

PURSuing "ENVIRONMENTAL JUSTICE": THE DISTRIBUTIONAL EFFECTS OF ENVIRONMENTAL PROTECTION

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I. INTRODUCTION

Environmental protection policy has been almost exclusively concerned with two basic issues during the last several decades: (1) what is an acceptable level of pollution; and (2) what kinds of legal rules would be best suited for reducing pollution to that level. By contrast, policy-makers have paid much less attention to the distributional effects, including the potential for distributional inequities, of environmental protection generally.

To be sure, scholars have engaged in considerable discussion of how the costs of environmental controls affect particular industries, and how these costs place a disproportionate burden on new versus existing, and large versus small, industrial sources of pollution.¹ But there has been at best only an ad hoc accounting of how the benefits of environmental protection are spread among groups of persons. And, when the costs of pollution control have been considered, such discussions have been narrowly confined to the economic costs.² There has been virtually no accounting of how pollution controls redistribute environmental risks among groups

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¹ See Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law*, 37 STAN. L. REV. 1333, 1335-36 (1985); B. Peter Pashigian, *The Effect of Environmental Regulation on Optimal Plant Size and Factor Shares*, 27 J.L. & ECON. 1 (1984); Peter Huber, *The Old-New Division in Risk Regulation*, 69 VA. L. REV. 1025 (1983); WILLIAM TUCKER, *PROGRESS AND PRIVILEGE: AMERICA IN THE AGE OF ENVIRONMENTALISM* (1982) (author contends that environmentalism has unwittingly aided big business at the expense of small business and has inappropriately discounted the advantages of human process); Keith Schneider, *Rules Forcing Towns to Pick Big New Dumps or Big Costs*, N.Y. TIMES, Jan. 6, 1992, at A1; but see Daniel A. Farber & Phillip P. Frickey, *The Jurisprudence of Public Choice*, 65 TEX. L. REV. 873, 895-96 (1987) (questioning substantiality of evidence that environmental laws favor larger plants).

² See *infra* note 44.

of persons, thereby imposing a cost on some for the benefit of others.³

The 1970s marked the heyday of the modern environmental era.⁴ Earth Day in 1970 caught the imagination of a nation seeking consensus in the midst of the internal conflict engendered by the Vietnam war. Largely ignored in the celebration that accompanied the passage of a series of ambitious environmental protection laws during this time were those distinct voices within minority communities that questioned the value of environmentalism to their communities. They did not share in the national consensus that these new laws marked a significant movement towards a more socially progressive era. Some minority leaders described environmentalism as "irrelevant" at best and, at worst, "a deliberate attempt by a bigoted and selfish white middle-class society to perpetuate its own values and protect its own life style at the expense of the poor and the underprivileged."⁵ Environmentalists were seen as ignoring both the "urban environment" and the needs of the poor in favor of seeking "governmental assistance to avoid the unpleasant externalities of the very system from which they themselves have already benefitted so extensively."⁶ As one commentator described, environmentalists "would prefer more wilderness . . . for a more secure enclave in nature from the restlessness of history and the demands of the poor."⁷ A prominent

³ One notable exception in the context of environmental land use regulation is DANIEL R. MANDELKER, *ENVIRONMENT AND EQUITY: A REGULATORY CHALLENGE* (1981).

⁴ President Nixon signed the National Environmental Policy Act of 1969, Pub. L. No. 91-190, 83 Stat. 445 (codified at 42 U.S.C. §§ 4321-4370a (1988)) on January 1, 1970, and Congress followed soon afterwards by passing the Clean Air Act of 1970, Pub. L. No. 91-604, 84 Stat. 1676 (current version at 42 U.S.C. §§ 7404-7407, 7415-7418, 7601-7602 (1988)), the Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-240, 86 Stat. 47 (omitted as superseded by 33 U.S.C. §§ 1251-1287 (1988)), the Endangered Species Act of 1973, Pub. L. No. 93-205, 87 Stat. 884 (codified at 16 U.S.C. §§ 1531-1544 (1988)), the Federal Insecticide, Fungicide, and Rodenticide Act Amendments of 1975, Pub. L. No. 94-140, 89 Stat. 751 (codified at 7 U.S.C. § 136-136y (1988)), the Toxic Substances Control Act, Pub. L. No. 94-469, 90 Stat. 2003 (1976) (codified at 15 U.S.C. §§ 2601-2671 (1988)), and the Resource Conservation and Recovery Act of 1976, Pub. L. No. 94-580, 90 Stat. 2795 (codified at 42 U.S.C. §§ 6901-6992k (1988)), followed by substantial revisions in 1977 of both the clean air, Clean Air Act Amendments of 1977, Pub. L. No. 95-95, 91 Stat. 685 (codified at 42 U.S.C. §§ 7401-7642 (1988)), and clean water, Clean Water Act of 1977, Pub. L. No. 95-217, 91 Stat. 1566 (codified at 33 U.S.C. §§ 1251-1287 (1988)), legislation. See Richard J. Lazarus, *The Tragedy of Distrust in the Implementation of Federal Environmental Law*, 54 *LAW & CONTEMP. PROBS.* 311, 323-28 (1991).

⁵ James N. Smith, *The Coming of Age of Environmentalism in American Society*, in *ENVIRONMENTAL QUALITY AND SOCIAL JUSTICE IN URBAN AMERICA 1* (James N. Smith ed., 1974) [hereinafter *ENVIRONMENTAL QUALITY AND SOCIAL JUSTICE*].

⁶ Peter Marcuse, *Conservation for Whom?*, in *ENVIRONMENTAL QUALITY AND SOCIAL JUSTICE*, *supra* note 5, at 17, 27; see also Charles E. Little, *The Double Standard of Open Space*, in *ENVIRONMENTAL QUALITY AND SOCIAL JUSTICE*, *supra* note 5, at 73, 75 ("The logic of our policy seems to rest on this syllogism: inner cities have no greenery; poor people live in inner cities; therefore parks, open space, and wilderness are not necessary for them. City parks budgets shrink; the disenfranchised are barred from suburbia, and National Park tourism policies tend to exclude the non-affluent.").

⁷ Rev. Richard Neuhaus, *In Defense of People: A Thesis Revisited*, in *ENVIRONMENTAL QUAL-*

black elected official put it even more bluntly: "[T]he nation's concern with the environment has done what George Wallace has been unable to do: distract the nation from the human problems of black and brown Americans."⁸

Neither the United States Environmental Protection Agency (EPA) nor the mainstream environmental groups appear to have paid attention to these charges.⁹ Quite possibly, this was because such claims were so unsettling and potentially divisive, particularly to the extent that they implicated the welfare of racial minorities. The environmental movement of the 1970s finds much of its structural roots and moral inspiration in the civil rights movement that preceded it.¹⁰ Hence, for many in the environmental community, the notion that the two social movements could be at odds was very likely too personally obnoxious to be believed or even tolerated.¹¹

ENVIRONMENTAL AND SOCIAL JUSTICE, *supra* note 5, at 59, 62 (excerpt from conference presentation of Rev. Neuhaus).

⁸ Leonard G. Ritt & John M. Ostheimer, *Congressional Voting and Ecological Issues*, 3 ENVTL. AFF. 459, 465 & n.18 (1974) (quoting *The Rise of Anti-Ecology?*, TIME, Aug. 3, 1970, at 42 (quoting Richard Hatcher, Mayor of Gary, Indiana)). More recently, Professor Derrick Bell fantasized the possibility that white Americans would agree to the enslaving of all black Americans in exchange for "gold to bail out near insolvent federal, state and local governments, chemicals to purify the almost uninhabitable environment, and a safe, affordable nuclear technology to relieve the nation's energy woes." Derrick A. Bell, *Racism: A Prophecy for the Year 2000*, 42 RUTGERS L. REV. 93, 98 (1989).

⁹ Greenpeace, U.S.A., is one frequently cited exception. See Saifur Ahmed, *Seeing Red Over the Green Movement*, RIVERFRONT TIMES, Nov. 6-12, 1991, at 10, 11; Norris MacDonald, *Environmental Activities in Communities of Color*, in ENVIRONMENTAL RACISM: ISSUES AND DILEMMAS 32, 34 (Bunyan Bryant & Paul Mohai eds., 1991) [hereinafter ENVIRONMENTAL RACISM]; see also *infra* pp. 835-38.

¹⁰ The environmental movement's prominence in the aftermath of the civil rights movements' successes in the 1960s was not mere happenstance. Environmental groups not only adopted organizational structures, civil disobedience approaches, and litigation strategies based on those utilized by civil rights organizations, but also used the rhetorical power of the civil rights movement on behalf of environmental protection. Environmental rights were analogized to civil rights, and parallels were drawn between the emancipation of African-Americans and the emancipation of wildlife, plant life, and nature in general. See generally RÖDERICK F. NASH, *THE RIGHTS OF NATURE* 6-7, 34-35, 144-45, 162-63, 199-213 (1989) (concept of natural rights of people expanded to support the rights of nature as free from human domination); CASS SUNSTEIN, *AFTER THE RIGHTS REVOLUTION* 13, 25, 28-29 (1990) (Bill of Rights in the U.S. Constitution supported the notion that citizens have the right to be protected from pollution); PETER YEAGER, *THE LIMITS OF THE LAW: THE PUBLIC REGULATION OF PRIVATE POLLUTION* 107 (1991) (conservationists, like the civil rights activists, relied on the courts to affect change); see also, ELIZABETH DODSON GRAY, *WHY THE GREEN NIGGER? REMYTHING GENESIS 1-8* (1979) (purported hierarchy of man above animals and nature is an illusion); PETER SINGER, *ANIMAL LIBERATION* 234 (2d ed. 1990) (outlining belief that animals deserve more humane methods of limiting their numbers by reducing fertility rather than by hunting); CHRISTOPHER D. STONE, *SHOULD TREES HAVE STANDING? TOWARD LEGAL RIGHTS FOR NATURAL OBJECTS* 49-53 (1974) (heightened awareness of the interplay of humanity and nature as functional parts of a single organism called the planet Earth).

