized, unified stand, they can hold industry and government accountable and work towards a healthy, environmentally sustainable future. This is democracy at its most vital, and CCHW's mission is to give people the tools they need to bring it about.¹⁴²

¹⁴⁰Moore and Head, "Acknowledging the Past, Confronting the Present."

¹⁴¹Citizen's Clearinghouse for Hazardous Wastes. *Everyone's Backyard*. 9.5 (1991).

¹⁴²Citizen's Clearinghouse for Hazardous Wastes. "CCHW: Your Center for Environmental Justice." Arlington, VA: CCHW, 1995.

CCHW subtitled their quarterly magazine, *Everyone's Backyard*, "The Journal of the Grassroots Movement for Environmental Justice" and offered their motto as "People United for Environmental Justice." The Clearinghouse carried out its mission by providing people with information, guiding groups through the process of putting that information into action, helping community organizations to achieve their goals, and helping groups band together for mutual aid and support. Information flowed from their monthly newsletter *Environmental Health Monthly*, reporting current scientific knowledge on environmental health issues, and financial support flowed from a Community Leadership Development Grants Program giving grassroots groups \$500 to \$5000 for educational and organizational training activities.

Going National, Remaining Local: Tensions Within the Movement

By 1993, a sense that the environmental justice movement was losing momentum, prompted Madison and Lee of the Institute for Southern Studies to write,

Two years after the Summit, however, it is clear that the environmental justice movement has fallen far short of the powerful promise evident at its birth. The movement has become a storm center of wrangling around issues of leadership, funding, and vision. There are increasingly rocky relations between people of color and whites, between grassroots groups and national organizations. The great unifying hope of the Summit is in danger of being lost.¹⁴³

The "storm center of wrangling" came in part from the tension "between the desire to remain faithful to the imperatives of 'direct democracy' by working locally and on a small scale, and the impulsion to centralize and 'go national,' or even global, in order to gain more clout or to 'look more like a movement.'"¹⁴⁴ Finding balance between the needs

¹⁴³Madison and Kerr, "Clean Dream: Special Section."

¹⁴⁴Di Chiro, Giovanna. "Defining Environmental Justice: Women's Voices and Grassroots Politics." *Socialist Review* 2 (1993).

of local struggles and the web of solidarity gained by national momentum was complicated by the problem of staying unified in multi-racial coalitions. Richard Moore and Louis Head of SWOP maintained that,

While a range of perspectives exist within the movement regarding the strategic relationship of whites and people of color, most organizations have worked to develop tactical alliances with both white environmentalists and other white activists. In several cases whites have played an active role in building environmental justice organizations. However, the first priority of the movement has been to build unity among people of color so that they may determine their own needs and develop their own leaders, perspectives, and political agendas.¹⁴⁵

Guy Jackson, with CCHW in Atlanta, viewed multi-racial alliances as strategically important, but noted that they also could pose problems in that minorities in such alliances may feel reluctant to voice their concerns,

Segregation, only working within your own community, is as bad as industry only wanting to profit for itself. You've got to reach out and go beyond your own small sphere. Most groups we work with are multiracial. But there is a cancer growing within, because some of the black people have been dependent on whites for so long that sometimes they don't speak out.¹⁴⁶

The rocky relationship between mainstream or established environmental organizations and environmental justice activists fed upon suspicions that minority grassroots interests would be coopted by such alliances. Such suspicions came from the differing histories between mainstream environmentalism and the social justice, civil rights legacies that influenced environmental justice activists. In Bullard's assessment, these two movements were converging, but not without conflict,

During the 1960s and 1970s, while the "Big Ten" environmental groups focused on wilderness preservation and conservation through litigation,

¹⁴⁵Moore and Head, "Acknowledging the Past, Confronting the Present," p. 120.

¹⁴⁶Ibid.

political lobbying, and technical evaluation, activists of color were engaged in mass direct action mobilizations for basic civil rights in the areas of employment, housing, education, and health care. Thus, two parallel and sometimes conflicting movements emerged and it has taken nearly two decades for any significant convergence to occur between these two efforts. In fact, conflicts still remain over how the two groups should balance economic development, social justice, and environmental protection.¹⁴⁷

Thus, though environmental justice activists hesitatingly welcomed support from the mainstream, they made it clear that this movement would only succeed through maintaining a critical populist stance. As Moore and Head explained,

Grass-roots leaders and organizers engaging in dialogue and partnerships with environmental organizations have not waited for any flood of support based on the challenge to the Group of Ten. There has been an understandable hesitation to accept assistance from organizations that base their power on the support of affluent whites and traditional lines of political access. Instead, the power of the movement is based on its independence, its level of grass-roots democracy, and skills inherited from the past.¹⁴⁸

Problems with co-optation by established mainstream organizations manifested particularly around funding issues. The experience with the National Toxic Campaign was only the beginning in getting funding foundations to recognize grassroots groups as legitimate grantees. At the 1991 Summit, organizers recognized that many foundations had begun to support mainstream environmental organizations who "are beginning to pick up the banner of diversity." Summit participants were skeptical of initiatives coming from the mainstream,

Current diversity strategies and models put forth by environmental/conservation organizations do little to institutionalize and empower grassroot organizations. Clearly, strengthening the capacity of people of color organizations and their indigenous institutions is the preferred strategy for empowering people of color communities.¹⁴⁹

¹⁴⁷Bullard, *Confronting Environmental Racism*, p. 22.

¹⁴⁸Moore and Head, "Acknowledging the Past, Confronting the Present," p. 125.

¹⁴⁹First National People of Color Environmental Leadership Summit. "People of Color and the

At the local level, relations between community groups and mainstream environmental organizations existed unevenly at best due to shifting alliances within local politics. During the tank farm controversy in East Austin, representatives of the Audubon, Sierra Club, and other mainstream groups attended East Austin neighborhood meetings on ground water contamination and other pollution issues. The Colorado River Watch Network launched an internship training program for East Austin youth and Greenpeace and the Environmental Defense Fund volunteered assistance. A local alliance known as Save Our Spring (SOS), formed mostly by West Austin environmentalists to protect the Barton Springs watershed from further development, also supported the East Austin fight. However, when it came time to vote on an ordinance that would allow the city's residents to create their own water quality standard, there was dissension among minority activists over delivering their vote given the inattention paid by alliance activists on how the issues affected residents in East Austin.

PODER criticized the diversity of a 27 person advisory committee appointed by the city to assess the Barton Springs problems. Of the 27, only one was Hispanic, one African-American, and six were women. A Save Our Neighborhoods group criticized SOS as instigating a segregation ordinance because it would mandate density control of development on one or two acre lot sizes in the Barton Springs area, thus precluding affordable housing for many in East Austin. Further, there were arguments that if the ordinance passed, bond monies would be diverted from East Austin projects, such as expansion of the Washington Carver Library, the building of a Mexican-American Cultural Arts Center, and work on the erosion problems of Little Walnut Creek, all projects

promised by local politicians to the community for too long. At least several minority groups, including EAST, the League of United Latin American Citizens, and the South Austin Mexican-American Democrats, endorsed the SOS initiative citing that their support "shows we all share a mutual concern about the quality of the environment."¹⁵⁰

Perhaps as many as 90% of activists involved in environmental justice issues were women.¹⁵¹ The implications of gender, race and class on world view and political action within the movement are debatable. Sociologist Celene Krauss has analyzed how women of different races view their experiences of environmental justice activism. She argues that white blue-collar women defined environmental justice as rooted in class and come at issues with an initial faith in the existing democratic political system, while African-American women viewed political awareness as grounded in race and view the government with mistrust from the start having been themselves victims of racist policies. In Krauss' analysis, Native American women held an environmental racism analysis that is rooted in the genocidal imagery of colonialism that has been part of their culture's experience for centuries.¹⁵² While such an analysis is intriguing, it raises certain stereotypes that may not always coincide with women's experiences in the movement. Patsy Oliver, an African American woman in Texarkana, Texas, articulated a compelling perspective on race, gender, and class suggesting these factors are even more tangled in the experiences of activists. Oliver remarked that,

¹⁵⁰Ward, Mike. "'Greening' closes gap in Austin." *Austin American-Statesman* March 8, 1992: A1. Burns, Bob. "3 minority political groups endorse Save Our Springs initiative." *Austin American-Statesman* June 18, 1992: B7.

¹⁵¹Di Chiro, "Defining Environmental Justice: Women's Voices and Grassroots Politics."

¹⁵²Krauss, Celene. "Women and Toxic Waste Protests: Race, Class and Gender as Resources of Resistance." *Qualitative Sociology* 16.3 (1993): 247-262.

We didn't come over on the Love Boat, a lot of us certainly didn't get our 20 acres and a mule. We've always been the last hired and the first fired but we didn't think that we would be treated less than human and I didn't find it any disgrace to be a member of the human race. But being a southern black woman, I felt insulted, I felt hurt and I felt as a Third World person in a rich country like America where the color of the blood was red, but chemicals were of no color - they don't discriminate. They were killing us and this was environmental racism and genocide. I actually identified the pain with people in Third World countries because I felt displaced in my own country... My father, my son went off to war and fought for rights and now we're being denied those rights.¹⁵³

Issues regarding leadership also contributed to internal tensions among activists in the environmental justice movement. The rise of environmental justice experts on the national scene, threatened to overshadow the movement's commitment to grassroots populism. At the 1991 Summit, organizers argued that, "Inclusion of the rich multicultural backgrounds of Summit leaders into the scientific inquiry and public policy analysis will greatly strengthen both enterprises and move the entire nation forward."¹⁵⁴ A number of activists might be considered leaders in that they have contributed much to organizing and making the efforts of the grassroots known at the national level, particularly via academic work. Sociologists Robert Bullard and Beverly Wright, Richard Moore of SWOP and SNEEJ, Dana Alston of the Panos Institute, the Reverend Benjamin Chavis and Charles Lee of the United Church of Christ, and Pat Bryant of SOC and GCTO were among a group of activists who had been key organizers in the 1991 Summit and other meetings, working on committees, and some writing extensively about the challenges, strategies and victories of the movement in taking on national institutions, such as federal governmental agencies.

¹⁵³Almanza, *et. al.*, *Toxics in Texas*.

¹⁵⁴First National People of Color Environmental Leadership Summit. "People of Color and the Struggle for Environmental Justice."

Discrepancies over the roots of environmental justice confounded easy description of who the movement represented at any one time. A blurb describing one of CCHW's readings *Love Canal: A Chronology of Events that Shaped a Movement*, stated that "The Grassroots Movement for Environmental Justice began at Love Canal."¹⁵⁵ Minority activists within the movement, however, argued that while Love Canal captured national attention, literally hundreds of incidents involving toxic pollution in minority communities were ignored. Through identifying environmental racism, activists critiqued the anti-toxics and mainstream environmental movements for not going far enough in recognizing that social and environmental issues are intertwined and that race must be addressed for any movement to be progressive and meaningful. While anti-toxics activists had viewed the Warren County protest as a symbol of "a reborn environmental movement focused on toxic and hazardous chemical contamination,"¹⁵⁶ minority activists focused on the racial dimensions of the incident to reframe the anti-toxics debates.

Disagreement persisted among activists as to the degree that race was the significant factor in the politics of toxic wastes and pollution controversies. Some argued that placing race prominently before class or socio-economic status in terms of the social cause of environmental injustice is adding to the internal tensions within the movement. African-American studies scholar Cynthia Hamilton has voiced the need to more vigorously understand class in the dynamics of industrial development,

Our new call for an ecological democracy must also recognize the class interests in both Western and developing societies. We must highlight the political intentions and consequences of existing growth and development strategies, which often mean the destruction of working-class communities

¹⁵⁵Citizen's Clearinghouse for Hazardous Wastes. "Publication List." Arlington, VA: CCHW, 1995.

¹⁵⁶ Geiser, Ken. "Toxic Times and Class Politics." *Radical America* 17.2&3 (1983):39-50.

in central cities. We must now reject a view of development as simply a neutral technological advancement.¹⁵⁷

She contends, however, that the “crisis of industrialization” manifests most keenly in communities of color because they suffer the most severe economic underdevelopment and most contamination. Thus, it was understandable that race would be such an effective point on which to begin to build the movement. Robert Bullard, agreeing with the profound importance of understanding the interaction of race and class, maintains that research supports the view that race could be understood as an independent factor in the disparities of environmental pollution,

In the United States, race interacts with class to create special environmental and health vulnerabilities. People of color, however, face elevated toxic exposure levels even when social class variables (income, education, and occupational status) are held constant. Race has been found to be an independent factor, not reducible to class, in predicting the distribution of 1) air pollution in our society; 2) contaminated fish consumption; 3) the location of municipal landfills and incinerators; 4) the location of abandoned toxic waste dumps; and 5) lead poisoning in children.¹⁵⁸

Environmental historian Martin Melosi points out that activists attempts to ideologically define race in terms of environmental politics may lead to further conflict for the movement as it grows.

The core view that race is at the heart of environmental injustice is borne of an intellectual and emotional attachment to the civil rights heritage of the past several decades....Outside the movement there has been a serious questioning: Is the issue really environmental racism or just poverty? Even within the movement there are those who cannot cleanly separate race and class in all cases. Given the political goals of the movement, the unbending assertion of the centrality of race may prove unworkable if broadening the constituency is to be achieved.¹⁵⁹

¹⁵⁷Hamilton, Cynthia. “Coping with Industrial Exploitation.” *Confronting Environmental Racism: Voices from the Grassroots*. Ed. Robert Bullard. Boston, MA: South End Press, 1993, p. 67.

¹⁵⁸Bullard, *Confronting Environmental Racism*, p. 21.

¹⁵⁹Melosi, Martin V. “Equity, Eco-racism and Environmental History.” *Environmental History Review* 19.3 Fall (1995): 1-16.

In the effort to build a movement with momentum through greater outreach, activists found tensions existed over how to continue to define environmental justice. The racial disparity claim, while generally accepted, held the potential to eclipse the issue of poverty and create an exclusive experiential position that would cause friction in building the network. The civil rights legacy underlying much activism by environmental justice groups infused the environmental racism claim. Organizing around race was, thus, in some sense easier to support than a class- or poverty-based argument. How to continue to organize or strategize was problematic as many activists sought to affect national policy making. Creating a national organization and agenda, some feared, might disempower local and regional efforts that were the backbone of environmental justice activism and philosophy. For many activists, environmental justice, in the early 1990s, was still growing, still moving toward becoming a national and even global movement,

The environmental justice movement is still in its embryonic stages. Its ideology has yet to be fully developed, let alone tested. Moreover, it is too easy for outsiders to criticize the trade-offs and compromises poor people and people of color bearing toxic burdens have made. It is important to understand the movement on its own terms if one hopes to make policy proposals that will be of use to those struggling to save themselves.¹⁶⁰

As the movement unfolded, activists captured the attention of the Environmental Protection Agency, a federal agency bearing that responsibility for overseeing regulations to safeguard environmental and human health, and pressured officials to recognize the implications of environmental justice for environmental policy making at the national level.

¹⁶⁰Austin and Schill, "Black, Brown, Red, and Poisoned," p. 74.

CHAPTER 4

Into the "Belly of the Beast": Environmental Justice and the Environmental Protection Agency

"Our cancers out there are so intelligent, they're much kinder than the EPA, they don't make you suffer long. EPA has taken years and lives and more lives. And we're still here."

Patsy Oliver of Carver Terrace in Texarkana¹⁶¹

Taking On the EPA

In January 1990, the University of Michigan School of Natural Resources in Ann Arbor, Michigan, held a conference on "Race and Incidence of Environmental Hazards and Issues." Conference participants, primarily academics and some grassroots activists, dubbed themselves the Michigan Coalition.¹⁶² The Coalition sent a letter to EPA Administrator William K. Reilly, Louis W. Sullivan, Secretary of the Department of Health and Human Services, and Michael R. Deland, Chairman of the Council on Environmental Quality, requesting a meeting to discuss the agencies' involvement in addressing environmental inequities for minority and low-income communities. The Coalition raised a number of recommendations such as pursuing research to understand environmental risks, enhancing risk communication, requiring racial and socioeconomic equity considerations be included in the Regulatory Impact Assessment, appointing special assistants for environmental equity with the agencies, and developing a policy statement on

¹⁶¹Almanza, *et. al.*, *Toxics in Texas*, p. 43.

¹⁶²Bryant, Bunyan, ed. *Environmental Justice: Issues, Policies, and Solutions*. Washington, DC: Island Press, 1995.

environmental equity. The letter also was sent to all governors, various state legislators, and the Congressional Black Caucus. It was not until September, however, that members of the Michigan Coalition met with Reilly and Deland.

Prior to the fall meeting, in June 1990, Reilly formed an Environmental Equity Work Group at EPA, a committee that included 41 officials from thirteen offices at agency headquarters in Washington, D.C., and from all ten of the agency's regional offices. Reilly acknowledged the Michigan conference in an April 9, 1990, address at the National Minority Environmental Career Conference at Howard University. He stated that conference participants' review of environmental risk from a socio-economic perspective "pointed out significantly disproportionate health impacts on minorities due to higher rates of exposure to pollution." Bunyan Bryant and Paul Mohai, professors at the University of Michigan School of Natural Resources and coordinators of the Michigan conference, asserted that the efforts of the conference participants had an important effect upon the EPA:

To our knowledge, this was the first public recognition by the EPA that environmental hazards disproportionately impact people of color and the first time an Administrator of the EPA had agreed to meet with any group of primarily people of color to discuss environmental equity issues.¹⁶³

While the Michigan Coalition pressed for changes at EPA, the Southwest Network for Environmental and Economic Justice also sent a letter to then EPA Administrator Reilly in July 1991. SNEEJ charged that the EPA played a major role in environmental racism and cited cases where the EPA had known of problems but had failed to act or had disregarded community participation. As part of the Network's EPA Accountability Campaign, SNEEJ intended the letter to stir reaction from EPA regional administrators in

¹⁶³Bryant and Mohai, *Race and the Incidence of Environmental Hazards*.

Dallas, San Francisco, and Denver to meet with activists in those regions. When no response from EPA was issued, activists held demonstrations and occupied the San Francisco EPA Region IX office.

In November, an internal EPA memo was passed on to SNEEJ, via Representative Henry Waxman's (D-CA) office, that deemed environmental racism to be "one of the most politically explosive environmental issues yet to emerge." The memo, from EPA Associate Administrator Lewis Crampton to Chief of Staff Gordon L. Binder stated that action needed to be taken by EPA officials before resentment against the agency reached a flash point where "grass-roots groups finally succeed in persuading more mainstream groups to take ill-advised actions." Crampton took the position that,

Our goal is to make the agency's substantial investment in environmental equity and cultural diversity an unmistakable matter of record with mainstream groups before activists enlist them in a campaign that could add the agency to industry and local officials as a potential target. We propose a targeted, two-track strategy that concentrates our primary effort on a series of immediate steps to get our message to the mainstream groups—while continuing to give the more activist groups the attention they demand as part of a secondary effort.

...The goal of this strategy is to win the recognition the agency deserves for its environmental equity and cultural diversity programs before the minority fairness issue reaches the "flashpoint"—that stage in an emotionally charged public controversy when activist groups finally succeed in persuading the more influential mainstream groups (civil rights organizations, unions, churches) to take ill-advised actions. From what we've begun seeing in the news, this issue is reaching that point.

...[W]e should continue meeting with the activist groups driving the minority fairness issue. Because, like many activist movements, these groups need more recognition and visibility, they are not as receptive to a straightforward presentation of evidence. But we may be able to deflect some of their hostility from the agency by taking the initiative to grant them respect and the access they want and by finding some common ground on which we can agree. Talking with and listening to these groups is the second track of the strategy.¹⁶⁴

¹⁶⁴Bullard, ed., *Confronting Environmental Racism*, p. 196.

In January 1992, at an EPA press conference to release the EPA Environmental Equity Work Group report, "Environmental Equity: Reducing Risk for All Communities," a staff person from Waxman's office released the memo as well. By February, the Dallas regional office [Region VI] was willing to meet with activists and in March, activists met with the San Francisco [Region IX] regional administrator. In the March/April 1992 edition of the *EPA Journal*, Reilly took the position that "talk of environmental racism at EPA and charges that the Agency's efforts pay less regard to the environment of poor people infuriate me. I am determined to get to the bottom of these charges, to refute or respond to them." He connected the social problems of equity to longer, deeper historic forces, taking care to remove the agency from bearing full responsibility for environmental inequities:

Failures to achieve perfection in environmental matters are woven, along with other threads of triumph and defeat, into the full tapestry of American history. They are, in fact symptomatic of larger patterns of industrial growth and neglect and of sad legacies of inherited poverty and discrimination. It will take time and hard work to mend the fabric. Restrained by resources, jurisdiction, and knowledge, a government agency is necessarily limited in its capacity to affect larger cultural and social trends.¹⁶⁵

As a show of the new found, but bureaucratically limited, commitment, EPA regional administrators in Dallas and San Francisco visited communities across the Southwest. Region IX Administrator, Dan McGovern, visited six communities in the southwest in November, including Richmond, California. On November 16, the Regional Administrator and senior staff of Region VIII [Denver office] met with SNE EJ director Richard Moore "to heighten the awareness of service staff to concerns affecting minority

¹⁶⁵U.S. Environmental Protection Agency, *EPA Journal*, p. 22.

and low income communities throughout the Southwest, including Denver."¹⁶⁶ In the fall of 1992, Reilly met with SNEEJ in Albuquerque.

While the Crampton memo had advised EPA officials to grant respect and access to activists as a way to deflect hostility, environmental justice advocates felt that they had earned EPA's respect by presenting their case forcefully and persistently. Moore and fellow activist Louis Head assessed the SNEEJ actions to force EPA attention as a success:

The campaign was successful in promoting national meetings among the top leadership of the EPA, environmental justice activists, and academicians throughout the country. Finally, the campaign played a major part in forcing the EPA - which for years ranked forty-sixth out of the largest fifty government agencies in the hiring and promotion of people of color - to mount an equity program to diversify its staff and programmatically address issues of environmental racism....The Network had begun its campaign literally locked out of EPA offices throughout the region. By the time Reilly left office, the Network had gained the agency's respect.¹⁶⁷

For activists, the campaign symbolized how organized pressure from "grass-roots organizations of poor people could win against a powerful U.S. government entity by working together." Moore and Head stated that the efforts to force the EPA to the negotiating table "was exciting in terms of organizing" since many of the Network's affiliate groups, who had been individually trying to get EPA to act, "began to see that regional and national collective direct action produced results."

EPA's Mission

By targeting the EPA, environmental justice activists took their message to the regulatory and symbolic source of American environmental politics. According to the agency's 1991 promotional material, the mission of EPA,

¹⁶⁶U.S. Environmental Protection Agency, Office of Environmental Equity. "Environmental Equity Update Memo." Washington, DC: U.S. EPA, 1992.

