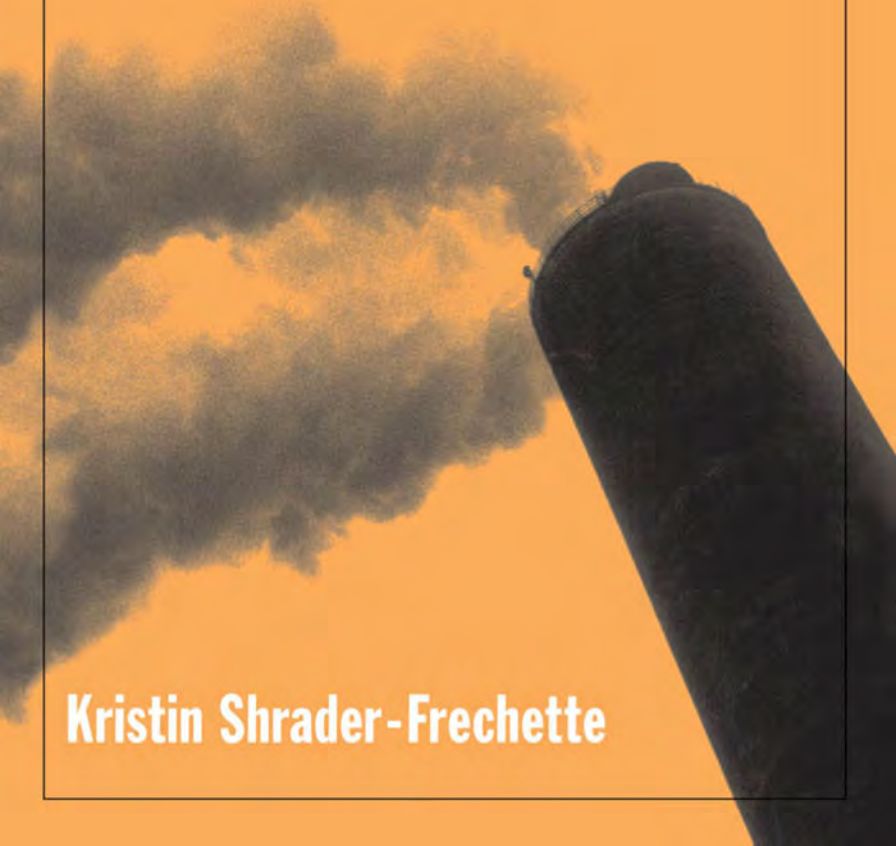
Environmental Justice

Creating Equality, Reclaiming Democracy



Kristin Shrader-Frechette

ENVIRONMENTAL JUSTICE

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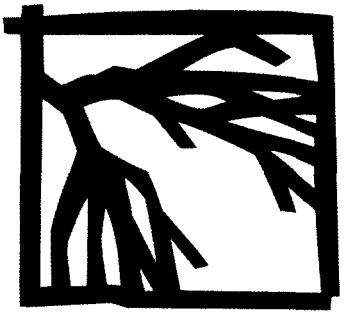

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For my mother and for Catherine

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Preface

Neary 80 years ago, Catherine Jackman graduated from Centre College, in Danville, Kentucky. Hoping for a career in teaching, she was one of the first African-American women to receive her degree from Centre. Despite her superb grades and the state's chronic shortage of teachers, no Kentucky school would hire her. After months of searching for employment, Catherine took the only job she was offered, that of seamstress at Danville's Rainbow Cleaners. My grandfather, owner of the Rainbow, often left her in charge. Inside the cleaners, Grandpa said customers always would speak politely to Catherine. He was outraged that, outside the shop, she became invisible to all the whites who passed her on the street.

In the middle 1920s Grandpa's young wife was stricken with severe encephalitis and was sent as an invalid to Kentucky State Hospital. Left with a three-year-old daughter, Mildred, he lapsed into despair and then alcoholism. Catherine managed the shop every day, but his alcoholism only worsened. Soon Catherine brought little Mildred home with her each evening to Colored Town, on the outskirts of Danville. She lived in Colored Town until she married my father when she was 18. From Catherine, Mildred learned her deep laugh, her quick wit, her remarkable cooking and sewing skills, and her habit of hugging people as soon as she saw them.

One of my favorite Kentucky-Sunday memories is of driving down the main unpaved street of Colored Town. None of the homes was painted, and all of them had outhouses and pumps out back, even in the late 1950s. But all of them had big covered porches, with chairs for visiting, across the front. Dad would be at the wheel of our old black Hudson, after having driven the three hours from Louisville. Mom, Mildred House Shrader, would be telling stories about her childhood in Colored Town. Our car never made it more than a few blocks down the street before people would converge on it, shouting "It's Millie and the kids," pulling open the car doors, and hugging my brothers and sisters and me.

Mildred House Shrader became a leader in Kentucky civil rights causes and active in both the women's movement and the peace movement. She made a difference in the world. She was the first activist I knew.

As children, sometimes we were embarrassed by Mom's outspokenness. We often wished she would just stay at home, keep quiet, and continue canning garden vegetables and caring for our family of nine. When friends came to visit, we often pleaded with her not to say anything controversial. Not until I was 16 did I fully realize how fortunate we all were to have her. Not until she was dying, at age 43, did I realize how profoundly she had shaped all of us.

Mom and Dad designed and built a house in Fern Creek, Kentucky, near Newburg, a large African-American settlement. As a result, in the late 1950s and 1960s we grew up in the only racially integrated part of Jefferson County, and some of my sisters and brothers, like Christopher, made their best friends in Newburg. Christopher and his friend Walter ("Bubba," they called each other) spent a good deal of time thinking up ways to get the better of the local racists. They had a deadpan routine they used to challenge segregated clubs or neighborhoods. Once Chris went to "join" the local Moose Club, the chief source of entertainment in Fern Creek. After he had paid for a family membership, Chris mentioned that he and his "brother" would stop by to play pool. When they did so, Walter would be the only colored face in a room full of white pickup-truck owners. The ensuing situations, with Christopher and Walter doing their deadpan exchanges were the subject of many raucous dinner-time stories. Chris and Walter would always "win" such conflicts, at least in the retelling.

By the early 1960s, my mother had become the first white member of the NAACP in the state of Kentucky. A common Christening name for newborn girls in Newburg was "Mildred," for their white godmother. When Mom and Dad marched and sang in civil rights protests, they often pulled the two youngest of us seven brothers and sisters behind them in our rusting red "Flyer" wagon. Later my mother became a leader in Kentucky's open-housing movement.

Once her youngest children were in school, Mom went to college. When she was diagnosed with bone cancer, she had been teaching for only a year—high-school English in the poorest slum of Louisville. Mom had the first environmentally induced cancer that I knew, caused by unnecessary and repeated X-rays. Years later, the U.S. Office of Technology Assessment confirmed that up to 90 percent of all cancers are environmentally induced and theoretically preventable.[1] Mom need not have died at age 45. Her death put a human face on the monumental societal failure to practice environmental ethics and to assess the consequences of technological risks. Her life and Catherine's life put human faces on the response to injustice. This book is for them.

KS-F
University of Notre Dame
July 2001

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Some early versions of several arguments and examples in chapters 2, 5, 7, and 10 appeared, respectively, in chapter 7 of Kristin Shrader-Frechette, *Science Policy, Ethics, and Economic Methodology* (Boston: Kluwer, 1985); in chapter 8 of Kristin Shrader-Frechette, *Burying Uncertainty* (Berkeley: University of California Press, 1993); in chapter 4 of Kristin Shrader-Frechette, *Risk Analysis and Scientific Method* (Boston: Kluwer, 1985); and chapter 10 of Kristin Shrader-Frechette, *Risk and Rationality* (Berkeley: University of California Press, 1991). Thanks to philosophers, scientists, and policy-makers at the University of Arizona, the University of Georgia, MIT, Morehead State University, Oxford University, Princeton University, and Yale University, these chapters are better than they might have been. These colleagues invited me to present earlier versions of the chapters at university seminars and colloquia.

Thanks to Nick Ashford, the late Mike Bayles, Ed Byrne, Paul Durbin, Tom Field, Steve Frishman, Dale Jamieson, Sheldon Krimsky, Deborah Mayo, Peter Ohlin, Sharon Osterman, Steve Rayner, Gene Rosa, Betty Shrader, Danielle Shrader-Frechette, Joe Strolin, Sean Walsh, Richard Wason, Pat Werhane, and Dan Wigley for their constructive comments on earlier versions of these chapters. Special thanks to the University of Notre Dame for secretarial assistance, to Lisa McLeman and Deanna Swits for research assistance, to

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This book would not have appeared if members of my family had not lived the lessons of achieving social justice. Thanks to Mom, Dad, Betty, Eric, and Claudia. Special thanks to my husband Maurice, a long-time civil rights and peace activist, and to our children Eric and Danielle. Thanks for the good you do and inspire. You make everything worthwhile.

Contents

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ENVIRONMENTAL JUSTICE

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1 Introduction

World War III has already begun, according to environmental activist Dave Foreman. In this struggle of humans against the earth, he says "there are no sidelines, there are no civilians."[1] Founder of Earth First!, Foreman and his followers have been fighting this world war by performing acts of "monkeywrenching," or "ecotage" (ecological sabotage, the destruction of machines or property that are used to destroy the natural world). Monkeywrenching includes acts such as pulling up survey stakes, destroying tap lines, putting sand in the crankcases of bulldozers, cutting down billboards, and spiking trees so they cannot be logged. Foreman claims such acts of ecological sabotage are part of a proud American tradition of civil disobedience, like helping slaves escape through the Underground Railroad or dumping English tea into Boston Harbor. Rather than slaves or colonists, monkeywrenchers say they are not protecting humans, but earth itself.

As Foreman's remarks suggest, environmentalists have tended to focus on protecting the earth rather than the humans who inhabit it. This book argues not only for protection of the planet but also for public-interest advocacy on behalf of people victimized by environmental injustice. Environmental injustice occurs whenever some individual or group bears disproportionate environmental risks, like those of hazardous waste dumps, or has unequal access to environmental goods, like clean air, or has less opportunity to participate in environmental decision–making. In every nation of the world, poor people and minorities face greater environmental risks, have less access to environmental goods, and have less ability to control the environmental insults imposed on them.

This chapter begins the task of diagnosing, analyzing, and resolving problems of environmental injustice (EJ). It focuses on six key questions: (1) Why

have so many environmentalists called for protection of the environment, even as they remained misanthropic and ignored the plight of humans? (2) How did environmentalists come to recognize problems of environmental justice? (3) What are the characteristics of environmental injustice? (4) What are some key examples of environmental injustice, both in developed and in developing nations? (5) Why do some people deny EJ problems, and how defensible are their denials? (6) Why do critics of the EJ movement tend to reject various solutions to EJ problems, and are their rejections reasonable? After evaluating each of these questions, the chapter closes with an overview of each of the remaining chapters of the volume.