¹¹ Neuhaus, *supra* note 7, at 68 (Paul Swatek of the Sierra Club describing as "teprehensible" Rev. John Neuhaus' characterization of environmentalism as elitist and fascist). Other explanations for the lack of attention to these concerns are more practical in nature. Few, if any, of those expres-

More recently, however, the number of those suggesting that there may be serious distributional problems in environmental protection policy has significantly increased, and the character of their claims has shifted. Prominent voices in racial minority communities across the country are now forcefully contending that existing environmental protection laws do not adequately reflect minority interests and, in some instances, even perpetuate racially discriminatory policies.¹² For these individuals, the potential for a regressive distribution of the economic costs associated with pollution control is, while often mentioned, not the principal focus of their concerns. Rather, it is the prevalence of hazardous pollutants in the communities where they live and work that draws the brunt of their attention. One shorthand expression for such claims is "environmental racism,"¹³ but "environmental justice" (or "equity") appears to have emerged as the more politically attractive expression, presumably because its connotation is more positive and, at the same time, less divisive.

Until very recently, the legal academic community has paid relatively little attention to these emerging issues of "environmental jus-

sing such concerns had ready access to those making policy decisions. Furthermore, it made little sense strategically to risk alienating those within the environmental community, many of whom had historically voiced support for minority concerns.

¹² Roberto Suro, *Pollution-Wearry Minorities Try Civil Rights Tack*, N.Y. TIMES, Jan. 11, 1993, at A1. The year 1991 witnessed a proliferation of events, the most significant being the convening in October of "The First National People of Color Environmental Leadership Summit" in Washington, D.C. Approximately 300 delegates from minority community organizations working on environmental issues attended, as well as an additional 200 "participants" and "observers" from state and federal government agencies, academic institutions, and mainstream environmental organizations. The purpose of the meeting was to initiate a dialogue between these community organizations and, even more significantly, to make a strong national statement regarding the seriousness of the problems in the distribution of environmental risks. See *Minorities Joining Environmental Movement, Charge "Environmental Racism" at Conference*, 22 ENV'T REP. (BNA) at 1656 (Nov. 1, 1991); Keith Schneider, *Minorities Join to Fight Polluting Neighborhoods*, N.Y. TIMES, Oct. 25, 1991, at A20. During the fall of 1991, the State of New York Assembly held a series of four public hearings around the state on "Minorities and the Environment." See MINORITIES AND THE ENVIRONMENT: AN EXPLORATION INTO THE EFFECTS OF ENVIRONMENTAL POLICIES, PRACTICES, AND CONDITIONS ON MINORITY AND LOW-INCOME COMMUNITIES (1992) (reprinting of hearings transcripts). Finally, even more recently, Representative Henry Waxman, chair of the House Subcommittee on Health and the Environment of the House Committee on Energy and Commerce, held a hearing on February 25, 1992, on environmental justice issues. This was the first congressional hearing on the issue. Representatives from governmental agencies, minority environmental groups, and mainstream environmental organizations testified. See *Disproportionate Impact of Lead Poisoning on Minority Communities: Hearings before the Subcomm. on Health and the Environment of the House Comm. on Energy and Commerce*, 102d Cong., 2d Sess. (1992) [hereinafter *Lead Poisoning Hearings*] (not yet published; copy on file with the *Northwestern University Law Review*).

¹³ Dr. Benjamin Chavis of the United Church of Christ's Commission for Racial Justice apparently first used the term "environmental racism" in the early 1980s to describe the tendency of government and business to locate in minority communities hazardous waste disposal treatment, storage, and disposal facilities, and industries that emit toxic pollutants. *We Speak for Ourselves: Social Justice, Race & Environment*, RACE, POVERTY & ENV'T, Winter 1991, at 12 (book review).

tice."¹⁴ This absence of legal commentary contrasts sharply with a growing literature in other academic and popular periodicals,¹⁵ with the more recent efforts to increase awareness of environmental justice concerns within government,¹⁶ and with the filing of lawsuits derived from such concerns in the context of formal litigation.¹⁷

¹⁴ Students at the University of California at Berkeley Law School and New York University Law School held conferences on the subject in 1990. See Daniel Suman, *Reportback . . . Fighting LULU's: Effective Community Organizing, RACE, POVERTY & ENV'T*, Summer 1990, at 6. Students at Harvard Law School sponsored a one-day workshop in March 1991 and again in November 1992, and students at Washington University in St. Louis did the same in November 1991. Finally, students at the University of Michigan, Columbia University, and University of Minnesota law schools sponsored meetings on the issue in January, March, and October 1992, respectively.

There are to date just a handful of articles and student notes on the issue, all of recent origin. The first publication to address the issue in significant depth was a student note published in the *University of Michigan Law Review*, which focused on the availability of equal protection claims to remedy discriminatory siting of hazardous waste facilities, and the inadequacies of current state and federal legislation. See Rachel D. Godsil, Comment, *Remedying Environmental Racism*, 90 MICH. L. REV. 394 (1991); see also Luke W. Cole, *Remedying Environmental Racism: A View From the Field*, 90 MICH. L. REV. 1991 (1992). Luke Cole of the California Rural Legal Assistance, Inc., is publishing an article, contemporaneous to this piece, on "environmental poverty law." See Luke W. Cole, *Empowerment as the Key to Environmental Protection: The Need for Environmental Poverty Law*, 19 ECOLOGY L.Q. (forthcoming Dec. 1992) [hereinafter Cole, *The Need for Environmental Poverty Law*]. Descriptions of the issue focusing almost exclusively on hazardous waste facility siting are contained in R. George Wright, *Hazardous Waste Disposal and the Problems of Stigmatic and Racial Injury*, 23 ARIZ. ST. L.J. 777 (1991); Kelly M. Colquette & Elizabeth A. H. Robertson, *Environmental Racism: The Causes, Consequences, and Remediations*, 5 TUL. ENVTL. L.J. 153 (1991); and Naikang Tsao, Comment, *Ameliorating Environmental Racism: A Citizen's Guide to Combatting the Discriminatory Siting of Toxic Waste Dumps*, 67 N.Y.U. L. REV. 366 (1992). Finally, there is a symposium issue on the subject in the *University of Kansas Journal of Law and Public Policy*, which contains a series of short essays on the topic, the most significant of which is an essay by Professors Regina Austin and Michael Schill discussing "minority grassroots environmentalism." See Regina Austin & Michael Schill, *Black, Brown, Poor & Poisoned: Minority Grassroots Environmentalism and the Quest for Eco-Justice*, 1 KAN. J.L. & PUB. POL'Y 69 (1991).

¹⁵ See, e.g., ROBERT D. BULLARD, *DUMPING IN DIXIE: RACE, CLASS, AND ENVIRONMENTAL QUALITY* (1990) [hereinafter BULLARD, *DUMPING IN DIXIE*]; Paul Mohai, *Black Environmentalism*, 71 SOC. SCI. Q. 744 (1990); Robert D. Bullard, *Ecological Inequities and the New South: Black Communities Under Siege*, 17 J. ETHNIC STUD., Winter 1990, at 101 [hereinafter Bullard, *Ecological Inequities and the New South*]; David Kallick, *The Struggle for Community: Race, Class and the Environment*, 21 SOC. POL'Y, Fall 1990, at 18; Gar Smith, *Freeways, Communities and "Environmental Racism"*, RACE, POVERTY & ENV'T, Apr. 1990, at 7; Pat Bryant, *Toxics and Racial Justice*, 20 SOC. POL'Y, Summer 1989, at 48; Dick Russell, *Environmental Racism: Minority Communities and their Battle Against Toxins*, AMICUS J., Spring 1989, at 22; Robert D. Bullard & Beverly Hendrix Wright, *Environmentalism and the Politics of Equity: Emergent Trends in the Black Community*, 12 MID AM. REV. SOC. 21 (1987) [hereinafter Bullard & Wright, *Environmentalism and the Politics of Equity*]; Robert D. Bullard & Beverly Hendrix Wright, *The Politics of Pollution: Implications for the Black Community*, 47 PHYLON 71 (1986) [hereinafter Bullard & Wright, *The Politics of Pollution*]; Robert D. Bullard, *Solid Waste Sites and the Black Houston Community*, 53 SOC. INQUIRY 273 (1983) [hereinafter Bullard, *Solid Waste Sites*]; Susan Zakin, *The Ominous Color of Toxic Dumping*, SIERRA, July-Aug. 1978, at 14; Julian McCaull, *Discriminatory Air Pollution*, 18 ENV'T, Mar. 1976, at 26.

¹⁶ See *infra* notes 62-76 and accompanying text.

¹⁷ See *El Pueblo para el Aire y Agua Limpio v. Chemical Waste Mgmt., Inc.*, No. C91-2083

The purpose of this Article is to explore the distributional side of environmental protection and, more particularly, to explain the significance of including environmental justice concerns into the fashioning of environmental protection policy. Unlike earlier legal commentary, hazardous waste facility siting is not this Article's dominant focus. It offers a broader, more systemic, examination of environmental protection laws and policies.