¹⁶⁷Moore and Head, "Acknowledging the Past, Confronting the Present," pp. 121-122.

is to improve and preserve the quality of the environment, both national and global. EPA works to protect human health and the natural resources on which all human activity depends. America's continuing growth and prosperity depend on its ability to find effective, creative solutions to environmental problems. Through teamwork and scientific discipline, EPA is determined to find those solutions and to make them work.¹⁶⁸

The creation of this broad mandate occurred in 1970, when President Richard Nixon endorsed a proposal to create an agency that would consolidate all federal government environmental programs.¹⁶⁹ The proposal, established in December of that year, brought together programs and staff from six executive departments and independent agencies. A federal program for controlling water pollution under the purview of the Department of the Interior, a Department of Agriculture program to register and regulate pesticides, and a Food and Drug Administration program to set legal residue limits for pesticides in food were the kinds of tasks consolidated within the new agency.¹⁷⁰ By 1971, the charge given to the EPA's first Administrator William Ruckelshaus was to integrate these programs and smooth over their often conflicting policy positions.¹⁷¹

Throughout its relatively short thirty year history, the agency often is characterized as besieged, struggling to negotiate among very different public interests. Russell Train, who served as Administrator from 1973 to 1977 and who had been president of the Conservation Foundation from 1965 to 1968, characterized relationships between industry,

¹⁶⁸U.S. Environmental Protection Agency, "Preserving Our Future Today."

¹⁶⁹An excellent detailed account of the EPA's formation is in Marc K. Landy, Marc J. Roberts, and Stephen R. Thomas, *The Environmental Protection Agency: Asking the Wrong Questions from Nixon to Clinton*. New York, NY: Oxford University Press, 1994; pp. 22-45.

¹⁷⁰U.S. Environmental Protection Agency. "Preserving Our Future Today." Washington, DC: U.S. EPA, 1991.

¹⁷¹U.S. Environmental Protection Agency. *The Guardian: EPA's Formative Years, 1970-1973*. Vol. EPA 202-K-93-002. Washington, DC: U.S. EPA, 1993.

states and municipalities, and the environmental movement as "very edgy, very controversial." He noted that "The Administrator of EPA cannot very often make a decision that is going to completely please the environmental community. These decisions usually run down the middle, and flak tends to come from all sides. It's the nature of the operation."¹⁷²

The role of the EPA Administrator became concerned with mediating among different publics—environmentalists, government and industry officials, and local communities. Ruckelshaus, who became the Chief Executive Officer of Browning Ferris Industries of Houston, Texas, argued that the confrontational relationship with industry began to be more cooperative as industry realized that public demands for clean environment would not go away and as they adjusted "to the new public demands represented by this new agency." He characterized the agency's relationship with state governments at the beginning as terrible because the state regulators felt that they were not getting credit for the progress they had made with regard to environmental legislation and were now having the federal government dictate to them. State officials also felt EPA was too intrusive.

The very existence of EPA itself symbolized to state environmental agencies the lack of appreciation the public had for their, "laboring in the darkness for lo these many decades."...Some of the more philosophic ones acknowledged that EPA was really a gorilla in the closet. So long as we didn't come out of the closet and we let the states alone, the gorilla could help induce compliance.

Although given its mandate by the executive branch, the EPA carries out legislation passed by Congress. This created tensions for the agency in trying to establish credibility

¹⁷²U.S. Environmental Protection Agency, Office of Administration, Management and Organization Division. *U.S. EPA Oral History Interview - 2: Russell E. Train*. Washington, DC: U.S. EPA, 1993.

and some measure of autonomy. The EPA reported to more than fifty congressional committees that claimed some oversight interest in the agency's operations. Setting priorities and defending them to Congress was an ongoing process, particularly when it became important to explain why the agency could not meet certain assignments given resources and time. Amid this tension, however, cultivating public trust on the part of the EPA administrator was paramount. Ruckelshaus noted that,

This is very, very important because in the environmental field, you are dealing with things that are so intimate to people, so important to them in terms of public health, their own health, and the health of the planet we all share. If they do not think you are doing the best you can to act in their interest, and you lose their trust and support, I think you will have real trouble succeeding. Not just the administrator himself, but the agency itself gets into trouble. It is much tougher for EPA to do the right thing if that bond of trust is ever broken.¹⁷³

Ruckelshaus served again as Administrator under the Reagan Administration from 1983 to 1985, when he was called upon to restore credibility and morale to the agency in the aftermath of Administrator Anne Burford's resignation. Burford, a Colorado lawyer with little experience in environmental issues, was charged with manipulating funds for hazardous waste clean up under Superfund for political ends. A number of other top officials in the agency were accused of perjury in congressional testimony, destroying documents requested by Congress, and misuse of authority to the benefit of those regulated. On taking office, Ruckelshaus asked for authority to appoint thirteen presidential appointees into agency posts. Appointing "persons with professional management experience" was his biggest criteria.

¹⁷³U.S. Environmental Protection Agency, Office of Administration, Management and Organization Division. *U.S. EPA Oral History Interview - 1: William D. Ruckelshaus*. Washington, DC: U.S. EPA, 1993.

After the fiasco of the Burford tenure, Congress cracked down on oversight of the agency's business. Within the first three weeks of taking office, Reagan signed an executive order that required all federal regulatory decisions to be analyzed, reviewed, authorized, delayed, or eliminated by the Office of Management and Budget. The effect of the new requirement on the EPA was palpable. From 1981 to 1983, EPA's expenditures on hazardous waste programs declined by 39%, while their enforcement staff declined by 33%.¹⁷⁴ The limitations of states to abate pollution was a strong influence in establishing the EPA, yet the Reagan Administration's New Federalism emphasized local responsibility and shifted financial burden by increasing funds to the states while decreasing EPA's budget. Consequently, states became a more important locus of conflict, particularly over the issue of hazardous wastes.

Sympathetic to the deregulatory stance of Reagan, but determined to be known as the "environmental president," George Bush appointed William K. Reilly in 1988 to be EPA Administrator. Reilly, former head of the Conservation Foundation and the World Wildlife Fund and considered a moderate conservationist, advocated alternate dispute resolution. Those in the mainstream environmental movement were agreeable generally to his appointment. The Conservation Foundation, founded in 1948 and considered to be a leading organization in the environmental movement, moved increasingly toward the middle ground during the late 1970s in order to reconcile environmental and economic concerns. While president of the Foundation, Reilly wrote that the "environmental rally is over" and efforts to implement common objectives between environmentalists and business should be the group's focus.¹⁷⁵

¹⁷⁴Barnett, Harold C., *Toxic Debts and the Superfund Dilemma*, p. 74.

¹⁷⁵Hays, Samuel, *Beauty, Health and Permanence*, p. 421.

In 1991, Reilly began a campaign to reassess the risks of environmental hazards. Backed by an EPA Science Advisory Board report on environmental risks, Reilly argued that the mismatch between expert and public perceptions of risk had made it difficult for agencies such as the EPA to set sensible priorities for environmental protection and, given the substantial costs of such protection, it was important to set such priorities through the use of “sound science.” The Science Advisory Board report ranked the top four risks feared by experts as habitat alteration and destruction, species extinction and loss of biodiversity, ozone depletion, and global climate change. A public opinion poll by the Roper Organization ranked in use hazardous waste sites, abandoned hazardous waste sites, worker exposure to toxics, and destruction of the ozone as risks the public fears most. The expert poll ranked hazardous wastes and ground water contamination as relatively low-risk ecological problems.¹⁷⁶

With the successful Republican take-over of both houses of Congress in 1994, the EPA experienced the revival of anti-regulation and federalist ideology. Congress commissioned a study by the National Academy of Public Administration which concluded that EPA could solve many of its problems and the bog of bureaucracy by transferring more authority to states, local governments and corporations.¹⁷⁷ The NAPA report contended that the conflicts among different interests which the agency must negotiate leaves it overburdened in trying to enforce fragmented and narrow federal statutes. This situation caused the agency to miss "the opportunity to inspire bigger environmental

¹⁷⁶Stevens, William K. “What Really Threatens the Environment?” *The New York Times*, 1991.

¹⁷⁷Lee, Gary. “Report Urges Shift in EPA Authority to States, Firms.” *The Washington Post* April 13, 1995: A29.

improvements at lower costs." The report argued that "better risk assessments" was a way the agency could more effectively manage the costs of pollution.

A pro-business, anti-federal government sentiment infused the new Congress, with many believing that the agencies in Washington had gone too far in dictating restrictions on commercial activities and private property. In many ways, the Republican agenda came as a reaction to what they perceived as a political atmosphere where liberal programs ran amok in disregard of the economic interests at the heart of the nation's growth. Heated social controversies that had begun in the 1980s and that remained unresolved in the 1990s—such as timber interests versus protection of the spotted owl in the Northwest, commercial and housing development versus the designation of wetlands in some areas, rancher and mining interests versus designated federal lands, and the tobacco industry versus stricter warnings on the health implications of smoking—became examples of seemingly irreconcilable differences between environmental regulatory approaches and calls for increased economic growth and development. Thus, during the 1980s, an aversion to environmental regulation within Congress and among industries, a preference by Administrator Reilly to leave EPA priority setting to the experts, and intense efforts by grassroots groups to secure greater public participation were all part of a confrontational mix that clashed over the issue of human health and toxic wastes.

Toxic Terrain

When EPA began operating in 1970, the agency had 5,400 employees and a budget of \$900 million. By 1991, EPA had a workforce of 17,000 "highly skilled, culturally diverse people" and a budget of more than \$6 billion for programs implementing 14 federal

environmental laws.¹⁷⁸ Administration of these laws occurred through EPA's seven regulatory programs on air quality, drinking water, water quality, pesticides, toxic substances, hazardous and non-hazardous wastes, and the Superfund program. The laws most relevant to toxic waste issues were the 1976 Resources Conservation and Recovery Act (RCRA) and the 1980 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

RCRA included "cradle-to-grave" regulations of all hazardous wastes and defined hazardous waste as a solid waste that may cause "an increase in mortality or an increase in serious illness... or... pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of, or otherwise mismanaged."¹⁷⁹ In addition, EPA defined hazardous wastes as those that are toxic, ignitable, corrosive or dangerously reactive. This included most pesticides, herbicides and fungicides in addition to many chemicals used in manufacturing processes. A "toxic waste" is one "that can produce injury if inhaled, swallowed, or absorbed through the skin." Most activists who protest the siting of hazardous wastes and claim that ill health effects are occurring in their communities used the term toxic wastes to locate political and scientific attention directly upon health issues. Among RCRA's limitations were that the government could not respond directly to problems already in existence at the time of the legislation's passage and that there was only a thirty-year monitoring of landfills after they were closed.

CERCLA, meant as a complement to RCRA, established the Superfund program to provide federal money, fed by taxes on the chemical and petroleum industries, and

¹⁷⁸U.S. Environmental Protection Agency, "Preserving Our Future Today."

¹⁷⁹*Resources Conservation and Recovery Act of 1976*, PL No. 94-580, 90 Stat. 2795-2841.

authority to respond to cleanup emergencies and to take remedial action at abandoned waste sites.¹⁸⁰ In 1986, Congress passed the Superfund Amendments and Reauthorization Act (SARA) authorizing \$8.5 billion over five years to pay the costs of overseeing cleanup efforts by responsible parties and to pay the costs not assumed by those responsible. In 1990, Congress extended SARA by authorizing an additional \$5.1 billion. These amendments established an Emergency Planning and Community-Right-to-Know requirement for states and local governments to develop emergency response plans and emergency release notification procedures for hazardous wastes. This provision required industrial facilities to provide information to the community on chemicals, and potential hazards, they use or manufacture. It also required industrial facilities to submit information on specified chemicals for inclusion in a national toxic chemical release inventory (TRI). By 1991, \$1.6 billion of the agency's \$6 billion budget went to the Superfund program.

Until 1970, state health boards used "nuisance" laws to deal with pollutants, although some federal legislation on environmental quality, such as the 1952 Federal Water Pollution Control Act, the 1963 Clean Air Act, and the 1965 Safe Drinking Water Act, already existed. After 1970, as the federal government began taking an increasing role in protecting air and water in occupational and public health, restrictions on the use of surface waters and ambient air as acceptable sinks for disposal of wastes pressed industries and municipalities to turn to landfills as the primary mode of disposal.¹⁸¹ However, Superfund

¹⁸⁰*Comprehensive Environmental Response, Compensation and Liability Act of 1980*, P.L. 96-510.

¹⁸¹Tarr, Joel A. and Charles Jacobson. "Environmental Risk in Historical Perspective." *The Social and Cultural Construction of Risk*. Ed. Johnson and Covello. New York, NY: Reidel, 1987. See also: Melosi, Martin V. "Environmental Reform in the Industrial Cities: The Civic Response to Pollution in the Progressive Era." *Environmental History: Critical Issues in Comparative Perspective*. Ed. Bailes. Maryland: University of America Press, 1985. Colten, Craig E. and Peter N. Skinner, *The Road to Love Canal: Managing Industrial Waste Before EPA*. Austin, TX: University of Texas Press, 1996.

legislation did not require an inventory of hazardous waste sites in the U.S., nor did it provide a systematic national program for discovery of such sites other than through voluntary reporting.

In effect, ascertaining the number of hazardous waste sites throughout the American landscape is contentious. In 1983, the Office of Technology Assessment reported that there may be as many as 600,000 contaminated sites in the United States.¹⁸² EPA asserted in 1984 that the potential universe of sites could be anywhere from 131,000 to 379,000.¹⁸³ In 1989, EPA estimated that 34,000 hazardous waste sites posed possible human health risks because of their effects on ground water.¹⁸⁴

Only sites prioritized by EPA as the most hazardous were eligible for federal funds for clean-up. The EPA estimated some 38,000 sites on its inventory of uncontrolled hazardous waste sites, known as CERCLIS. By 1993, EPA determined that 22,000 of these sites required no further federal action, 10,000 warranted further consideration, and the rest had not yet been assessed.¹⁸⁵ A 1989 study on Superfund by the Office of Technology Assessment (OTA) argued that the potential number of uncontrolled sites was on the order of 439,000. OTA also reported that EPA held thousands of hazardous waste sites outside of the CERCLIS inventory in order to control resource and management problems posed by congressional deadlines for preliminary assessment of CERCLIS

¹⁸²Barnett, Harold C., *Toxic Debts and the Superfund Dilemma*.

¹⁸³Office of Technology Assessment. *Technologies and Management Strategies for Hazardous Waste Control*. Washington, DC: Congress of the United States, 1983.

¹⁸⁴U.S. Environmental Protection Agency. *Extent of the Hazardous Release Problem and Future Funding Needs CERCLA Section 301(a)(1)(C) Study, Final Report*. Washington, DC: U.S. Environmental Protection Agency, 1984.

¹⁸⁵Breslin, Karen. "In Our Own Backyards: The Continuing Threat of Hazardous Waste." *Environmental Health Perspectives* 101(6), 1993, p. 484.

sites.¹⁸⁶ When a site entered the CERCLIS, it usually took four to five years before a decision was made as to whether it would be placed on the NPL list and the remedial process begun.

As of May 1997, 1,204 sites were on a National Priority List as the most dangerous, with another 49 sites proposed to be added. The Association of State and Territorial Solid Waste Management Officials argued that there may be as many as 7,000 NPL sites.¹⁸⁷ The Chemical Manufacturers Association identified 1,000 likely and 3,681 potential priority sites.¹⁸⁸ EPA claimed to have completed cleanup at over 400 sites and speeded up its efforts by removing sites from the NPL in which only portions were cleaned up instead of waiting until the entire site was decontaminated. The rationale for this truncated procedure was so sites "will not suffer from any limitations imposed by identification as a Superfund site" in terms of economic revitalization opportunities.¹⁸⁹

Likewise, estimates of the amounts of hazardous wastes produced in the United States each year ranged widely. The 1983 OTA report placed production at 275 million tons, or 5.5 billion pounds, annually. A similar number was reported by manufacturing facilities to EPA in the 1989 Toxic Release Inventory. Manufacturers indicated that 5.7 billion pounds of 325 toxic chemicals were released into the air, water, and soil that

¹⁸⁶Office of Technology Assessment. *Coming Clean: Superfund Problems Can Be Solved*. OTA-ITE-433. Washington, DC: U.S. Government Printing Office, 1989.

¹⁸⁷Association of State and Territorial Solid Waste Management Officials. *State Programs for Hazardous Waste Sites*. Washington, DC: Association of State and Territorial Solid Waste Management Officials, 1987.

¹⁸⁸Barnett, Harold C., *Toxic Debts and the Superfund Dilemma*.

¹⁸⁹U.S. Environmental Protection Agency. "Superfund Administrative Reforms Annual Report Fiscal Year 1996," 1997, at <http://www.epa.gov/superfund/oerr/admin/execsum.htm#superfund> today, June 18, 1997.

year.¹⁹⁰ The American Chemical Society, however, estimated the total between 580 million and 2.9 billion tons of hazardous wastes per year.¹⁹¹ Industries have registered more than 8 million chemical substances with the Chemical Abstract Service, 63,000 of which were listed for commercial use under the Toxic Substances and Control Act, passed by Congress in 1976, and another 1,500 were produced as new chemicals each year.¹⁹²

Along with disputes over the location and quantities of hazardous wastes, debate existed as to the meaning of the "potential human health risks" and threats to the surrounding environment posed by such wastes. Perhaps as many as 50,000 people died prematurely each year in the U.S. from exposure to pollutants.¹⁹³ The EPA stated that both chemical and radioactive wastes at sites threaten the health of 70 million Americans, including 10 million children.¹⁹⁴ The largest threat to public health came from contamination of drinking water, particularly the groundwater upon which roughly 40% of the U.S. population relied.¹⁹⁵ About 41 million people live within 4 miles of 1,134 of the

¹⁹⁰U.S. Environmental Protection Agency. *Toxics in the Community: National and Local Perspectives. The 1989 Toxics Release Inventory National Report*. Washington, DC: U.S. EPA, Office of Toxic Substances, 1989.

¹⁹¹Szasz, Andrew. *Ecopopulism: Toxic Waste and the Movement for Environmental Justice*. Minneapolis, Minnesota: University of Minnesota Press, 1994.

¹⁹²Head, Rebecca A. "Health-Based Standards: What Role in Environmental Justice?" *Environmental Justice: Issues, Policies, and Solutions*. Ed. Bunyan Bryant. Washington, DC: Island Press, 1995.

¹⁹³Office of Technology Assessment. *Acid Rain and Transported Air Pollutants: Implications for Public Policy*. Washington, DC: Congress of the United States, 1984.

¹⁹⁴U.S. EPA, "Superfund Administrative Reforms Annual Report Fiscal Year 1996."

¹⁹⁵Marsh, Gary M., and Richard J. Caplan. "Evaluating Health Effects of Exposure at Hazardous Waste Sites: A Review of the State-of-the-Art, with Recommendations for Future Research." *Health Effects From Hazardous Waste Sites*. Ed. Andelman and Underhill. Michigan: Lewis Publishers, 1988.

National Priority List (NPL) sites.¹⁹⁶ Health effects of exposure to hazardous wastes could include cancers, reproductive problems, birth defects, neurological, endocrine or respiratory disorders, or other illnesses such as kidney, liver or blood disorders, and hypertension.

According to the EPA, hazardous waste sites and emergencies should be reported to an agency hotline. Once a site was reported, the agency "screened" the site, meaning the EPA reviewed existing data, inspected the site, and possibly interviewed nearby residents "to find out the history and the effects of the site on the population and the environment." Sites that met the Superfund criteria underwent soil, water, and air tests to "determine what hazardous substances were left at the site and how serious the risks may be to human health and the environment."¹⁹⁷

EPA developed a Hazard Ranking System, relying on information collected during the assessment phase, to score sites according to potential public health and environmental risk. Sites that scored 28.5 and above, on a scale of 1 to 100, were placed on the National Priority List, indicating that they were eligible for long-term "remedial action" financed by Superfund. States or territories could place sites on the NPL and designate those sites as top priorities regardless of their HRS score. The Agency for Toxic Substances and Disease Registry (ATSDR) of the U.S. Public Health Service also could place a site on the NPL by issuing a health advisory that recommends removing people from the area. In the latter case, the EPA would have to concur with the ATSDR and determine that remedial action as an NPL site was more cost effective than emergency action.

¹⁹⁶National Academy of Sciences, National Research Council, *Environmental Epidemiology: Public Health and Hazardous Wastes*.

¹⁹⁷U.S. Environmental Protection Agency. *This is Superfund: A Citizen's Guide to EPA's Superfund Program*. EPA 540-K-93-008. Washington, DC: U.S. EPA, March 1994, pp. 4-5.

Once a site was added to the NPL, EPA officials, through the appropriate regional office, were required to prepare a Community Relations Plan "to ensure community involvement" and set up a repository of information on the hazardous site in a local community school or library. A citizen's guide to Superfund published by the agency in 1994 explained to the public that,

Superfund cleanups are very complex and require the efforts of many experts in science, engineering, public health, management, law, community relations, and numerous other fields. The goal of the process is to protect you and the environment you live in from the effects of hazardous substances. Your involvement is very important. You have the opportunity and right to be involved in and to comment on the work being done.¹⁹⁸

EPA 1992 Report on Environmental Equity

Taking the charge of public involvement seriously, environmental justice activists provoked EPA to assess their claims of pollution's disproportionate impact upon the health of minority communities. In 1992, the EPA Equity Work Group issued its report *Environmental Equity: Reducing Risk for All Communities*. In that report, the Work Group used the term "environmental equity" to denote the distribution of environmental risks and benefits among communities, more or less similar to activist Robert Bullard's definition of, "Who gets what, where, and why?"¹⁹⁹ The report stated that environmental equity "involves ensuring that the benefits of environmental protection are available to all communities and an environmental policy-making process that allows the concerns of all communities to be heard, understood and addressed."²⁰⁰

¹⁹⁸Ibid, p. 6

¹⁹⁹Bullard, *Dumping in Dixie: Race, Class and Environmental Quality*.

²⁰⁰U.S. Environmental Protection Agency, Office of Policy, Planning and Evaluation. *Environmental Equity: Reducing Risk for All Communities, Volumes 1 and 2*. Washington, DC: U.S. EPA, June 1992.

The Equity Work Group did find differences between racial groups in terms of disease and death rates, but argued that, with the exception of lead, there was a general lack of data on environmental health effects by race and income. Lead poisoning research found that a higher percentage of African-American children had high levels of lead in their blood compared to white children in the same socioeconomic category. While acknowledging that racial minorities and low-income populations "experience higher than average exposures to selected air pollutants, hazardous waste facilities, contaminated fish and agricultural pesticides in the workplace," the group called for further data collection on the cumulative and synergistic effects of exposures. They also contended that communications with affected groups and with other government agencies could be improved.

From the beginning of its report, the EPA connected environmental protection with a risk-based priorities and management approach. The EPA argued that "Risk assessment and risk management procedures are not in themselves biased against certain income or racial groups. However, risk assessment and risk management procedures can be improved to better take into account equity considerations." The 1992 report effectively circumscribed the issue of environmental equity into a technical issue over risk and stated that,

EPA chose the term environmental equity because it most readily lends itself to scientific risk analysis. The distribution of environmental risks is often measurable and quantifiable. The Agency can act on inequities based on scientific data. Evaluating the existence of injustice and racism is more difficult because they take into account socioeconomic factors in addition to the distribution of environmental benefits that are beyond the scope of this report. Furthermore, environmental equity, in contrast to environmental racism, includes the disproportionate risk burden placed on any population group, as defined by gender, age, income, as well as race.²⁰¹

²⁰¹Ibid, p. 10.

Environmental justice activists criticized the 1992 report for bureaucratic "whitewashing" of the problem of environmental disparities suffered by minority and low-income communities. Activists blasted the EPA for purposefully neglecting to cite the research that had been done to document the problems and for perpetually calling instead for more data collection and new studies. They argued that the report did not discuss the accountability of industry's role in the problem, nor did it go far enough in opening up the decision-making process at EPA for minority activists and researchers to be involved at all levels of policy-making.