Environmentalism and Biocentrism

To understand why people have ignored environmental injustices for so long, it might be helpful to examine the attitudes and priorities of various environmentalists, like Dave Foreman. Foreman's priorities were called into question several years ago after an accident at the Louisiana-Pacific sawmill in Cloverdale, California. On May 8, 1987, a band saw struck an 11-inch spike embedded in a redwood log. The saw shattered, and pieces of blade flew across the room. A large section hit workman George Alexander, 23. It broke his jaw and knocked out several teeth. Foreman called the California accident "tragic"; nonetheless, the attitudes and writings of many environmentalists seem to encourage disrespect for humans even as they call for a greater respect for nature and the earth. Such writings often are exclusively nature centered (biocentric) rather than also human centered (anthropocentric).[2]

In "Animal Liberation: A Triangular Affair," J. Baird Callicott claims that "the extent of misanthropy in modern environmentalism . . . may be taken as a measure of the degree to which it is biocentric." And most environmentalists have heard Edward Abbey's famous remark that he would rather shoot a human than a snake. Garrett Hardin even went so far as to recommend that people injured in wilderness areas not be rescued; he worried that rescue attempts would damage pristine wildlife. Even Paul Taylor, in *Respect for Nature*, writes that "in the contemporary world the extinction of the species *Homo sapiens* would be beneficial to the Earth's Community of Life as a whole." In *Eco-Warriors*, Rik Scarce advocates extermination of humanity as "an environmental cure-all."[3]

Gene Hargrove believes that several factors explain the misanthropy of many environmentalists. One reason is that the early U.S. environmentalists, like Teddy Roosevelt, were the most educated and powerful people in the country. Their environmentalism frequently consisted of bird-watching or expensive ecotourism, not addressing areas of greatest pollution where poor people live. Another reason is that there was no significant conflict between environmentalists and the government until the 1950s, when the Sierra Club had a falling out with the U.S. Forest Service over logging policy.[4] Prior to

this time, environmentalists were aligned with powerful commercial and government interests, not with poor people. A third reason for traditional environmentalists' emphasis on protection for nature, rather than humans, is that many environmental ethicists have claimed that problems of planetary degradation can be blamed on anthropocentrism, or human-centered values. Callicott's remark, just quoted, is a good example. Rejecting anthropocentric ethics, many environmental philosophers have called for biocentric norms. They have argued for evaluating human actions on the basis of how well they promote ecological, not human, welfare.

Often this biocentrism or ecocentrism is coupled with an appeal to holism, to valuing nature as a whole, rather than valuing its individual species or parts, like humans. Because biocentrists focus on the good of the whole (ecosystems, habitats, and so on), philosophers like Tom Regan have charged them with "environmental fascism." Regan and others believe an ethics of maximizing biotic or ecological welfare could lead to violating human rights in order to serve environmental welfare. Indeed, the misanthropic words of Callicott, Hardin, and Taylor, already quoted, give some credence to the charge of environmental fascism.[5]

Contrary to environmental fascists and misanthropic biocentrists, this book argues that protection for people and the planet go hand in hand. Recognizing the importance of environmental justice, the book points out that poor and minorities are the most frequent victims of all societal risks, including environmental degradation. To help reclaim the democratic birthright of people everywhere, these chapters suggest methodological and procedural reforms in the way society evaluates and distributes environmental risks. They also argue for correcting unequal opportunities to participate in environmental decision–making. Finally, the book explains why everyone ought to assume responsibility for the actions of those who pollute, develop, and threaten either the land or the most vulnerable people on it.[6]

From Environmentalism to Environmental Justice

Early in the twentieth century many environmentalists were aligned with governmental and industrial interests. The environmental movement of that era conjured up images of backpackers and bird-watchers, Boy Scouts and nature lovers. The images were of white upper- or middle-class people concerned with conserving a pristine wilderness or an important sanctuary. The environmental movement often focused on action to protect threatened forests, rivers, and nonhuman species, not humans. Even in the academic community, environmental scholarship and particularly environmental ethics traditionally have focused on esoteric topics such as whether to give "rights" to trees and rocks and whether nature has intrinsic or inherent value.[7] Have they been playing the violin while Rome burned?

Two decades ago, while wealthy environmentalists focused on leisure activities and environmental scholars wrote about ivory-tower topics, the

grassroots environmental movement began to notice society's most vulnerable groups. They recognized that poor and minorities have been especially damaged by societal threats such as environmental pollution, runaway development, and resource depletion. This grassroots movement saw farmworker communities victimized by pesticides, Native American tribes devastated by radioactive waste, African-American ghettos beset with urban pollutants, Latino settlements plagued by hazardous waste incinerators, and Appalachian towns controlled by absentee-owned coal companies.[8] They saw minority communities forced to trade unemployment for environmental pollution, to exchange a shrinking local tax base for toxic dumps, to trade no bread for a bloody half loaf. Such tradeoffs arose in communities more worried about starvation, unemployment, and violent crime than about health threats from industrial pollution. As Professor Bob Bullard, U.S. sociologist and EJ advocate, notes, this situation has changed. Most minority communities are no longer willing to make such no-win exchanges. They realize they constitute the path of least resistance for polluters and developers, and they have begun to take action. In fact, Bullard says that 80 percent of minority-community resistance groups began as environmental organizations. The tactics of such groups have been demonstrations, marches, hearings, public workshops, research, and lawsuits.[9]

Many people believe that traditional environmental activists, as opposed to EJ advocates, have different goals and backgrounds because often they come from different worlds. This book suggests, however, that the two movements are merely different sides of the same coin. What affects the welfare of the planet affects us all. And once polluters and developers learn that their costs of doing business must be borne by everyone and not shifted to the poor and the powerless, "greening" the ghetto may be the first step in "greening" the entire society.

Understanding Environmental Injustice

The grassroots, minority-led movement for political equality, self-determination, and EJ has sprung up mainly in the urban centers of America. Led largely by women of color, this movement combines many of the philosophies and goals of civil rights and environmental activism. But what is the environmental justice movement? It is the attempt to equalize the burdens of pollution, noxious development, and resource depletion. Environmental justice requires both a more equitable distribution of environmental goods and bads and greater public participation in evaluating and apportioning these goods and bads. Evidence indicates that minorities (e.g., African Americans, Appalachians, Pacific Islanders, Hispanics, and Native Americans) who are disadvantaged in terms of education, income, and occupation not only bear a disproportionate share of environmental risk and death but also have less power to protect themselves.[10] Even children represent a minority victimized by environmental injustice. They are more sensitive to all forms

of environmental pollution, and frequently schools have been built atop closed hazardous waste sites.[11] Studies consistently show that socioeconomically deprived groups are more likely than affluent whites to live near polluting facilities, eat contaminated fish, and be employed at risky occupations. Research also confirms that they are less able to prevent and to remedy such inequities.[12] Because minorities are statistically more likely to be economically disadvantaged, some scholars assert that "environmental racism" or "environmental injustice" is the central cause of these disparities. Other social scientists have found that race is an independent factor, not reducible to socioeconomic status, in predicting the distribution of air pollution, contaminated fish consumption, municipal landfills and incinerators, toxic waste dumps, and lead poisoning in children.[13] Members of communities facing such threats typically are too poor to "vote with their feet" and move elsewhere.

Often the sources of environmental injustice are the corporations and governments who site questionable facilities among those least able to be informed about, or to stop, them. Zoning boards, influenced by politically and economically powerful developers and their friends, also have helped create much environmental injustice. If the arguments of this book are correct, however, we the people ultimately are responsible for environmental injustice. We have allowed corporate and government abuses to disenfranchise the weakest among us.

To understand environmental injustice, consider a typical situation that began several decades ago in Texarkana, Texas. Patsy Ruth Oliver, a former resident of Carver Terrace, a polluted African-American suburb of Texarkana, began to notice dark patches of "gunk" seeping up through withered lawns, around puddles, and into the cracked centers of streets. The suburb also had an unusual cluster of medical problems. Their cause finally emerged in 1979, one year after residents of Love Canal, New York, discovered leaking barrels of dioxin beneath their homes. When Congress ordered the largest chemical firms in the United States to identify their hazardous waste sites, the Koppers Company of Pittsburgh identified Carver Terrace as one of its problem areas. For over 50 years, Koppers had used creosote (a known carcinogen) to coat railroad ties. In 1961, when it closed its Carver-Terrace operation, it bulldozed over most of its facilities, including the creosote tanks. Not realizing the dangers left by Koppers, poor families eagerly bought plots in the new Carver Terrace. When Koppers finally admitted the risks at the site, the Environmental Protection Agency (EPA) brought in scientists in full protective gear. They declared the Carver Terrace soil contaminated, but the scientists did not bother to interview the residents. Instead they claimed that the area posed "no immediate health threat" to citizens. Oliver and her neighbors were enraged. They formed the Carver Terrace Community Action Group and soon discovered that the EPA had failed to notify them of two other EPA studies that concluded the site posed immediate health hazards. Oliver argued that the government should "buy out" her community, just as it did for Love Canal. She also concluded that racism was

the only reason her neighborhood was treated differently from Love Canal. "I have a master's degree in Jim Crow," she said. Eventually Oliver forced the government to purchase the homes in Carver Terrace, although the buyout destroyed the African-American community there. In 1984, Texas officials asked the U.S. EPA to place Carver Terrace on the Superfund list, the $1.3 billion trust that Congress established in 1980 to clean up toxic waste dumps.[14]

Bob Bullard says that the Patsy Olivers of the world are typical of the EJ movement. Struggling to protect their families and homes, they are not traditional activists. They are just trying to survive. On December 17, 1993, the day demolition of homes began in Carver Terrace, Patsy Oliver died of a heart attack.

Environmental Injustice at Home and Abroad

Inspired by the example of Patsy Oliver, many EJ activists also trace their beginnings to 1982 when North Carolina decided to build a polychlorinated biphenyl (PCB) disposal site in Shocco Township in Warren County. The township is 75 percent African American, and the average per capita income of the county is 97th (of 100 counties) in North Carolina. The U.S. EPA allowed state officials to place the waste only 7 feet above the water table instead of the normal 50 feet required for PCBs. Outraged by this discrimination, 16,000 residents (mostly African Americans and Native Americans) organized marches and protests. Officials arrested more than five hundred local residents. They lost their battle, the state opened the dump, and PCBs have been leaching into the soil. Their actions, however, helped begin the EJ movement.[15]

As in the North Carolina PCB case, African-American communities have been among those hardest hit by environmental injustice. Often the government is the culprit, as in West Dallas, Texas, where, in 1954, the Dallas Housing Authority built a large public housing project—3,500 units—immediately adjacent to a lead smelter. During its peak operations in the 1960s, each year the smelter released 269 tons of lead into the air. West Dallas children had blood lead levels that were 36 percent higher than those in children in control areas. Such exposures are significant because even small amounts of lead can impair learning, interfere with red blood cell production, and damage the liver and brain. Despite repeated studies showing the public-housing children were in danger from the smelter, officials did nothing. For 20 years local and federal officials ignored citizens of West Dallas who asked merely that the city and state enforce existing lead-emission standards. Finally, in 1983 the city and state sued the smelter for violations of city, state, and federal lead-emissions standards. Within two years, the smelter agreed to clean up lead-contaminated soil, to screen children and pregnant women for lead poisoning, and to provide $45 million in compensation to several generations, including hundreds of children exposed to the lead.[16]

Perhaps the most notorious example of environmental injustice against African Americans has occurred in the "Cancer Alley" region of Louisiana.