The Article is divided into three parts. First, it describes the nature of the problem. This includes a discussion of the varied distributional implications of environmental protection laws, as well as the ways in which racial minorities could receive too few of the benefits, or too many of the burdens, associated with those laws.¹⁸ The second part of the Article accepts (without purporting to verify) the thesis that distributional inequities exist, and seeks to explain such inequities theoretically in terms of the present institutional framework for the fashioning of environmental protection policy and the probable distributional implications of that framework. The final part of the Article outlines how environmental justice concerns might be pursued within present and future environmental protection law and policy.

II. THE BENEFITS AND BURDENS OF ENVIRONMENTAL PROTECTION LAWS

A. *The Potential for Distributional Inequity*

Environmental protection confers benefits and imposes burdens in several ways.¹⁹ To the extent that the recipients of related benefits and burdens are identical, no problem of discrimination is presented (there may, of course, be other problems with the tradeoff). But identical recipients are rarely, if ever, the result.²⁰ Hardly any laws provide pareto

(N.D. Cal. July 8, 1991) (complaint filed); *R.I.S.E., Inc. v. Kay*, 768 F. Supp. 1144 (E.D. Va. 1991), *aff'd*, 977 F.2d 573 (4th Cir. 1992); *Bordeaux Action Comm. v. Metro. Gov't of Nashville*, No. 90-0214 (M.D. Tenn. Mar. 12, 1990) (complaint filed); *NAACP v. Gorsuch*, No. 82-768-Civ-5 (E.D.N.C. Aug. 10, 1982) (denying preliminary injunction); *Bean v. Southwestern Waste Mgmt. Corp.*, 482 F. Supp. 673 (S.D. Tex. 1979), *aff'd without op.*, 782 F.2d 1038 (5th Cir. 1986); *El Pueblo para el Aire y Agua Limpio v. County of Kings*, 22 *Envtl. L. Rep. (Envtl. L. Inst.)* 20,357 (Cal. App. Dep't Super. Ct. 1991); *see also* Frances F. Marcus, *Medical Waste Divides Mississippi Cities*, *N.Y. TIMES*, June 24, 1992, at A13 (describes "environmental racism" lawsuits being brought on behalf of minority community to prevent burning of medical wastes at incinerator).

¹⁸ This Article does not purport to single out for separate discussion the distinct distributional issues affecting Native Americans, largely because those issues are closely intertwined with questions of Indian sovereignty that, while important, are more case-specific than this Article's outlook.

¹⁹ *See generally* RICHARD B. STEWART & JAMES E. KRIER, *ENVIRONMENTAL LAW AND POLICY* 168-73 (2d ed. 1978).

²⁰ One obvious source of disparity, which is not a focus of this Article, is intergenerational in character. The beneficiaries of much environmental protection are future generations while the immediate economic costs of such protection fall on the present. Conversely, future generations are the group most harmed by environmental degradation, while current generations reap the associated economic value.

optimality in the classic sense of making everyone better-off and no one worse off.²¹ Virtually all laws have distributional consequences, including those laws designed to further a particular conception of the public interest.²² Problems of discrimination, therefore, may arise in the disparities between the distribution of benefits and their related burdens.²³

The benefits of environmental protection are obvious and significant. A reduction in pollution decreases the public health risks associated with exposure to pollution. It also enhances public welfare by allowing greater opportunity for enjoyment of the amenities associated with a cleaner natural environment. Many would also contend that environmental protection furthers the human spirit by restoring balance between humankind and the natural environment. More pragmatically, environmental protection laws are the source of new jobs in pollution control industries. EPA recently estimated, for instance, that the recently amended Clean Air Act would result in the creation of 30,000 to 45,000 full-time equivalent positions during 1996-2000.²⁴

The burdens of environmental protection range from the obvious to the more subtle. They include the economic costs borne by both the producer and the consumer of goods and services that become more expensive as a result of environmental legislation. For consumers, product and service prices may increase; some may become unavailable because the costs of environmental compliance renders their production unprofitable; while other goods and services may be specifically banned because of their adverse impact on the natural environment. For those persons who produce goods and services made more costly by environmental laws, personal income may decrease, employment opportunities may be reduced or displaced, and certain employment opportunities may be eliminated altogether. Finally, environmental protection requires governmental expenditures, the source of which varies from general per-

²¹ See EDGAR K. BROWNING & JACKUELENE M. BROWNING, *MICROECONOMIC THEORY AND APPLICATIONS* 559 (3d ed. 1989).

²² Guido Calabresi, *The Pointlessness of Pareto: Carrying Coase Further*, 100 *YALE L.J.* 1211, 1214 (1991); BURTON A. WEISBROD ET AL., *PUBLIC INTEREST LAW: AN ECONOMIC AND INSTITUTIONAL ANALYSIS* 103, 555 (1978).

²³ Of course, the perception among developing nations of just such a disparity is what prompted many of them, during the recent United Nations Conference on the Environment and Development held in Rio De Janeiro, to demand monies from wealthier nations. The justification for these payments was to compensate the developing nations for the costs associated with their taking action (for example, greater protection of tropical rain forests) that would provide environmental benefits to the entire world, including industrialized nations. See, e.g., Paul Lewis, *Negotiators in Rio Agree to Increase Aid to Third World*, *N.Y. TIMES*, June 14, 1992, at A1. Indeed, the availability of such transfer payments was not an incidental concern at the Earth Summit. Rather, it was a central focus of the negotiations. See Paul Lewis, *Pact on Environment Near, but Hurdles on Aid Remain*, *N.Y. TIMES*, June 12, 1992, at A10; Paul Lewis, *Pact Nears on Billions to Protect Nature in Third-World Countries*, *N.Y. TIMES*, June 1, 1992, at A1.

²⁴ *Business Gains from CAA Exceeding \$ 50 Billion Projected in Draft EPA Study*, *INSIDE EPA*, Jan. 17, 1992, at 1, 10.

sonal and corporate income taxes to special environmental taxes.²⁵ These expenditures necessarily decrease public monies available for other social welfare programs.

The burdens of environmental protection, however, also include the redistribution of the risks that invariably occur with pollution control techniques that treat pollution following its production. For instance, air pollution scrubbers and municipal wastewater treatment facilities reduce air and water pollution, but only by creating a sludge that, when disposed, will likely impose risks on a segment of the population different than the segment which would have been exposed to the initial pollution in the air or water.²⁶ Additionally, the incineration of hazardous wastes stored in drums and tanks converts a land disposal problem into an air pollution issue (leaving, of course, a sludge residue that presents a different land disposal problem), and thereby may change the identity of those in the general population exposed to the resulting pollution.²⁷ Just transporting solid and hazardous wastes from one geographic area to another for treatment or storage results in a major redistribution of the risks associated with environmental protection. Indeed, such transportation, and the resulting shift of environmental risks, has been the recent subject of massive litigation, as various jurisdictions have sought to export their wastes or prevent the importation of waste from elsewhere.²⁸

Nor does the purported prevention of pollution, as opposed to its treatment, necessarily eliminate the distributional issue. "Pollution prevention" frequently depends upon production processes that reduce one kind of pollution by increasing another.²⁹ For example, water pollution

²⁵ "In 1987, EPA, the states, and local governments spent about \$40 billion for environmental protection. If recent trends continue, they will need to spend approximately \$61 billion annually by the year 2000." U.S. EPA, A PRELIMINARY ANALYSIS OF THE PUBLIC COSTS OF ENVIRONMENTAL PROTECTION: 1981-2000 at ii (1991). The Federal Internal Revenue Code includes three "environmental taxes," including a tax on petroleum, a tax on certain chemicals, and a tax on certain imported substances. See 26 U.S.C. §§ 4611-4612, 4661-4662, 4671-4672 (1988 & Supp. II 1990). Revenues from these taxes are used, inter alia, to fund the Hazardous Substances Trust Fund provided for by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9611 (1988 & Supp. II 1990). See generally Richard A. Westin, *Tax Considerations*, in 1 ENVIRONMENTAL LAW PRACTICE GUIDE, ch. 9 (Michael Gerrard ed., 1992).

²⁶ CONSERVATION FOUNDATION, CONTROLLING CROSS-MEDIA POLLUTANTS 8-9 (1984).

²⁷ It also creates a new land disposal problem. For instance, a municipal resource recovery facility in Chicago, Illinois, that incinerates 350,000 tons of municipal solid waste each year produces 110,000 to 140,000 tons of ash, much of which is hazardous, that must be disposed. See *Environmental Defense Fund, Inc. v. City of Chicago*, 948 F.2d 345, 345-46 (7th Cir. 1991).

²⁸ See, e.g., *Fort Gratiot Sanitary Landfill, Inc. v. Michigan Dep't of Natural Resources*, 112 S. Ct. 2019 (1992); *Chemical Waste Mgmt., Inc. v. Hunt*, 112 S. Ct. 2009 (1992); *National Solid Wastes Mgmt. Ass'n v. Alabama Dep't of Env't'l Mgmt.*, 910 F.2d 713 (11th Cir. 1990), modified, *reh'g denied*, 924 F.2d 1001 (11th Cir. 1991), and *cert. denied*, 111 S. Ct. 2800 (1991); *Government Suppliers Consol. Serv. v. Bayh*, 975 F.2d 1267 (7th Cir. 1992); see also *Senators See 'Civil War' Over Waste Imports: Coats Says He Will Offer Import Ban Again*, [Current Developments] *Env't. Rep.* (BNA) 485 (1991).

²⁹ As its name suggests, "pollution prevention" contemplates techniques for reducing the

may increase as air pollution is decreased, or a decrease in the mining of one kind of natural resource may be limited or completely offset by the increase in mining of another. Such shifts in the type of pollution or activity allowed will almost invariably shift those risks arising with the "new" pollution or activity to different persons. Hence, pollution may decrease for society as a whole, yet simultaneously increase for certain subpopulations.