Critical response to the report came from the Michigan Coalition, SNEEJ, and Robert Bullard. The Michigan Coalition contended that the language used in the report and the absence of specific tasks and timetables indicated a "lack of force" on the part of the EPA's stated commitment to environmental justice. Further, the Coalition, as well as SNEEJ and Bullard, all argued that the report overstated the scarcity of evidence. The Coalition responded that, "Although there is a clear need for more data regarding the distribution and impacts of environmental hazards by income and race, the Report's emphasis on lack of existing data gives the appearance of a strategy of denying that the problems exists." Activists felt "alarmed" that the report did not make recommendations to deal with industry and its role in creating the conditions for environmental injustice. They also criticized the EPA for failing to acknowledge the expertise of community groups in addressing environmental problems.

The comments from SNEEJ were more pointed. The Network argued that neither it nor other communities of color were given an opportunity to comment on the report before its release. The activists referred to the controversy surrounding the internal memo by the EPA's chief communication official to subvert the efforts of grassroots environmental

justice which aired at the press conference to release the report. This incident, as well as the fact that the Network still had not received a written response from the agency to their July 1991 letter, incensed them to respond,

The experiences and concerns outlined above raise for us a very grave question: "How can we honestly believe that the current Administration is willing to engage us in an open dialogue and commit to working together with us to address the very real and serious problem of environmental racism?"²⁰²

SNEEJ activists remarked that "If EPA intends to study environmental equity until it has good data, the agency will never act." Further, they found the report wanting in that the causes of environmental injustice are not explored fully or reflectively by the agency,

The Agency is irreversibly committed to certain policy initiatives, regardless of whether they create unfair burdens of environmental exposure. Several policies such as delegation of powers to State and local governments, voluntary deals with industry, and market incentives all have direct and indirect inequitable features. These policies involve EPA-brokered negotiations of the power to distribute environmental risks and these negotiations consistently exclude people of color groups. In short, EPA is consciously distributing environmental control to the same groups which people of color for years have found to be the chief source of racial inequity.²⁰³

Activists referred to the agency's decision making process in the case of Alar versus that of Parathion to illustrate their complaint that the EPA does not equitably apply environmental protections. The EPA banned the use of Alar "some three weeks after actress Meryl Streep testified before Congress about white, middle-class babies consuming minute residues on some apple products." Although EPA made a decision to cancel use of the pesticide Parathion in 1987 due to the health threat it poses farm workers, the agency did not act until 1990 after a staff member "leaked word of the cover-up." The EPA,

²⁰²Ibid, p. 89.

²⁰³Ibid, p. 91.

activists argued, had neglected serious health issues along U.S. borders, such as the "manifestation of anencephaly [newborn infants born without brains] along the Mexican border, where the U.S. trade agreement is subsidizing pollution along the Rio Grande."

Bullard insisted that the EPA Work Group "failed to grasp the interrelationship between race, class, and environmental decision making." He denounced the EPA's notion of a "value-free" objective science of risk and asked:

Is the reader to assume that the EPA has made and continues to make all of its decisions based on "value-free risk-based priorities?" We know better. The not so distant past is a reminder that the "politics of pollution" is alive and well in the USA. We offer the example of the agency's own Ann Gorsuch Burford, Rita Lavelle, and John Hernandez scandal in the 1980s. These were advocates of "good science."²⁰⁴

“Among the Agency’s highest priorities”

Public pressure brought by environmental justice activists induced the EPA to create an Office of Environmental Equity (OE2) in November 1992. EPA formed the office to serve as point of contact for the agency and the public on environmental justice outreach, technical assistance, and information. The OE2 was initially established under the auspices of the EPA Office of Administration and Resource Management (OARM). Dr. Clarice Gaylord, a zoologist by training, became director of the office on June 1, 1992. Gaylord worked previously within EPA as Deputy Director of EPA's Office of Human Resource Management and as Director of the agency's Research Grant Staff in the Office of Research and Development. Her career included work as a science administrator with the National Institutes of Health and the National Cancer Institute.

²⁰⁴Ibid, p. 107.

At the same time OE2 appeared, EPA formed an Environmental Equity Cluster to develop policies, guidance documents, and an overall agenda for agency's response to environmental justice. Specifically, the cluster was to develop strategies for implementing the 1992 Equity Work Group report. Regional and program offices initiated workgroups, quality-action teams, advisory boards or steering committees to focus on environmental justice activities. In September 1992, EPA Region IV hosted an environmental equity conference in Atlanta attended by over 300 people, including representatives from southern environmental minority groups. Staff reported that "The Agency demonstrated its commitment to equity issues in the south, and devoted much of its time listening to the concerns of the participants."²⁰⁵ In October, Region V staff participated in a conference sponsored by People for Community Recovery in Chicago. "Ethnic Study Groups" of EPA volunteer staff developed position papers on environmental issues affecting Native Americans, Asian and Pacific Islanders, Hispanics, and African Americans. In addition, EPA created intra-agency work groups on gender, low-income, and inter-generational equity.

The 1992 presidential election of Bill Clinton gave activists more hope for gaining greater federal attention to environmental justice concerns. Two activists, Reverend Ben Chavis and Robert Bullard, served on Clinton's Transition Team in the Natural Resources and Environment Cluster. This cluster included representatives from the EPA and the Departments of Energy, the Interior, and Agriculture.²⁰⁶ The hope, according to lawyer and activist Deeohn Ferris, was that,

²⁰⁵U.S. Environmental Protection Agency, Office of Environmental Equity, *Environmental Equity Update Memo*, Washington, DC: U.S. EPA, 1992.

²⁰⁶Ferris, Deeohn. "A Call for Justice and Equal Environmental Protection." *Unequal Protection: Environmental Justice and Communities of Color*. Ed. Robert Bullard. San Francisco, CA: Sierra Club, 1994. Grossman, Karl. "Environmental Racism." *The Racial Economy of Science: Toward a Democratic*

With these two individuals working inside the "belly of the beast," the EPA, grass-roots groups from all across the country would have a direct pipeline for getting their message heard by the new EPA administration.²⁰⁷

Chavis and Bullard were part of a twenty-two person team that focused specifically on EPA operations. The team's work resulted in a briefing book for the new EPA administrator and policy recommendations for the Clinton Administration. An Environmental Justice Transition Group submitted recommendations to the presidential transition team studying EPA. The group included Earth Island Institute, the Gulf Coast Tenants Organization, the Indigenous Environmental Network, the Lawyers' Committee for Civil Rights Under Law, Native Action, the Southern Organizing Committee for Economic and Social Justice, the Southwest Network for Environmental and Economic Justice, the SouthWest Organizing Project, and the United Church of Christ Commission for Racial Justice.

The Environmental Justice Transition Group recommended that EPA's institutional focus shift to protect adversely affected communities; that regulatory programs, compliance and enforcement priorities should be reoriented; and that new policy initiatives be implemented to redress disproportionate impacts of pollution. The transition group recommended that the new Clinton Administration issue an executive order on protecting disproportionately exposed populations and that the EPA's Office of General Counsel issue a formal opinion on the applicability of civil rights laws and regulations to environmental programs. Further, they suggested EPA reassess government relationships with indigenous peoples in order to adequately fund and streamline programs and facilitate self-determination for those communities. They also urged EPA to prioritize attention on developing countries and took the position that the agency be elevated to cabinet status.

Future. Ed. Sandra Harding. Bloomington, IN: Indiana University Press, 1993.

²⁰⁷Ibid, p. 299.

By April 1993, the new EPA Administrator Carol Browner made environmental justice one of the top four EPA priorities. President Clinton's Earth Day address, on the 22nd of April, directed the EPA and the Department of Justice to begin an interagency review of federal, state, and local regulations and enforcement affecting communities of color and low-income communities to investigate inequalities in environmental hazardous exposures. Browner put together an EPA National Performance Review Team on Environmental Justice to complement a review team created by Vice President Gore on the same issue. The teams were "to encourage creative thinking and major paradigm shifts in the Agency's current environmental justice policies and practices."²⁰⁸ The team of EPA employees who assessed environmental justice within the context of the EPA's mission found that the agency's efforts disjointed and lacking effective processes to ensure accountability and to ensure that environmental justice could be incorporated and sustained in programs and activities.

In May 1993, the Office of Environmental Equity held the first National Environmental Equity Coordinators meeting with representatives from each Region and each program office at EPA. Over thirty activists met with Carol Browner and other agency officials at a National Justice/Equity Leaders Meeting hosted by the OE2. The activists requested, among other things, that EPA create a Federal Environmental Justice Advisory Committee, require EPA Assistant and Regional Administrators to make periodic visits to environmental justice sites, and to provide opportunity for environmental justice activists to have input into administrative appointments.

²⁰⁸U.S. Environmental Protection Agency, Office of Environmental Equity. *Environmental Equity Update Memo*. Washington, DC: U.S. EPA, 1993.

In January 1994, the OE2 was renamed the Office of Environmental Justice (OEJ). Since the term "equity" conjured up the vision of leveling all communities to lower standards of pollution regulation, as well as the more likely intended vision of raising the environmental standards in minority and low-income communities suffering from environmental contamination, it was replaced by the term environmental justice. At the same time, Browner affirmed that the EPA would assume a leadership role in environmental justice initiatives in order to coordinate federal, tribal, state, and local government efforts. The agency's *Environmental Justice Initiatives 1993* cited the beginnings of government research on correlating risk, race, and income with the Council on Environmental Quality 1971 Annual Report to the President. "In this report, the CEQ acknowledged that racial discrimination adversely affected the ability of the urban poor to elevate the quality of their environment." Within EPA, internal reorganization was underway. Browner declared that,

Incorporating environmental justice into "everyday" activities and decisions will be a major undertaking. Fundamental reform will be needed in the way we do business. We have begun by including environmental justice among the Agency's highest priorities in all programs, both at headquarters and in the regions. We are incorporating environmental justice initiatives into short-term and long-term planning processes, in regulatory and policy making activities, enforcement, pollution prevention, education and economic development strategies.²⁰⁹

Browner believed that the time was right for the EPA to show its commitment to environmental justice concerns. "The opportunity is here—let's seize it," she said.²¹⁰

In January 1994, EPA administration developed a "three-tiered infrastructure" to work with the OEJ. This infrastructure included renaming the Environmental Equity

²⁰⁹U.S. Environmental Protection Agency, Office of Administration and Resource Management. *Environmental Justice Initiatives 1993*. Washington, DC: U.S. EPA, 1994, p. 1.

²¹⁰*Ibid.*

Cluster to an Executive Steering Committee, comprised of "senior managers" such as the Deputy Assistant Administrators and Deputy Regional Administrators from at least three regions, to work on strategic planning "to ensure environmental justice is incorporated into Agency operations" and to provide direction to the Policy Group. The Environmental Justice Policy Working Group, comprised of "high level policy staff" ensured the development and coordination of environmental justice projects and technologies. Environmental Justice Coordinators are "front-line staff" who provide education and outreach for environmental justice information in their offices and regions. Part of the reasoning behind "The new structure is an effort to get a clear commitment from senior management to integrate environmental justice into their offices..."²¹¹

By 1995, EPA's contention was that the new structure had "established a clear commitment from the agency's senior management to all EPA personnel..."²¹² In a pamphlet designed to educate EPA employees on environmental justice, the OEJ outlined the tenor of the agency's approach. OEJ encouraged staff to learn about the community in which they work, consider the affects of pollution on children, understand cultural diversity, and realize that poverty severely limits options and opportunities for people to move from contaminated sites. "If you work in communities, support those that do, write regulations which affect people or communities, or answer an EPA hotline, you have a role in justice."²¹³

²¹¹Ibid.

²¹²U.S. Environmental Protection Agency, Office of Administration and Resources Management. *Environmental Justice 1994 Annual Report*. Washington, DC: U.S. EPA, 1995, p. 4.

²¹³U.S. Environmental Protection Agency, Office of Environmental Justice. "Serving a Diverse Society: EPA's Role in Environmental Justice." EPA 200-F-93-00. Washington, DC: U.S. EPA, 1994.

Environmental Justice on the National Agenda

The Clinton Administration's interest came to a symbolic peak on February 11, 1994, when the President issued an Executive Order directing each federal agency to develop an environmental justice strategy to identify and address the disproportionate effects of its programs and policies on minorities and low-income populations.

...each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions,...²¹⁴

By spring 1995, at least twelve departments and agencies submitted final environmental justice strategies for their institutions.²¹⁵

The Executive Order created a Federal Coordinating Council, known as the Interagency Working Group (IWG) on Environmental Justice, comprised of the heads of seventeen executive agencies and offices, to coordinate the agencies' strategy efforts as well as coordinate research and cooperation among agencies. With regard to human health and environmental research, the Order called for minority, low-income, and high-risk workers to be included in epidemiological and clinical studies; for health analyses to identify multiple and cumulative exposures; and for agencies to provide opportunities for minority and low-income populations "to comment on the development and design of research strategies." Agencies were required to collect, maintain, and analyze and compare risks borne by populations identified by race, national origin, or income for areas

²¹⁴Executive Order 12898 of February 11, 1994. "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." *Federal Register*, Vol. 59:7629-7633, 1994.

²¹⁵ These were the Departments of Agriculture, Commerce, Defense, Health and Human Services, Housing and Urban Development, Interior, Justice, and Transportation, as well as EPA, NASA, and the Nuclear Regulatory Commission.

surrounding both federal and non-federal sites. Information on consumption patterns of populations that rely on fish and wildlife for subsistence was to be collected, analyzed, and communicated to the public by agencies. Also, the Order called for the public to submit recommendations to agencies, for agencies to make all documents accessible to the public, and for the IWG to hold public meetings.

The Order also mandated creation of a Federal Advisory Committee Act board to advise the EPA and the IWG that includes indigenous peoples and representatives of community-based groups experiencing disproportionate impact. The mandate recommended that EPA reprioritize work in eleven program areas to protect human health—indigenous peoples, farm workers; radiation exposure, waste facility siting and cleanup, clean air, clean water, safe drinking water, urban areas, free trade and border issue, EPA strategic planning and budget, and state program implementation. Priorities should be based on protecting those more severely exposed, considering factors such as synergistic effects, multiple sources, and sensitive populations. The Order suggested that EPA reconcile its federal reporting and data reference systems, emphasize collecting and analyzing data on populations most exposed to contamination, and target its enforcement initiatives in communities of color inundated with pollution risks.

In a memorandum for heads of all departments and agencies attached to the Order, Clinton reminded officials of a number of existing laws "that can help ensure that all communities and persons across this Nation live in a safe and healthful environment."²¹⁶ He pointed to Title VI of the 1964 Civil Rights Act that forbids discrimination on the basis of race, color, or national origin. Clinton believed that the commitment to address the

²¹⁶Clinton, William J. "Memorandum for the Heads of All Departments and Agencies." Washington, DC: The White House, 1994.

adverse effects of proposed federal actions on minority and low-income communities could be carried out through incorporation of such issues into an environmental assessment, impact statement, or record of decision as mandated in the National Environmental Policy Act of 1969. The Clean Air Act, for example, already called for involved agencies to analyze environmental effects on minority and low-income communities. Further, the Freedom of Information Act and the Emergency Planning and Community Right-to-Know Act mandate that the public has adequate access to information regarding environmental planning, regulations, and enforcement.

The Interagency Working Group held its first meeting January 20, 1995, at Clark Atlanta University where Robert Bullard directed the University's Environmental Justice Resource Center. Ten agencies and 350 people attended the conference. An estimated 1,000 community residents, environmental justice activists, and "other stakeholders" participated via satellite broadcasts to forty locations, including several historically black colleges and universities. The IWG was chaired by Browner and comprised of eleven department and agency heads and several White House offices: the EPA, Departments of Justice, Defense, Energy, Labor, Interior, Transportation, Agriculture, Housing and Urban Development, Commerce, and Health and Human Services, the Council of Environmental Quality, the Office of Management and Budget, the Office of Science and Technology Policy, the Domestic Policy Council, and the Council of Economic Advisors. The IWG established eight task forces: Research and Health, Outreach; Data; Enforcement and Compliance, Implementation, Native Americans, Guidance, and Interagency Projects. Each task force was chaired by two agencies with representation from each of the participating agencies.

Despite the Clinton Administration's sympathetic stand, advocates for environmental justice believed that there was still a need for permanent statutory mandates to redress the disproportionate impacts of environmental hazards. In June 1992, Representative John Lewis (D-GA) and then Senator Al Gore (D-TN) introduced "Environmental Justice Act" legislation into the House and Senate that would "establish a program to ensure nondiscriminatory compliance with environmental, health, and safety laws and to ensure equal protection of the public health"[H.R. 5326 and S. 2806, 102d Congress, 2d session]. The bill directed, among other things, the EPA administrator to publish a list of the amount of toxic chemicals present in counties and to establish a moratorium on the siting and permitting of hazardous waste facilities in highly impact areas until certain health-based levels have been attained. The following year, the legislation was reintroduced into Congress as the Environmental Justice Act of 1993, again by Lewis in the House and, in the Senate, by Max Baucus (D-MT), chair of the Senate Committee on Environment and Public Works. Other legislation has been sponsored on such issues as expanding community-right-to-know provisions and creating a department of the environment, which would have a higher level office of environmental justice. However, to date such legislation has not been adopted by Congress.

At the state level, Arkansas, Florida, and Louisiana passed legislation that had an impact on environmental justice concerns with hazardous wastes. The Arkansas act, passed in 1993, prohibited the construction of a solid waste management facility within twelve miles of an existing facility. According to Barton Hacker, of the Center for Policy Alternatives, the law was "a model because its language identifies the siting problem, by stating: 'National trends indicate a tendency to concentrate high-impact solid waste disposal

facilities in lower-income or minority communities."²¹⁷ The 1994 Florida act created an Environmental Equity and Justice Commission to examine the magnitude of the disproportionate impact of environmental hazards on minority and low-income communities and to prepare model legislation. The 1993 Louisiana act authorized the state's Department of Environmental Quality to adopt and promulgate rules that prohibit discharging chemical waste into publicly owned treatment facilities and to hold a series of public hearings to gather information and obtain public comments on environmental justice. Several other states such as Georgia, Minnesota, South Carolina, North Carolina, New York, and California also were considering environmental justice legislation.²¹⁸

The state legislatures of Michigan, Tennessee, and Virginia passed resolutions.²¹⁹ The Michigan House Resolution No. 662 encouraged the U.S. Congress to establish environmental justice legislation at the national level. Tennessee's House Joint Resolution No. 146 called for the state's Departments of Health, Human Services, Agriculture, and Environment and Conservation to analyze a proposed environmental justice act and submit a report for debate by the legislature. Virginia legislators called upon the state's Joint Legislative Audit and Review Commission (JLARC) to study the siting, monitoring, and cleanup of solid and hazardous waste facilities and the impact on minority communities. In 1995, the JLARC reported that race was not the obvious cause of disproportionate pollution on minority communities. The report contended that while thirty-five percent, or 57 facilities, of sanitary, industrial, debris landfills sites are located in predominately or

²¹⁷Hacker, Barton. *Environmental Justice: Legislation in the States*. Washington, DC: Center for Policy Alternatives, 1994.

²¹⁸ Ibid.

²¹⁹ Ibid.

disproportionately minority communities, sixty-five percent of such facilities, or 111 facilities, are located in white communities. The JLARC disputed that race was a predominant factor in the state's siting process, but qualified this finding by noting the problems of fairly including communities into the decision making process at the local level.

Concerning the siting process, there is no reliable evidence to indicate the race of the communities was explicitly considered as a part of local decision making. Localities that have approved solid waste sites in minority communities were just as likely to have conducted formal independent siting studies, objectively evaluated alternative sites, and were more likely to have had minority representatives on the local governing board who supported the siting decision. Nonetheless, while local governing bodies do carry out the statutory requirements for establishing solid waste facilities, some have generally done a poor job of incorporating the community into the decision making process. In some cases, this has created special problems when sites were located in minority communities.²²⁰

The report further criticized the lack of good record keeping and of the inadequate numbers of inspectors at the state's Department of Environmental Quality, but argued that, "While it appears that there are problems in the enforcement process, the race of the neighborhoods in which solid waste sites are located is not associated with staff activities in this unit."

Deeohn Ferris, an environmental attorney and executive director of the Washington Office on Environmental Justice, declared that,

These developments at the federal and state levels are key accomplishments that demonstrate that the environmental justice movement is alive, well, and thriving. Due to the hard work of community-based grassroots organizations, pollution issues affecting people of color and poor and working-class communities are more frequently the topics of attention nationally, statewide, and locally. Even so, activists in the movement continue to pressure for change, recognizing that reforms to systems that

²²⁰Joint Legislative Audit and Review Commission of the Virginia General Assembly. *Solid Waste Facility Management in Virginia: Impact on Minority Communities*. Richmond, VA: JLARC, 1995, p. 27.

cause environmental problems experienced by affected communities must be permanent and irrevocable.²²¹

As activists gained ground with the Clinton Administration and made inroads into the EPA, their efforts to frame inequities in environmental law protection for minority communities as civil rights violations caught the attention of Congress. In March 1993, the Subcommittee on Civil and Constitutional Rights of the House of Representatives Committee on the Judiciary held a hearing on environmental justice.²²² Ten activists provided testimony: Hazel Johnson, founder of southeast Chicago group People for Community Recovery, and Pat Bryant of GCTO described the pollution, health problems, and disinterest by local authorities facing their communities in Chicago and the Gulf Coast area respectively. Reverend R.T. Conley, director of the Dallas Area Southern Organizing Committee for Economic and Social Justice, Susana Almanza, co-chair of SNEEJ, and Tom Goldtooth, environmental director for the Red Lake Band of Chippewa Indians and national council officer for the Indigenous Environmental Network, gave grassroots perspectives of their minority communities experiencing health damage and frustration with government over pollution and toxic waste contamination. Deehon Ferris provided legal analysis and remedies for addressing the issue.

After hearing Johnson and Bryant's testimonies, subcommittee chair Representative Don Edwards (D-CA) reflected on the Subcommittee's role,

We don't have jurisdiction over much of this material. We do have jurisdiction, sole jurisdiction over civil rights. And that is something we are going to look at right away, as to whether or not the civil rights laws can be interpreted to include a right—and Ms. Gaylord, you are going to help us do that insofar as your own records are concerned—for a decent livelihood and freedom from being poisoned and discriminated against, where the

²²¹Ferris, "A Call for Justice and Equal Environmental Protection," p. 319.

²²² U.S. Congress, Committee on the Judiciary. "Environmental Justice." Ed. Subcommittee on Civil and Constitutional Rights. 64 ed. Washington, DC: U.S. Government Printing Office, 1994. Vol. 103-1.

white middle class don't have to suffer from this contamination, and yet poor minorities do. That is not the way this country is supposed to run.²²³

Edwards questioned OEJ director Clarice Gaylord about activists' allegation that EPA had been operating for over twenty years under the assumption that civil rights law does not apply to environmental law. Gaylord responded that,

From what we can tell, Mr. Edwards, when EPA was first created, the General Counsel made a ruling in 1971 that—I guess it was a new agency trying to focus on the regulatory and scientific mission—they made a ruling that civil rights laws did not apply to environmental laws. This was reiterated again when then Administrator Ruckelshaus appeared before the U.S. Commission on Civil Rights, and basically testified that civil rights laws did not apply to environmental laws. And apparently the Agency has been operating on that principle.²²⁴

Ruckelshaus' testimony to the Commission on Civil Rights in June 1971 maintained that EPA supported Title VI of the 1964 Civil Rights Act—that prohibits federal programs from discriminating on the basis of race, color, religion, sex, or national origin—but described the "limitations" on a "regulatory agency" to fulfill its mandate to achieve pollution control and Title VI responsibilities at the same time. Gaylord cautioned that the OEJ was limited in its ability to redress charges of unequal protection,

One of our problems is that we do not have any kind of legislative authority to do anything in this Office. We were put together by public pressure, and that is one of our limitations.²²⁵

Testimonies at the hearing reflected a range of views on the claim that environmental racism, or the unequal protection of minority communities under environmental laws, existed. Robert Bullard, Reverend Ben Chavis, labor educator Pam

²²³Ibid, p. 45.