An 85-mile stretch of the Mississippi River between Baton Rouge and New Orleans, Cancer Alley produces one-quarter of the nation's petrochemicals. More than 125 companies there produce fertilizers, paints, plastics, and gasoline. Each year more than a billion pounds of toxic chemicals are emitted in the alley. An advisory committee to the U.S. Civil Rights Commission concluded that African-American communities have been disproportionately impacted by Cancer Alley for at least two reasons. One is that the system of state and local permitting for Louisiana hazardous facilities is unfair. The other reason is that citizens living in Cancer Alley have low socioeconomic status and limited political influence.[17]

Besides African Americans, indigenous peoples repeatedly have been victims of environmental injustice. Among Native Americans, some of the most serious abuses have occurred in connection with uranium mining in the West. Churchrock, New Mexico, in Navajo Nation, the territory of the largest Native-American tribe, is a case in point. Churchrock is the site of the longest continuous uranium mining in Navajo Nation, from 1954 until 1986. Navajo tribal governments leased mining rights to companies such as Kerr-McGee, but they did not obtain either the consent of Navajo families or any information as to the consequences of company activities. Because rainfall at Churchrock is about only 7 inches per year, mining companies withdrew as much as 5,000 gallons of water per minute from the Morrison aquifer to support construction and operation of the mines. Once this groundwater was contaminated with uranium, the companies released it into the Rio Puerco, the main water source for the Navajos. As a result, companies like Kerr-McGee not only significantly reduced the groundwater from which many families drew well water but also contaminated the only main surface water supply. For years, the two main companies, Kerr-McGee and United Nuclear Corporation, argued that the Federal Water Pollution Control Act did not apply to them. They said their activities took place on Native-American land that is not subject to any environmental protections. It was not until 1980 that the courts forced the companies to comply with U.S. clean water regulations.[18]

Among Latinos, one of the most common forms of environmental injustice is that faced by farmworkers exposed to pesticides. In 1972, the United States banned many chlorinated hydrocarbon pesticides such as DDT, aldrin, dieldrin, and chlordane, in part because they were so long-lived and remained on fruits and vegetables when they were consumed by the public. Instead farmers began using the much shorter-lived but much more toxic pesticides known as "organophosphates." The pesticides pose less threat to consumers because they are less persistent, but they are a greater threat to farmworkers. A large proportion of farmworkers are Mexican Americans, often illegal aliens who work for less-than-minimum wage and typically under difficult or illegal working conditions. Given such circumstances, the workers are in no position to complain about pesticide exposure. Moreover, what pesticide laws exist typically are not enforced, so farmworkers have little protection.[19]

People in developing nations usually face similar or worse environmental threats. In the case of pesticides, for example, after the United States banned

many chlorinated hydrocarbons, U.S. and multinational chemical companies merely began shipping them abroad. Currently about one-third of the pesticides manufactured in the United States are not allowed to be used in the United States and are exported, mostly to developing nations. According to the World Health Organization, the chemicals contribute to approximately 40,000 pesticide-related deaths annually in the developing world.[20] The case of Gammalin 20 is fairly typical. A highly toxic relative of DDT known as "lindane," Gammalin 20 has been banned in the United States for about 30 years. After it was imported into Ghana for use as a pesticide, the local fishermen along the shores of Lake Volta found it had another use as well. When they dumped it into the water, many dead fish floated to the top of the water, and the fishermen could easily collect them, sell them, and feed them to their families. Soon the fish population began dropping off at the rate of about 10 percent per year, and the Ghana villagers began experiencing the classic symptoms of nausea, vomiting, convulsions, circulatory disorders, and liver damage. The people did not connect their ailments to the chemical they dumped into the lake, and their problems continued until a Ghanaian nongovernmental organization explained what had happened.[21]

The 1984 chemical spill in Bhopal, India, also illustrated that people in developing nations receive far less protection from environmental threats than do citizens in the developed world. When a toxic gas, MIC, leaked from a Union Carbide pesticide plant in Bhopal, the accident killed nearly 4,000 people and permanently disabled another 50,000. The company later settled, with survivors and the disabled, for only several thousand dollars per person. After Bhopal, the predominantly African-American community of Institute, West Virginia, became the center of a violent conflict. West Virginia's Kanawha Valley, *"the chemical capitol of the world,"* is the site of the only Union Carbide facility in the United States that manufactures MIC. On the one side, Union Carbide workers fought for their jobs. On the other side, local residents said they fought for their lives. Both the company and the EPA stonewalled citizens' demands for investigation of their health complaints and the chemical odors that saturated the valley's air. Citizens claimed that the EPA attempted to show there was no public health threat by continually revising its risk-assessment methods[22] so as to obtain the answers Union Carbide wanted.

Apart from the lax standards that U.S. and multinational corporations employ in their plants in poor areas, including developing nations like India, groups in the industrialized world also often intentionally dump toxic wastes in the Third World. Each year companies and local governments offer nations in the Caribbean and in West Africa hundreds of dollars for every 55-gallon barrel of toxic waste that can be dumped legally. For example, in 1988, the city of Philadelphia hired a Norwegian company, Bulkhandlung, to transport 15,000 tons of toxic incinerator ash to the African nation of Guinea. After plant and animal life died at the waste site, the African government ordered Bulkhandlung to remove the ash and return it to Philadelphia. The Africans appealed to the 1989 Basel Convention on the Control of Trans-

boundary Movements of Hazardous Wastes and Their Disposal, ratified by more than one hundred nations, including the United States. According to the convention, companies wishing to ship hazardous waste must notify the receiving country. In fact, exporters must receive written permission from the importing nation. Because the Basel Convention allows any country to refuse permission, it has helped address waste-related EJ problems. Nevertheless, corruption and lack of information often keep the citizens of waste-receiving countries from knowing what their leaders have accepted in exchange for payment. Thus it is questionable whether people in many developing nations actually give free informed consent to imports of hazardous waste that may threaten them.[23]

A chief economist from the World Bank recently created a massive controversy when he wrote an internal memo explaining the economic rationale for such waste transfers. The memo was leaked to the press in 1991. It said: "Just between you and me, shouldn't the World Bank be encouraging MORE migration of the dirty industries to the LDCs [less-developed countries]?" The memo further enraged ethicists and environmentalists by offering three reasons that developing nations were a good place to dump toxics: their citizens already had a lower life expectancy; such countries were relatively "underpolluted"; and impairing the health of the people with the lowest wages made the "greatest economic sense."[24]

Over the last two decades, many studies have documented the fact that polluters, both at home and abroad, appear to be following the advice of the World Bank economist. In 1983, Bob Bullard showed that, from the later 1920s to the late 1970s, Houston placed all of its city-owned landfills in largely African-American neighborhoods. Although they comprised 28 percent of the city's population, African-American communities received 15 of 17 landfills and 6 of 8 incinerators. Bullard pointed out that such dumping has magnified the myriad social ills—crime, unemployment, poverty, drugs—that already plague inner-city areas.[25] Journalists also have shown that the dirtiest zip code in California, a one-square-mile section of Los Angeles County, is filled with waste dumps, smokestacks, and wastewater pipes from polluting industries. In one zip code, where 18 companies discharge five times as much pollution as they emit in the next-worst zip code, the population is 59 percent African-American and 38 percent Latino.[26]

In 1984, Cerell Associates, a private consulting firm hired by the California Waste Management Board, issued a report titled "Political Difficulties Facing Waste-to-Energy Conversion Plant Siting." The report concluded that all socioeconomic groups resist the siting of hazardous facilities in their neighborhoods and adopt positions of NIMBY ("Not in My Back Yard"). Nevertheless, the study showed that because lower-income groups have fewer resources to fight corporate and government siting decisions, they usually lose.[27] Further confirming the Cerell findings, in 1986 the Center for Third World Organizing in Oakland, California, issued the report, "Toxics and Minority Communities." It showed that 2 million tons of radioactive uranium tailings, left from uranium mining, had been dumped on Native-American lands. As a

result, the study argued, cancers of the reproductive organs among Navajo teenagers had climbed to 17 times the national average. Later, in April 1987 the United Church of Christ Commission for Racial Justice released a widely quoted report that documented environmental racism throughout the United States.[28] Ben Chavis, the executive director of the National Association for the Advancement of Colored People (NAACP), organized a study that later showed 60 percent of African Americans live in communities endangered by hazardous waste landfills. The report revealed that the largest U.S. hazardous waste landfill, which receives toxics from 45 states, is in Emelle, Alabama; Emelle is 79 percent African American. The study also demonstrated that the greatest concentration of hazardous waste sites in the United States is in the predominately minority South Side of Chicago. Typically minority communities have agreed to take the sites in exchange for jobs and other benefits that have never become a reality. A more recent report, published in 1992 in the *National Law Journal*, concluded that government agencies do not guarantee equal political power and equal participation to all groups victimized by environmental injustice. In fact, the study showed that government agencies treat polluters based in minority areas less severely than those in largely white communities. The same report showed that toxic cleanup programs, under the federal Superfund law, take longer and are less thorough in minority neighborhoods.[29]

A 1992 EPA report likewise found significant evidence that low-income, nonwhite communities are disproportionately exposed to lead, air pollution, hazardous waste facilities, contaminated fish, and pesticides. When the report recommended greater attention to environmental injustice,[30] the EPA established the Office of Environmental Equity (OEE). Also in 1992 the General Accounting Office (GAO) began an ongoing study to examine the EPA's activities relating to EJ.[31] The Clinton administration likewise emphasized environmental justice when it selected a prominent leader of the EJ movement, Bob Bullard, to serve on the Clinton-Gore transition team.[32] On February 11, 1994, Clinton signed an executive order that directed each federal agency to develop an EJ strategy for "identifying and addressing . . . disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations."[33]

Bullard says that Clinton's actions are not enough. He claims the United States and other nations need an EJ equivalent of the 1964 Civil Rights Act and the 1968 Fair Housing Act. Every year since 1994, Congress has been debating bills designed to guarantee environmental justice. Because none has ever passed, current efforts to promote EJ rest on three bases: Clinton's executive order, the environmental justice division of the EPA, and the 1969 National Environmental Policy Act (NEPA).[34] Before leaving office in January 2001, President Clinton set the budget of the EJ branch of EPA at roughly the same amounts for 2001 and for 2002 as it was for the year 2000. President Bush is expected to cut both the overall EPA budget and the environmental justice program of the EPA.

Why have local, national, and international media not helped more to promote EJ? One reason is that small-town leaders like Patsy Oliver are typically unknown women. Both sexism and racism combine to silence them in the press. Another reason is that the Patsy Olivers of the world typically do not want media attention and public glory. They want results: health and safety for their families and communities. A third reason is that even the EPA has been slow to acknowledge environmental justice. Only in 1990, in its report "Environmental Equity: Reducing Risks for All Communities," did it finally admit that minority communities have borne more than their "fair share" of environmental pollution.[35] Policymakers bear some of the blame for the failure to confront environmental racism. They typically use quantitative risk assessment and benefit-cost analysis in ways that are not sensitive to justice issues. Both methods incorporate aggregation methods that often hide inequitable impacts. Those using both methods also usually try to trace the causes of specific problems to particular hazardous substances.[36] However, EJ proponents say that scientists should assess the total risks that a given community faces because many health threats are a combination of several factors. They also argue that often no one addresses the cumulative and synergistic public health and environmental burdens that minority communities often bear.