Racial minorities could therefore be disproportionately disadvantaged by environmental laws in a number of ways. For example, with regard to the benefits of environmental protection, the natural environments that are selected for protection may be less accessible, or otherwise less important, to minorities. This may be the result of priorities expressly established by statute, or by agency regulations or enforcement agenda.

Inequities in the ultimate distribution of environmental protection benefits may also result, paradoxically, from environmental improvement itself. A cleaner physical environment may increase property values to such an extent that members of a racial minority with fewer economic resources can no longer afford to live in that community.³⁰ Indeed, the exclusionary impact of environmental protection can be more than just an incidental effect; it can be the *raison d'être*, with environmental quality acting as a socially acceptable facade for attitudes that cannot be broadcast.³¹

Minorities may at the same time incur a share of the burdens of environmental protection that are disproportionate to those benefits that they receive. Higher product and service prices may be regressive, as may some taxes depending on their form.³² Although whites are poorer in greater absolute numbers than nonwhites, the latter group is disproportionately poorer in terms of population percentages. Minorities may also more likely be the victims of reduced or eliminated job opportunities. Similarly, they may be less likely to enjoy the economic, educational, or personal positions necessary to exploit the new job opportunities that environmental protection creates.³³ Finally, minori-

amount of pollution created in the first instance. It is contrasted with end-of-pipe controls of pollution, which seek to minimize pollution's threat after creation. See generally Pollution Prevention Act of 1990, 42 U.S.C. §§ 13101-13109 (Supp. II 1990) (need for more focused management to prevent pollution at the source rather than at time of treatment and disposal); Frances H. Irwin, *An Integrated Framework for Preventing Pollution and Protecting the Environment*, 22 ENVTL. L. 1 (1992) (the complex relationship of environmental effects requires an integrated framework of ideas to more effectively prevent environmental problems).

³⁰ A. MYRICK FREEMAN ET AL., *THE ECONOMICS OF ENVIRONMENTAL POLICY* 143 (1973); see also A. Dan Tarlock, *Western Water Law, Global Warming, and Growth Limitations*, 24 *LOY. L.A. L. REV.* 979, 1001 & n.152 (1991) (discussing regressive nature of growth limitations).

³¹ See *infra* note 82 and accompanying text.

³² Sandra Postel, *The Greening of America's Taxes*, *N.Y. TIMES*, May 19, 1991, at C11.

³³ Of course, this would depend on the types of jobs created. To the extent that the environmen-

ties may receive an unfair share of the environmental risks that are redistributed by environmental protection. Elimination of the risks in one location may result in the creation or increase of risks in another location where the exposure to minorities is greater.

B. Evidence of Environmental Inequity

To date, there has been relatively little systematic empirical investigation concerning the extent of inequity in the distribution of the benefits and burdens of environmental protection. The evidence that is available, however, "lend[s] support to the view that, on balance, programs for environmental improvement promote the interests of higher-income groups more than those of the poor; they may well increase the degree of inequality in the distribution of real income."³⁴

There are especially few studies, apart from anecdotal accounts, regarding the specific issue that racial minorities are distinctly disadvantaged by environmental protection laws. Those few studies, however, lend substantial credence to the claim that such disadvantages do exist, and suggest some reasons for their occurrence. As summarized in a recent congressional report, "[e]arlier studies conducted by government agencies and non-profit environmental organizations have concluded that disproportionate effects stem from many factors, including racism, inadequate health care, low-quality housing, high-hazard workplace environments, limited access to environmental information, and simple lack of sufficient political power."³⁵ Without a doubt, the available evidence is not immune from challenge. But for present purposes, it seems enough to suggest the strong possibility that virtually all of the theoretical distributional inequities outlined earlier in this Article are in fact occurring.

1. *Benefits Of Environmental Protection.*—The reduction of pollution mandated by environmental protection laws is likely to have the greatest potential for a redistribution that is favorable to minority communities. After all, for the same reasons that minorities may disproportionately be the recipients of redistributed environmental risks, they also were more likely subject to greater pollution in the first instance. There is substantial support for the thesis that minorities have historically been more likely to live in closer proximity to polluting industries than nonminorities.³⁶ There is likewise substantial evidence that minorities occupy

tal protection services required were both more labor-intensive and less dependent on skilled labor, job opportunities might be available, albeit less desirable. A stated purpose of New York City's recycling law, for instance, is to increase employment opportunities "for unskilled workers and handicapped persons." NEW YORK CITY CHARTER & ADMIN. CODE-tit. 16, ch. 3, n." (Supp. 1990).

³⁴ WILLIAM J. BAUMÖL & WALLACE E. OATES, *THE THEORY OF ENVIRONMENTAL POLICY* 253 (2d ed. 1988).

³⁵ H.R. REP. NO. 428, 101st Cong., 2d Sess. 41-42 (1990).

³⁶ For instance, a 1972 study concluded that in St. Louis, Kansas City, and Washington, D.C.,

significantly more environmentally hazardous jobs and, as a result, suffer a disproportionately higher number of environmentally-related injuries.³⁷

there was a significant difference between whites and blacks in exposure levels to suspended particulates and sulfur oxide. See A. Myrick Freeman III, *Distribution of Environmental Quality*, in ENVIRONMENTAL QUALITY ANALYSIS: THEORY AND METHOD IN THE SOCIAL SCIENCES 243, 264 (Allen V. Kneese & Blair T. Bower eds., 1972) ("In each city the average black family has a higher exposure to both air pollutants than does the average family (black or white) with an income under \$3,000."); McCaull, *supra* note 15, at 26 (A 1975 report "shows that chances of being exposed to poor-quality air in urban areas are greatest for persons in poverty, in occupations below the management or professional level, in low-rent districts, and in the black population."). The phenomenon appears likely to be the same today. See Frances F. Marcus, *As Jobs Come Calling, the Non-Wary Unite*, N.Y. TIMES, Apr. 9, 1991, at A16 (describing proposal to build \$700 million plant for processing wood pulp and manufacturing rayon in mostly black community in Louisiana; minority community opposed; governor, local white business interests in favor because of jobs and economic activity that it will bring to community); Paul Ruffins, *Blacks Suffer Health Hazards Yet Remain Inactive on Environment*, L.A. TIMES, Aug. 27, 1989, § 5, at 3 ("71% of blacks and 50% of Latinos—as opposed to only 34% of whites—reside in cities and breathe the most polluted air. Often they live in old housing with the highest concentrations of lead in the paint and plumbing. Between 1976 and 1980, more than 50% of all black infants under the age of 3 who were tested had blood lead levels higher than the Center for Disease Control's proposed standards. . . . Minorities are also likely to be exposed to toxins by working in the most hazardous jobs in the most unhealthy industries."). See generally Paul Mohai & Bunyon Bryant, *Environmental Racism: Reviewing the Evidence*, in RACE AND THE INCIDENCE OF ENVIRONMENTAL HAZARDS: A TIME FOR DISCOURSE 13-176 (Bunyon Bryant & Paul Mohai eds., 1992); Cynthia Hamilton, *Industrial and Environmental Racism: The Denial of Justice*, in ENVIRONMENTAL RACISM, *supra* note 9, at 25 (race and poverty together bring about environmental inequities); William K. Reilly, *The Green Thumb of Capitalism: The Environmental Benefits of Sustained Growth*, 54 POL'Y REV. 16 (1990) (urban poor experience environmental degradation most directly); Bullard & Wright, *The Politics of Pollution*, *supra* note 15, at 71 (much of industry found near minority and lower-income neighborhoods); BULLARD, DUMPING IN DIXIE, *supra* note 15, at 8; Paul Mohai & Bunyon Bryant, *Environmental Inequities and the Inner City* (paper delivered at the Sixth Annual Technological Literacy Conference of the National Association for Science, Technology & Society, Washington, D.C. (Feb. 1991)) (copy on file with author).

³⁷ See Beverly Hendrix Wright, *The Effects of Occupational Injury, Illness, and Disease on the Health Status of Black Americans*, in THE PROCEEDINGS OF THE MICHIGAN CONFERENCE ON RACE AND THE INCIDENCE OF ENVIRONMENTAL HAZARDS 128, 128-41 (Bunyon Bryant & Paul Mohai eds., 1990) [hereinafter MICHIGAN CONFERENCE PROCEEDINGS]. The Michigan Conference Proceedings have recently been republished in RACE AND THE INCIDENCE OF ENVIRONMENTAL HAZARDS, *supra* note 36. Professor Wright describes three (necessarily overlapping) causal explanations for why there is a disproportionately high risk of injury, disease, and death among black workers: (1) socially induced disease (resulting from "social, rather than physical, genetic or environmental causes"), *id.* at 131; (2) physically induced disease ("those that occur because of intrinsic factors such as diets, smoking or genetics"), *id.* at 133; and (3) environmentally induced disease ("occur due to exposures in the environment"), *id.* at 135. In discussing each, she contends that discriminatory attitudes and practices are at the root of the disproportionate impacts.

With regard to socially induced causes, Professor Wright discusses the prevalence of hypertension among minority workers and argues that "the social practice of discriminatory job placement has resulted in the assignment of Blacks to extremely hazardous jobs that are also stress inducing." *Id.* at 132-33. With regard to physically induced causes, Professor Wright contends that they are often subterfuges by management to shift the "blame" to the victim when, in fact, "[m]yths or racist stereotypes are often used to camouflage discriminatory job placement practices resulting in the purposeful exposure of black workers to hazardous work conditions." *Id.* at 134.