²²⁴Ibid, p. 41.

²²⁵Ibid, p. 18.

Tau Lee from the University of California, Berkeley, and Paul Mohai reported sociological data to support the claim. However, Mohai carefully explained that,

I would like to say that what I am arguing is not that race is the single determinant. I agree that income related factors do play a role. What I am saying is that race plays an independent and added role to that...²²⁶

Kent Jeffreys, director of environmental studies at the Competitive Enterprise Institute, and Kyle E. McSlarrow, an environmental attorney specializing in Superfund and hazardous waste laws, provided a more conservative view. Jeffreys and McSlarrow countered that environmental racism was not the main issue. Both were convinced that no government legislative remedies should be taken and that economic empowerment for minority communities could only be redressed through respect for contract and private property rights. Jeffreys stated that,

Racism exists. Environmental problems exist. These facts, however, do not reveal whether or not environmental racism is occurring. Regardless of whether any particular case fits the definition of environmental racism, the fact remains that environmental problems—from a minority perspective—are rather trivial in comparison to the larger economic and civil liberty issues: solve these and you have solved most, if not all, of the environmental inequities.²²⁷

Further, Jeffreys argued that "environmental hazards (of the sort usually contemplated by the EPA) are frivolous matters in comparison to the very real problems of alcoholism, inadequate health care, inadequate education, inadequate housing...the list goes on." Living next door to a state-of-the-art waste facility, he believes, is far less risky "than drinking a morning cup of coffee." He contended that any search for perfectly safe environments is "fruitless" and reduces "societal well being" overall. Further, Jeffreys

²²⁶Ibid, p. 131.

²²⁷Ibid, p. 64.

jabbed at the sore point of contention between environmental justice activists and the traditional environmental movement by arguing that elitism was being confused for racism.

The attitudes of the environmental elites are distinct from the needs of minorities and the poor. Statistical surveys indicate that the memberships of the major environmental organizations are overwhelmingly white, wealthy, well-educated, and politically organized. Thus, much what passes for racism in America today would be more properly described as elitism. Class privilege and political power cannot be eliminated through political action. It would seem that much of the debate over so-called environmental racism is misplaced.

Charles McDermott, director of government affairs at Waste Management, Inc., took a critical view far more savvy to the political interests of industry and activists alike in hazardous waste controversies. McDermott viewed inequities to exist because pollution standards for activities which generate waste are different from the management or disposal of waste. He stated that WMX wanted to participate and be recognized for being a responsible industry and to reform public perceptions of its activities. Wastes must go somewhere, he argued, and any pollution stemming from waste management industry activities should be ranked fairly among other activities that have the potential to pollute. McDermott told the subcommittee of a WMX funded study by the University of Massachusetts, Amherst School of Public Health on the demographics of the company's facilities that, "Using the same methodology employed on the Commission for Racial Justice study, it was determined that 76 percent of our disposal facilities are located in communities with a white population equal to or greater than the host State average."²²⁸

The presence of McDermott at the hearing was important. Waste Management, Inc., through its hazardous waste subsidiary Chemical Waste Management (Chem Waste), was embroiled in a number of local controversies that environmental justice activists

²²⁸Ibid, p. 73.

considered to be representative of their claim that minority and low-income communities bore the brunt of polluting industries. In Emelle, Alabama, a community 70 percent African-American and where one-third of the residents lived below the poverty line, WMX owned and operated the nation's largest hazardous waste disposal and treatment facility. WMX considered Emelle a success story that created jobs and improved the standard of living for the county. In Emelle, McDermott stated that,

When we took over that site, which we did not initially permit but we purchased from the previous owner, the infant mortality rate in Sumter County was twice the national average. It was 122 deaths per live births. Ten years later, which can be almost exclusively attributed to the revenue that came into the country from the waste disposal activities, the infant mortalities were cut in half. The illiteracy rates were cut in half. The revenues coming into that community have built the town hall, have provided health care, have hooked people up to public sewage and water, and arguably have improved the quality of life. There is no evidence it has caused a health impact on the people living by the facility.²²⁹

Another controversy stemmed from an EPA contract with WMX to perform remediation work by removing lead-contaminated soils from an African-American community in West Dallas, Texas. When the company began to export the soil to one of its landfills in Louisiana, located in a predominately white community, local residents there protested the wastes coming in from out-of-state. Situations such as this, argued McDermott, present opportunities for greater cooperation among activists, the EPA, and waste service companies.

This could have been an opportunity for the environmental equity movement to bring health and science-based arguments to bear against the parochial interests that commonly object to moving wastes between states. We would argue that leaden soils belong in a secure, permitted landfill, not beneath the feet of children who have no where else to play. Moreover, EPA should take the most reasonable bid, regardless of state boundaries, to assure that scarce clean-up funds are preserved. No such support was forthcoming,

²²⁹Ibid, p. 82.

but we are hopeful that open discussion will some day create coalitions between advocates and remedial service companies.²³⁰

McDermott contended that industry should not be held responsible retroactively for problems that were not considered issues until recently, nor for problems where the health implications were not fully understood. He asserted that as far as the siting process goes, "more community involvement in that process is a good thing. But that participation must be coupled with a clear, accurate discussion of risk." Most importantly, McDermott wanted environmental justice advocates to think of WMX as an ally in the fight against pollution in that, "the capacity for waste management facilities to isolate or destroy dangerous substances otherwise available to the public should be considered a tool in the environmental justice movement."

The National Environmental Justice Advisory Council

Perhaps one of the most significant events for activists to secure their participation within the EPA came in September 1993, when the agency chartered the National Environmental Justice Advisory Council (NEJAC) to advise it on environmental justice issues. The request for the advisory committee came from activists during their May 1993 meeting with EPA officials hosted by the then Office of Environmental Equity. Clinton's February 1994 Executive Order reiterated the idea to create the committee under the Federal Advisory Committee Act (FACA). The original plan for NEJAC was for it to consist of twenty-five members representing what EPA called "stakeholders" in the issues. The members were to represent community-based groups, business and industry, academic and educational institutions, state and local governments, tribal governments, non-

²³⁰Ibid, p. 76.

governmental organizations, and environmental groups. Four subcommittees were created—Waste and Facility Siting, Enforcement, Health and Research, and Public Participation and Accountability—consisting of roughly twelve members each, some from the NEJAC Council as well as invited others. Clarice Gaylord acted as Designated Federal Officer (DFO) of NEJAC, while each subcommittee had a DFO coming from relevant EPA offices.

From its inception, NEJAC bore the mark of environmental justice advocates unwillingness to allow EPA to define the issues or set the agenda. The Council was originally set up with a chair chosen by EPA Administrator Carol Browner. At the Council's first meeting in May 1994, the original chair selection, John Hall, chairperson of the Texas Natural Resources Conservation Commission, was contested due to his affiliation as the head of a state agency that has been involved in cases of environmental discrimination such as the East Austin tank farm controversy. Members of the Council argued that a grassroots activist should have been chosen instead.²³¹ Under the FACA rules, the Administrator chose Council members, as well as the Chair, in consultation with the Council and with Gaylord. Members of the Council served one or two year terms with re-appointment possible. Non-Council subcommittee members were volunteer representatives appointed by the Administrator in consultation with Council and the DFO. Nominations for members could be forwarded to the Administrator from the interested public at large. At the August 1994 meeting, NEJAC voted that the chair should be elected by Council members, rather than being appointed by the Administrator. Hall resigned the

²³¹U.S. Environmental Protection Agency, Office of Environmental Justice. *Proceedings of the National Environmental Justice Advisory Council Meeting - October 25-27, 1994, Washington, DC*. Washington, DC: U.S. EPA, 1994.

position and the Council nominated Richard Moore as chair. Chair nominations still had to be confirmed, however, by the EPA Administrator pursuant to FACA requirements.

In its first meeting, the Council voted to increase its membership from 23 to 25 to allow room for other "key stakeholders," particularly to increase representation from Native American tribes from only one to three. The Council also initially rejected the four subcommittee designations it was given and set up a temporary working group to develop the subcommittee structure as well as choose the members for these subcommittees. By the August meeting, the Council decided to retain the four original subcommittees, but recommended two other subcommittees also be created: International (particularly to deal with NAFTA issues) and Indigenous People subcommittees.²³² At the first meeting in May 1994, there was also concern with protocol issues, such as not receiving a personal letter from the Office of Environmental Justice asking members to participate and scheduling meetings without consideration of members' schedules. A second working group was created to deal with protocol issues.²³³

By the end of 1994, the NEJAC had met three times, in May, August and October. In 1995, the group convened four times and three times in 1996. Of its first ten meetings to date, half took place in the Washington, D.C. area. All of the meetings were open to the public and announced in the *Federal Register*. Attendance by the public ranged from 150 to 200 people per meeting. By the last 1996 meeting, there were approximately 34 volunteer members on the six subcommittees in addition to the 25 members of the Council.

²³²U.S. Environmental Protection Agency, Office of Environmental Justice. *National Environmental Justice Advisory Council and Subcommittees - Proceedings from August 3-5, 1994, Albuquerque, New Mexico*. Washington, DC: U.S. EPA, 1994.

²³³U.S. Environmental Protection Agency, *Proceedings of the National Environmental Justice Advisory Council Meeting - October 25-27, 1994, Washington, DC*.

At the July 1995 meeting, Carol Browner addressed the Council on the status of the on-going battle of the budget. At that point, EPA was expecting a 34 percent reduction in its budget and a 50 percent reduction in its Office of Enforcement and Compliance Assurance. She mentioned that there were at least 17 separate provisions in the appropriations bill that would restrict EPA's activities. She announced the move of OEJ from the EPA Office of Administration and Resource Management to the Office of Enforcement and Compliance Assurance (OECA) in an arrangement similar to that of the EPA's Office of Indian Affairs. Browner assured NEJAC that the \$300,000 allocated to its activities comes from separate funds than for OECA overall, thus if OECA were cut by 50% it should have no immediate effect. According to Steve Herman, Assistant Administrator for OECA, the decision to move OEJ under OECA was made before the budget cuts proposed by Congress were known.²³⁴

NEJAC was re-chartered for two more years in 1995. A number of the original members of the Council were well known from their roles in garnering national attention to environmental justice issues. Robert Bullard, Bunyan Bryant, Beverly Wright, Deeohn Ferris, Charles Lee, and Richard Moore served through the first two years and all were reappointed to serve another year when the Council was re-chartered. Lee was asked to stay on for another two years. Charles McDermott, of Waste Management, Inc., was also an original member representing industry and he, too, served an extra year through 1996. While Moore chaired the entire Council, Bullard chaired the Health and Research Subcommittee, Ferris the Enforcement and Compliance Subcommittee, and Lee the Waste and Facility Siting Subcommittee. The backgrounds of the members were diverse ranging

²³⁴U.S. Environmental Protection Agency, Office of Environmental Justice. *Summary of the Meeting of the National Environmental Justice Advisory Council - December 12-14, 1995, Washington, DC.* Washington, DC: U.S. EPA, 1995.

from Monsanto, the Washington State Legislature, the Farm Labor Organizing Committee, Sierra Club Legal Defense Fund, to the Tlignit and Haida Indian Tribes of Alaska.

While successfully creating dialogue among its members, the NEJAC found it more difficult to secure relations with the Interagency Working Group on Environmental Justice, that included similar task forces on Outreach and Public Participation, Enforcement and Compliance, and Implementation. At the December 1995 meeting, Brad Campbell from the Council on Environmental Quality, reaffirmed the Administration's commitment to environmental justice. Charles Lee, Richard Moore, and Robert Bullard, however, criticized the unresponsiveness of the IWG to communicating and working with NEJAC on what were supposed to be cross-cutting issues. Campbell acknowledged that the IWG itself was in need of better internal coordination and that CEQ was aware of the "collective unhappiness" expressed by the NEJAC members.²³⁵

NEJAC meetings became a forum where members of the public could also express their own unhappiness with the OEJ as well as with NEJAC. Criticism was leveled at OEJ during the December 1995 meeting regarding misappropriation of funds in the community/university partnership grants program. The OEJ had recently granted \$300,000 to Tennessee Technological University in Chattanooga, Tennessee, a primarily white middle-class institution. However, the "community" end of the partnership was argued to be non-existent. One speaker raised concern about the wisdom of providing similar grants to MIT and Tufts, as well, arguing that the money was not making its way to minority communities in need. During the public comment period, criticisms included the NEJAC's

²³⁵ Ibid.

lack of grassroots representatives as its members as well as the perception that the Council needed more minority professionals.²³⁶

Environmental Justice and the Policy Process

At least two principles agreed upon at the 1991 environmental justice leadership summit stand out as providing the philosophical stance by which activists ground their involvement in remaking the regulatory research agenda. Principle Two stated that, "Environmental justice demands that public policy be based on mutual respect and justice for all peoples, free from any form of discrimination or bias." Principle Seven argued that, "Environmental justice demands the right to participate as equal partners at every level of decision-making including needs assessment, planning, implementation, enforcement and evaluation."

To achieve these goals, activists used a combative political approach. Richard Moore argued that environmental justice activists were a threat to the EPA because "we don't claim to speak for anyone but ourselves," "we have nothing to lose," and "our movement merges environmental and economic issues," refusing to break issues down to fit into narrow scope of government agencies. Deohn Ferris emphasized that environmental justice concerns resonated with a broader public and gained federal attention because,

What is ultimately at stake in the environmental justice debate is everyone's quality of life. The goal is equal justice and equal protection from pollution.²³⁷

²³⁶ Ibid.

²³⁷ Ferris, "A Call for Justice and Equal Environmental Protection," p. 316.

Environmental justice activists were effective in gaining EPA's attention, as well as attention from the Clinton Administration and Congress, both because they adamantly pressured these institutions through concerted action and because their charges of discrimination in protection from pollution and toxic wastes hit a nerve politically within institutions mandated to protect public health and welfare. Officials within the EPA, both historically and currently, suggested that the agency is one that is amenable to public opinion out of political necessity. The EPA responded to charges of racial discrimination in its policies and practices by showing some organizational and policy commitment to environmental justice. Making environmental justice a priority for EPA was important, but the influence of the Office of Environmental Justice appeared to remain peripheral, because the office was not given a specific mandate by Congress to carry out any particular legislation. OEJ facilitated the NEJAC and offered research grants and technical assistance. The NEJAC provided a forum for more public participation where officials could be questioned, new issues raised, and activists' ideas heard. The White House Interagency Working Group and the EPA's senior managers of an Executive Steering Committee, the agency's high level policy staff of the Environmental Justice Policy Working Group, and the front line staff of the Environmental Justice Coordinators grouped experts to examine such issues. Environmental justice activists, and NEJAC members as a whole, did not necessarily engage these groups except through critiquing of reports, memos, policy initiatives, or the like, and through some interaction with representatives who attended NEJAC meetings.

There was constant tension for environmental justice activists to portray their concerns and argue for change amidst the technocratic needs of the EPA. This tension became more evident in discussions over the scientific research on the health effects of

toxic wastes and pollution. Richard Moore asserted that activists' claims about health effects would be obvious to anyone who cared to investigate for themselves.

If these people who stay enclosed in their offices, the ones who are supposed to be directing the protection of our communities, come and look at the conditions we are living under, and see, taste, and smell for themselves, and it still doesn't do anything to their decision-making, then we know we are not dealing with human beings²³⁸

It was with such strong convictions that environmental justice activists challenged the scientific approaches used to assess the health impacts of toxic wastes.

²³⁸ Almeida, Paul. "The Network for Environmental and Economic Justice in the Southwest: Interview with Richard Moore." *Capitalism, Nature, Socialism* 5.1 (March 1994): 21-54.

CHAPTER 5

Amid Toxic Terrain and Multiple Epidemiologies: Advocating Environmental Justice Research

"Science has a moral obligation to lead to policy that swiftly protects our public health."

Northeast Environmental Justice Network recommendation at the
1994 Health Research and Needs Symposium in Arlington, Virginia²³⁹

The Legacy of Love Canal

When activists at the 1994 *Health Research and Needs Symposium* in Arlington, Virginia, called for more “meaningful health research” and a “new paradigm” to overcome the limitations of scientific knowledge for understanding the health implications of exposures to hazardous wastes, they formalized their position in an ongoing debate regarding the methodological problems and political parameters of epidemiology. Activists based their call for community participation in environmental justice research upon the accounts of communities suffering from toxic exposures, the perceived failures of government agencies to respond to their complaints, and the frustrating limitations of science to contribute to the policy decision making process.

Stories such as Carver Terrace in Texarkana, Texas, epitomized for environmental justice activists the plight of many minority and low-income communities. Residents of Carver Terrace, a subdivision built in 1964 in a 100-year flood plain atop a wood treating facility that operated from 1910 to 1961, experienced years of frustration in trying to convince the EPA and the state that their neighborhood was extremely hazardous. The soil and water in the neighborhood were contaminated with the wood preserving chemicals

²³⁹ U.S. National Institutes of Health. *Symposium on Health Research Needs to Ensure Environmental Justice: Recommendations - February 10-12, 1994, Arlington, Virginia.*

creosote, PCP, and arsenic. The health problems at this "African-American Love Canal," as resident activist Patsy Oliver argued, were chronic,

there were children born with birth defects, a lot of the younger women were having female problems where they were having to have hysterectomies or having tumors. We would begin to talk and they would say Mrs. Jones is in the hospital. Well what's wrong with her. She has tumors, she had to have them removed. Mrs. So and So's daughter had a miscarriage the other day. One of the neighbors said she had to take her child in to the doctor because he had a real bad rash. We were getting rashes when we were taking baths....So we were constantly talking to one another and not really knowing we were having symptoms so similar to one another. There was always someone in the hospital... You cut your yard and you start stinging... we had sinus problems... some women would have longer periods than normal... smaller babies were having problems. First we thought it was the [baby] formula. Your pets would stay sick.²⁴⁰

Carver Terrace came to the attention of the EPA in 1980, after Congress passed CERLCA that required large chemical companies to report their hazardous waste sites. EPA and the Texas Department of Water Resources inspected the site in 1980, and by 1984, it was placed on the EPA's National Priority List of the nation's most serious uncontrolled or abandoned hazardous sites. Residents were not "officially" informed by the EPA of the dangers where they lived. Instead, informal warnings regarding allowing children to play outdoors were given to some residents by investigators.

In 1985, the EPA examined the site for dioxins and, in 1988, issued a record of decision that stated that cleanup could be accomplished while residents remained in the neighborhood. A 1988 study by the Department of Interior's U.S. Fish and Wildlife Service reported that stream waters near Carver Terrace were unhealthy for fish and that severe health risks existed for residents near the stream. In April 1989, the Agency for Toxic Substances and Disease Registry (ATSDR) completed a health assessment of the site reporting that soil and water posed a "potential health risk." Although ATSDR was to have

²⁴⁰Almanza, *et.al.*, *Toxics in Texas*.

made their report accessible through the local public library, residents had to ask the agency for a copy.²⁴¹ Residents pressed for health surveys from the state and from the Environmental Health Network. From Oliver's point of view, instead of offering relief, the EPA exacerbated the problems.

EPA would have meetings with us where they said we're going to have to study you and they did they studied us to death. Like we were a microorganism that they have under a microscope... we lost a lot of people out there and most to cancer deaths...Our cancers out there are so intelligent, they're much kinder than the EPA, they don't make you suffer long. EPA has taken years and lives and more lives. And we're still here. I'm in my dream home which has become a nightmare.²⁴²

Despite bitter experiences with the EPA, Oliver insisted that her community wanted to continue to draw upon scientific resources to help them understand their health problems. She argued that, "We want to have health surveys; we want to have monitoring after we're out of here."

In bringing public attention to their situation, Carver Terrace residents participated in a February 1989 conference on environmental justice sponsored by Friends United for a Safe Environment (FUSE). Lois Gibbs from the CCHW, Pat Bryant from GCTO, representatives from the National Toxics Campaign, the Environmental Health Network, Native Americans for a Clean Environment, and others offered assistance and strategies.²⁴³ Residents pushed for a federal buy-out of their homes, and in 1991 Congress authorized a buy-out of the 79 families in Carver Terrace. However, offers were not sufficient for many of the residents to purchase comparable homes elsewhere.

²⁴¹Oliver, Patsy Ruth. "Living on a Superfund Site in Texarkana." *Unequal Protection: Environmental Justice and Communities of Color*. Ed. Robert Bullard. San Francisco, CA: Sierra Club Books, 1994.

²⁴²Almanza, *et. al.*, *Toxics in Texas*.

²⁴³Oliver, "Living on a Superfund Site in Texarkana."

Oliver's story echoed Lois Gibb's account of the health problems at Love Canal,

The entire community seemed to be sick! Then I remembered my own neighbors. One who lived on the left of my husband and me was suffering from severe migraines and had been hospitalized three or four times that year. Her daughter had kidney problems and bleeding. A woman on the other side of us had gastrointestinal problems. A man in the next house down was dying of lung cancer and he didn't even work in industry. The man across the street had just had lung surgery....I was becoming more worried because of the many families with children who had birth defects. Then I learned something even more frightening: there had been five crib deaths within a few short blocks.²⁴⁴

At Love Canal, New York, perhaps the most documented case of community activism and hazardous waste, the scientific studies were conflicting and highly politicized. A 1978 New York Department of Health (NYDOH) study claimed that there was a "slight increase in risk for spontaneous abortions" for women living near the canal, which had served as an unregulated chemical dump owned by the Hooker Chemical Company for some forty years.²⁴⁵ Hooker sold the land to the state Board of Education in 1953 for \$1.00 and, by 1955, a grade school was built atop the dump and moderately priced housing began to appear around it. NYDOH advised pregnant women and children under the age of two to relocate temporarily, although the state made no provision to help pay for the evacuations. Questions about the harm to others were left unanswered by NYDOH officials.

Gibbs documented a correlation between clusters of types of diseases and health problems complained of by residents with the location of swales, or old stream beds, and swampy places running through the canal. Her swale theory, that chemicals from the dump were leaching through these waterways, prompted Dr. Beverly Paigen, a cancer

²⁴⁴Gibbs, *Love Canal: My Story*, p. 15.

²⁴⁵ New York State Department of Health. *Love Canal: A Special Report to the Governor and Legislature*. New York, April 1981.

researcher at Roswell Park Memorial Institute in Buffalo, to train volunteers as interviewers for a systematic telephone survey of families living near the canal. Her investigation found higher than average rates of miscarriage, kidney and bladder disorders, and central nervous system disorders. Seventy-five percent of the families near the canal participated in answering the survey. The NYDOH discredited Paigen's research, one physician referring to it as "information collected by housewives that is useless."²⁴⁶ Later a study commissioned by the EPA found twelve of thirty-six residents studied had increased frequencies of cells with chromosome breaks making them at risk of cancer, having spontaneous abortions, and bearing children with birth defects.