Apart from deficiencies in media attention, science, and law, another reason that society has been slow to confront issues of environmental injustice is the backwardness of environmental organizations. Groups like the Sierra Club sometimes mirror the biases of the larger society. Organizing at a time when discrimination was the norm, early Sierra Club leaders did not link social justice to the conservation cause. In fact, in 1959 the Sierra Club vetoed an explicit antidiscrimination policy and said membership already was open to everyone. And in 1971 members voted against addressing conservation issues related to the poor and minorities. Even today, many environmentalists view alliances with the disenfranchised as "too political." Nevertheless, in Los Angeles, Virginia, and Florida, many Sierra Club groups have taken up EJ issues on behalf of Latinos, Native Americans, and African Americans.[37]

Denial of Environmental Injustice Charges

In response to repeated calls for EJ, critics typically make two responses, one based on denying environmental injustice and another based on excusing it. The "denial" retort is that although EJ is desirable, because flaws in existing research make it almost impossible to identify particular instances of environmental injustice, most supposed cases can be challenged. The "excuse" response is to admit that there are instances of environmental injustice but to claim that the benefits of avoiding them do not outweigh the costs of correcting them. Proponents of the first, or "denial," argument often say that although poor and minority communities appear to be victimized, much of the evidence for their discrimination is "largely anecdotal." Attacking Bob

Bullard's early study of environmental racism in Houston, they note that the lawsuit based on it, *Bean v. Southwestern Waste Management Corp.*, was unsuccessful. They also claim that authors often assume rather than prove that actual risks near hazardous facilities are higher than elsewhere.[38]

While it is wrong to assume that risks always are higher near dangerous facilities, critics of EJ research ignore the fact that, all things being equal, public health risks probably are higher near noxious facilities, and research is needed to determine their level. Proponents of the denial argument also ignore the fact that such sites lower nearby property values.[39]

Many proponents of the "denial" argument specifically attack a widely discussed General Accounting Office (GAO) analysis that alleges environmental racism. This 1983 report examined community demographics near commercial waste treatment, storage, and disposal facilities. After assessing data from four noxious facilities in EPA Region IV (the Southeast), the GAO researchers found that the populations in three of the four areas surrounding the problematic sites were predominantly African American, even though they were only a minority in the state's population. Objecting to the GAO study, critics argue that it is ambiguous with respect to how one ought to characterize a community as minority. Christopher Boerner and Thomas Lambert, for example, claim that defining a minority community as one in which the percentage of minority residents exceeds the percentage in the entire population may be problematic. According to this definition, they note that Staten Island, New York, home of the nation's largest landfill, is a minority community even though more than 80 percent of its residents are white.[40] One problem with the preceding Boerner-Lambert criticism, however, is that it confuses the neighborhood near the landfill with all of Staten Island. Just because Staten Island is only 20 percent nonwhite does not mean that the area immediately around the landfill is only 20 percent nonwhite. Because most residents within several miles of the landfill are African American, Boerner's and Lambert's attempted criticism is questionable.

Critics of EJ research use the "denial" argument to make other allegations. They claim many EJ studies err in ignoring population density when they characterize a community as "minority." They say the real issue is the total number of people affected by some noxious facility, not just the percentage of nonwhites around it.[41] While the total number of people affected is important, this criticism begs the question of the importance of distributive justice. It arguably is worse for some people to be discriminated against, as subsequent chapters show, than for everyone to be treated the same and exposed to similar threats. Such discrimination is worse because it entails threats both to life and to equal treatment, whereas the same treatment of different groups may jeopardize only rights to life and not also rights to equal treatment.

Critics of the EJ movement also employ the "denial" argument to challenge the 1987 report of the Commission for Racial Justice (CRJ) of the United Church of Christ. Correlating percentages of nonwhites, within zip codes, with numbers of waste plants, the CRJ analysis showed that the percentage of

nonwhites in zip codes with one facility was twice that in zip codes having no such plant. For zip codes with more than one waste facility, the percentage of nonwhites was three times that in zip codes with no such plant. The CRJ also revealed that race was statistically more significant than either mean household income or mean value of owner-occupied housing as a determinant of where noxious facilities were located.[42]

In response to the CRJ findings, proponents of the "denial" argument allege that environmental injustice often disappears once one stops aggregating data from large areas such as zip codes. They say that how one defines the relevant geographic area determines whether or not there is environmental injustice.[43] Such criticisms, of course, are reasonable. One often can gerrymander geographic regions so as to exhibit or to cover up some spatially related effect. Nevertheless, the criticism is beside the point. If the area closest to a noxious facility tends to have a population of nonwhites rather than whites, then regardless of what zip codes (or any other systems of aggregation) reflect, there is likely to be environmental racism. Moreover, if even large aggregates appear to reveal evidence of environmental injustice, the appropriate response is to determine whether the apparent disparate impact is real. The appropriate response is not to say that there are ways of aggregating the data so that the injustice "disappears," because the real question is the defensibility of such methods of aggregation. And this question should be analyzed on a case-by-case basis. It would be surprising if there were never any real environmental injustice, and if poor or powerless people never were subject to more noxious facilities than wealthier ones.[44]

Utilitarian Excuses for Environmental Injustice

Using the "excuse" response, critics of the EJ movement do not deny environmental injustice. Instead they give two arguments to put the alleged injustice into perspective. They argue that (1) on balance, victims of alleged environmental insults may benefit from living near noxious facilities. They say victims might suffer worse from higher unemployment and housing costs if they did not live near dangerous sites. Likewise they charge that (2) the mere correlation of hazardous sites and the presence of poor or minority communities does not prove that racism or injustice actually caused the siting there. They say that African Americans, for example, may have moved to risky or undesirable areas because housing was cheaper or because of some other factor.[45] Both of these "excuse" arguments are questionable. Complaint (1) ignores the fact that, apart from the ultimate balance of costs and benefits (such as more employment) near a risky facility, the evidence of what residents want is clear. Poor people and minorities usually do not want most of the dangerous or undesirable sites to be located near them. And nearby residents have the right to control the risks that others impose on them. Critics of the EJ movement who use this "excuse" response seem to forget principles of equal human rights and instead to use utilitarian grounds to attempt to defend injustice. Such a defense is obviously flawed

because all people, especially innocent potential victims, have rights to exercise their preferences regarding what threatens their welfare—particularly when others profit from the threats.

"Excuse" argument (2), that the correlation between race and risky facilities does not prove discrimination, is correct. Nevertheless, it is misleading. The issue is not whether people, corporations, or governments deliberately discriminate against poor people or minorities in siting decisions and therefore cause them to live in polluted areas. Even if minorities moved to an area after it was polluted, the issue is whether some citizens ought to have less than equal opportunity to breathe clean air, drink clean water, and be protected from environmental toxins. If they do have less than equal opportunity, even though no one may have deliberately discriminated against them, the situation may need to be remedied, at least in part because people have rights to equal treatment. Moreover, racism or injustice need not be deliberate. Many people behave in racist or sexist ways even when they have no idea of their prejudices. Their ignorance of their own faults may limit their guilt, but it provides no evidence of the absence of those faults. Absence of evidence for deliberate discrimination is not the same as evidence of the absence of deliberate discrimination. Admittedly, in the landmark case of *Washington, May of Washington, D.C., et al. v. Davis et al.*, the court set a stringent standard of proof for damage awards in cases of environmental harm.[46] The standard is stringent because the court ruled that a plaintiff seeking damages must prove that harmful actions taken by an individual or group were intended to cause the plaintiff harm and not merely that the harm occurred as an unexpected by-product of the action. Just because such a standard of proof is required before a defendant must pay legal damages, however, does not mean that environmental injustice occurs only when the same standard of proof is met. Rather, the legal standard is stricter (1) because defendants must be presumed innocent until proved guilty, (2) because courts must be conservative in meting out punishment, and (3) because courts must be cautious in making damage awards. Although the "discriminatory intent" ruling in the *Washington* case damages some civil rights and environmental justice cases, because it is almost impossible to prove the subjective motivations of a decision-maker, it applies only to legal rulings. The limits of truth or moral responsibility are not the same as the limits of what can be proved in a court of law as a basis for a damage award. Lack of legal proof for deliberate discrimination does not entail the absence of environmental injustice. Besides, as I argue in chapters 2 and 3, even if citizens, corporations, and governments do not deliberately discriminate, they nevertheless may be responsible for the institutional structures that indirectly cause disparate impacts on poor or minority groups. Later chapters argue that, at least in democracies, citizens typically have the governments they deserve and create. And if so, then citizens have duties to monitor and to correct government policies, especially those allowing discrimination against poor and minorities.

Many critics of the EJ movement use the "excuse" argument in a third way. They claim that alleged solutions to environmental injustice are even worse than the original injustice. They tend to focus on three such solutions: (1) eliminating all social costs (like pollution) of industrial processes; (2) allocating these costs evenly throughout the population; or (3) compensating the individuals who bear more of these costs.[47] With respect to the first solution to environmental injustice, critics of the EJ movement say that it would cause greater harm to society than does environmental injustice, and they probably are right, insofar as it is impossible to eliminate all pollution. In the case of pesticides, for example, critics claim (correctly) that because some pollution is inevitable, the "costs to society" of completely eliminating these chemicals are far higher than those of environmental injustice.[48] Nevertheless, proponents of the "excuse" argument beg a crucial question. Costs to whom? Costs to poor and minority communities might not be greater if society reduced or eliminated pollution near them. Moreover, in the specific case of pesticides, experts have argued that most of these chemicals are not essential to society and agriculture but instead are used to make foods look more appetizing. The same experts argue that biological forms of pest control are safer alternatives than chemicals.[49] The most basic problem, however, with this first solution to environmental injustice—eliminating all pollution—is that it is not realistic. It is a straw-man solution, one easy to reject because it is so extreme. A more realistic solution would be to reduce pollution to levels as low as practical. But critics of EJ do not consider this less extreme option.