Regarding environmentally induced factors, Professor Wright acknowledges the softness of

However, for these same reasons, any across-the-board reduction in pollution (or increase in occupational safety) should confer on minorities a larger benefit commensurate with their historically larger burden.³⁸

It is not at all certain, however, that this expected proportional re-dressing of the past has in fact occurred. Without addressing the factor of race, several empirical studies have suggested that the distribution of benefits from a reduction in pollution is neutral or even regressive.³⁹ These benefits include federal subsidies to publicly-owned wastewater treatment plants,⁴⁰ and the advantages of better air pollution control,⁴¹

some of the data relating cause (exposure to pollutants) to effect (injury), *id.* at 135; but she ultimately concludes that existing data is sufficient to "suggest that the excess risk of cancer that exists for black workers as compared to white workers may be due to greater exposure of black workers to carcinogens in the workplace." *Id.* at 137. She cites several examples, including: (1) a tire manufacturing plant in which 27% of the black workers, but only three percent of the white workers, worked in the most hazardous jobs at the plant, *id.* at 135-36; and (2) a ten-year study of the steel industry showing that 89% of the nonwhite cokeplant workers, but only 32% of white workers, were employed in the hazardous coke oven jobs and, possibly as a result, that the nonwhite workers "experienced double the expected death rate from malignant neoplasms." *Id.* at 136. Reportedly, one historical reason for the disproportionate number of Blacks working in the coke ovens was the myth that black workers "absorb heat better." *Id.* at 133 (quoting Morris E. Davis, *Occupational Hazards and Black Workers*, URB. HEALTH, Aug. 1977, at 16, 17). For a comparison of the occupations with the highest percentage of nonwhite workers and those with the highest incidence of occupational illness and injury, see JAMES C. ROBINSON, *TOIL AND TOXICS: WORKPLACE STRUGGLES AND POLITICAL STRATEGIES FOR OCCUPATIONAL HEALTH 96-98* (1991) (rate of occupational injury for California workers varies considerably with ethnicity); Morris E. Davis & Andrew S. Rowland, *Problems Faced by Minority Workers*, in *OCCUPATIONAL HEALTH: RECOGNIZING AND PREVENTING WORK-RELATED DISEASE 417, 419-20* (Barry S. Lévy & David H. Wegman eds., 1983) (statistics showing the annual percentage of nonwhite workers suffering job-related injury and illness in the manufacturing industries); see also Peter T. Kilborn, *For Hispanic Immigrants, a Higher Job-Injury Risk*, N.Y. TIMES, Feb. 18, 1992, at A1 (hispanic factory and industrial workers are injured more often than nonhispanic and black workers).

³⁸ See E. Donald Elliott, *A Cabin on the Mountain: Reflections on the Distributional Consequences of Environmental Protection Programs*, 1 KAN. J.L. & PUB. POL'Y 5, 7 (1991) ("In my judgment, minorities and the poor probably benefit disproportionately from environmental protection measures."); William K. Reilly, *Environmental Equity: EPA's Position*, 18 EPA J. 18, 22 (March/April 1992) ("It is undeniable that minorities usually benefit from—are, indeed, the chief beneficiaries of—more general efforts to protect the environment.").

³⁹ The possible structural reasons for this phenomenon are outlined later in this Article at *infra* pp. 806-25.

⁴⁰ Robert A. Collins, *The Distributive Effects of Public Law 92-500*, 4 J. ENVTL. ECON. & MGMT. 344, 353 (1977). Professor Collins further found that the lowest-income classes received some net benefit from the federal subsidy, while the middle income classes were net losers. *Id.* at 352-53.

⁴¹ See Michael Gelobter, *Toward A Model of "Environmental Discrimination"*, in MICHIGAN CONFERENCE PROCEEDINGS, *supra* note 37, at 92 ("all changes in exposure have been regressively distributed since 1970 (the year in which the Clean Air Act was adopted)"); F. Reed Johnson, *Income Distributional Effects of Air Pollution Abatement: A General Equilibrium Approach*, 8 ATLANTIC ECON. J. 10, 17 (1980) (While environmental policy "costs are approximately proportional to income," data from previous studies "tend[s] to confirm the supposition that environmental policy incidence is regressive, with only the top two income classes obtaining positive net benefits.") (summarizing results of a Swedish study on the income distributional effects of air pollution control).

including those associated with programs directed at improving urban air quality.⁴² A similar conclusion has been drawn regarding the impact of federal occupational health and safety laws.⁴³

2. *The Burdens of Environmental Protection.*—The burdens associated with environmental protection generally take two forms. First, there are the economic costs of pollution control. These are typically imposed on either the government or industry in the first instance, but are ultimately redistributed through taxes and higher prices for consumer goods. They may also be indirectly redistributed through salary cuts and layoffs. Second, as previously described, there are the burdens of environmental risks that are necessarily redistributed by environmental protection laws. Although these laws strive for a net reduction of risks, some discrete populations may suffer a net increase in the process.

The "burden" dimension to environmental protection has received significantly more attention than the "benefit" side. Additionally, until quite recently most studies addressing the distribution of environmental protection burdens have focused on the economic costs associated with such protection. Less attention has been paid to the distribution of environmental risks.

Most of the studies lend considerable support to the thesis that distributional inequities exist insofar as the distribution of burdens may be regressive. Moreover, to the extent that these studies have specifically considered the distributional effects upon racial minorities, preliminary inquiries strongly suggest that inequities exist there as well.

(a) *Economic costs.*—Economists have occasionally studied how the costs and benefits of pollution control are distributed.⁴⁴ These

⁴² David Harrison, Jr. & Daniel L. Rubinfeld, *The Distribution of Benefits from Improvements in Urban Air Quality*, 5 J. ENVTL. ECON. & MGMT. 313, 314 (1978) ("[T]he absolute level of benefits, measured in dollars . . . rises consistently and substantially with income. Only when expressed as a percentage of income are air quality benefits pro-poor.").

⁴³ See Beverly Hendrix Wright, *The Effects of Occupational Injury, Illness, and Disease on the Health Status of Black Americans*, in MICHIGAN CONFERENCE PROCEEDINGS, *supra* note 37, at 128, 129 ("Blacks and other minority workers . . . have not benefitted from these improvements to the degree that white workers have.").

⁴⁴ BAUMOL & OATES, *supra* note 34, at 235-56; Roger H. Bezdek et al., *The Economic and Employment Effects of Investment and Pollution Abatement and Control Technology*, 18 AMBIO 274 (1989); Taylor H. Bingham et al., *Distribution of the Generation of Air Pollution*, 14 J. ENVTL. ECON. & MGMT. 30 (1987); Harry F. Campbell, *On the Income Distributional Effects of Environmental Management Policies*, 12 WATER RESOURCES 1077, 1077-80 (1976); Collins, *supra* note 40, at 344; Nancy S. Dorfman & Arthur Snow, *Who Will Pay For Pollution Control?—The Distribution By Income of the Burden of the National Environmental Protection Program 1972-80*, 28 NAT'L TAX J. 101, 101-15 (1975); Freeman, *supra* note 36; Leonard P. Gianessi & Henry M. Peskin, *The Distribution of the Costs of Federal Water Pollution Control Policy*, 56 LAND ECON. 85-102 (Feb. 1980); David E. Hansen & S. I. Schwartz, *Income Distribution Effects of the California Land Conservation Act*, 59 AM. J. AGRIC. ECON. 294, 294-301 (1977); Harrison & Rubinfeld, *supra* note 42, at 313-32; Johnson, *supra* note 41, at 10-21; Adam Rose et al., *Assessing Who Gains and Who Loses from*

analyses generally suggest that pollution controls are regressive. As one commentator put it fairly early on, "[u]nfortunately, the further one moves towards 'putting a price on pollution' the more regressive the burden generally becomes [W]hen it comes to cleaning up the environment, policy makers will be confronted with the classical dilemma between distributional fairness and allocative efficiency."⁴⁵

Economists offer several explanations for this distributional phenomenon. Some speculate that many of the environmental amenities guaranteed by protective legislation are available, as a practical matter, only to those with the wealth and time for their enjoyment. Furthermore, even when the improved environment is itself a low-income residential area, the resulting economic value is not necessarily captured by those living in the area but is more likely to be gained by absentee property owners who can subsequently charge their tenants higher rent for living in a cleaner neighborhood. At the same time, higher product prices and displaced job opportunities resulting from pollution control seem to have disproportionately adverse effects on persons with fewer economic resources.⁴⁶ For example, much environmental land use regulation reduces the amount of land available for housing. This reduction increases the price of both land and, therefore, housing, thus effectively reducing the amount of affordable housing available to low-income persons.⁴⁷

Few of these studies confront the race issue directly. One study that did concluded that distributional inequities existed along racial lines in the distribution of the costs associated with water pollution control. The

Natural Resource Policy: Distributional Information and the Public Participation Process, 15 RESOURCES POL'Y 282 (1989).

⁴⁵ Dorfman & Snow, *supra* note 44, at 115. Those who question the extent to which existing environmental laws promote efficiency, however, would likely contend that those laws are, for that same reason, wrong-headed in both respects; that is, they promote neither efficiency nor distributional fairness. The Office of Management and Budget and some federal judges, for instance, have recently suggested that environmental laws actually undermine public health concerns because they make people poorer, and "richer is safer." In other words, an individual with more economic resources (i.e., wealth) is likely to be more healthy than an individual with fewer such resources. Hence, because environmental laws decrease economic wealth (or so proponents of this theory assume), they simultaneously decrease public health. See, e.g., *International Union v. OSHA*, 938 F.2d 1310, 1326 (D.C. Cir. 1991) (Williams, J., concurring) ("higher income can secure better health, and there is no basis for a casual assumption that more stringent regulation will always save lives"); Frank Swoboda, *OMB's Logic: Less Protection Saves Lives; Letter Blocking Health Standards for 6 Million Workers Shocks Officials at Labor Dept.*, WASH. POST, Mar. 17, 1992, at A15; see also Frank Swoboda, *OMB to Review Standards of Health Covering 6 Million*, WASH. POST, Mar. 26, 1992, at A19 ("OMB said it has not abandoned the idea that federal agencies should be required to determine whether protective health standards harm more workers than they help").