In May 1980, President Carter declared a state of emergency at Love Canal and authorized the federal government to relocate the 700 families residing there. The government's offer to relocate was consciously based on compassion for the psychological damage that residents had suffered in attempting to call attention to their situation, not on a threat to health. By emphasizing the psychological damage and downplaying potential health threats, Love Canal could be viewed as a unique incident that did not define a precedent for other contaminated communities.²⁴⁷ Controversy over the evidence of health effects continued, however, when in late 1980, New York Governor Hugh Carey appointed a panel of health experts who concluded that there was no demonstrable evidence of acute health effects linked to exposure of the hazardous wastes at Love Canal. The Thomas Panel argued that the evidence of chronic health effects had neither been established or ruled out in a "scientifically rigorous manner."²⁴⁸ In 1982, the EPA declared

²⁴⁶Freudenberg, *Not in Our Backyards!* Levine, *Love Canal: Science, Politics and People*.

²⁴⁷Edelstein, *Contaminated Communities*.

²⁴⁸ Levine, *Love Canal: Science, Politics and People*; p. 158

that the neighborhood around Love Canal was safe. The Office of Technology Assessment strongly criticized the EPA's findings by arguing that the agency's choice of control group, statistical analysis, and laboratory testing were deficient. Despite further studies, scientific assessment of the health effects from toxic exposures experienced by Love Canal residents continued to remain inconclusive and controversial, mired in debate over methodologies.

The Agency for Toxic Substances and Disease Registry

Federal response to investigating health complaints left both Carver Terrace and Love Canal residents dissatisfied and angry that appropriate health studies had not been conducted. In the Carver Terrace case, the involvement of the Agency for Toxic Substances and Disease Registry (ATSDR) exemplified a new regulatory strategy to consolidate the control of information and research on toxic wastes and health. While EPA had authority to collect, monitor, and track health-related data for each of its regulatory program, the agency had few personnel to conduct epidemiological health studies in-house.²⁴⁹ In 1980, Congress authorized the ATSDR, through the 1980 CERCLA legislation, as "the principal federal agency responsible for issues of public health and science involving the human health hazards of hazardous waste sites (HWS) and of emergencies from unplanned releases of hazardous substances into community environments."²⁵⁰ CERCLA required ATSDR to conduct health assessments of all sites on the National Priorities List and of any RCRA facility if requested by the EPA, a state, or an individual.

²⁴⁹U.S. EPA, Office of Research and Development. *The role of health research in support of EPA's regulatory programs*. Washington, DC: U.S. EPA, 1990; p. 85.

²⁵⁰Lichtveld, Maureen Y. and Barry L. Johnson. "Public Health Implications of Hazardous Waste Sites in the United States." Atlanta, GA: Agency for Toxic Substances and Disease Control, CDC, 1993.

Although authorized in 1980, it was not until 1983 that ATSDR became a formal agency within the Centers for Disease Control, under the Public Health Service, in Atlanta, Georgia. In 1986, the Superfund Amendments and Reauthorization Act expanded the agency's responsibilities making it a central participant in the Superfund process and providing it funds to operate. By 1990, the budget for ATSDR health assessments was \$15.8 million, with \$5.2 million going to state health departments through cooperative agreements.²⁵¹

By 1995, the ATSDR and the EPA had identified more than 2,000 substances at waste sites in the U.S. Together the agencies compiled a joint list of 275 priority substances that appeared to pose the greatest health hazards. The top ten priority hazardous substances of concern to EPA and the ATSDR, due to the frequency with which they were found at sites, were lead, arsenic, mercury, vinyl chloride, benzene, cadmium, polychlorinated biphenyls (PCBs), chloroform, benzo (a) pyrene, and trichloroethylene. ATSDR worked with the National Institute of Environmental Health Sciences (NIEHS), the PHS National Toxicology Program, and private industry to create "toxicological profiles" and recommend research needs for each of the chemicals on the priority list. NIEHS, also within the PHS, received Superfund monies to conduct research in ecology, engineering, and hydrology integrated with biomedical research to improve detection techniques for identifying adverse effects in human and ecosystem health. The agency gathered information on the NPL sites, reporting that 41% of these sites were abandoned

Report from Hazardous Waste Conference 1993, taken off of CDC web site on 12-06-95.

²⁵¹Johnson, Barry L. "Health Effects of Hazardous Waste: The Expanding Functions of the Agency for Toxic Substances and Disease Registry." *Environmental Law Reporter* 18.April (1988): 10132-10138.

waste storage or treatment facilities, 33% abandoned manufacturing sites, and the rest contaminated bodies of water such as lakes and fields.²⁵²

According to Maureen Lichtveld, chief biomedical officer for public health practice at ATSDR, and Barry Johnson, ATSDR assistant administrator, between 1987 and 1992, the agency conducted 1,607 "public health assessments." Of the 1,607 assessments, 1% were urgent, 19% health hazards, 61% indeterminate hazards, 6.8% no apparent hazard, and 3.6% showed no hazard. Under the ATSDR classification system, a site was given one of these categories based on "professional judgment, using weight-of-evidence criteria" and were "not risk-based derivations" like those used by the EPA.²⁵³ A multi-disciplinary Health Activities Recommendation Panel within the agency, with expertise in medicine, epidemiology, toxicology, environmental health, and health education, reviewed each public health assessment and evaluated the need for health studies, health education, and/or substance-specific applied research.

Of the 233 assessments conducted in 1992, ATSDR determined that 2% were urgent, 35% health hazards, 41% indeterminate, 20% indicated no apparent hazard, and

²⁵²Lichtveld and Johnson, "Public Health Implications of Hazardous Waste Sites in the United States."

²⁵³ Discussions on epidemiology take place alongside a policy discourse on "risk assessment." While EPA takes ecological and environmental hazards into account, ATSDR focuses solely on human health impacts. Historically, the EPA has been the lead agency on developing risk assessment guidelines and methods. In 1976, an EPA Carcinogen Assessment Group began to develop such methods. Currently, the EPA Office of Research and Development and the Office of Health and Environmental Assessment carry out generic risk assessment guidance for the agency. These offices sponsor a Risk Assessment Forum within EPA that brings together senior scientists from all of the program and regional offices for consensus building on risk assessment issues. Integrating risk assessment and EPA policy happens within the agency's Science Policy Council, which receives support from the EPA Science Leadership Council. Both Councils are comprised of mostly senior scientists within the agency and are responsible for directing technology and research efforts into the agency's highest priority activities. U.S. Congress, House, Committee on Science, Space and Technology, *Strengthening Risk Assessment within EPA*.

2% showed no hazard.²⁵⁴ Approximately 50% of the 233 sites reported the presence of pesticides. Lichtveld and Johnson argued that the higher incidence of hazard in the 233 subset was due to improvements in the quality of information collected by ATSDR from state and local health departments and from community involvement "early and throughout the conduct of the public health assessment." The most reported community health concerns from these 233 sites included cancer (50% of concerns), birth defects and reproductive disorders (11%), and neurotoxic disorders (19%).

ATSDR based its "health assessments" on environmental data provided by EPA, health data from available cancer, disease, birth and death registries, and concerns expressed by the community regarding their health. Individual medical records usually were not analyzed during the assessment phase. A "health study" was pursued, given indications that a health problem existed, by carrying out an exposure assessment and/or a disease and symptom prevalence survey to determine if there was a correlation between a hazardous waste site and illness in a community. An exposure investigation studied persons at highest risk at sites identified through questionnaire surveys and environmental sampling. A disease and symptom prevalence study involved collecting self-reported information from residents by questionnaire.²⁵⁵ The disease prevalence of a community was compared with a similar population in the same state.

Under CERCLA, groups and individuals petitioned ATSDR to carry out a health assessment by writing the assistant administrator and providing information on the location and description of a facility or toxic release and the symptoms suffered by people exposed. The agency received around 80 petitions a year: 55% of these from individuals or

²⁵⁴Lichtveld and Johnson, "Public Health Implications of Hazardous Waste Sites in the United States."

community groups, the remainder from attorneys, Congress members, and environmental groups. Barry Johnson viewed involvement of the public as a form of informal health surveillance that acted as a secondary control mechanism for the ATSDR, after regulatory statutes to control use and disposal of toxics.²⁵⁶ In interacting with the public, Johnson remarked,

The ATSDR's health assessments often lead to meetings with concerned citizens. The Agency views this as an important form of health communication and public education. Whenever possible, the Agency actively involves citizen groups in the planning of health surveys, exposure assessments, exposure registries, and other such activities. The result is better communication and understanding between citizens and government, though not always agreement.²⁵⁷

ATSDR established community assistance panels, which Lichtveld maintained made recommendations for changes in the population of study and in the control group, "key portions of a protocol for any study."²⁵⁸

In terms of minorities and issues surrounding environmental racism, the agency hired more staff to interact with minority communities and began looking at the relationship between environmental hazards and minority populations in 214 counties in seven states along the Mississippi River. This Delta Project worked with Historically Black Colleges and Universities (HCBUs) in the region to gather data and involve the communities in the study efforts. One of the most publicized activities of ATSDR concerned their study on the prevalence of lead poisoning of young children. The agency reported that 46% of the 3-4

²⁵⁵ Stehr-Green, Paul A. and Jeffrey A. Lybarger. "Exposure to Toxic Waste Sites: An Investigative Approach." *Public Health Reports* 104.1 (1989): 71-74.

²⁵⁶ Johnson, "Health Effects of Hazardous Waste: The Expanding Functions of the Agency for Toxic Substances and Disease Registry."

²⁵⁷ Johnson, Barry L. "Implementation of Superfund's Health-Related Provisions by the Agency for Toxic Substances and Disease Registry." *Environmental Law Reporter* 20.July (1990): 10277-10282.

²⁵⁸ Breslin, "In Our Own Backyards: The Continuing Threat of Hazardous Waste."

million children ages 6 months to 5 years who were at risk for lead toxicity are African-American. Further, African-American children comprised 17.9% in the total at risk range population, approximately 2.5 million out of 13.8 million children.²⁵⁹ Cynthia Harris, chief of the Community Health Branch of ATSDR, stated that there was "an agency wide commitment to minority health issues."²⁶⁰

According to assistant administrator Barry Johnson, ATSDR's approach to public health was based upon "traditional public health experience accrued in the prevention of infectious disease." He argued that there were five "traditional" elements of disease prevention: identification, evaluation, control, dissemination, and infrastructure.

These elements form the foundation that any governmental public health program will need in order to respond to individuals' concerns and to control adverse health effects from hazardous substances. The ATSDR's present efforts and future plans are built on this foundation, although the unique problems posed by hazardous substances dictate that certain traditional techniques of identification, evaluation, control, and communication be modified.²⁶¹

A 1991 report by the U.S. General Accounting Office criticized ATSDR's health assessments during the agency's initial years. In 1986, Congress instructed the agency to complete health assessments by 1988 for the 951 sites then on the NPL. The GAO reported that such tight deadlines, along with fewer than 20 staff at the time to carry out the work, led to less than thorough assessments and, thus, raised questions regarding the health impacts of the sites it assessed. The National Toxics Campaign and the

²⁵⁹Agency for Toxic Substances and Disease Registry. "The Nature and Extent of Lead Poisoning of Children in the United States: A Reprint to Congress." Atlanta, GA: Department of Health and Human Services, 1988. Phoenix, Janet. "Getting the Lead Out of the Community." *Confronting Environmental Racism: Voices from the Grassroots*. Ed. Robert Bullard. Boston, MA: South End Press, 1993.

²⁶⁰Kay, Jane. "California's Endangered Communities of Color." *Unequal Protection*. Ed. Robert Bullard. San Francisco, CA: Sierra Club Books, 1994.

²⁶¹Johnson, "Health Effects of Hazardous Waste: The Expanding Functions of the Agency for

Environmental Health Network criticized ATSDR in their 1992 report, *Inconclusive by Design*, of not having adequate contact with affected communities and of studying the wrong health problems. Further, they argued that the agency relied too heavily on epidemiological studies to determine whether a community suffers from an increased incidence of disease, particularly that absence of such studies should not prevent public health agencies from seeking to prevent or reduce exposures. The ATSDR defended its reliance on epidemiological studies to assist it "to reach scientifically valid and consistent public health decisions."

Environmental Epidemiology

In the late 1980s, the Agency for Toxic Substances and Disease Registry requested that the National Research Council's Board on Environmental Studies and Toxicology convene a committee to evaluate the available scientific and technical literature on the health effects of exposure to hazardous waste sites and "to suggest how to improve the scientific bases for evaluating the effects of environmental pollution on public health, including specifically the conduct of health assessments at Superfund sites." The resulting Committee on Environmental Epidemiology analyzed the role of "environmental epidemiology" and the state of health research in controversies surrounding the health effects of hazardous wastes.

Environmental epidemiology was one of eight areas of research either conducted or sponsored by the ATSDR. The other seven areas included health surveillance systems, toxicological testing, human exposure assessment, information dissemination, clinical toxicology, health education, and occupational health. At ATSDR, environmental epidemiology included health studies of persons living near sites as well as human and

animal health surveillance. Toxicology addressed the toxicity of hazardous substances and is especially attentive to mixtures of such substances. Exposure assessments measured human exposure to hazardous substances, including using such techniques as biochemical and cellular markers. Clinical toxicology focused on the development of biomedical methods and tests to assess health effects. Occupational health research, conducted with the PHS National Institute of Safety and Health (NIOSH), concerned the health implications for workers who carry out cleanups and emergency response actions at hazardous waste sites. Health education and information dissemination research focused on effectively communicating health risk information to health officials and the public.²⁶²

In its two volume report, the Committee on Environmental Epidemiology characterized epidemiology as "not merely a passive science, cataloguing exposures and effects" but "an active tool for identifying potentially hazardous exposures and directing interventions to prevent further exposures."²⁶³ Specifically, the Committee defined environmental epidemiology as,

the study of the effect on human health of physical, biologic, and chemical factors in the external environment, broadly conceived. By examining specific populations or communities exposed to different ambient environments, it seeks to clarify the relationship between physical, biologic or chemical factors and human health.²⁶⁴

In distinguishing environmental epidemiology from traditional epidemiology, the Committee argued that the development of environmental epidemiology is shaped by federal and state environmental laws and policies pertaining to the study of hazardous waste

²⁶²Ibid.

²⁶³National Academy of Sciences, National Research Council, *Environmental Epidemiology: Public Health and Hazardous Wastes*. Vol. 1.

²⁶⁴Ibid., p. 28.

sites. These laws and policies represented a political and legal framework that sought epidemiological information to assist in decision-making.

The Committee took into account several broad analyses of existing health studies that emphasize inconclusiveness and call for further research on the effects of toxic wastes. One analysis of twenty-one studies, that included case-comparisons of childhood leukemia in Woburn, Massachusetts, and cohort studies on reproductive disorders at Love Canal, New York, reported that the evidence for causal association with occurrence of disease was "weak."²⁶⁵ Another review of fifteen published studies, as of 1987, argued that the data come from "nonspecific" questionnaires and had one or more methodological flaws. Thus, the exposure-health associations were "weak or inconclusive."²⁶⁶ However, the Committee argued that,

Despite the lack of adequate data with which to characterize the effects of hazardous wastes on public health in general, the committee *does* find sufficient evidence that hazardous wastes have produced serious health effects in some populations.²⁶⁷ (emphasis added)

The Committee was concerned with coordinating and increasing the amount of information gathered on health and toxic wastes and called for a six-part environmental epidemiology program to improve the bases for policy decisions about hazardous-waste sites. This program would entail establishing a national coordinated system of site discovery for hazardous-waste sites; defining a revised approach to site assessments that integrates epidemiological data; creating a comprehensive national inventory of hazardous

²⁶⁵Grisham, J.W., ed. *Health Aspects of the Disposal of Waste Chemicals*. New York, NY: Pergamon, 1986.

²⁶⁶Andelman, Julian B. and Dwight W. Underhill, eds. *Health Effects From Hazardous Waste Sites*. Michigan: Lewis Publishers, 1987.

²⁶⁷National Academy of Sciences, National Research Council, *Environmental Epidemiology: Public Health and Hazardous Wastes*; p. 20.

waste sites; evaluating the data and methodologies used in site assessment; expanding research in environmental epidemiology to illuminate the distribution and severity of exposures, risks, and health effects associated with hazardous-waste sites; and soliciting greater cooperation among relevant agencies and states to develop a comprehensive program of technical assistance for state and local agencies. Primarily, Committee members believed that these recommendations addressed Congress's intent in passing CERCLA in 1980, which was to gather information on the extent and threat of hazardous wastes to human health and to take responsive remediating actions to ensure public health. They argued that the absence of evidence, or risk for non-conventional pollutants not currently regulated, was the result of failure to conduct more research.

The Committee noted the impasse of the larger public and scientific controversy surrounding the uncertain impact of toxic wastes on human health and carefully positioned its own investigation as ostentively supportive of no particular side.

According to recent opinion polls, the American public believes that hazardous wastes constitute a serious threat to public health. In contrast, many scientists and administrators in the field do not share this belief. On the basis of its best efforts to evaluate the published literature relevant to this subject, the committee cannot confirm or refute either view.²⁶⁸

Ultimately, the committee advocated prudence and caution in public health policy on these issues until better evidence is developed, stating that,

We do no less in designing bridges and buildings. We do no less in establishing criteria for scientific credibility. We must surely do no less when health and quality of life of Americans are at stake²⁶⁹

²⁶⁸Ibid., p. 1

²⁶⁹Ibid., p. 21.

The NRC Committee's acknowledgment of serious health effects reflected ATSDR's position on the potential seriousness of the health impacts of toxic wastes regardless of the inconclusiveness of research to connect certain diseases with environmental hazards. ATSDR's HazDat (hazardous data collection system) contained data and information on 103 epidemiological studies, health investigations, exposure registries, and surveillance projects. A number of these studies suggested "that several adverse human health effects seem associated with exposure to hazardous substances released from some HWS [hazardous waste sites]."²⁷⁰ Despite this affirmative stance, the Committee expressed caution over the meaning of negative findings in some studies,

Such outcomes can result from too-small sample sizes, limited if any human exposure, and health effects poorly selected for investigation. In addition, only limited toxicity data exist for those potential adverse health effects possibly associated with low-level, long-term exposure to chemical mixtures. The occurrence of these outcomes is difficult to ascertain.²⁷¹

Origins of environmental epidemiology

Environmental epidemiology as a subfield began to emerge as environmental awareness and attitudes took shape in the 1960s and 1970s. As one author on this history claimed,

Since the advent of Rachel Carson's *Silent Spring* in the early 1960's, there has been an increased awareness among both the public and scientific community of the relationship between environmental hazards and human health. With its beginnings in the area of infectious disease, environmental epidemiology has now moved toward quantification of pollutants in air, water and soil through a complex mixture of chemicals, toxins, pesticides

²⁷⁰Lichtveld, Maureen Y. and Barry L. Johnson. "Public Health Implications of Hazardous Waste Sites in the United States." Atlanta, GA: Agency for Toxic Substances and Disease Control, CDC, 1993. Report from Hazardous Waste Conference 1993, taken off of CDC web site on 12-06-95.

²⁷¹ National Academy of Sciences, National Research Council, *Environmental Epidemiology: Public Health and Hazardous Wastes*, p. 21.

and nonbiological agents and the possible associations of environmental exposures with adverse health effects such as cancer, cardiovascular disease, and reproductive outcomes.²⁷²

References to environmental epidemiology began to occur in the mid-1970s. In October 1975, the World Health Organization (WHO) sponsored discussions on the topic at a meeting in Geneva of the WHO Study Group on Epidemiological Methods for Assessment of the effects of Environmental Agents on Human Health. 102 experts from 26 Member States situated environmental epidemiology as an extension of traditional epidemiology in need of a new codified approach.

Epidemiological studies of biological agents and the effective control of infectious diseases have paved the way to the use of epidemiological methods in studying effects of non-biological agents present in the environment. However, it is generally more difficult to reach unequivocal conclusions in studies involving physical and chemical agents than in those involving biological ones. This is because the various factors involved in studies of non-biological agents and their interactions are usually more complex....There is an urgent need, therefore, for a publication that sets out appropriate methodology for such studies, which would help Member States, relevant scientific institutions and individual research workers to conduct epidemiological studies in a more correct manner.²⁷³

In the late 1970s, early 1980s, Tufts University hosted a series of seminars in Tlloires, France, for epidemiologists and health statisticians "who were mutually interested in using health statistics to assess emerging environmental health problems."²⁷⁴ A compilation of papers from the seminars, entitled *Environmental Epidemiology*, focused on designing surveillance and monitoring systems and collecting information to do research.

²⁷²Talbott, Evelyn O. and Gunther F. Craun, ed. *Introduction to Environmental Epidemiology*. Boca Raton, FL: CRC Lewis Publishers, 1995; introduction.

²⁷³World Health Organization. *Guidelines on Studies in Environmental Epidemiology: Environmental Health Criteria 27*. Geneva, Switzerland: WHO, 1983; p. 12.

²⁷⁴Leaverton, Paul E., ed. *Environmental Epidemiology*: Praeger, 1982; pp. xi-xii.

As these types of expert gatherings honed a definition for environmental epidemiology, distinctions were made between it and occupational epidemiology. Environmental epidemiology included occupational epidemiology within its framework, acknowledging the former's methodological contributions to studying industrially induced diseases and to toxicological standard setting for safe human tolerance levels to occupational exposures. Differences separating the two forms of inquiry reflected that,

Environmental epidemiology traditionally has dealt with non-occupational exposures and these are often orders of magnitude lower than in occupational environments. Moreover, the populations exposed are larger and more diverse and the effects usually smaller and less easily defined. This has limited opportunities for decisive epidemiological investigations and greatly increases their complexity....The importance of environmental epidemiology lies in the large number of people potentially affected and the opportunity for protecting the general population through governmental regulatory activity.²⁷⁵

Environmental epidemiology continued to be cast as having an important role in maintaining the larger public health. While recognizing that toxicology and other sciences as necessary to understanding the impact of toxic wastes on human health, there was concern that environmental epidemiology could provide more information and play a more decisive role in public health decision making if the field was better organized administratively and methodologically.

Environmental epidemiology is a rapidly growing field. The assessment of risk to human health from exposure to environmental hazards is often based only on toxicological evaluations; epidemiological data to support these observations are often lacking due to their complexity and cost. The best use should be made of resources, and research should concentrate on issues identified as relevant to public health.²⁷⁶

²⁷⁵Talbott and Craun, *Introduction to Environmental Epidemiology*; preface.

²⁷⁶Bertollini, Roberto, et. al., eds. *Environmental Epidemiology: Exposure and Disease*. Boca Raton, FL: CRC/Lewis Publishers, 1996; introduction.

Beyond Traditional Epidemiology

The NRC Committee on Environmental Epidemiology reiterated methodological problems seen as limitations of more traditional epidemiology in studying the health consequences of pollution. Yet, among epidemiologists investigating the relationships between toxic wastes and disease, these limitations indicated the need to specialize their craft. As J. Donald Miller, head of public health services at the Centers for Disease Control, explained

We need a direct response to the fact that the first tier of epidemiology is over. Most of the diseases caused by etiologic agents are well-studied, their effects are known, and though far from being totally eliminated, they are no longer mysteries to us. The three important factors affecting life expectancy now are unhealthy behavior like cigarette smoking, violence, and environmental threats—people haven't been exposed long enough to many toxic substances for us to know their effects.²⁷⁷

The “first-tier” or tradition of epidemiology historically emerged as a new science in the 1800s responding to infectious epidemic diseases. According to historian William Coleman, early practitioners recognized the multi-faceted conditions of disease and yet were hopeful that they would achieve a systematic methodology to overcome uncertainties.