What about a second solution to EJ problems, distributing pollution equally? Critics of the EJ movement also reject this alternative on the grounds that not siting noxious facilities in poor neighborhoods would have undesirable consequences, such as reducing the tax base and employment in areas needing them most.[50] This criticism, however, ignores the fact, as I show in chapters 4 and 5, that residents of poor neighborhoods typically do not feel deprived of economic benefits when someone protects them from dangerous facilities. And if not, then rejecting this second solution to EJ problems errs because it ignores the authentic consent and the well-confirmed opinions of those who have been most victimized by environmental injustice. To argue that communities desire health threats in exchange for economic benefits presupposes that the communities have given free informed consent to the noxious facilities. But proponents of the "excuse" argument typically have not established this presupposition. The argument also assumes that there is no right to a liveable environment. Probably EJ advocates would argue that all people do have such rights and that they ought not be traded for money, especially if what is traded is the health and safety of innocent victims such as children.[51]

Critics of the EJ movement also reject a third solution to EJ problems, compensating individuals who are disproportionately impacted by pollution from which society benefits. They reject this compensation solution on

the grounds that paying the poor to take health risks amounts to bribery or coercion. To avoid bribery or coercion, they claim that society should compensate only nonpoor or nonminorities, those who can freely consent to the risks. But if only they are paid, proponents of the "excuse" argument say the payment schemes ultimately would raise the level of unemployment and poverty.[52] Are they correct? No: this third objection is flawed in that it ignores the fact that if compensation is owed, then some is better than none. It also begs the question of whether compensation, as such, would increase poverty and unemployment. After all, there are ways to increase employment and reduce poverty, independent of compensating people for accepting noxious facilities. The criticism likewise errs because it presupposes that society has no responsibility to help correct unemployment and poverty, independent of its solutions to EJ problems. Moreover, it is desirable to consider the option of compensation in part because it forces society to ask whether the pollution costs associated with a proposed facility may be so high as to make it undesirable in any location.[53] It forces society to ask whether polluters genuinely are able to pay the full market costs of their actions. A key benefit of compensation schemes thus is that they force polluters to internalize the social costs of pollution and not to try to save money by dumping their burdens on the unwilling, the vulnerable, and the poor. In this regard, one model of compensating host communities for noxious facilities may be the 1982 Wisconsin program for landfill negotiation/arbitration.[54] One compensation model that appears not to have worked is the one created by the U.S. Department of Energy (DOE) for the proposed Yucca Mountain radioactive waste facility. This model failed, in part, because the DOE did not secure free informed consent from potential victims, did not disclose the complete risks to them, and severely limited all liability for the site. The conclusion to draw from cases like Yucca Mountain is not that compensation for environmental injustice is unworkable but that not all compensation schemes are just and reasonable.[55]

Overview of the Book

The chapters of this book do not focus primarily on specific solutions to EJ problems because such solutions are better proposed by engineers, sociologists, political scientists, attorneys, and psychologists.[56] Nevertheless the book provides an analysis of EJ problems, a theoretical defense of citizens' duties to become EJ advocates, and a number of practical steps for realizing those duties. I defend five preliminary conclusions: (1) Because EJ problems threaten both human welfare and basic ethical notions such as free informed consent and equality, there are ethical grounds for remedying them. (2) Such remedies need to include both (procedural or) participative and (substantive or) distributive reforms in policy-making about environmental risks. (3) Remedies for environmental injustice also need to take account of the eth-

ical, scientific, and case-specific complexities of EJ problems. (4) Virtually all citizens have duties to engage in EJ advocacy, and these duties may be realized through participation in nongovernmental organizations (NGOs) dedicated to EJ. (5) Although corporations and governments are proximately responsible for EJ, especially in a democracy the people themselves are ultimately responsible.

Chapter 2 grapples with some of the conceptual difficulties associated with defining "equity" and "equality." It provides a partial cultural, historical, and ethical explanation for why inequitable geographical distributions of environmental impacts have occurred and for how particular groups have had less power in environmental decision-making. The chapter also argues for a principle of prima facie political equality (PPFPE) as the basis for resolving and clarifying situations of environmental injustice. It likewise provides some criteria for assessing attempts to justify unequal treatment. After all, not all unequal treatment, or unequal distributions of goods, is wrong. Only morally irrelevant discrimination is wrong. Finally the chapter summarizes a procedural and participative approach for democratizing decision-making about environmental risks and making it more just.

After analyzing the ethics of equality in chapter 2, the subsequent chapters discuss in detail a variety of EJ cases and concepts. Chapters 3 through 8 focus on procedural justice (chapter 3), free informed consent (4), intergenerational equity (5), paternalism (6), moral heroism (7), and just compensation (8), as these ethical problems arise in environmental justice cases. Chapters 3 through 8 evaluate EJ problems facing Appalachians (3), African Americans (4), future generations (5), Native Americans (6), workers in hazardous jobs (7), and people in developing nations (8). In general, each chapter analyzes a particular case in detail, evaluates objections to the charge of environmental injustice, and summarizes what might be done, in part, to correct the situation. Chapter 3 provides two examples of environmental inequities, one in valuing Appalachian coal land and the other, California farm land. In order to help avoid unequal opportunity and unequal access to land, the chapter argues for extensive land use controls and answers key objections to them. It concludes that there are good grounds for limiting property rights to natural resources such as land, so as to help ensure procedural justice for people in resource-rich areas.

Just as Appalachians have been victimized by absentee coal landlords who impose both distributive and participative environmental injustices on them, African Americans face analogous problems. Just as chapter 3 evaluates the disparate impacts associated with unequal access to natural resources, chapter 4 outlines the disparate impacts associated with inequitable distributions of pollution. It analyzes the ethical errors arising when a multinational corporation attempted to site a noxious and unneeded uranium enrichment facility in a poor African-American community in northwestern Louisiana. The corporation violated norms of free informed consent in attempting to site the facility, and the environmental impact statement disregarded a variety of

norms of good scientific practice. The case is important because it was the first major environmental justice victory in the United States. In May 1997 the Nuclear Regulatory Commission denied the facility the required permits for its construction and licensing.[37] Because many EJ problems concern energy production, the chapter closes with an outline of an environmentally just, economical energy strategy.

Chapter 5 examines the threats to intergenerational, or temporal, equity presented by permanent disposal of high-level radioactive waste. It argues that there are utilitarian and duty-based, as well as procedural, reasons for avoiding the situation of environmental injustice that these geological facilities create. Most important, it argues that current policies of permanent disposal violate traditional norms of free informed consent. It closes by suggesting a possible way of reducing environmental injustice by using negotiated, monitored, retrievable storage facilities for the waste.

Chapter 6 argues that American Indians already have borne a great environmental burden because of uranium mining in the United States. After discussing the concept of paternalism, the chapter shows that rejecting proposals to site waste facilities on Native-American land, like that of the Mescalero Apaches, is not paternalistic.

Chapter 7 addresses one of the prominent ways in which middle-class citizens face environmental injustice. They often labor under a double standard for workplace health. According to this double standard, workers are allowed to receive higher levels of exposure to pollutants than are members of the public. Chapter 7 explains that the traditional rationale for this double standard is Adam Smith's compensating wage differential (CWD), the notion that because workers facing riskier jobs receive higher pay for such work, therefore their extra compensation justifies their facing higher risks than the public. Arguing both that the CWD is questionable in theory and that in practice not all workers in risky jobs receive it, this chapter challenges the theory of CWD on grounds of environmental injustice.

Some of the most extreme environmental injustices are those that developed nations impose on developing countries. Chapter 8 examines the claim that citizens in developing areas do not have the same rights to protection against environmental threats as those in the West. It surveys the main arguments that people use when they attempt to justify unequal environmental protection, and it outlines the major ethical responses to them. It concludes that those in developing nations do have rights to equal protection, but that special care is necessary to help ensure those rights, particularly through the personal responsibility of citizens in nations that impose the risks. The chapter concludes with a discussion of citizen obligations—particularly through nongovernmental organizations (NGOs)—to work for the environmental protection of those in developing nations.

The final chapter continues the last theme of chapter 8. It argues that the work of preventing environmental injustice should be the work of ordinary citizens everywhere. The chapter also shows that typical objections to EJ ad-

vocacy are based on mistaken notions of objectivity, neutrality, and the common good. Instead of blaming corporations or governments for environmental injustice, this chapter argues that, in a democracy, we the people have the justice, the government, and the lives we deserve. Because we in the developed world can make a difference, the final chapter argues that we have a political and environmental duty to do so.

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2 Distributive Justice, Participative Justice, and the Principle of Prima Facie Political Equality

When Thomas Jefferson served as ambassador to France from 1784 to 1787, the plight of the people there troubled him. He wrote to James Madison that France had "enormous inequality" that produced "misery at the bottom and mischief at the top." In a letter to his Italian friend Bernardo Bellini, Jefferson observed that such radical inequality of property forced every French person to be "either the hammer or the anvil." Instead Jefferson argued for distributive justice, for a more equal sharing of goods and resources, especially land. He also argued for participative justice, for equal rights in democratic decision-making. A decade earlier, after Jefferson wrote *A Summary View of the Rights of British America*, the British government had charged him with treason, condemned him, and denied his civil liberties. His fellow Americans often did not treat him much better. From 1790 through 1793, when Jefferson served as secretary of state, many Americans shunned him for being too egalitarian. Only three families in class-conscious, aristocratic Philadelphia would even dare invite him into their homes.[1]

If even Thomas Jefferson had trouble getting others to accept his appeals for greater equality, it is not surprising that victims of environmental injustice often fail to do so. As already noted, although the environmental justice movement began with the 1982 African-American protests in Warren County, North Carolina, the citizens there did not gain more equal treatment. They were forced to take thousands of barrels of PCB waste that other towns refused to accept. The community enjoyed neither equal distribution of pollutants nor equal voice in the decision about where to place the PCBs. In environmental matters, as in other areas of justice, often wealthy people have advantages over poor; often whites have advantages over people of color; often men have advantages over women; often heterosexuals have advan-

tages over homosexuals; and often physically healthy people have advantages over handicapped.

Overview

To correct problems of environmental justice, it will be necessary to improve the principles and practices of distributive justice—equal apportionment of social benefits and burdens, such as toxic waste dumps. It also will be necessary to reform the principles and practices of participative justice—equal rights to self-determination in societal decision-making. Both these reforms first require that we rethink our principles of equal justice and how to apply them. This chapter begins that rethinking. First, I explain and defend the *principle of prima facie political equality* (PPFPE), its components of distributive and participative justice, and then answer objections to it. Second, I explain how some uses of science can contribute to violations of the PPFPE. *Third, I show how appeals to the war power, preemption, interstate commerce,* and eminent domain may violate EJ and the PPFPE. Finally, I explore a case study on offshore oil development to illustrate the sort of EJ analysis that the PPFPE requires.

The Principle of Prima Facie Political Equality and Distributive Justice

The PPFPE, to be defended in this chapter, includes components of both distributive justice and participative justice. This section deals with the notion of distributive justice; the next section addresses the concept of participative justice.

Distributive justice is essential to the search for environmental justice because it requires a fair or equitable distribution of society's technological and environmental risks and impacts. It refers to the morally proper apportionment of benefits and burdens—such as wealth, opportunity, education, toxic waste dumps, dirty air, and so on—among society's members.[2] For many ethical theorists, 'justice' is defined almost completely in terms of distribution, either of material goods such as wealth or of nonmaterial goods such as equal opportunity. John Rawls, for example, defines 'justice' as providing a standard by means of which society can assess the "distributive aspects" of its basic structure.[3] Bruce Ackerman defines the problem of justice as that of determining the initial entitlements of a scarce resource, "manna," which is convertible into any social good.[4] And many moral theorists, such as Onora O'Neill and Edward Nell, assume that the primary difference between socialist justice and capitalist justice is in their principles of distribution.[5]

What principles of distribution are required in order to address EJ problems? Presumably the principles ought to require that, all things being equal, rich and poor, colored and white, educated and noneducated, be treated

equally in the distribution of society's environmental benefits and burdens. Otherwise, geographical distribution of environmental goods may be merely a matter of accident, money, or corrupt use of power. But what should the desirable principles of equality be like?