⁴⁶ See, e.g., Freeman, *supra* note 36, at 273-74. To the extent that the cost of environmental protection is imposed uniformly, moreover, its net impact is likely to be regressive. See Elliott, *supra* note 38, at 8.

⁴⁷ Daniel R. Mandelker, *The Conflict Between Environmental Land Use Regulation and Housing Affordability*, 15 ZONING & PLAN. L. REP. 1 (1992).

study's author found, specifically, that "[w]hites have a greater absolute burden, while nonwhites generally have a slightly greater proportional burden" in the distribution of such costs.⁴⁸

(b) *Environmental risks.*—Studies addressing the redistribution of environmental risks are far fewer in number than those concerned with economic costs, but race has more frequently been a focus of inquiry in the former. Two studies are no doubt the most widely acknowledged because they advance the thesis that race matters in the distribution of environmental risks and that racial minorities receive a disproportionate amount of those risks.

The first study, entitled *Siting of Hazardous Waste Landfills and their Correlation with Racial and Economic Status of Surrounding Communities*, was prepared by the General Accounting Office (GAO) in 1983. Conducted in response to a request by Walter E. Fauntroy, a congressional representative from the District of Columbia,⁴⁹ the GAO surveyed locations of hazardous waste landfills in the southeastern United States.⁵⁰ Specifically, GAO examined offsite hazardous waste landfills (not part of or contiguous to an industrial facility) located in eight southeastern states. The GAO found that "[b]lacks make up the majority of the population in three of the four communities where the landfills are located."⁵¹ The GAO also found that "[a]t least 26 percent of the population in all four communities have income below the poverty level and most of this population is Black."⁵²

The second study, undertaken by the United Church of Christ Commission for Racial Justice (UCC) and reported in 1987, was far more sweeping in its scope.⁵³ It purported to examine the location of controlled and uncontrolled hazardous waste sites across the United States for the purpose of determining whether they were disproportionately located in racial minority neighborhoods.⁵⁴ The report concluded that

⁴⁸ Gianessi & Peskin, *supra* note 44, at 97.

⁴⁹ Representative Fauntroy made his request in the aftermath of his arrest at a demonstration protesting the siting of a hazardous waste facility in a mostly black community in Warren County, North Carolina. See Godsil, *supra* note 14, at 394 & n.3.

⁵⁰ U.S. GEN. ACCOUNTING OFFICE, *SITING OF HAZARDOUS WASTE LANDFILLS AND THEIR CORRELATION WITH RACIAL AND ECONOMIC STATUS OF SURROUNDING COMMUNITIES* (1983).

⁵¹ *Id.* at 2.

⁵² *Id.*

⁵³ UNITED CHURCH OF CHRIST COMMISSION FOR RACIAL JUSTICE, *TOXIC WASTES AND RACE IN THE UNITED STATES* (1987) [hereinafter UCC STUDY].

⁵⁴ *Id.* at ix. The report defined "minority population" as the "summation of the following populations: (1) Black population not of Spanish origin; (2) Asian & Pacific Islander, American Indian, and Eskimo & Aleut populations not of Spanish origin; (3) Other non-white populations not of Spanish Origin; and (4) Hispanic population." *Id.* at 63. The report was based on minority population figures derived from the 1980 U.S. Census, *id.* at 9, and on the 415 operating commercial hazardous waste facilities then listed in EPA's hazardous waste management system. *Id.* at 10. The study compared five major variables, including "minority percentage of the population," "mean

"[a]lthough socio-economic status appeared to play an important role in the location of commercial hazardous waste facilities, race still proved to be more significant."⁵⁵ According to the report's authors, "[t]his remained true after the study controlled for urbanization and regional differences."⁵⁶

The UCC study found, in particular, that "[i]n communities with two or more operating hazardous waste facilities or one of the five largest landfills, the mean minority percentage of the population was more than three times that of communities without facilities (38 percent versus 12 percent)."⁵⁷ Furthermore, "[i]n communities with one operating commercial hazardous waste facility, the mean minority percentage of the population was approximately twice that of communities without facilities (24 percent versus 12 percent)."⁵⁸ The study also found that "[t]hree out of every five Black and Hispanic Americans lived in communities with uncontrolled toxic waste sites."⁵⁹

The GAO and UCC studies have been widely publicized, particularly within minority communities, and have generated considerable con-

household income', 'mean value of owner-occupied homes', 'number of uncontrolled toxic waste sites per 1,000 persons' and 'pounds of hazardous waste generated per person.'" *Id.*

⁵⁵ *Id.* at xiii.

⁵⁶ *Id.* According to the report, however, its statistical findings reflect a 90% confidence level, *id.* at 11, which is not particularly high. Apparently, the statistical methodology utilized in the UCC study is also not uncontroversial. The study utilizes a "discriminate" rather than "regression" analysis technique, which is the more widely accepted basis for differentiating between the effect of multiple dependent variables. The UCC study also equates the siting of toxic sites with exposure to toxic releases, and relies on present demographic data rather than the demographic data pertaining to the time that the initial siting decision may have been made. A more recent study takes issue with some of the UCC study's conclusions. Specifically, Professor James Hamilton considers the impact of a community's ability to engage in collective action on a hazardous waste facility's willingness to expand its waste processing capacity. James T. Hamilton, *Politics and Social Cost: Hazardous Waste Facilities in a Truly Coasian World* (June 1991) (unpublished working paper, on file with the *Northwestern University Law Review*). Hamilton employs logistic regression analysis to conclude that collective action potential (measured by voter turnout in the 1980 presidential election) is a statistically significant factor (at a 99% confidence level), *id.* at 22, and also concludes that "controlling for other factors race is not a statistically significant factor in the expansion selection process[.]" *Id.* at 24. Hamilton also concludes that "[n]one of the variables related to compensation demands such as income or education are statistically significant." *Id.* at 22. Apart from the difference in statistical confidence levels and methodologies utilized by the two studies, a major difference between them is that the UCC study focuses on where sites are now located, UCC STUDY, *supra* note 53, at 10, which allows for demographic changes after the siting decision is made, while the Hamilton paper looks to the factors existing at the time that a facility manager makes a particular expansion decision. Hamilton, *supra* at 3. While the former inquiry is more descriptive of the problems actually faced by minorities, the latter is more relevant to constitutional analysis that is concerned with a decisionmaker's subjective motivation. See *infra* notes 171-205 and accompanying text.

⁵⁷ UCC STUDY, *supra* note 53, at 13.

⁵⁸ *Id.*

⁵⁹ *Id.* at xiv. According to the report, blacks are significantly overrepresented in the populations of metropolitan areas with the largest number of uncontrolled hazardous waste sites. These include Memphis (173), St. Louis (160), Houston (152), Cleveland (106), Chicago (103), and Atlanta (94). *Id.*

trovery⁶⁰ and academic inquiry.⁶¹ The most prominent response was a conference held at the University of Michigan in January 1990 in which academics and government officials from across the country presented and discussed papers concerning environmental justice issues from a variety of perspectives.⁶² The Michigan Conference participants thereafter met with EPA Administrator William K. Reilly who, at their urging, created an "Environment and Equity" working group at the agency. This working group was charged with auditing the agency's policies from

⁶⁰ See Michael Satchell, *A Whiff of Discrimination?*, U.S. NEWS & WORLD REP., May 4, 1992, at 34.

⁶¹ The most prolific writer and advocate on the subject of "environmental injustice" is a sociologist, Professor Robert Bullard, who has written numerous articles over the last nine years describing how racial minorities are more likely to be exposed to toxic pollutants than are whites. See, e.g., Bullard, *Ecological Inequities and the New South*, *supra* note 15; Bullard & Wright, *Environmentalism and the Politics of Equity*, *supra* note 15; Bullard & Wright, *The Politics of Pollution*, *supra* note 15; Bullard, *Solid Waste Sites*, *supra* note 15. In 1990, Professor Bullard published a book on the subject, which brings together in one volume much of his research and reflection on the issue. See BULLARD, *DUMPING IN DIXIE*, *supra* note 15. Within that volume, Bullard explains that the largest commercial hazardous waste landfill is located in Emelle, Alabama, where blacks represent 78.9% of the population, and that the fourth largest landfill is located in Scotlandville, Louisiana, where 93% of the population is black: *Id.* at 41. According to Bullard, these two sites alone have more than one-third of the estimated licensed hazardous waste landfill capacity in the United States. *Id.* Bullard also describes how waste facilities tend to be in black neighborhoods. *Id.* at 43. Another study of the impact of race on the siting of hazardous waste facilities has not supported either Bullard's or the UCC Study's conclusions. See Hamilton, *supra* note 56.