The science of epidemiology was created by many hands and over many years. At the outset, epidemiologists had no settled view of either the proper subject or the limits of their new science. They agreed even less on the most appropriate method or methods an epidemiologist should employ. Nevertheless, there was agreement amidst these uncertainties that the new science would be raised upon foundations that would be assured by an assessment of the incidence and determining conditions of disease—conditions at once biological, environmental, and social in character.²⁷⁸

²⁷⁷Haggerty, Michael. “Crisis at Indian Creek.” *Unequal Protection*. Ed. Robert Bullard. San Francisco, CA: Sierra Club Books, 1994; p. 39.

²⁷⁸ Coleman, William. *Yellow Fever in the North: The Methods of Early Epidemiology*. Madison, WI: University of Wisconsin Press, 1987; p. 3.

The foundations of epidemiological methods were "shoe-leather," statistics, and surveillance. By walking city streets and alleys mapping the patterns of disease and accumulating health information on the population, early epidemiologists investigated and documented the location and spread of disease—how many were infected, where they lived, how long between possible exposure and the onset of symptoms. They identified possible sources and suggested preventions, such as house quarantine for the sick or cleanliness measures. As state record keeping became increasingly centralized, primarily for tax and property purposes, it provided practitioners of the new science with an abundance of information useful to their investigations.

In the nineteenth century, according to historian George Rosen, three theories of disease causation were prevalent in public health discussions—the miasmatic, the strict contagionist, and the contingent contagionist. Proponents of the miasmatic theory believed that poor sanitary conditions produced a local atmospheric state that caused a disease or epidemic to occur. The strict contagionists viewed specific contagion as the sole causes of infections and epidemic diseases. Advocates of the contingent contagionist theory believed that these biological contaminants could not act except in conjunction with other elements such as the atmosphere, soil, or social factors. Contagionist ideas ebbed as the miasmatic theory gained popularity and underwrote the sanitary movement's reforms in public health.²⁷⁹

By the late nineteenth and early twentieth centuries, germ theory began to replace the popularity of miasmatic theory, particularly within the practice of medicine. Proponents of germ theory asserted that the etiology of disease came from biological organisms, echoing the old strict contagionist view. During the same time period, however, public

²⁷⁹Rosen, *A History of Public Health*.

health workers who addressed the prevalence and fatality of workplace diseases found the issue of etiology to be far less certain. Alice Hamilton and others championed new investigative techniques to demonstrate the unhealthy conditions of industrial workers, bringing about the profession of industrial hygiene.²⁸⁰

A deadly smog that killed 20 and sickened 600 people in Donora, Pennsylvania, in the summer of 1948, provoked new awareness of the consequences that industrial practices could have for the health of surrounding communities.²⁸¹ Christopher Sellers notes that after Donora, “many researchers who had begun by considering their studies as ‘industrial’ or ‘occupational’ now began to formally characterize their area of health expertise as ‘environmental.’”²⁸² Sellers further argues that the new area of environmental health aided in defining the subsequent environmentalist ethos by suggesting “warier assessments of industry’s influences.” In addition, after World War II, epidemiologists began to focus on chronic diseases—“diseases of civilization” such as coronary disease or cancer—as many infectious diseases declined.²⁸³ The Framingham cohort study of heart disease and the linking, by case-control studies, of lung cancer with cigarette-smoking were considered examples of the successful transition from studying agents of infectious disease toward identifying environmental causes of chronic disease.

²⁸⁰ Sellers, *Hazards of the Job*.

²⁸¹ Snyder, Lynne Page. “The Death-Dealing Smog over Donora, Pennsylvania: Industrial Air Pollution, Public Health Policy, and the Politics of Expertise, 1948-1949.” *Environmental History Review* 18.1 (1994): 117-139.

²⁸² Sellers, *Hazards of the Job*, p. 235. Rosner and Markowitz, in *Deadly Dust* p.219, argue that defining occupational and environmental epidemiologies carries class distinctions as well—working class diseases could be more easily ignored if defined as occupational, while diseases threatening the larger middle-class seem more urgent if taken as environmentally induced.

²⁸³ Susser, Mervyn. *Epidemiology, Health and Society: Selected Papers*. New York, NY: Oxford University Press, 1987.

By the 1980s, mainstream texts on epidemiology characterized the science "as the study of the distribution of a disease or a physiological condition in human populations and of the factors that influence this distribution" or, more succinctly, as the study of the distribution and determinants of health states in human populations.²⁸⁴ Physiological conditions or health states included injuries. The study of disease ideally would have direct public health implications in that "knowledge of this uneven distribution can be used to investigate causal factors and thus to lay the groundwork for programs of prevention and control."²⁸⁵

A common model used by epidemiologists became known as the "epidemiological triangle" consisting of three components—host, environment, and agent. Epidemiologists viewed humans as "hosts" of disease. An "agent" of disease, such as degree of contact, level of hygienic practices, and presence of other organisms in relation to the host may be a necessary, but not sufficient cause of a disease. A suitable host, or "intrinsic factors," and environmental conditions, or "extrinsic factors," needed to be present as well. Extrinsic or environmental factors could be classified as biological, social, and physical. The biological environment included "infectious" agents of disease, reservoirs of infection, "vectors" that transmit disease (flies, mosquitoes), and plants and animals (as food, antibiotics, drugs, antigens). The social environment could "be defined in terms of the overall economic and political organization of a society and of the institutions by which individuals are integrated into the society at various stages in their lives." The physical environment included "heat, light, air, water, radiation, gravity, atmospheric pressure, and chemical agents of all

²⁸⁴Lilienfeld, Abraham and Paul D. Stolley, *Foundations of Epidemiology*, p. 3. Susser, *Epidemiology, Health and Society: Selected Papers*; p. 13.

²⁸⁵Mausner, Judith S. and Shira Kramer. *Epidemiology: An Introductory Text*. Second Edition. Philadelphia, PA: W. B. Saunders Company, 1985; p. 1.

kinds." While these sectors of the environment were delineated, epidemiologists recognized their separation as artificial due to their complex interactions.²⁸⁶

Epidemiologists employed a number of criteria to evaluate the likelihood that an association between a disease and an agent was causal. "Strength of association" was the ratio of disease rates for those with and without an hypothesized causal factor. A "dose-response relationship" indicated whether increasing levels of exposure to a factor corresponded to a rise in the occurrence of disease. The "consistency of association" was demonstrated by testing under other circumstances, on other study populations, and using other methods. Exposure must precede the onset of disease for a temporally correct association to be established. The extent to which the occurrence of one variable could be used to predict the occurrence of another indicated the "specificity of association." Also, coherence with existing information, "biological plausibility," was examined to gauge whether the association is plausible in terms of current knowledge.

The methodological flaws of "first-tier of epidemiology" exacerbated in studying the health affects of toxic wastes and pollution were numerous. The small sample size, or number of cases, of chronic diseases, such as cancer, suspected to have been induced by exposure to toxic wastes was not large enough to satisfy statistical requirements to show excess risk. The sheer diversity of situations in which toxic wastes and human exposures are involved meant that no two epidemiological studies may be exactly alike. The uniqueness of each community made generalizations about health effects and the calculation of acceptable thresholds complex and contentious.

While epidemiologists documented the nature and extent of exposure, defined and characterized the exposed and unexposed populations, measured the health outcomes, and finally tried to determine the relationship between the exposure and the documented health

²⁸⁶Ibid.

effects, each of these phases involved numerous difficulties. Adequate data on the general health of a population and the incidences of occupational and environmental exposure compiled over time was often lacking. Determining baseline exposure levels in the general population, in order to compare the extent of exposure in the population under study, was complicated by the accumulation of different chemicals in the body from exposures that occur regardless of where one lives. The ubiquitousness of pollutants, thus, raised questions over how to select an “unexposed” population to compare to the exposed group with respect to known risk factors for the disease under investigation. Further, affected populations may be exposed to multiple hazardous substances in their residential and work environments, making it difficult to identify single sources of exposure or to account for synergistic effects.

Measuring health outcomes meant investigating reproductive effects, cytogenic effects, neurotoxic effects, effects on tissues, organ function and biochemical markers, cancer incidence, and/or mortality. Drawing associations between the exposure and the health outcome could prove to be the most problematic phase. Drawbacks included the heterogeneous characteristics of individuals; geographic mobility into, out of, and within the area under study; inadequate health records citing particular health effects; and insensitive instruments. In particular, assessing cancer risk was troublesome due to long latency periods of the disease's many manifestations. Keeping track of people within an affected population over decades presented problems. Also, publicity could accentuate reporting bias by individuals in a population under study and a political atmosphere of anger and fear among the community could affect determining the relationship of exposure to reported health effects.²⁸⁷

²⁸⁷Marsh and Caplan, “Evaluating Health Effects of Exposure at Hazardous Waste Sites: A Review of the State-of-the-Art, with Recommendations for Future Research.” *Health Effects From Hazardous Waste*

Dumpsite Epidemiology

The ATSDR's request to the NRC Committee on Environmental Epidemiology sought expert definition and codification of the parameters of environmental epidemiology as applied to toxic wastes and health. Amid the ongoing debate over what constituted environmental epidemiology, lay the perception that public health officials involved in the regulatory arena were involved in a "balancing act" between gathering supportive evidence and taking action with regard to public health situations surrounding toxic wastes. As one public health practitioner put it, the ATSDR and other government agencies had,

to act on the basis of what good science says to us, and what acceptable public health practice is. We can't undertake a major intervention in the absence of supportive science, but we can't delay what we think are necessary actions because all the science isn't in. It's a balancing act that we in public health, especially environmental health, have to perform.²⁸⁸

While the ATSDR struggled with the implications of environmental epidemiology for the practice of health assessments and studies, state and local public health epidemiologists also had become increasingly attentive to public concerns over hazardous wastes. These epidemiologists characterized their expanded duties as "dumpsite," or "reactive," epidemiology. Dumpsite epidemiology fell under the framework of environmental epidemiology given its attention to the health consequences of exposures to toxic wastes. However, it emphasized public involvement and the practicalities of working in the field, where respecting public knowledge and allaying public fears wrought by lack of communication were necessary to address promptly.

In terms of the prevalence of environmental epidemiology at the state level, a 1983 survey reported that there were 29 state environmental epidemiology programs, separate

Sites. Ed. Andelman and Underhill. Michigan: Lewis Publishers, 1988, pp. 12-28.

²⁸⁸Breslin, "In Our Own Backyards: The Continuing Threat of Hazardous Waste."

from communicable disease epidemiology, with at least one full time funded staff member. The most common areas of responsibility included investigations of indoor air pollution, toxic or hazardous substances, and pesticide exposures.²⁸⁹ Within the overall picture of the prevalence of toxic wastes, by 1989, states took independent action to close or restrict access to more than 1705 toxic contaminated sites.²⁹⁰ Under RCRA, states had the responsibility to develop hazardous waste programs that met EPA approval and responsibility for hazardous sites not addressed by CERCLA.

The principal practitioners of reactive epidemiology, argued H. A. Anderson, an epidemiologist with the Wisconsin Division of Health, were "public sector employees who are mandated by state laws to respond to citizen requests for evaluation of unusual health events."²⁹¹ These epidemiologists were not usually in a position to choose research questions they believed fruitful to study based on clear hypotheses, firm toxicological data, or adequate sample size. Successful studies, Anderson asserted, included determining what chemicals were present and the potential exposure pathways for such chemicals to affect humans, identifying the adverse health effects, finding appropriate reference populations to compare health outcomes if possible, and providing "power calculations" that explained for the public what a study could and could not determine.

Anderson delineated reactive epidemiology from more "traditional, academic research epidemiology" by stating that,

²⁸⁹Lapham, Sandra C. and Stuart P. Castle. "Survey of Health Department-Based Environmental Epidemiology Programs." *American Journal of Public Health* 74.9 (1984): 1023 - 1025.

²⁹⁰National Academy of Sciences, National Research Council, *Environmental Epidemiology: Public Health and Hazardous Wastes*.

²⁹¹ Anderson, Henry A. "Evolution of Environmental Epidemiologic Risk Assessment." *Environmental Health Perspectives* 62 (1985): 389-392.

Fundamental to reactive epidemiology is the premise of answering the questions and concerns identified by the client community. Problem solving, rather than hypothesis generation or the goal of advancing scientific information frontiers, is paramount. The obligation is to separate real public health impact from perceived or imagined threats. Investigative methods must be targeted toward hazard and health outcome verification rather than performing research. Research opportunities abound in reactive situations but should probably be addressed separately so that the initial investigation can be kept simple, understandable to the community, and remain targeted to resolution of community raised issues.²⁹²

He argued that because of the urgent and political practicalities of reactive epidemiology, such studies did not need to conform to rigorous scientific peer review to be funded. The emphasis upon public service and community satisfaction meant that most investigations were not necessarily published in the scientific literature, but instead remained as final reports in local health department files. Anderson pointed out that the local reactive approach may not always be useful in addressing the scientific basis for developing a broader public health policy. Still, he contended that,

The unique strength of reactive epidemiology is the nonscience component. Success lies in the ability to combine the "art" of epidemiology (effective listening, communication, interacting with the community, which leads to understanding) with sound application of scientific methods. The process of conducting reactive epidemiology is frequently more important to the success of the project than the analytical result report.²⁹³

Raymond Neutra, an epidemiologist with the California Department of Health, argued that residents and workers near hazardous waste sites have valuable roles to play in the design, conduct, and interpretation of "dumpsite" epidemiological studies. Not only were members of an affected community the first to make observations of an unusual occurrence of disease, they may also have insight into the potential routes of exposure. Neutra stated that members of contaminated communities "have a legitimate role in pointing

²⁹²Ibid., p. 390.

out the implications of alternate interpretation of the results and making sure that matters of scientific judgment are not disguised as matters of scientific fact."²⁹⁴ A good working relationship between epidemiologists and the affected community could improve the scientific quality of a study and foster better understanding and acceptance of the final results. Neutra emphasized the importance of trust and the high involvement of the community,

This kind of involvement of study subject is quite contrary to usual epidemiological practice, which tries to keep the subjects as unaware as possible of the hypothesis being tested. However, dumpsite epidemiology has a different audience than traditional epidemiology.²⁹⁵

Neutra agreed with Anderson, that the audience for this kind of epidemiology is the affected public community, not necessarily the scientific one. He further explained that this audience is by no means homogenous in its concerns or its expectations, meaning that public health epidemiologists must be candid about the limitations of the research and keep open lines of communication between themselves and anxious or angry citizens.

Animosity between community activists and the public health department, such as Neutra thought could be avoided, was evident in the East Austin situation. EAST chair Ron Davis criticized the Austin/Travis County Health Department for reversing its opposition to the permit application that Mobil Oil sought from the Texas Air Control Board while it still urged the board to monitor benzene emissions from all facilities. Davis

²⁹³Ibid., p. 391.

²⁹⁴Neutra, Raymond. "Epidemiology for and with a distrustful community." *Environmental Health Perspectives* 62 (1985): 393-397.

²⁹⁵Ibid., p. 394.

questioned the competence of the department's expertise in serving the community's health needs,

We appreciate the city's involvement, but we have some doubts that the people at the local health department have the expertise needed to do this. In the past, there have been instances where people complained about illnesses caused by their environment and the medical profession swept it under the rug, attributing it to diet, smoking, drinking or lifestyle. The bottom line is that these residents deserve the best possible state-of-the-art medical screening and procedures available for suspected environmental illness.²⁹⁶

Dr. Winston Warr, the department's medical director for public health responded that, "We don't profess to have all the expertise, but that is not the point. We are trying to get the process organized so we can evaluate the situation." But as activist Antonio Diaz of PODER argued, organizing the process depends upon asking "the right questions."

What is needed is someone who has an awareness of environmental illness, someone who has a background in toxicology and knows what kind of problems these toxins cause and someone who can examine all the data. If they don't know about those things, then it is just going to give residents the false belief that nothing is wrong with them. Unless the right questions are asked to begin with, what is the point?²⁹⁷

In toxic controversies, incongruent differences between public and expert perceptions of what counts as a risk contributed to tensions. Holly Howe, chief of epidemiologic studies at the Illinois Department of Public Health, argued that whether or not epidemiologists or other public health officials view public understanding of a risk as misperceived, they must respond to the community's concerns or public outrage and distrust will continue to grow.²⁹⁸

²⁹⁶Wright, Scott W. "Tank farm activists critical of city/county interest." *Austin American-Statesman*, March 4, 1992, p. B2.

²⁹⁷Ibid.

²⁹⁸Howe, Holly L. "Public Concern about Chemicals in the Environment: Regional Differences Based on Threat Potential." *Public Health Reports* 105.2 (1990): 186-195.

Dumpsite epidemiology relied on lay observation to alert epidemiologists to potential health problems. Under this view, members of contaminated communities were an important information source, but the degree to which the public participated in studies of their health was up for debate. Epidemiologists Beverly Paigen, who worked with Love Canal residents and moved on to the Children's Hospital Medical Center in Oakland, California, and Lynn R. Goldman, called for a closer working relationship with affected communities.

It is not a question of whether the community will be involved in the health study, it is a question of how. The relationship should be a positive one with the community input being a valuable asset to the study. However, if the health professional keeps the community at arms length, in order to make the study more objective, the relationship could turn into one of distrust. At Love Canal and other sites, the relationship between professionals and the community seriously deteriorated, resulting in mistrust of government, damage to the image of scientists, and verbal attacks on well-intentioned public health professionals.²⁹⁹

More activist epidemiologists went a step further and developed manuals to guide community activists in gathering health data and assisting the experts in assessing the frequency and severity of toxic disease. The authors of the 1985 *Health Detectives' Handbook: A Guide to the Investigation of Environmental Health Hazards by Nonprofessionals*, primarily epidemiologists associated with the University of Texas Medical Branch in Galveston, Texas, rhetorically declared,

Is there an alternative to traditional epidemiologic studies? Can a meaningful database be generated without the costly traditional approach to community studies? We believe that such an alternative approach exists. Motivated citizens, given the proper guidance, can generate meaningful

²⁹⁹Paigen, Beverly, and Lynn R. Goldman. "Lessons from Love Canal: The Role of the Public and the Use of Birth Weight, Growth, and Indigenous Wildlife to Evaluate Health Risk." *Health Effects From Hazardous Waste Sites*. Ed. Andelman and Underhill. Michigan: Lewis Publishers, 1988; p 179.

data. They can, with professional support, determine the probability that a problem is present.³⁰⁰

Popular Epidemiology

East Austin, Carver Terrace, and Love Canal residents' represented such "motivated citizens" who searched for explanations about their health problems. This practice of residents and activists taking an active role in researching the health effects of toxic wastes on their communities exemplified what sociologist Phil Brown has termed "popular epidemiology." Brown, who worked with residents of Woburn, Massachusetts, in defining a cluster study of child leukemia cases, argued that popular epidemiology was "the process by which lay persons gather data and direct and marshal the knowledge and resources of experts in order to understand the epidemiology of disease, treat existing and prevent future disease, and remove the responsible environmental contaminants."³⁰¹ In this approach, members of communities sited near toxic wastes engaged in political action to address health issues. Frustration with public health and other officials to explore or acknowledge the health consequences of toxic wastes was an important impetus for the use of this process by some activists.

Brown insisted that popular epidemiology presented an alternative scientific knowledge structure to traditional epidemiology, one that placed social and political conflicts at the contextual core of its methodological approach.

In some of its actions, popular epidemiology parallels scientific epidemiology, such as when lay people conduct community health surveys. Yet popular epidemiology is more than public participation in traditional epidemiology, since it emphasizes social structural factors as part of the

³⁰⁰Legator, Marvin S., Barbara L. Harper and Michael J. Schott, eds. *The Health Detectives' Handbook: A Guide to the Investigation of Environmental Health Hazards by Nonprofessionals*. Baltimore, MD: The Johns Hopkins University Press, 1985.

³⁰¹Brown, "Popular Epidemiology and Toxic Waste Contamination: Lay and Professional Ways of Knowing."

causal disease chain. Further, it involves social movements, utilizes political and judicial approaches to remedies, and challenges basic assumptions of traditional epidemiology, risk assessment, and public health regulations. In some cases, traditional epidemiology may reach similar conclusions as popular epidemiology. Yet scientists generally do not become political activists in order to implement their findings, ...³⁰²

Brown argued that there were stages, not necessarily consecutive, that communities usually go through when dealing with hazardous wastes and health effect risks. Groups of people in a contaminated community may first notice separately both health effects and the existence of pollutants. Residents hypothesized something out of the ordinary, typically connecting health effects with pollutants, and then shared information, creating a common perspective. Community residents read about, asked around, and talked to government officials and scientific experts about the health effects and the possible contaminants. Residents organized groups to pursue their investigation. Government agencies conducted official studies in response to community pressure, but these studies usually find no association between contaminants and health effects. Community groups brought in their own experts to conduct a health study and to investigate pollutant sources and pathways. These groups engaged in litigation and confrontation while pressing for corroboration of their findings by official experts and agencies. The end goal for activists, he argued, was that government agencies take action to monitor or cleanup the threat, thus accepting their claims.

Brown and others sympathetic to activist views with regard to hazardous wastes argued that the real meaning of an epidemiological fact can only be produced through the interaction of epidemiologists and the public. Brown stated that, "Lay people may initiate action and even direct the formulation of hypotheses, but they work with scientists, not in place of them." Popular epidemiology was not just good politics, but good science since it

changed the nature of scientific inquiry while providing continuity in the scientific process.³⁰³ Lay involvement identified cases of "bad science," pointed out the drawbacks in "normal science," sought alternative routes of information and analysis given distrust of official science, and yielded valuable data that might otherwise be unavailable.

Brown believed that activists themselves sought to become "popular scientists" who could win the support of scientific experts for the sake of creating useful knowledge. One manner through which they might do this was by conducting health surveys. Health surveys conducted by community members or sympathetic others presented an active tactic to gather information useful in demanding and monitoring the epidemiological studies of official experts. However, such surveys could be extremely time consuming. A sample health questionnaire in *The Health Detectives' Handbook* had over one hundred questions, many with multiple parts, asking for detailed health histories of all family members. While these assessments may neither prove nor disprove a hypothesis, as a technique,

Its place in the pattern of conflict suggests that a health risk assessment is a unique part of the process of community mobilization around environmental health risks. The processes which precede it and follow it offer ground for understanding the dominance of structural interests in environmental health and the political nature of environmental health risks and conflicts over them. Finally, the health risk assessment has important links to participatory research methodologies and critiques of established science.³⁰⁴

While the *Health Detectives' Handbook* was filled with technical information, including statistical analyses and mortality charts for the U.S. population, other community help manuals took a different investigative approach. *Fighting Toxics*, published by the

³⁰²Ibid., p. 269.

³⁰³ Ibid, p. 277

³⁰⁴ Couto, Richard A. "Failing Health and New Prescriptions: Community-Based Approaches to Environmental Risk." *Current Health Policy Issues and Alternatives: An Applied Social Science Perspective*. Ed. Carol E. Hill. Athens, GA: University of Georgia Press, 1986.

National Toxics Campaign, focused on finding out production and safety information on a company or facility that used toxic chemicals. The manual presented a "how-to book for reestablishing local democracy in your community."³⁰⁵ The NTC manual advocated a rights strategy or model in that it insisted that the community had the right to know about all actual or potential chemical exposures and the health implications, the right to inspect dumps and polluting facilities, and the right to negotiate directly with responsible parties over solutions to public health threats.