United States history gives some indicators of attempts to achieve distributive and participative equality among different regions of the country. In fact, the U.S. congressional committee system has always been aimed at geographical balancing in the distribution of government expenditures such as military procurement and pork-barrel public works projects.[6] In more recent years, states such as California and Massachusetts have formally adopted balancing strategies designed to control urban growth.[7] Despite such efforts, analysis of distributive impacts has seldom been part of technology assessments and environmental impact statements,[8] even though the 1969 NEPA and Clinton's 1994 executive order on EJ attempted to reverse this trend.[9] The trend is surprising, given that distributive impacts of technology- and environment-related projects fall quite differently on different communities. A substantial amount of sulfate pollution in eastern states such as Pennsylvania, for example, is the result of emissions from coal-fired plants located hundreds of miles westward in Ohio and West Virginia. Likewise, much of the continued commercial and industrial development in Los Angeles is dependent on its importing scarce water from other areas of the Southwest, many of which also need water.[10] And, as previously mentioned, the most serious problems of pollution and lack of access to natural resources fall on African-American, Native-American, Latino, and Appalachian communities. To correct all these problems, society obviously needs a clear principle of equality. What the principle should be like, however, is controversial. The notion of equality has a long history,[11] and many people deny that there is any sense in which equality is a principle of justice.[12] Part of the difficulty also is that there are different formulations of equality principles.[13]

Most people appear to agree that some inequalities among people (e.g., in educational achievement) are less avoidable because they are based on natural capacities, while other inequalities (e.g., in wealth) are more avoidable because they are a result of social roles or socialization.[14] The second, or social, category includes *political equality* (equality of treatment under the law) and *economic equality* (equality in the distribution of wealth). Political equality is closely related to economic equality because it often requires economic equality, at least in the sense of equal economic opportunity. Otherwise political power is likely to be controlled by economic power. Numerous studies have shown, for example, that the greater a defendant's wealth, the less likely it is that a court will find him guilty of the crime with which he is charged.[15] More generally, factual inequalities of condition and differences in the distribution of wealth militate against both equal opportunity and political equality.[16] Nevertheless, people usually disagree over principles of economic *equality* in the distribution of wealth,[17] even though they tend to accept equal opportunity and political equality. Political equality, in particular, can be defended on at least four grounds.

1. The comparison class is all humans, and all humans have the same capacity for a happy life.[18]
2. Free, informed, rational people would agree to a principle of political equality.[19]
3. This principle provides the basic justification for other important concepts of ethics and is a presupposition of all schemes involving justice, fairness, rights, and autonomy.[20]
4. The idea of law itself presupposes equality of treatment for persons similarly situated.[21]

Perhaps the most significant of these considerations are (3) and (4). They amount to the claim that accepting a principle of political equality is necessary in order to ensure fairness and consistency. The main interpretational question, however, is "What sort of political equality is required as a basis for fairness and consistency?" Does equality of treatment mean giving everyone the *same* treatment? Probably not, because there are not always morally relevant reasons that everyone ought to receive the same or identical treatment. In fact, genuinely *equal* treatment (proportional to the strength of one's claims to it) might require that treatment for all individuals not be the same, so as to take account of some individuals' higher *merit*, their deserving *compensation*, their special *needs*, or society's need to offer them an incentive for desirable actions. For example, if society needs the services of the president of the United States, then one ought to permit the president to have better police protection than most other people.

But if treatment ought not always be the same, what is it that should be consistent? The legal philosopher Ronald Dworkin maintains that everyone ought to receive the same, or consistent, *concern* and *respect* in the political decision about how goods, treatment, and opportunities are to be distributed.[22] The point is not that anyone ever may ignore another's basic rights but that one person's interests sometimes may outweigh another's. For example, in certain circumstances, the policy of protecting the president of the United States may outweigh protecting a particular citizen, provided the policy gives all people the same respect.

If this reasoning about sameness/equality and treatment/respect is correct, then allowing someone to impose unequal environmental burdens on a community may not always violate principles of political equality. To establish that the distribution violated principles of political equality, one would have to argue either that there were no morally relevant reasons for different treatment or that the interests of some group were wrongly judged to outweigh those of another. Only a case-by-case analysis, not merely different treatment, is sufficient to show violations of political equality. Because of the importance of case-by-case analysis, each chapter of this book focuses on a different environmental justice problem arising in a different case. Each chapter also examines whether, in a given case, policy analysts tend to judge correctly that one community's interests outweigh those of another.

Arguing (as preceding paragraphs have done) for a principle of political equality, but admitting that sometimes good reasons may justify treating groups differently, is arguing for a principle of prima facie political equality. The PPFPE presumes that equality is defensible and that only different or unequal treatment requires justification,[23] that the discriminator bears the burden of proof. Not to put this burden on the possible discriminator would be to encourage power, rather than fairness, to determine treatment under the law. Two of the goals of the PPFPE are to help ensure equal distribution of environmental impacts and to place the burden of proof on those attempting to justify unequal distributions. Attaining this second goal would provide the people of various geographical regions, particularly those inhabited by poor or powerless people, with the presumption that they should be treated equally.

The Principle of Prima Facie Political Equality and Participative Justice

Distributive justice in the allocation of environmental impacts, however, is necessary but not sufficient in order to promote environmental justice. No purely distributive system is sufficient to promote justice, as Iris Marion Young correctly observes, because purely distributive paradigms tend to ignore the institutional contexts that influence or determine the distributions.[24] Young gives the example of the citizens in a community who organize to protest a large hazardous waste treatment plant in their small town. She claims that these protests are not mainly about the justice of material distributions but about the justice of decision-making power and procedures. They are about the fact that no one ought to deny the citizens' rights to evaluate and perhaps reject the hazardous facility that puts them at disproportionate risk. Participants in the 1992 National People of Color Environmental Leadership Summit recognized this fact. When they adopted 17 principles of environmental justice, they explicitly demanded participative justice. Their fifth principle affirmed the right to self-determination of all people, and their seventh principle asserted: "Environmental justice demands the right to participate as equal partners at every level of decisionmaking."[25]

As Michael Walzer realizes, philosophers' criticisms of the injustice of a social system are incomplete if they amount only to the claim that some important good (in this case, environmental welfare or public health protection) should be more widely distributed or that some monopoly on this good is unjust. Following Walzer, it is important to recognize that people should correct the unjust structures and procedures of dominance, as well as the flawed distributions of some good. Otherwise people will not correct the real causes of injustice. But correcting democratic procedures and structures is a cumbersome task that is not likely to be completely successful, in part because it

requires constant attention and reworking. If Walzer is right, this reworking requires that, just because people have one sort of good (like money), this should not automatically give them access to other sorts of goods (in this case, environmental welfare). By breaking the dominance of some goods over access to other goods, he believes people can help to ensure that the dominance of a group over another good is not unjust.[26] One way to break this dominance is to use a principle of participative justice to evaluate and amend the social structures and procedures that produce flawed distributions.

In attempting to define a principle of participative justice as part of the PPFPE, one is seeking to remove the unjust constraints that some people have over other people's lives and actions. When the state of North Carolina imposed a substandard dump for PCBs on members of a poor, African-American community who had no power to reject it, who faced resulting serious health threats, and who were not compensated, it imposed unjust constraints on the people of Warren County. To combat such injustice, a principle of participative justice is needed to help ensure that there are institutional and procedural norms that guarantee all people equal opportunity for consideration in decision-making. Otherwise, victims of unequal opportunity are more likely to experience exploitation, marginalization, powerlessness, and violence.[27] One way to achieve participative justice in environment-related decision-making is to follow the PPFPE, according to which stakeholder and expert deliberation are given equal weight. This balance, as articulated in the 1996 National Research Council (NRC) report *Understanding Risk in a Democracy*, is necessary to offset the many private interests involved in environment-related actions.[28] The parity also is necessary to demystify the ideology that often surrounds expert claims. Choosing to site a risky plant is not merely a matter of what experts say is safe enough but also a matter of what stakeholders say is informed enough, compensated enough, and fair enough.

There is no need to repeat here the NRC's lengthy considerations supporting and interpreting the principle of participative justice that is part of the proposed PPFPE. Nor is there need to repeat the ethical rationale for the principle, already given my book *Risk and Rationality: Philosophical Foundations for Populist Reforms*. Its arguments show that lay or stakeholder evaluations of environmental risk are usually not irrational, as experts often claim,[29] and that experts typically misdefine "objectivity" as freedom from all values rather than as freedom from bias values.[30] Examining a number of risk methodologies and case studies, the book likewise argues that experts often denigrate lay risk evaluations while they ignore the subtle contextual, methodological, or bias values that appear in their own work.[31] In order to achieve participative justice in environmental decision-making, the book calls for "scientific proceduralism"—for a system of methodological, legal, and procedural reforms that encourage rational public debate, full negotiation about environmental controversies, stakeholder funding, alternative experts, adversary assessment, and reform of existing toxic-tort law. Most im-

portant, scientific proceduralism specifies norms for paticipative justice that guarantee citizens and environmental stakeholders both equal decision-making voice with experts and the same rights to consent, due process, and compensation that medical patients have.[32]

Objections to the Principle of Prima Facie Political Equality

In response to this brief defense of the PPFPE, what objections might arise? Utilitarian ethicists might claim that following the principle would not lead to the greatest amount of good for the greatest number of people. Some economists probably would object that following the principle would interfere with economic progress. And proponents of technological advancement might argue that technological development, not redistributive schemes based on PPFPE, is likely to do more good in promoting environmental justice. I will consider each of these objections.

Utilitarian Objections to the Principle of Prima Facie Political Equality

One of the strongest arguments against formally adopting the PPFPE comes from act utilitarians. They believe that ethical behavior is based not on following a rule or principle (like equality) but, instead, on choosing the *act* whose consequences maximize utility or lead to the greatest overall good for the majority of people. Act utilitarians' rejection of the PPFPE, in favor of utilitarianism, is important because they admit that they sacrifice individual rights, like equality under the law, to the alleged common good. Nevertheless, they claim that such rights violations minimize human suffering and maximize social improvement more than would acceptance of more egalitarian principles, such as the PPFPE.[33] Hence they give prima facie assent to no rights or principles of equality. They prefer to maximize efficiency rather than equity.[34]

Although utilitarians make the goal of pursuing equality theoretically subservient to that of maximizing overall welfare,[35] they may not use this ordering much in practice. As Richard Brandt points out, "most utilitarians think that inequalities of distribution tend to reduce the total welfare." As a result, he says, they favor equal distributions of costs and benefits "except as there are special reasons to the contrary."[36] If Brandt is right, even utilitarians may recognize that inequalities can reduce utility; encourage resentment, snobbishness, and competition; and lead the rich to lose the values of hard work and social concern. Even utilitarians recognize that equality of distribution usually makes sense because of the declining marginal utility of income. Moreover, as the four considerations listed earlier indicated, the PPFPE is really a principle of impartiality and consistency,[37] one nearly universally accepted. As Pennock points out, most people who have defended racism or

anti-Semitism have claimed to accept a principle of equality and impartiality but argued that certain facts justified their favoring unequal treatment in a given situation. Such "facts" have included claims of conspiracy or moral inferiority (against African Americans, for example).[38] Proponents of apartheid have invoked an Aristotelian principle of equality but argued that different races need different treatment to attain their different goals.[39] Likewise, when people fought against women's suffrage at the turn of the century in the United States, most accepted principles of equal treatment but argued that women were by nature unable, or by circumstances unready, to exercise political power.[40] Such examples suggest that, in practice, even utilitarians probably adhere to something like the PPFPE.[41]

To employ the PPFPE in EJ cases, one must determine what constitutes relevant and irrelevant differences in treating similar cases similarly.[42] Obviously the color of someone's skin does not constitute a relevant difference, but severe mental illness might. For example, mental illness might be a good reason for discrimination against a person regarding his right to bear arms.