⁶² See Bunyan I. Bryant & Paul Mohai, *The Michigan Conference: A Turning Point*, 18 EPA J. 9, 10 (1992). The titles of the articles included in the published proceedings provide a sense of the scope of the Conference. They include: (1) *Toxic Waste and Race in the United States*; (2) *Can the Environmental Movement Attract and Maintain the Support of Minorities?*; (3) *Environmental Blackmail in Minority Communities*; (4) *Environmental Voting Record of the Congressional Black Caucus*; (5) *Toward a Model of "Environmental Discrimination"*; (6) *Minority Anglers and Toxic Fish Consumption: Evidence from a State-Wide Survey of Michigan*; (7) *Invitation to Poison: Detroit Minorities and Toxic Fish Consumption from the Detroit River*; (8) *The Effects of Occupational Injury, Illness, and Disease on the Health Status of Black Americans*; (9) *Hazardous Waste Incineration and Minority Communities: The Case of Alsen, Louisiana*; (10) *Environmentalism and Civil Rights in Sumter County, Alabama*; (11) *Uranium Production and its Effects on Navajo Communities along the Rio Puerco in Western New Mexico*; (12) *Pesticide Exposure of Farm Workers and the International Connection*; and (13) *The Dumping of Toxic Waste in African Countries: A Case of Poverty and Racism*. These papers generally supported the findings of the UCC Study. For example, a study of the siting of hazardous waste incineration facilities in and around Baton Rouge, Louisiana, found that "minority communities have an average of one site per every 7,309 residents. White communities have only one site per every 31,100 residents." Harvey L. White, *Hazardous Waste Incineration and Minority Communities: The Case of Alsen, Louisiana*, in MICHIGAN CONFERENCE PROCEEDINGS, *supra* note 37, at 142, 149. Furthermore, when volume is factored in, "[t]he white communities have less than 1% of the hazardous waste . . . [e]ven though the minority communities are significantly smaller . . ." *Id.* at 150 (footnote omitted). The University of Michigan held a second symposium a year later. The published proceedings include a statistical analysis of the Detroit area, which concluded that while both race and income were significant determinants in terms of location of commercial hazardous waste facilities (the chances of blacks living within a mile of such a facility were approximately four-and-a-half times greater than whites), the effect of race was the "stronger" determinant. See Paul Mohai & Bunyan I. Bryant, *Race, Class, and Environmental Quality in the Detroit Area*, in ENVIRONMENTAL RACISM, *supra* note 9, at 42, 43.

an environmental equity perspective, including both income and race as factors to be considered.⁶³

This working group issued its "Environmental Equity" report in the summer of 1992.⁶⁴ The report surveyed and evaluated existing data regarding the extent to which minorities may bear disproportionately high burdens from environmental pollution, and its analysis of the data was noticeably more refined and demanding than that of earlier studies. Perhaps for this very reason, however, the working group's report ultimately lends substantial credence to the conclusions of prior, less detached studies.

The report distinguished between "health effects" and "exposure to environmental pollutants," and found (1) that existing data shows differences in "exposure to some environmental pollutants by socioeconomic factors and race," and (2) "clear evidence that there are differences by race for disease and death rates."⁶⁵ Nonetheless, EPA also concluded that a gap in the data exists concerning the relation between the two findings. Specifically, the report noted that "[e]xposure is not the same as health effects," and that "[t]here is a general lack of data on environmental health effects by race and income" and, more particularly, on the "environmental contribution to these diseases."⁶⁶ According to EPA,

⁶³ Pursuant to the Emergency Planning and Community Right to Know Act, 42 U.S.C. §§ 11001-11050 (1986), there now exists a more useful source of data concerning toxic releases than existed at the time of the earlier investigations, including those conducted by GAO and UCC. That law established the Toxic Release Inventory (TRI), in which companies must report the amounts of toxics released from their facilities. Using that data, a recent graduate of Washington University School of Law (St. Louis) examined the amount of toxic releases in predominantly (75% or greater) White and Black neighborhoods of St. Louis, Missouri. He found that there were approximately 50% more toxic releases by weight in black neighborhoods, notwithstanding that their respective populations were roughly equal to white communities. See Kevin L. Brown, *Environmental Discrimination—Myth or Reality?* 17 (Mar. 29, 1991) (unpublished manuscript, on file with the *Northwestern University Law Review*).

⁶⁴ See I ENVIRONMENTAL EQUITY WORKGROUP, OFFICE OF POLICY, PLANNING, AND EVALUATION, U.S. EPA, ENVIRONMENTAL EQUITY: REDUCING RISK FOR ALL COMMUNITIES, WORKGROUP REPORT TO THE ADMINISTRATOR (June 1992) [hereinafter EPA ENVIRONMENTAL EQUITY REPORT]. EPA's release of the draft report in February 1992 caused a considerable stir. The day that the report was released, Representative Henry Waxman (D. Cal.) held a press conference in which he charged that the EPA report was a "public relations ploy" rather than a meaningful effort "to understand and respond to the very real health problems faced by people of color." See Congressman Henry A. Waxman, *Environmental Equity Report is Public-Relations Ploy*, News Release (Feb. 24, 1992) (copy on file with the *Northwestern University Law Review*). Representative Waxman released, along with his critical comments, copies of internal agency memoranda in which agency officials had similarly criticized the draft report for lack of candor regarding the "meagerness of [EPA] efforts." See Memorandum from Ed Hanley, Deputy Assistant Administrator for Administration, to Clarice Gaylord, Re: Environmental Equity Report (December 1991) [hereinafter Hanley Memorandum] (copy on file with the *Northwestern University Law Review*). Waxman also released a copy of a dissenting opinion that certain EPA employees sought to have appended to the draft report, but which agency officials ultimately declined to include.

⁶⁵ EPA ENVIRONMENTAL EQUITY REPORT, *supra* note 64, at 11, 13.

⁶⁶ *Id.*

with the exception of lead, for which the evidence of disproportionate impact by race is dramatic,⁶⁷ "[f]or diseases that are known to be environmentally induced, there is a lack of data disaggregated by race and socioeconomic variables."⁶⁸

The EPA report concluded that minorities have disproportionately greater "observed and potential exposure" to environmental pollutants and, specifically, noted four causes for this phenomenon.⁶⁹ The first is a greater concentration of minorities in urban areas where emission densities tend to be greatest and, accordingly, where air pollution is usually the most hazardous.⁷⁰ In fact, government scientists recently concluded that blacks and Hispanics reside in higher percentages than whites in geographic areas that are currently not in compliance with federal Clean Air Act requirements for particulate matter, carbon monoxide, ozone, sulfur dioxide, and lead.⁷¹ These scientists also concluded that income alone did not explain the percentage discrepancy: "[A] comparison between poor, African American, and Hispanic percentages shows that these minority groups are more concentrated in [substandard air quality regions] than the poor population in general."⁷² Additionally, in another study described by EPA in its environmental equity report, epidemiologists found that ninety percent of steelworkers most heavily exposed to certain organic pollutants were nonwhite and that these persons suffered from respiratory cancer at a rate eight times more than would normally be expected.⁷³

Identified by EPA as the other causes of greater minority exposure

⁶⁷ See *infra* notes 114-16 and accompanying text.

⁶⁸ EPA ENVIRONMENTAL EQUITY REPORT, *supra* note 63, at 11. The EPA report describes an existing debate among commentators regarding the extent to which "differences in cancer rates between African Americans and Whites can be explained by the effects of poverty." *Id.* at 13. Some commentators contend that virtually all of the differences can be explained by poverty, rather than race (to the extent, of course, that the two factors can themselves be disaggregated), while others posit that "there is still a substantial amount of variation that seems to be explained only by race or ethnicity." *Id.* (citing Claudia R. Baquet et al., *Socioeconomic Factors and Cancer Incidence Among Blacks and Whites*, 83 J. NAT'L CANCER INST. 551-57 (1991); Ann Gibbons, *Does War on Cancer Equal War on Poverty?*, 253 SCIENCE 260 (1991); Vincente Navario, *Race of Class Versus Race and Class: Mortality Differentials in the United States*, 336 THE LANCET 1238-40 (1990)).

⁶⁹ The report stresses that the measurements of environmental contaminants represent the "potential" for exposure and not "actual" exposure. "Even though the potential for exposure may be the same, not all potentially exposed persons will experience the same actual exposure." EPA ENVIRONMENTAL EQUITY REPORT, *supra* note 64, at 12.

⁷⁰ *Id.* at 13-14.

⁷¹ *Id.* at 14 (citing D.R. Wernette & L.A. Nieves, *Minorities and Air Pollution: A Preliminary Geo-Demographic Analysis*, Paper presented at the Socioeconomic Research Analysis Conference II (June 27-28, 1991)).

⁷² D.R. Wernette & L.A. Nieves, *Breathing Polluted Air: Minorities Are Disproportionately Exposed*, 18 EPA J. 16, 17 (1992).

⁷³ EPA ENVIRONMENTAL EQUITY REPORT, *supra* note 64, at 17 (citing OFFICE OF HEALTH AND ENVIRONMENTAL ASSESSMENT, U.S. EPA, CARCINOGEN ASSESSMENT OF COKE OVEN EMISSIONS (1984)).

to environmental contaminants were (1) the physical proximity of minority populations to hazardous waste sites;⁷⁴ (2) minority consumption of contaminated food;⁷⁵ and (3) minority farmworker exposure to pesticides.⁷⁶ In each instance, minorities disproportionately engaged in certain kinds of activities (residence, diet, and work, respectively) that exposed them to greater environmental risks.