The use of community health surveys, however, could also be met with ambivalent enthusiasm by community activists because of the large amount of work necessary to carry them through. When EAST and PODER requested that a health assessment be done so that a more formal health study could be done, the Travis County Health Department and Texas Department of Health put together a health questionnaire which PODER and several other community associations distributed to members of the affected community. Antonio Diaz argued that, "the more health information we get on the kind of health problems the community is being exposed to then a case can be made about the dangers of these facilities and a stronger case can be made for the demands that they get some sort of compensation, that they have more elaborate health studies, that a health clinic be established." Yet, at the same time, Diaz noted that the health department experts only went so far in offering help,

unfortunately the onus of getting those health questionnaire's done was on us. The Health Department just made the questionnaires available; they did not have people in the neighborhood to help fill them out. It was up to the community to get them completed and turned in. It seems a rather odd way of getting data.³⁰⁶

³⁰⁵Cohen, Gary, and John O'Connor. *Fighting Toxics: A Manual for Protecting Your Family, Community and Workplace*. Washington, DC: Island Press, 1990.

³⁰⁶Wright, "Tank farm activists critical of city/county interest."

Diaz's comments reflected concern for having activists and residents conduct surveys for the health department when responsibility and accountability for such work was supposed to lay with the institution.

Health surveys were not considered a substitute for formal epidemiological studies, but a necessary complement to them. Community groups still needed to consult with scientists for help in designing studies. However, even studies conducted by reputable scientists enrolled by community groups could be subjected to harsh review by officials and dismissed as flawed. Proponents of community participation viewed health surveys as a tool for the community that could draw media attention, educate the public about the issues, and spur health agencies to conduct further investigations.³⁰⁷ Surveys also provided a means by which the community could work to define or redefine pertinent questions to be asked of experts, thus allowing them to develop a framework to critique the specifics of official studies.

Endorsing Environmental Justice Research

After the 1994 symposium, the National Environmental Justice Advisory Council's Subcommittee on Health and Research endorsed the symposium's recommendations for an environmental justice or community-led research as a model for developing ideas for EPA. NEJAC, too, called for the meeting's executive summary to be distributed widely to all federal agencies as a guide for forming their environmental justice research strategies.³⁰⁸

³⁰⁷Freudenberg, *Not in Our Backyards!*

³⁰⁸U.S. Environmental Protection Agency, Office of Environmental Justice, *National Environmental Justice Advisory Council and Subcommittees - Proceedings from August 3-5, 1994, Albuquerque, New Mexico.*

By October 1994, the NEJAC Health and Research Subcommittee worked out its own definition of environmental justice research as,

Research that includes vulnerable populations, such as: low-income and people of color as co-partners in developing measures and hypothesis testing to discover causes and consequences of environmental disparities and develop measures, criteria and participatory methods to improve environmental regulation and policy responses that eliminate disparity and protect human health.³⁰⁹

One subcommittee member, Ben Goldman, of the Jobs and the Environment Campaign, suggested that this new research approach should focus on the "centrality of relativism and different perspectives; in contrast to the old research which is preoccupied with objective, generalizable findings" to challenge how risk assessments are being done.

At their December 1995 meeting in Washington, DC, members of the subcommittee again raised this issue of risk assessment, along with questions about causality and what community-led research meant methodologically. Their discussion at that meeting exhibited a range of views on how formulating environmental justice research affected these issues. In discussing causality under the new research paradigm, Andrew McBride, of the Health Department in Stamford, Connecticut, expressed concern over application of the standard research practice of documenting cause and effect when assessing the need for environmental intervention. Mary English, a professor at the University of Tennessee, echoed the sentiments of the 1994 symposium participants on shifting the burden of proof so that a community should not be required to show evidence of an adverse health effect. Rather a polluting facility would be required to show that no adverse health effects existed.

Observing that at the heart of the "burden of proof" approach was the use of quantitative risk analysis, Robert Bullard suggested that the subcommittee explore

³⁰⁹U.S. EPA, Office of Environmental Justice, *Proceedings of the National Environmental Justice Advisory Council and Subcommittees - October 25-27, 1994, Washington, DC.*

alternative methods of risk analysis that better represent minority positions on such issues as socioeconomic effects, effects evidenced by transgenerational and intergenerational incidence, questions of equity, and distribution of effects. Bullard also urged the subcommittee to develop methodologies to assess cumulative risk. McBride, however, voiced concern that all questions of injustice would be "buried" in the complex issues of methodologies. He asserted that, in its current form, risk assessment "guts" most environmental interventions and suspends the influence of common knowledge about facts because explicit "proof" is lacking.

Discussing the pragmatics of community-led research, Bullard stressed the need to find ways to support the legitimacy and the parity of such research with research conducted by universities, institutions, or government. This prompted Sherri Salway-Black, of the Lakota/First Nations, to question what defined community-based research. Was it research conducted by the community, using traditional scientific research methodology, she asked, or research that involved alternative indicators of effects that reflect community's point of view, such as spiritual and cultural ramifications of a project for an indigenous community? Bullard believed that for many funded projects, community organizations could perform the same research given the proper training. At the same time, however, he argued that community-based research should be more than the adoption by communities of existing research topics and methods; it would require that communities create their own research agendas.

Salway-Black then expressed her support for cultural research, as opposed to conventional mainstream methodology that uses conventional or traditional practitioners, and argued that resources within native communities could be tapped to do such research. McBride, however, did not want to see people of color becoming side-tracked by "non-traditional and non-mainstream avenues" at the expense of dismissing the power of science

and technology. He agreed there was a place for non-traditional approaches, but believed that existing technologies be given to all citizens, regardless of environmental justice issues.³¹⁰

The subcommittee on health and research introduced several resolutions to forward their ideas on reshaping the EPA's approach to evaluating the health implications of toxic wastes that were passed by the whole NEJAC. Perhaps due to Bullard's strong influence, NEJAC began to focus their attentions to the connections between health research and risk assessment. One NEJAC resolution commended EPA for "speaking against the use of risk assessment and cost/benefit analysis as the sole criterion to evaluate the merit of environmental law and regulations" and urged the agency "to promote the use of community-driven risk and impact assessments, as an essential component of wise and just environmental decisions."

Environment as Place and Politics

Fundamental to NEJAC activists' discussion of environmental justice research were issues of community participation and definition of environment. Attitudes toward community participation and meaning of environment reflected interesting differences among the multiple forms of epidemiology at play in toxic waste controversies. Epidemiology in its broadest guise studied the distribution of disease among a population and used such knowledge to investigate causal factors and develop prevention and control techniques to stem its occurrence. Causal factors included biological, social, and physical phenomena, with physical depicting "environmental" factors, like air, water, and soil. The

³¹⁰U.S. EPA, Office of Environmental Justice, *Summary of the Meeting of the National Environmental Justice Advisory Council - December 12-14, 1995, Washington, DC.*

public played a dual role as subject of study and sentinel to provide information about a disease's transmission and symptoms.

Building from this general description of epidemiology, proponents of environmental epidemiology emphasized the need to clarify the relationship between biological, chemical, and physical factors and health. The notion of "social" aspects of disease became implied in the idea of "relationship" and in the awareness that environmental epidemiology developed within and served to aid in refining policies and regulations on pollution.³¹¹ The absence of the social as an explicit causal factor, however, restricted the idea of environment and causality to biological, chemical, and physical factors. The public was still considered an important source of information, but the demands of communities affected by toxic wastes pressured regulatory institutions to make an attempt at more qualitative dialogue.

Dumpsite or reactive epidemiologists considered cultivating a good working relationship with the members of an affected community to be their most important duty. Verification of health effects was important, but detailed analytical studies became secondary to the need for action. As public health officials they defined their brand of epidemiology closer to that of an art that depended upon their use of judgement. In contested local arenas, causal factors included biological, chemical, physical, and social

³¹¹ The absence of social in the definition of environmental epidemiology also reflected industry's influence in shaping the scientific debate. The Chemical Manufacturers Association's weighed into the discussion in 1991 with its own set of guidelines for good epidemiology practices that advocated adherence to "sound scientific research principles" and emphasized investigator control in conducting studies. The CMA, a non-profit trade association of 180 member companies, comprised 90% of the productive capacity for basic industrial chemicals in the United States. Overall, the chemical industry employed roughly a million workers, produced 70,000 products, represented 10% of all manufacturing, and was the country's leading exporter. The role of industrial managers and scientists in shaping scientific discussions on epidemiology is lacking in this study, but should be pursued to appreciate a fuller account. See CMA's Epidemiology Task Group. "Guidelines for Good Epidemiology Practices for Occupational and Environmental Epidemiologic Research." *Journal of Occupational Medicine* 33.12 (1991): 1221-1229.

phenomena. Public involvement was crucial to provide needed information, but also contributed a good measure of critique. Overall, proponents of dumpsite epidemiology focused on epidemiology as a process.

The process of direct community involvement in popular epidemiology emphasized community members gathering data as well as marshalling expert resources. Social structural factors, such as corporate and government institutions and demographics of a community, were given greater weight as part of the environment and the causal chain of disease. The public was by no means passive, but acted as data collectors, managers, and even, to quote Brown, popular scientists or lay experts as they hypothesized and carried out research activities with professional experts.

Likewise, environmental justice research was born from the community perspective and incorporated much from popular epidemiology. However, community involvement was formalized at the federal level as active participation in hypothesizing, designing, interpreting, communicating, and translating research studies along with experts. Similar to popular epidemiology, community members become co-researchers and critical participants. Activists defined environment through the lense of race, much as earlier activists had defined worker health and the anti-toxics movements through the issue of class. It was where people lived, worked, and played, constantly subject to industrial exploitation and government indifference.

Within all these versions of epidemiology, lay observations were crucial in identification of environmental and health affects of hazardous wastes both in the work place and in communities. The experiential knowledge of the public often preceded official and scientific awareness of problems. Epidemiologists understood the inclusion of community observational knowledge as an important tool. However, critical participation by affected communities was viewed with varying degrees of enthusiasm by

epidemiologists studying the health effects of hazardous wastes. For most epidemiologists, disputes over health studies arose from shortcomings in knowledge about toxic waste-induced disease. Commenting on the East Austin tank farm case, Dr. Kenneth Bogdan, a toxic substances specialist with the New York State Health Department, noted that,

People say they are affected by these chemicals and, in fact, they may be. But there is no proof in a legal sense because you don't have a guy standing there with an air monitor measuring the levels of toxins present while they are getting sick. We have become so sophisticated that in some instances we can measure these substances in parts per quadrillion. But the question then becomes, at what level of exposure does a person experience health effects? This is a very vague area.³¹²

Activists, however, believed their perceptions and observations should be adequate to propel action. Further they argued that officials use scientific uncertainty to prolong inaction, to refuse to investigate further, and ultimately to dismiss their claims of health problems.

In explaining the discrepancies between the standards of proof for epidemiologists and activists, Brown argued that epidemiologists usually err on the side of rejecting environmental causation, whereas community residents make the opposite choice.³¹³ In effect, epidemiologists preferred false negatives to false positives, preferring to claim that an association did not exist when it did. As Lois Gibbs described about trying to show "proof" of the health problems residents at Love Canal experienced,

³¹²Ward, Mike and Scott W. Wright, "Survey details illness among Austin families living near tank farm."

³¹³Brown, "Popular Epidemiology and Toxic Waste Contamination: Lay and Professional Ways of Knowing."

They kept telling us that there was no proof. But not being able to prove a relationship because it is impossible to do the studies is not the same as proving the chemicals don't have anything to do with people's diseases—which seems to be what the state was saying. Besides, I don't see why you need scientific certainty when people's lives and health are at risk.³¹⁴

In hazardous wastes and health controversies, the burden of proof fell on the community at risk. This burden of proof usually exceeded the level required to argue for intervention.

To overcome this, epidemiologist Richard Couto proposed a "reasonable person" measure to prompt action.

The degree of risk to human health does not need to be at statistically significant levels to require political action. The degree of risk does have to be such that a reasonable person would avoid it. Consequently, the important political test is not the findings of epidemiologists on the probability of nonrandomness of an incidence of illness but the likelihood that a reasonable person, including members of the community of calculation, would take up residence with the community at risk and drink from and bathe in water from the Yellow Creek area or buy a house along Love Canal.³¹⁵

The concept of causality presented problematic issues in these situations. A strength of epidemiology engaged in research using a bacteriological "paradigm," a search for organisms that produced an identifiable biological effect. Environmental epidemiology shifted this to a chemical paradigm. For activists, the correlation of specific toxic wastes with certain health effects was only part of the identification of causality. Causality included the identification of responsibility and accountability of corporate and/or government officials who produce or regulate the manufacture and storage of hazardous wastes. Corporations, government agencies and their scientific experts, Brown argued, worked to maintain control of hazardous waste issues by denying the link with toxics and

³¹⁴Gibbs, *Love Canal: My Story*, p. 69

³¹⁵Couto, "Failing Health and New Prescriptions: Community-Based Approaches to Environmental Risk."

by taking charge of the agenda for the problem's solution. Activists countered this claim of ownership of the problem by redefining causal responsibility and taking on political responsibility.

Underlying a discussion of causality is the defining of environment among these various views of epidemiology. As public health historian Sylvia Tesh argued,

For most toxicologists and epidemiologists, it is a general term for the place where disease-causing chemicals, fibers, and radiation are found, just as it is a place where disease-causing microorganisms are found....Other people, however, think that "the environment" refers to a whole and that environmental diseases cannot be effectively controlled if the term is conceptually reduced to its constituents. From this perspective, the environment, instead of being simply that place where the cause of disease is found, becomes the cause itself....One method puts responsibility on the workers, much like the lifestyle theory; the other puts responsibility on the owners and managers of industry.³¹⁶

From the point of view of epidemiology generally, multiple causation should not pose an epistemological crisis. Rather, a broad relativism characterized the field. According to Lillienfeld and Stolley, "Differences in the causal thinking about infectious and noninfectious diseases—the latter being more likely to have multiple causal agents—depend upon the frame of reference within which the investigator operates and reflect differences in our knowledge of the etiology of these two general categories of disease, rather than differences in logical reasoning."³¹⁷

Introductory texts on epidemiology addressed the problem of environment by dividing it into physical, biological, and social. In such an approach, environment could be defined very broadly or reduced to specific phenomena given research needs,

³¹⁶Tesh, Sylvia. *Hidden Arguments: Political Ideology and Disease Prevention Policy*. New Brunswick, NJ: Rutgers University Press, 1988, p. 56.

³¹⁷Lillienfeld and Stolley, *Foundations of Epidemiology*, p. 251.

The term environment may denote many different things. In a broad sense it means “the totality of influences which infringe on man and affect his well-being” and therefore embraces the physical environment (atmosphere, water, soil), the biological environment, and the human and social environment (distribution, density and mobility of population, housing agricultural practices, industrial processes and hazards, diet, pollution, cultural traits, etc.). For certain purposes such as research or development of health programs, it may be restricted to certain areas and classified differently in different contexts.³¹⁸

Vagueness in the term environment, however, became magnified in the public policy debates over hazardous wastes. Tesh asserted that newer textbooks view disease as stemming from multifactorial, multicausal, or complex interactions are richer in descriptive potential. However, she contends that the complexity of a multifactorial model may reinforce the status quo by restraining preventive action. Further, reliance on multiple causation can be used as a cloak for inadequate knowledge and the methodology may fall short "as a way to understand how myriad social, economic, political, psychological, historical, and aesthetic aspects of human life interact to produce disease."³¹⁹

For environmental justice activists, "environment" was understood in a number of ways. Arguing against mainstream environmental organizations' interpretation of environment as wilderness and as other species, Pat Bryant of GCTO stated that,

We said from the beginning that this is too narrow, it doesn't work for us. You can't get our communities involved with a narrow focus on the environment. People are not going to be involved if they think of the environment as something apart from their concerns.³²⁰

Louis Head of SWOP contended that environment for minority and low-income communities was only visible through its connection to health and local social frustrations.

³¹⁸Leaverton, ed., *Environmental Epidemiology*:

³¹⁹ Tesh, *Hidden Arguments*.

³²⁰Novotny, “Where We Live, Work and Play.”

When we talked about community issues with local residents, most people focused on the health problems and the lack of services. The environment was not something that was there.³²¹

Equating environment and health was a key to political activism around environmental justice issues. As Virginia Sexton, with *Wake Up in Cherokee*, North Carolina, noted, "Saving the environment is a health issue—saving the health of the people."

Environment was connected as well to the history of racial inequalities. GCTO viewed the petrochemical industry as reminiscent of the oppression of the old South's plantation economy and dubbed them "the new masters."³²² In the southwest, environment was thought of in terms of the history of cultural colonialization, the damage wrought by military and postwar industrialization, and in terms of genocide to indigenous peoples. The understanding of environment could encompass the historical realities of genocide, racism and sexism among individuals, groups and generations, as in the contention by members of the Indigenous Caucus that, "The bodies of Indigenous women are the first environment of our future generations."³²³

The idea of environment as where people "live, work, and play" became something of a motto among environmental justice activists. This definition of environment included pursuit of daily experiences to try to achieve a "normal" standard of living in abnormal surroundings. Patsy Oliver noted that,

I had to buy truck loads of top soil. I had to buy grass because the grass wouldn't take hold. I never did get around to buying the swing set or trying

³²¹Ibid., p. 71.

³²²Wright, Beverly H., Pat Bryant, and Robert D. Bullard. "Coping with Poisons in Cancer Alley." *Unequal Protection: Environmental Justice and Communities of Color*. Ed. Robert Bullard. San Francisco, CA: Sierra Club Books, 1994; pp. 110-129.

³²³U.S. National Institutes of Health, *Symposium on Health Research Needs to Ensure Environmental Justice: Recommendations - February 10-12, 1994, Arlington, Virginia*, p. 61.

to start a garden because I bought my flowers and they would die. I bought my children a dog because they liked pets and then my dog got sick, had tumors...cancerous so he had to be put to sleep. Then I noticed the children were breaking out in rashes and getting nose bleeds, kept colds constantly, had shortness of breath, respiratory problems. And there was always a bad taste in your mouth.³²⁴

For environmental justice activists, environment was synonymous with visions of social justice, as in wanting "to live in a world where the environment is not only safe from lead poisoning but also from police abuse and not having enough to eat and not having a place to stay."³²⁵ Throughout these views, activists defined environment as intimately connected to health as the physical, mental, and social well-being of members of a community. Perhaps most importantly, environment included realizing political self-determination. As one GCTO activist stated, "The environment is about life, about having choices."³²⁶

³²⁴Almanza, *et. al.*, *Toxics in Texas*.

³²⁵Mattie Mathis with Kentucky Alliance Against Racial and Political Oppression in Louisville, KY. Madison, Isaiah, "To Forge a Movement," p. 31.

³²⁶Madison, "To Forge a Movement," p. 31.

CHAPTER 6

Environmental Justice Research: Toward a Democratic Science?

"[S]cience is a tool for people and people are not a tool for science, or government, or researchers."

Core Groups 18, 19, 20 at the
1994 Health Research and Needs Symposium in Arlington, Virginia

Environmental Justice and Scientific Knowledge

By the time activists participated in the 1994 symposium on health research needs in Arlington, Virginia, they identified themselves as part of an emerging national movement, defined through the struggles of groups in minority and poor communities to call attention to the polluted surroundings of their living and working conditions. Starting with the demand by minority communities for environmental equity, the movement built upon civil rights activism and extended anti-toxics and social justice activism. Minority activists emphasized the racial dimensions of toxic waste controversies and accused old guard mainstream environmental groups of neglecting such issues. By the early 1990s, minority activists and much of the anti-toxics network identified themselves as part of an environmental justice movement which squarely confronted the interrelationships between race, class, and environment.

The case of activists fighting for the closure of a gasoline tank farm in East Austin, Texas, illustrated the kind of local toxics and health controversies that environmental justice activists engaged in and depicted the tensions and frustrations that they faced in working with government institutions. The groups EAST and PODER viewed the uses of science,

particularly public health monitoring and medical testing, as useful to investigate the health effects that the East Austin residents suffered. While holding a critical view on the process and institutional motivations underlying such uses, and while recognizing that research reports may not clarify the issues, these activists demanded that the affected population receive the most current scientific techniques available. Apprehensive of the local health department involvement, they argued that more and better qualified research was needed, particularly from state academic researchers. They also pointed out that such research needed to take into account information that they had to offer on their own health histories and observations.

Activists' advocacy of further research, however, took place as part of a full political press to change regulatory policies, and the regulatory configuration itself, in the Texas Air Control Board, Department of Water, and Department of Public Health. Conflicting viewpoints about the potential health dangers from officials, even sometimes within the same department, fueled activists' resolve that indifference, neglect, and behind-the-scenes pressures from the petroleum companies were skewing the research process. They sought removal of the tank farm and public health interventions based upon the reporting of health problems and the potential harm that the known carcinogens could have upon the surrounding neighborhoods. Their call for further studies was to verify that residents were experiencing illness and get them treatment, not necessarily to ascertain more definitive causal connections between pollutants and disease.

In many ways, activists in East Austin engaged in popular epidemiology. They hypothesized that the tank farm was the source of the health problems complained of in the surrounding neighborhoods. They gathered health information from residents using a health survey instrument designed by the health department. They worked with

sympathetic experts to interpret data and reports and welcomed support from other groups to build political pressure. Activists used the full power of civil rights discourse by writing letters to and meeting with officials, taking the issue up before the city council at every chance, protesting at the site, and effectively using the local media to express their interests and demands. Further, they emphatically held the petroleum companies and the state accountable for the polluting facility and used the momentum of the controversy to question state environmental regulations and health department guidelines, as well as point out the prevalence of environmental racism in other Texas communities and within other local East Austin issues.

The Texas tank farm controversy revealed differences in rhetoric and perspective between activists, scientists, and officials. Not much had changed at the local level in the dynamics of such controversies since Love Canal. What did change was that environmental justice activists reframed confrontation with local, state, and federal institutions by claiming that minorities and the poor were disproportionately affected by pollution.

Power and the Regulatory Process

At the state level, environmental justice activists defined themselves through regional networks. At the national level, the 1991 Summit in Washington, D.C., galvanized the emerging movement through participants articulation of guiding environmental justice principles and a call for action. Activists provoked greater national attention to environmental justice by confronting mainstream environmental groups lack of interest in minority issues and by pressing their way into the environmental policy agenda of the Environmental Protection Agency and the Clinton Administration. They also brought

the findings of their own original studies, arguing race to be a primary factor in the siting of hazardous waste facilities, into the national dialogue.

Environmental justice activists, thus, made a significant mark on the EPA by placing the agency on the defensive. EPA officials, and its own public documents, characterized the agency as one that primarily served to protect the health of the public and the environment, and was, thus, open to the public's needs and concerns. However, activists fought their way into the agency's agenda through non-violent action and persistence. Their efforts resulted in the newly elected Clinton Administration issuing a federal mandate on environmental justice, the newly appointed EPA Administrator Carol Browner extending her support to their efforts, an Office of Environmental Justice within the EPA, and the establishment of a National Environmental Justice Advisory Committee to advise the EPA on its environmental justice policies. Thus, activists won a major battle in achieving attention and some level of commitment by a federal agency.