Economic Objections to the Principle of Prima Facie Political Equality

Traditionally one of the most common "good reasons" for discriminating among equals and rejecting the PPFPE has been that the discrimination supposedly serves a higher interest, that of freedom.[43] The person who wants segregation in the schools, for example, may say that integration has resulted in violations of freedom of association.[44] Likewise, as the case in chapter 4 illustrates, some proponents of community *freedom* and economic growth often argue that federal standards for certain industrial emissions are so strict that they do not allow for unhampered economic development.[45] And apart from whether unhampered economic development justifies health or safety discrimination against minorities,[46] some discrimination is unavoidable. And if so, not all discrimination can be prohibited as unjust.[47]

When is discrimination just? John Rawls says that people ought to allow inequalities only if there is reason to believe that the practice involving the discrimination will work for the advantage of the least well off, and therefore presumably for the advantage of everyone.[48] Presumably those—who sanction apparent environmental injustice—believe that permitting inequitable distributions of environmental costs and benefits will work for the ultimate advantage of everyone, or that "the economy needs" the risky technology,[49] or that given pollution control standards are not cost effective.[50] That is, if one puts the most favorable interpretation possible on allowing distributive and participative inequalities, their defenders must believe they are "required for the promotion of equality in the long run." Almost any other defense would be flawed because it would be open to the charge that it presupposed using some humans as means rather than treating them as ends in themselves.[51] As one prominent science editor put it, "if the industrial

economies of these [developed] countries were not encouraged to grow," they would not be able "to provide the materials necessary for removing the disparity between nations. Technology can make a direct contribution to the improvement of the lot of developing nations."[52] Other authors defend the inequalities associated with economic growth as necessary to help low-skilled people of color, to "bring a decent living at the lowest possible cost to the largest possible number of people"[53] or to avoid a primitive state where injustices are more troublesome than they are today.[54]

The basic problem with using the preceding "economic progress" argument to justify environmental injustice is that it contains several highly questionable factual premises. One doubtful premise is that economic development, accompanied by unequal environmental standards or protection, actually creates more market value than does environmentally just economic development. This premise is doubtful because many authors have shown that stringent and equal global corporate environmental standards are competitive assets for the companies using them; in fact, firms having single stringent global environmental standards perform better economically than firms defaulting to less stringent, or less well enforced, environmental standards.[55]

Another doubtful premise is that economic expansion, and its attendant inequitable pollution and development, will lead to greater equality of treatment in the long term. Given past experience, there is little basis for accepting this premise. One reason is that, in the United States in the last century, although there has been an absolute increase in the standard of living, the relative shares of U.S. wealth have not become more equal. In 1970 the poorest 20 percent of persons received 4.1 percent of U.S. income, and in 1995, they received only 3.7 percent. The richest 20 percent of people received 43.3 percent of U.S. income in 1970, but 48.7 percent in 1995. The top 5 percent of U.S. citizens received 16.6 percent of the income in 1975 but 21 percent in 1995. The three middle quintiles remained roughly constant.[56] If these data are correct, economic growth, and its accompanying inequalities, apparently have not helped to promote distributive economic equality in the United States. In fact, they may have increased economic inequality. Because of the close relationship between wealth and the ability to attain political equality and equal opportunity,[57] it is unlikely that economic growth, and accompanying environmental injustice, have promoted long-term equal treatment. One reason is that, as economist Ezra Mishan put it, the poor rarely share in the growth of real wealth; they are "isolated from economic growth."[58] Their isolation is the reason that three of four U.S. toxic waste dumps are in African American or Latino communities and that corporations have dumped 2 million tons of radioactive uranium tailings on Native American lands.[59] To alleviate these environmental injustices, only redistribution, achieved through political means, is likely to bring about a more egalitarian society. Economic progress tends to make inequities even wider.[60] But what if someone thinks that technological development, not the PPFPE, is the way to address environmental injustice?

Technology-Based Objections to the Principle of Prima Facie Equality

One reason that technological expansion does not ordinarily help to create a more equitable society is that technology generally eliminates jobs; it does not create them. In the last century, for example, the total employment in the manufacturing sector of the U.S. economy has declined; goods-producing industries have sought to use fewer workers and to increase the output per worker. As a consequence, "the productivity index is really an automation index," an indicator of the degree to which energy and technology have been substituted for jobs.[61] What new jobs have become available, especially in the last half century, typically have not been the consequence of technological growth but instead the result of an expansion of the service sector of the economy. Since midcentury, U.S. employment in service areas has increased 95 percent, more than in any other sector.[62] This suggests that increasing use of technology might neither help employment nor equalize opportunities within the political system. If anything, technological progress seems to exacerbate the plight of the poor and the vulnerable because they must compete more frantically for scarcer jobs.[63]

One of the most direct reasons that technological progress probably heightens both the plight of the poor and environmental injustice is that the poor bear the brunt of adverse environmental impacts such as lead poisoning.[64] Most environmental policies "distribute the costs of controls in a regressive pattern while providing disproportionate benefits for the educated and wealthy," who can afford them.[65] As a consequence, if people cannot pay for environmental quality, they cannot have it. Even when technological growth has brought increased employment opportunities, this often has been at the expense of the poor who usually live near technological facilities that present a health hazard. Often they cannot afford to move away. As a result, in 1996 the four tribunals on Industrial Hazards and Human Rights called for a new United Nations convention to protect victims of environmental injustice.[66] And as I showed in chapter 1, there is abundant evidence that a disproportionate number of deaths, among nonwhites and in low socioeconomic groups and developing nations, occurs as a result of environmental threats such as urban air pollution from sources such as asbestos, sulfur dioxide, and benzpyrene.[67] Various studies have shown that "those square miles populated by nonwhites and by all socioeconomic groups were the areas of highest pollution levels."[68] In fact, various adverse environmental and technological impacts are visited disproportionately on the poor while the rich receive the bulk of the benefits.[69] Owing to their poverty, those disproportionately burdened with environmental hazards are in a position of virtual helplessness. Their helplessness, however, is the key to arguing that environmental discrimination is a "bad" discrimination and that good reasons do not support it. As Hans Jonas expressed it, one has a moral obligation to protect the utterly helpless. Absolute helplessness demands absolute protection.[70]

To the extent that policy-makers or assessors believe that technological progress will dispel current inequalities in the long term, or that the PPFPE is not needed to address environmental injustice, or that it is permissible to discriminate against the poor via environmental inequalities, then to that degree they probably err. Geographical considerations alone are not morally relevant grounds for determining who ought to receive disproportionate environmental impacts. If all people deserve equal concern or respect in the political decision about how to distribute costs and benefits, then allowing an uncompensated group of individuals to bear more environmental burden, for no morally good reason, is an arbitrary discrimination. There is no morally relevant reason (e.g., merit, need) that where people live should provide sufficient grounds for discriminating against them. Such discrimination instead seems to serve the interests of expediency, of using humans as *means* to some commercial or industrial *end*. Moreover, there appear to be no morally relevant grounds for arguing that national interests outweigh those of communities subjected to disproportionate and uncompensated environmental risks or costs, because environmental evaluations rarely include analysis of distributive impacts. When they do, as the next section shows, the evaluations tend to provide no reason that other considerations ought to outweigh the PPFPE. And if not, it is reasonable to follow the PPFPE.

In response to this conclusion, critics of the EJ movement are likely to make several objections. One is that policy-makers must concentrate on evaluating measurable parameters, but distributive impacts are not measurable. According to this objection, evaluating such "subjective" social impacts would compromise the alleged objectivity, accuracy, and nonpartisan character of environmental impact assessment (EIA).[71] There are several replies to this objection. First, to concentrate only on measurable quantities begs the question of what impacts one ought to evaluate.[72] Instead the objector needs to show that only measurable factors are important. Second, there are several quantitative ways to measure adverse geographical impacts such as environmental injustices. For example, property values often decrease, or premature deaths frequently increase, in regions of high pollution.[73]

A second objection to the conclusion, that it is reasonable to follow the PPFPE, is that distributive environmental inequalities involve no questions of justice but only questions of technological progress. As one author put it,"no issue of justice is involved in the question whether a new highway should be built. This is purely a question of utility . . . whether the benefits of it would outweigh the cost. This is no more a question of what justice requires than is the question whether one should buy his wife a new coat."[74] Road building, however, is not merely a matter of utility because it is subject to the rights and duties mentioned in the U.S. Constitution. As such, it is a legal, public, societal issue. But buying a coat is not a legal, public, or societal issue. Obviously, the objector has *defined* the problem as not involving distributive equity and therefore environmental justice.[75] However, questions of costs and benefits obviously can be issues of equal treatment, not merely utility, because distributing health costs unequally could affect

people's opportunities to obtain equal political treatment. And issues of equal treatment clearly involve problems of justice, participation, and equal opportunity, as well as utility.[76]

How Careless Use of Science Can Encourage Environmental Injustice

If the PPFPE appears defensible on ethical and practical grounds, and if it is somewhat able to withstand objections to it based on utilitarian, economic, and technological grounds, then an obvious question is why environmental decision-makers do not employ it. Why does so much environmental injustice continue to exist? At least two responses come to mind. Often particular scientific methods encourage one to excuse both environmental injustice and the PPFPE that might challenge it, and often centralized decision-making encourages leaders to ignore both environmental injustice and the PPFPE that might challenge it. I will examine each of these problems.