Finally, the EPA report raised the possibility that minorities may suffer disproportionately from environmental pollution not just because they are in fact exposed to it in greater amounts, but also because certain members of this group are more likely to be vulnerable to its adverse effects. For most contaminants, certain population subgroups are more sensitive than is the general population. According to EPA, there is reason to believe that "several population groups identified as being sensitive to the health effects of air pollution seem to be disproportionately composed of low-income or racial minority individuals compared to the general population."⁷⁷

III. THE STRUCTURE OF ENVIRONMENTAL INEQUITY

A. *General Causes: Racism and the Relative Absence of Minority Economic and Political Power.*

The structural roots of environmental inequities are very likely the same as those that produce other forms of racially disproportionate im-

⁷⁴ EPA's discussion of the siting issue relies exclusively on the UCC and GAO evidence regarding the physical proximity of commercial hazardous waste treatment facilities or uncontrolled hazardous waste sites to minority residential communities. EPA simply recounts those earlier studies. Somewhat surprisingly, it makes no independent effort to evaluate the veracity of these study's conclusions. See EPA ENVIRONMENTAL EQUITY REPORT, *supra* note 64, at 14-15. There is a cryptic statement, however, suggesting the possibility of some controversy in this area. After summarizing the prior studies, the report simply concludes "[i]t is clear that more study of this issue is required to fully understand the associations of race, income, and facility location." *Id.* at 15. Apart from the possible negative implications of this statement, the report provides no hint as to any deficiencies in the prior studies.

⁷⁵ See Patrick C. West et al., *Minority Anglers and Toxic Fish Consumption: Evidence from a State-Wide Survey of Michigan*, in MICHIGAN CONFERENCE PROCEEDINGS, *supra* note 37, at 108. According to this paper, and other recent studies relied upon by EPA, many potentially harmful environmental contaminants (e.g., PCBs, dioxins, furans) bioaccumulate to dangerous concentration levels in fish, and those fish are not only eaten in disproportionate amounts by some racial minorities (including Native Americans and Blacks), but are also prepared for eating in a manner (*i.e.*, including skin and less fat trimmed) in which more contaminants will be consumed. EPA ENVIRONMENTAL EQUITY REPORT, *supra* note 64, at 15-16.

⁷⁶ EPA's report describes how "80-90% of the approximately two million hired farmworkers . . . are racial minorities," and how studies have shown that workplace exposure to chemicals in agriculture is one of the areas of greatest human health risks. EPA ENVIRONMENTAL EQUITY REPORT, *supra* note 64, at 16.

⁷⁷ *Id.* at 22 ("asthmatics, persons with certain cardiovascular diseases or anemia, and women at risk of delivering low-birth-weight fetuses").

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Unequal Justice? Lies, Damn Lies, and Statistics Revisited

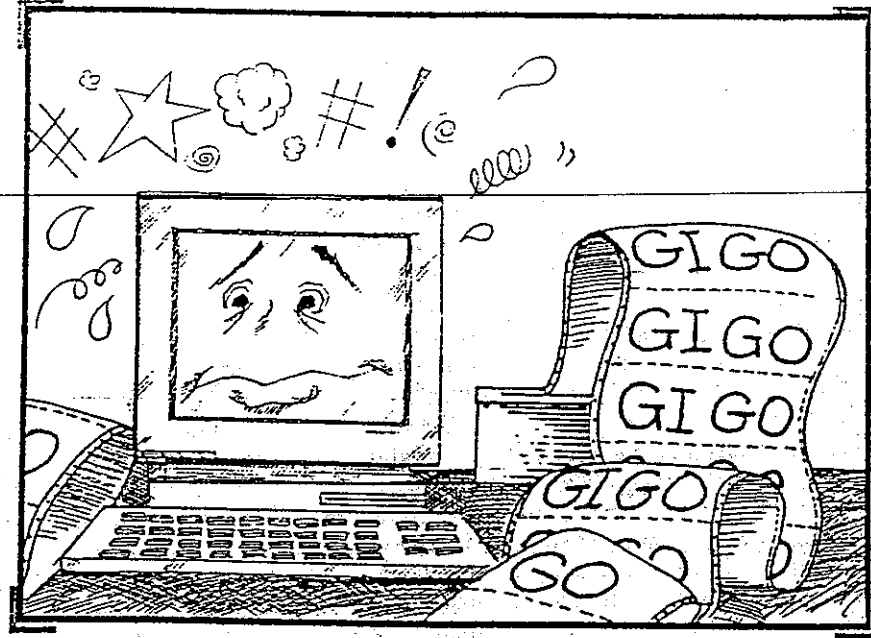
By Mary Bryani

It has been more than a year since the *National Law Journal* (NLJ) printed its ground-breaking, award-winning article on environmental racism, claiming that the U.S. Environmental Protection Agency takes more aggressive action, acts more quickly, and demands stiffer penalties when the offending facility is located in a white neighborhood than when it is in an area where minorities predominate. Since that time, Congress has held hearings on the issue, EPA has established an Office of Environmental Equity, and dozens of publications have jumped on the "environmental justice" bandwagon. But no one has seriously questioned NLJ's premise.

The NLJ conducted a statistical analysis of EPA enforcement data from 1985 to 1991 to reach its conclusion. Supported by poignant, first-hand stories about minority residents of environmentally damaged communities, the statistics appear compelling. When stripped of the supporting narrative, however, they do not hold up. The NLJ did not control for all the obvious variables or disclose the statistical underpinnings of its conclusions. To suggest seriously, as the NLJ does, that "violators are driven to minority communities because penalties there are low enough to be discounted as a cost of doing business" requires an argument with many fewer holes than the one presented. A few of the more glaring problems are itemized below.

Undefined Terms

Key terms are undefined or badly defined. For example, at no point in its twelve-page supplement does the NLJ say exactly what it means by "minority" and "white" communities. The greatest differences cited by NLJ, between those communities with the largest white populations and the largest minority populations, involve, for the white communities, populations that are at least 98% white, and for minority communities, populations that are at least 79% white. No, that's not a typo. The most heavily "minority" community the NLJ could find was nearly 80% white!! Because



the population of the country is more than 85% white, NLJ suggests that a community that is only 79% white is a "minority" community.

Community Characteristics

The NLJ's statistics are further suspect because at no time do they give an idea of the size of the studied communities, in terms of either population or area. (The "communities" are defined by zip code). There is no breakdown of the studied communities by region of the country, rural vs. urban, or any other factors that might promote greater understanding of the numbers. Such little understanding as may be obtained by careful analysis of the data presented does not add to its credibility.

No Sample Sizes

Sample sizes are not given. It is axiomatic that the results of a random sample of 1,000 are more reliable than the results of a random sample of 10. NLJ did not disclose the size of its sample, leaving the reader unable to evaluate independently the results. For example, NLJ states that the average penalty for

violating hazardous waste laws in communities with the greatest white population is more than \$335,000, and the average penalty for violating hazardous waste laws in communities with the "greatest minority population" is \$55,000. Assume, however, that only three enforcement actions have been brought in the highest percentage white areas, and that the penalty in two of them was \$55,000. Assume also that the third facility was unquestionably the biggest mess anyone has ever seen, and the penalty thus was a well-deserved \$900,000. In this hypothetical, the difference in penalties between heavily "white" and heavily "minority" areas (although, as noted above, even the heavily minority areas are mostly white) is accounted for by the penalty assessed upon one facility. Without knowing how many facilities made up the NLJ's sample, we don't know whether to trust the arithmetic averages as meaningful.

NLJ does state that there were only 65 court cases (total) under hazardous waste law in the years it studied. I doubt, therefore, that a selection of facilities from communities with the greatest white and greatest minority populations would be statistically reliable. For cases under the Clean Air Act, which averaged 50 per year, the difference in penalties between white and

minority areas was only 8 percent, which in itself might not be statistically significant. That brings us to the next item of concern.

No Statistical Significance Provided

NLJ does not report the statistical significance of any element of its study. Statistical significance reflects the margin of error in the results, and is stated in terms of the percentage of the time the study's results would have occurred by chance alone. Statistical significance of .05, for example, is five times less reliable than .01, and means that the results would have occurred through chance alone in one case out of every twenty. My statistics professor taught me to be wary of statistical significance less reliable than .01, and warier still

when the statistical significance of a study is not disclosed at all.

No Adjustment for Time

The data are not adjusted for time. Anyone who has defended environmental enforcement actions over a period of years can testify that the penalties for similar violations have steadily increased. If enforcement occurred first in minority communities, it would be reasonable to conclude that penalties could have been lower for those facilities without reflecting racial bias. By not asking the question, NLJ leaves it open.

Failure to control for time in Superfund cases raises a similar question. NLJ reports that EPA chooses "containment" seven percent more frequently than "permanent treatment," "the cleanup method pre-

ferred under the law," at minority sites, while the reverse is true for 22 percent of white sites. "Permanent treatment" has been the preferred method only since enactment of the Superfund Amendments and Reauthorization Act in late 1986, so sites that were cleaned up or for which Records of Decision (ROD) had been issued prior to implementation of SARA are more likely to have had containment as the chosen remediation method. If so-called minority sites were listed first (again, failing to ask the question leaves it open), that could account for the difference, if any, in remedy selection.

NLJ fails to address the niceties of environmental law. When the authors state that it takes 12 to 42 percent longer in some EPA regions to begin "comprehensive cleanup" at minority area sites (but note in passing that cleanup begins up to 36 percent faster in some regions), I presume they are talking about remediation, the final stage of a Superfund cleanup. That may not be a meaningful indicator. Once a site is controlled through a removal action, its immediate threat to the community is, at least theoretically, abated. The next stage of "cleanup" as a layman would understand it, remediation, must await the results of the RI/FS (Remedial Investigation and Feasibility Study) and the ROD, which take more or less time depending on the complexity of the site. I suspect the NLJ's sample would have to be much larger than the entire universe of Superfund sites to render unimportant the differences in speed of response that flow from individual differences in site conditions.

Conclusion

The above criticism is the result of a first pass by a rusty undergraduate psychology major. What problems might a real statistician identify? This article is not meant to belittle the pollution problems of minority communities, and it is certainly likely that the (probably white) chairman of the board of a polluting company will use his wealth to move as far from the stack and the outfall as possible. But a badly presented, quasi-statistical study is not the way to promote environmental justice.

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