While the EPA acknowledged environmental justice activists to help advise the agency, it also responded to participation by reframing the demand as one of "outreach" or educating the public. The 1986 SARA legislation created a citizens' right to know about polluting facilities in their communities by providing them with greater access to technical data and government documents. Whether this also included a right to participate in framing the issues, or only to respond to the agenda for redress scripted by government officials, remained controversial. In its 1992 report on *Environmental Equity: Reducing Risks for All Communities*, the EPA pointedly reframed activists' charge of environmental racism by arguing that a lack of data made correlation of toxic pollutants with disease and health problems, as well as with ethnic composition of communities, difficult.

The EPA, mandated to protect human and environmental health through various environmental laws, was the responsible agency to address the health effects of toxic exposures on communities. With few in-house epidemiologists, the EPA relied upon the Agency for Toxic Substances and Disease Registry to carry out health assessments for those toxic wastes sites considered to be the worst threats to human health, particularly those classified on EPA's National Priority List. Through this configuration, the government attempted to consolidate and make more efficient the research and record keeping functions associated with this problem. Within the current state of activity on health and toxic wastes, this regulatory structure was fairly new and in constant flux as adaptations and changes were made to it. Anti-toxics groups and environmental justice activists worked steadily to influence this structure. Industry was heavily involved, as well, as exemplified in corporate perspectives voiced in Congressional hearings on environmental justice and in their representative place at the NEJAC table.

At EPA, a number of senior science committees and boards oversaw the policies and science for the agency. It was in these citadels that continued discussions and refinements to risk assessment policy were to be carried out. Activists aspired to become members of these decision-making bodies. While the EPA did make environmental justice one of its highest priorities, it is still uncertain as to the degree to which environmental justice issues holistically changed the agency's operations and its scientists way of thinking about their work.

Environmental Justice Research and Multiple Epidemiologies

In addition to pressuring federal agencies to address environmental justice as a policy matter, activists, particularly through their work at the 1991 Arlington symposium

and on the NEJAC Subcommittee on Health and Research, contributed to the scientific controversy surrounding epidemiological approaches to studying the health effects of toxic wastes. Multiple epidemiologies—environmental, dumpsite, and popular—existed in researching these health problems and emerged in concert with one another as controversies over toxics and health and regulating policies to deal with environmental hazards continued to emerge. The differences in these multiple epidemiologies mainly lay in the differing socio-political positions of their practitioners and in differing understandings of what constituted environment, causation, and public participation. The similarities that environmental and dumpsite epidemiologies shared had to do with their critiques of the inadequacies of “traditional” epidemiology to deal with non-biological phenomena and with the unknowns in understanding the extent of toxic contamination. Popular epidemiology and environmental justice research critiqued the inadequacies of environmental and dumpsite epidemiologies, pressing these more official sciences to instill greater emphasis on social factors into the causal chain.

Activists offered an environmental justice research that had community-based knowledge at its heart. They viewed environment broadly to construe social and political inequities that left minority and poor communities bearing the burdens of pollution. Causation for toxic-induced diseases extended beyond the physiological interactions of toxic wastes upon human bodies to include the responsibilities of government and industry in creating or perpetuating health-threatening situations. Activist members on the EPA NEJAC, and in interdisciplinary fora such as the Arlington, Virginia health symposium, offered an alternative to official forms of environmental epidemiology.

In many ways, environmental justice or community-led research was an extension of the anti-toxic's popular epidemiology. It differed from the latter only to the degree

activists infiltrated participation within the decision making structure of responsible national agencies. Like popular epidemiology, the environmental justice research framework supported local community involvement as "co-partners" or lay experts in research efforts with local, state, and federal agencies. Both alternative epidemiologies redefined the methodologies, as well as the epistemology, of environmental or "official" epidemiology by arguing for communities to hypothesize, carry-out research, interpret data, and make recommendations to alleviate public health problems.

The term environment in environmental epidemiology, as defined by the NRC Committee on Environmental Epidemiology and the ATSDR, encompassed biological and chemical factors as the primary causal factors of disease. Proponents of this definition asserted that the complexity of the regulatory environment had an impact upon the research process, how epidemiologists gathered and interpreted data, but they did not connect this to an overarching socio-political critique. Rather, they advocated a more technical approach sensitive to regulatory restrictions and needs. Public health epidemiologists outlined dumpsite or reactive epidemiology as what they did while caught in between regulatory requirements, or lack thereof, and the affected communities. Working with such communities, these epidemiologists pointed out their reliance upon community knowledge and the importance of maintaining open communications.

During the late 1970s and early 1980s, environmental epidemiology was at an interesting historical point in that its boundaries of expertise were in the process of being more sharply defined in response to policy pressures over resulting from hazardous waste controversies and ensuing regulations. Peer committees of epidemiologists, and other related scientists, defined the boundaries of environmental epidemiology through national

and international meetings and publications, thus providing authority to this emerging expertise within the regulatory arena.

Redefining the Boundaries of Expertise

Discussions of expertise may view experts as knowledge holders who played some role in legitimating public policy decisions. Often experts engaged in tactics to maintain control of that role and the boundaries of their knowledge, while keeping the public on the fringes of the process. Such tactics were well documented in the literature on toxic wastes. However, varying forms of expertise existed. Activist experts, such as dumpsite epidemiologists, played a bridging role in including the public and arguing for public input. Environmental justice activists were, in many ways, creating a new layer of expertise by articulating an environmental justice research within the regulatory structure.

While advocating a certain amount of fluidity in interacting with the public, institutions created an expertise that often remained apart from the public, defining policies and regulations in the public's best interest. Environmental justice activists were not content with the dynamics of experts and science. All parties defining epidemiology constructed science in a broad sense by defining who and how scientific practice should proceed. This did not detract from overlapping agreement that health problems related to toxic wastes and pollution existed. The extent and severity of those effects was contested and tangled in a larger sociopolitical and economic controversy regarding race and class.

Several critical responses to the idea that environmental justice activists qualitatively affected the boundaries of expert knowledge are worth considering. These criticisms had to do with cooptation, scientism, and depoliticization. Sociologist David Pellow argued that by drawing on popular epidemiology as an approach to study the community health

effects of toxic exposure, community protest may draw appeasement from the state, but the boundaries of official knowledge would move to keep authority in the hands of official experts. In Pellow's view, environmental justice activists' perceived political gains, through participation and negotiation with official expertise to create new networks and methodologies for health research on toxic wastes, eventually resulted in cooptation of environmental justice interests by official experts and no real change in the dimensions of social power.³²⁷ In this study, too, it was evident that the turning of political issues into technical ones did happen, as seen by the EPA's 1992 report on environmental equity and the manner in which the NEJAC was circumscribed by EPA jargon and mission needs.

The problem of scientism comes through in remarks made by Steven Yearley on the environmental justice movement and standards for science. Yearly contended that, "once critics mobilize 'deconstructive' arguments against universal standards, they run the risk of finding themselves in the same uneasy situations as the environmental NGOs...they are skeptical about the universal pretensions of scientific knowledge but lack alternative bases for cognitive authority." Yearley worried that activists may be undercutting their ethical and moral arguments, what he believed was their alternative basis for cognitive authority, by becoming too engaged in taking scientific arguments apart and missing the overall contexts.³²⁸

Similarly, Sylvia Tesh and Bruce Williams criticized environmental justice activists for succumbing to disinterested politics that sought scientific evidence as objective proof of

³²⁷ Pellow, "In Whose Interest? Seeking Environmental Justice Through Popular Epidemiology."

³²⁸ Yearly, Steven. "The Environmental Challenge to Science Studies." *The Handbook of Science and Technology Studies*. Ed. Sheila Jasanoff, et. al. Thousand Oaks, CA: Sage Publications, 1994.

disparities.³²⁹ Thus, their reliance on using science could depoliticize them from their original position. Conversely, Christopher Foreman suggested that activists' naivete of scientific debates would eventually cause them to be ignored by experts within the policy realm. He believed that the moral and ethical arguments overshadowed activists' ability to grasp the complex rational processes of scientific inquiry.³³⁰

In the views mentioned, following popular epidemiology and working with officials could lead communities to become swallowed back up in the regulatory quagmire, submitting to the wills of the experts and their advice. Even the offering of an alternative scientific approach, such as environmental justice research, might place activists in the position of seeking standards and policies undermining their call for the uniqueness of community knowledge and circumstances and ultimately depoliticize environmental justice representatives from the rest of the movement. NEJAC members working inside the EPA became engaged in the segmentation of issues, that mimicked institutional arrangements, in order to confront problems. For example, NEJAC activists at first rejected and then accepted a subcommittee structure that dissected health and research from siting or from community participation discussions. Also, members of the NEJAC Subcommittee on Health and Research began to turn their attention to risk assessment guidelines, a very contentious EPA policy issue.

Phil Brown's work on popular epidemiology suggested that community activists sought to become scientists themselves. Similarly, Steve Epstein framed AIDS activists as experts in their own right by virtue of the amount of learning, refuting, and proposing of

³²⁹ Tesh, Sylvia N. and Bruce A. Williams. "Identity Politics, Disinterested Politics, and Environmental Justice." *Polity* XVIII.3 (1996):285-305.

³³⁰ Foreman, "The Clash of Purposes: Environmental Justice and Risk Assessment."

alternate interpretations of scientific data they engaged. However, identifying activists as legitimate because they emulate scientific expertise in a controversy is problematic. Activists are ultimately concerned with validating community knowledge. They participated in defining scientific knowledge in this case, because they wanted material change and response. They participated in the creation of environmental justice expertise at the federal level while arguing for decentralization of knowledge coming from grassroots to provide guidance and articulate reality from below. A danger, however, was that environmental justice might become redefined into narrow technical terms to "ensure environmental justice through research." Thus, while the notion of "expert" is broadened to encompass community knowledge, the potential to confuse, or scientize, environmental justice as a kind of expertise complete with scientific methodologies rather than a social, political and ethical goal continued to be a tension that activists faced.

Dilemmas of Democratic Science

These concerns with cooptation, scientism, and depolitization referred not only to environmental justice and science, but broadly critiqued the ironies involved in democratic participation in a technoscientific society. Did environmental justice research provide a model for democratic science? A democratic science should have a process open to participation by non-scientists, address a social problem or need, and recognize that the science itself cannot provide greater understanding of a problem without consideration of the social and political contexts and implications. Perhaps, too, a democratic science should constantly remind us, as Christopher Sellers noted, of "the artificiality of our

boundaries between what is ‘science’ and what is not.”³³¹ In theory then, a democratic science must be critical.

While environmental justice activists spoke in the language of science with specific goals in mind and criteria for process, they simultaneously worked to change the language of science. They perceived its usefulness, but recognized that a multiple attack on all fronts, such as enforcement, participation, siting, etc., was necessary to change the policy context so that their alternative had a chance to be accepted by the EPA and the ATSDR. Environmental justice advocates pushed for an alternative scientific approach, despite their severe critique of science and the political structure in which it resided. They viewed epidemiological research as potentially providing evidence and support for their claims.

Much like Epstein’s analysis of AIDS activists in research, environmental justice activists challenged and worked to change science and its practice. They were successful at raising ethical and moral issues and having government respond in a very public fashion. They offered an alternative form of science, environmental justice research, and alternative interpretations or critiques of governmental uses of science, the disparate impacts on minorities of the siting of toxic wastes. However, the most vital component of the environmental justice philosophy was that citizens and communities be involved in all levels of decision-making both for policy and for scientific research. Since this was not fully realized during the timeframe explored in this study, it remains to be seen whether environmental justice activists made a qualitative lasting impression upon regulatory science that would reflect a deep social change in values at the government level.

Concerns over investing too much faith in the process of science were important warnings to heed. However, the bounding of rationality into cultural versus technical, with

³³¹ Sellers, *Hazards of the Job*, p. 238.

the technical being the exclusive domain of scientists and bureaucrats, was a duality that environmental justice activists claimed to subvert. Scientific and technological issues, such as toxic wastes and health, were social, political, economic, and moral issues. As such, activists viewed the domains of policy making broadly beyond the narrow confines of technical rationality. It was not surprising, nor absurd, that they engaged in and were hopeful about amorphous liberating potentials of science and technology. The notion of popular epidemiology, from which environmental justice research drew, explicitly recognized the interaction of the public, activists, specialized experts, and officials as crucial to achieving political and social change. Activists strove to understand the bureaucratic structures and the narrowness of decision-making. Environmental justice activists did not leave their confrontation and battles to reshape policy solely with efforts to re-envision science, but recognized that changes within these spheres must occur simultaneously with changes in other parts of the political regulatory process.

The environmental justice movement addressed the critical issue of how to make the policy process more open to democratic participation in environmental decision making. An important premise for a democratic science is that other knowledges are involved in the production of scientific knowledge and that they affect understandings of what constitutes science. For environmental justice activists, as for anti-toxics activism in general, community members held an epistemic vantage point that must be included in the policy dimensions of research on the health effects of toxic wastes. Activists used this vantage point as a mode for action and for a more ethically driven policy research. A dilemma for them became how to sustain the ideal of grassroots participation inside the federal institutional process. Many of the activists who took a role as representatives of environmental justice interests in the federal domain, were leaders and intellectual activists

comfortable in the culture of academia, government, and industry interaction. By developing a formal process to recognize the legitimacy of grassroots knowledge, these activists hoped to channel the decisions and demands of those directly affected at the local grassroots level.

An essential issue for understanding how social movements informed scientific knowledge was how activists' claims became part of, or superseded, a more predominant view of science. Steve Epstein argued that credibility was the key for AIDS activists. Credibility came from acquiring familiarity with the language of science, establishing themselves as representatives of others with the disease, taking sides in a pre-existing scientific debate, and by bringing together methodological and moral arguments persuasively. From these criteria, environmental justice activists also gained credibility within the EPA and the larger regulatory arena. Who bestows credibility on whom became an interesting issue. In the case of environmental justice activists, the EPA was forced to reclaim credibility by addressing activist concerns, thus putting the institution on the moral defensive. All of the criteria Epstein defined for credibility, however, were not enough to allow activists entry into the EPA. They forced their involvement through persistence, concerted action, and pressure. Upon entry into the EPA, they continued to try to maintain a critical position with regard to the agency's activities. Credibility did play a part in understanding the relationship between social movement activists and scientific knowledge, however, the rationale for involvement incorporated a sense that they were legitimate participants by virtue of the credibility and legitimacy that they had developed among themselves in forming the movement's solidarity and identity.

The uses and pursuit of scientific knowledge are only as good as the social and political environment in which they reside. When seriously considering the complexity of

scientific knowledge in addressing social problems, calls for elitism and closure in science cannot be sustained. It is not sufficient to train scientific experts to the needs of various communities. Scientists, in this case epidemiologists, must learn to think with and not instead of community members. In this case, there were a number of public health scientists who identified themselves as activists in seeking to form new networks to share and create knowledge with grassroots activists and non-scientists. Thus, scientific knowledge at this regulatory frontier cannot be defined solely by a methodological set of criteria such as observation, theory making, hypothesis, or experiment, but relies upon relationships between experts, institutions, and members of the public to provide meaningful definitions. Within tensions among these relationships, the science of epidemiology and public health policy for communities affected by toxic wastes and pollution continued to be negotiated. By positioning themselves inside this regulatory framework and scientific controversy, environmental justice activists challenged and reshaped epidemiological science and expertise.

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Appendix A

Principles of Environmental Justice

Preamble

WE THE PEOPLE OF COLOR, gathered together at this multinational People of Color Environmental Leadership Summit, to begin to build a national and international movement of all peoples of color to fight the destruction and taking of our lands and communities, do hereby re-establish our spiritual interdependence to the sacredness of our Mother Earth; to respect and celebrate each of our cultures, languages and beliefs about the natural world and our roles in healing ourselves; to insure environmental justice; to promote economic alternatives which would contribute to the development of environmentally safe livelihoods; and, to secure our political, economic and cultural liberation that has been denied for over 500 years of colonization and oppression, resulting in the poisoning of our communities and land and the genocide of our peoples, do affirm and adopt these Principles of Environmental Justice:

1. *Environmental justice* affirms the sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction.
2. *Environmental justice* demands that public policy be based on mutual respect and justice for all peoples, free from any form of discrimination or bias.
3. *Environmental justice* mandates the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for humans and other living things.
4. *Environmental justice* calls for universal protection from nuclear testing and the extraction, production and disposal of toxic/hazardous wastes and poisons that threaten the fundamental right to clean air, land, water, and food.
5. *Environmental justice* affirms the fundamental right to political, economic, cultural and environmental self-determination of all peoples.
6. *Environmental justice* demands the cessation of the production of toxins, hazardous wastes, and radioactive materials, and that all past and current producers be held strictly accountable to the people for detoxification and the containment at the point of production.
7. *Environmental justice* demands the right to participate as equal partners at every level of decision-making including needs assessment, planning, implementation, enforcement and evaluation.

8. *Environmental justice* affirms the right of all workers to a safe and healthy work environment, without being forced to choose between an unsafe livelihood and unemployment. It also affirms the right of those who work at home to be free from environmental hazards.
9. *Environmental justice* protects the rights of victims of environmental justice to receive full compensation and reparations for damages as well as quality health care.
10. *Environmental justice* considers governmental acts of environmental injustice a violation of international law, the Universal Declaration On Human Rights, and the United Nations Convention on Genocide.
11. *Environmental justice* must recognize a special legal and natural relationship of Native Peoples to the U.S. government through treaties, agreements, compacts, and covenants which impose upon the U.S. government a paramount obligation and responsibility to the indigenous peoples whose lands it occupies and holds in trust affirming sovereignty and self-determination.
12. *Environmental justice* affirms the need for an urban and rural ecological policies to clean up and rebuild our cities and rural areas in balance with nature, honoring the cultural integrity of all our communities, and providing fair access for all to the full range of resources.
13. *Environmental justice* calls for the strict enforcement of principles of informed consent, and a halt to the testing of experimental reproductive and medical procedures and vaccinations on people of color.
14. *Environmental justice* opposes the destructive operations of multi-national corporations.
15. *Environmental justice* opposes military occupation, repression and exploitation of lands, peoples and cultures, and other life forms.
16. *Environmental justice* calls for the education of present and future generations which emphasizes social and environmental issues, based on our experience and an appreciation of our diverse cultural perspectives.
17. *Environmental justice* requires that we, as individuals, make personal and consumer choices to consume as little of Mother Earth's resources and to produce as little waste as possible, and make the conscious decision to challenge and reprioritize our lifestyles to insure the health of the natural world for present and future generations.

Adopted at the First National People of Color Environmental Leadership Summit,
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Education:

Ph.D., Science and Technology Studies, Virginia Tech, 1998. Dissertation "Toward a Democratic Science? Environmental Justice Activists, Multiple Epidemiologies, and Toxic Waste Controversies" critiqued the role of environmental justice activists in shaping scientific research and policy for assessing the human health impacts of toxic wastes.

M.A., Science, Technology and Public Policy, George Washington University, 1987.

B.A., Science, Technology and Society, Vassar College, cum laude, 1984.

Current Position

April 1998 to present - Program Associate and Research Archivist, Directorate for Science and Policy Programs, American Association for the Advancement of Science, Washington, D.C. Responsible for organizing and maintaining AAAS Archives. Develop policies, practices, and research materials to allow staff, scholars, and interested members of the public greater access to archival records.

Fellowships

April 1999 to March 2000 - Dibner Fellowship, History of Science Society. Research interest in science and activism within AAAS during the 1960s, with particular focus on significance of the AAAS Committee on Science in the Promotion of Human Welfare in redefining the association's approach to science and policy issues.

Professional Experience:

May to August 1998 - Instructor, History of Science, Science and Technology Studies Program, Virginia Tech Northern Virginia Center. Team taught graduate course surveyed history of science from scientific revolution to the twentieth century.

September 1997 to March 1998 - Associate Curator, Directorate for Science and Policy Programs, American Association for the Advancement of Science. Curated retrospective history exhibit for AAAS 150th anniversary and annual meeting.

August 1996 to July 1997 - Program Assistant, University Writing Program, Virginia Tech. Assisted in organizing faculty and graduate student seminars and roundtable discussions on enhancing undergraduate writing skills.

January to May 1996 - Instructor, Sociology of Science, Department of Sociology, Virginia Tech. Team taught undergraduate course explored ideas on science as an institution and as a form of knowledge.

September 1994 to May 1995 - Teaching Assistant, Introduction to Humanities, Science and Technology, Virginia Tech. Facilitated student discussion groups, graded assignments, and evaluated student performance.

August 1993 to May 1994 - Managing Editor, *Technoscience*, the quarterly newsletter of the Society for the Social Study of Science. Gathered material of interest to society members, wrote and edited articles.

March 1987 to July 1992 - Project Coordinator, Scientific Freedom, Responsibility and Law Program & Associate and Managing Editor, *Professional Ethics Report*, Directorate for Science and Policy Programs, American Association for the Advancement of Science, Washington, D.C.

Publications

Crumpton, Amy C., "Secrecy in Science: Exploring University, Industry, and Government Relationships," *Science and Engineering Ethics* volume 5 (1999): 417-426.

Crumpton, Amy C., "Archives of a scientific community," *Recent Science Newsletter*, Vol. 1, No. 1 (Spring 1999); Washington, D.C.: Center for the History of Recent Science, George Washington University.

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Crumpton, Amy, "Journalism is Subject of Ethics Group Meeting," *Science* 237:84 (3 July 1987).

Conference Presentations

"The Role of AAAS in U.S. Science Policy: The First 150 Years" delivered at session on "150 Years of American Science Policy" at the AAAS Colloquium on Science and Technology Policy, Washington, D.C., April 1998.

"Environmental Justice, Expertise and the EPA: Institutionalizing a People's Epidemiology?" delivered at session on "Technology, Expertise and Political Protest" at the American Sociological Association Meeting in Toronto, Canada, August 1997.

"Environmental Justice and Popular Epidemiology: Redefining the Science of Public Health?" delivered at session on "Technoscientific Knowledge, STS Critiques and Social Movements" at the Society for the Social Study of Science Annual Meeting, Charlottesville, VA, October 1995.

"Environmental Racism and Community Response: Democratizing Environmental Policy-Making in Austin, Texas," delivered at session on "Deliberating Environmental Policy" at the Society for the Social Study of Science Annual Meeting, Purdue University, November 1993.

Organizer and facilitator for “Practicing Policy Workshop” (April 1996) and “Environmentalism and the Politics of Nature Conference” (April 1995), sponsored by the Science Policy Discussion Group and Center for the Study of Science in Society, Virginia Tech.

Organizer of AAAS Annual Meeting symposia: “Native American Remains: Ethical Issues” (1992, Chicago); “The Role and Responsibilities of Scientists and Engineers in Environmental Debates” (1991, Washington, D.C.); and “Science, Policy and Value Issues in Global Environmental Change” (1990, New Orleans).

Other Professional Activities

Ph.D. Student Representative, Graduate Program in Science and Technology Studies, Virginia Tech (September 1994 to May 1995).

Graduate Student Representative, Center for Interdisciplinary Studies Interim Coordinating Council, Virginia Tech (February to May 1995).

President, Science Policy Discussion Group, Virginia Tech (September 1993 to May 1994 and September 1996 to May 1997).

Volunteer, East Austin Strategy Team (EAST), Austin, TX. Worked on safety and water quality of creeks and watershed affecting primarily minority residential populations of East Austin (May 1993 to August 1993).

Intern, Union of Concerned Scientists, Washington, D.C. (September 1985 to January 1986).

Memberships

American Society for Environmental History

History of Science Society

Society for the Social Studies of Science