One reason that environmental injustices have not been treated adequately, if at all, in most technology and environmental impact assessments is that the *methods* used to measure various distributions of social impacts remain problematic. There simply are no sophisticated means of distributed benefit-cost analysis, as opposed to well-developed methods of aggregation.[77] Instead, assessors aggregate costs and benefits. Aggregation, a simplifying assumption built into benefit-cost analysis, stipulates that nonhomogeneous data (e.g., costs of both onshore and offshore oil production) may be lumped together for purposes of theoretical convenience. In the case of offshore oil production, the convenience consists of having a measure of the total costs of oil production. Despite the fact that use of this econometric assumption (aggregation) enables one to fit the complexities of the real world into variables that can be handled by a simple model, it leads to inaccuracies. In the oil production illustration, for instance, uncritical use of aggregated data might lead one to conclude that production of natural gas is always cheaper than production of domestic oil for generating electricity. In reality, however, it could be that natural gas provides a cheaper power source than *offshore*-produced oil but a more expensive one than *onshore* oil.[78] Ethical problems also arise from questionable aggregations of data, as when one averages high-pollution, inner-city air samples with those from rural areas. The average aggregate air quality may appear acceptable when it is not.[79]

Although use of the aggregation assumption can lead to false or unethical conclusions, its inaccuracies are less susceptible to detection when one employs aggregated data that are thought to be homogenous. Often data are so complex that scientists may forget subtle differences within them. This lack of recognition often occurs, for example, when researchers who did not collect or develop the data use them. Average air pollution data, for example, hide enormous air pollution differences. When aggregated data are com-

bined with other statistics, the limits of their validity are likely to be even less obvious,[80] as when economists define "public welfare," for example, as an "aggregate of preferences."[81] They take account neither of individual deviations from this aggregate, nor of the fact that some preferences are irrational, nor of the undesirable consequences of following a method based on the "tyranny of the majority." As a result, econometric data and models may be less accurate and ethically defensible than thought. As one assessor put it:

> Aggregated national economic and census statistics say nothing about pockets of poverty, depressed communities, sick industries, or deprived social groups. These are averaged out, and so long as the averages appear favorable, there is no indication of, or data on, regional or local problems.[82]

Economists also often narrowly conceive benefit-cost analysis (with its attendant use of aggregation) in ways that avoid the evaluation of distributive inequalities,[83] despite the fact that both NEPA and President Clinton's 1994 executive order mandated such evaluations. And because NEPA requires only *considering* distributive impacts, rather than *preventing* them, it has rarely protected victims of environmental injustice.[84] Even the assessments completed after the 1994 Executive Order, requiring considerations of environment justice, often give inadequate attention to distributive and participative justice. Although they usually contain single paragraphs or short sections that generally discuss environmental justice and disparate pollution impacts, nevertheless they rarely conclude that such disproportionate impacts are cases of environmental injustice. For example, consider the 1999 Los Alamos (New Mexico) environmental impact assessment of radiological impacts of expanded operations, the 1999 Yucca Mountain (Nevada) EIA for the proposed waste repository, and the 2000 Yellowstone (Montana/Idaho) EIA for the waste incinerator. These respective EIAs show that heavy and disproportionate pollutant impacts would fall on Native American and Latino communities, if each of these facilities were allowed to operate as described. Yet, as I show in chapter 9 in more detail, each EIA merely concluded, without discussion, that despite the disparate impacts on minorities, there was no violation of environmental justice.[85] The moral of this story is that both the 1969 NEPA and the 1994 Executive Order can require *considering* disparate distributive impacts and environmental injustices, but neither can require *preventing* them. Further procedures and laws seem necessary to achieve prevention.

A recent study of coal-slurry pipelines, for example, illustrates typical distributive-impact problems. The assessors made several brief, qualitative references to the fact that use of the pipelines would cause coal-producing areas in the western United States "to suffer adverse impacts, like increased competition for water, while the benefits [of the technology] accrue to other parts of the nation."[86] In examining the net economic impact of the pipelines, however, the analysts ignored the regional costs associated with using scarce water resources. Instead they employed only a few of the easily quantifiable

market costs related to slurry technology (e.g., pumping water for use in the pipelines) and ignored the more massive, resource-depletion costs to the West. After having examined only a subset of the threats to the western region, the authors of the report concluded: "slurry pipelines can, according to this analysis, transport coal more economically than can other modes [of transport]."[87] The obvious question is: "More economically for whom?" Perhaps for easterners who want the coal. Certainly not for westerners who need the slurry water for other purposes.

Likewise, in a report on liquefied natural gas (LNG) transport technology, the authors did no analysis of the problems of environmental justice and regional equity. Citizens living near LNG facilities are especially concerned about equity issues, because the federal government (through the Federal Power Commission) has the "right" to force a LNG terminal on an unwilling community. Because of the tendency of the gas to vaporize, flame, and explode over great distances, residents of ocean ports (with LNG facilities) obviously bear a disproportionate, and often involuntarily imposed, cost of the technology. Yet owing to liability limitations, those injured by a LNG accident are left with little or no effective compensation. With regard to such inequities, the LNG assessors merely noted that the federal government has the *legal right* to overrule the state on siting decisions, and that insurance problems following LNG accidents "are not greatly different" from, and are consistent with, those consequent upon other catastrophes, such as nuclear accidents. Obviously, however, consistency is not a sufficient condition for determining the ethical justifiability of a particular policy. If it is wrong to deprive a community of the rights to collect full damages after a technology-related LNG accident, this action does not become just merely because some other communities face the same problem from other technologies, such as nuclear power. Quite typically, the LNG assessors concluded that the technology and U.S. Coast Guard standards were cost-effective in ensuring safety.[88] Nevertheless, the obvious questions remain: "Cost-effective for whom? And for whose safety?" Perhaps for LNG shippers and owners. Certainly not for the onshore community facing a liability limit after an LNG accident.

Federal versus Local Control of Siting: Balancing Equity and Utility

As the coal-slurry, LNG, Los Alamos, Yucca Mountain, and Yellowstone incinerator examples suggest, and as subsequent chapters will show, there are basic questions of political and ethical philosophy underlying applications of the PPFPE. When state or federal environmental projects place disproportionate costs on a community, ought the federal government to preempt local control of those projects? When is consent or compensation required? Or when should the government prevent supposed environmental injustice?[89]

Centralized versus Grassroots Decision-making

Such questions are problematic in part because state or federal decision-makers often can allow apparent environmental injustice in the name of the greater good. Today the DOE wishes to open the Yucca Mountain high-level nuclear waste facility, but nearby residents of Nevada and Native Americans do not want the dump.[90] In such situations, many ethicists and policy-makers say it is necessary for the federal government to have controlling power

1. to protect the environment and to avoid "the tragedy of the commons";[91]
2. to gain national economies of scale;[92]
3. to avoid regional disparities in effective representation of all sides to a dispute;[93]
4. to compensate the victims of one region for spillovers from another locale;[94] and
5. to facilitate "the politics of sacrifice" by imposing equal burdens on all areas.[95]

Although historically American political philosophy has relied on the presumption of decentralized decision-making, reasons such as the previous five have led to congressional legislation overriding the presumption.[96] Largely within the last several decades, responsibility for environmental policy has shifted from states and communities to the federal government, in part because the federal government has been able to act more efficiently, the states have been unable to control environmental degradation,[97] and the federal government has been more able to control powerful vested interests.[98] In more recent years, however, with the EJ movement and with widespread NIMBY sentiment, local communities sometimes have been able to block noxious facilities.[99]

Increased federal or centralized authority over environmental and technological projects, however, can be a mixed blessing. In attempting to equalize technology-related inequities and to achieve consistent national environmental standards, the federal government often has threatened local autonomy and created new EJ problems. For example, the federal government prevents states from strengthening current federal radiation standards for nuclear plants within their borders, even though any amount of radiation is carcinogenic, mutagenic, and teratogenic.[100] As a consequence, those who favor local control challenge federal decision-making on at least six grounds.

1. Local policy-making promotes *diversity*, because it is better able to reflect geographic variations in preferences for goods. For example, a community may decide to license an electrical generating plant if it is needed for a new subway system but not for resort development.[101]
2. Local policy-making offers a more flexible vehicle for experimenting with government laws and regulations and for promoting the utility and *self-determination* of the local community.[102]

3. Regional control enhances citizens' *autonomy* and liberty by giving them the capacity to satisfy their tastes for specific conditions of work/residence/recreation.[103]
4. Regional control of noxious facilities encourages *community* among citizens through participation and self-education in governmental decision-making.[104]
5. Local policy-making also enables communities to avoid *environmental injustice*—inequitable sacrifices for the sake of alleged national goals.[105]
6. Finally, regional control, especially of noxious facilities, leads to an increase of *equality* among persons and to protection against violations of rights.[106]

On the one hand, avoiding environmental injustice is desirable.[107] On the other hand, there are obvious instances when (for the sake of everyone's survival) federal policies ought to preempt all others, for example, in wartime. Perhaps history provides some insights about how to balance local autonomy with national needs.

The War Power, Preemption, Interstate Commerce, and Eminent Domain

Throughout U.S. history, there have been at least three, and perhaps four, classes of cases in which policy-makers have allowed federal control legally to supersede that of state and local authorities. Appealing to the war power, preemption, interstate commerce, or eminent domain, federal authorities in these cases have been able to impose unequal burdens on individual communities.[108]

The *war power* presents a clear instance in which federalism, legitimately applied, is necessary for national security and unity in a time of stress. During the Second World War, for example, the war power enabled the federal government to impose unequal nuclear risks on citizens living near Los Alamos. What is peculiar to application of the war power in environmental matters, however, is that government leaders often invoke it when there is neither a war nor imminent threat of one. They have used the war power in peacetime, for example, to push nuclear power plants on unwilling states.[109] And in *Ashwander v. Tennessee Valley Authority*, the Supreme Court allowed the construction of a dam and electrical generating facility on the basis of the war power and "national security," even though it took place during peacetime.[110] In both these typical cases, the problematic issue is what constitutes "national security." Apart from whether the war power ought to be invoked in a particular case, people could use spurious claims of "national security" to expand federal authority and to impose technological and environmental burdens on unwilling communities.[111] But if so, then assessors ought to use the PPFPE to evaluate "national security" defenses of alleged environmental injustices.

A second, historical justification for federal authority to impose environmental burdens is *preemption.* The basis for federal preemption (of local control over a project) rests with the supremacy clause of the United States Constitution (article 6, clause 2). The doctrine provides that the Constitution and the laws of the United States shall be the supreme law of the land. Where a "state law stands as 'an obstacle to the accomplishment and execution of the full purposes and objectives of an Act of Congress' the federal statute prevails and the state law is invalidated."[112] Although the general criteria for the courts' allowing preemption are clear, their application to particular cases has been imprecise and inconsistent.[113] In numerous instances the federal government has granted the states the right to develop environmental standards more stringent than federal guidelines, on the grounds that they have primary responsibility for the health and safety of their citizens. In several selective classes of cases (e.g., those involving radioactive pollution), federal authorities have denied the states this right, and they have upheld federal preemption.[114] Federal courts also have successfully used preemption to prevent the states from challenging federally imposed liability limits in the case of a nuclear accident.[115]

While most persons probably would agree that invoking the preemption doctrine is sometimes necessary, for example, to invalidate state laws that are racist or sexist, other applications seem problematic, especially if they lead to environmental injustice. The preemption doctrine can impede those who are correct in challenging a sexist federal law, an environmentally racist federal project, or a federal denial of due process, as with nuclear liability. If a citizen, a minority community, or indeed a whole state disagrees with the federal position that radiation standards are safe, that nuclear liability ought to be limited, or that nuclear waste will not migrate off site, the federal government can discount those views, make an "expert" scientific decision, and preempt local or state laws,[116] as happened regarding the proposed Yucca Mountain high-level nuclear waste repository.[117]

In the case of nuclear energy, the federal government's historical power over interstate commerce has been the main justification for preemption of more protective state laws. Protecting interstate commerce arose out of the U.S. government's early concern about protecting the rights of private property and corporations against states that threatened them.[118] This political and legal development, plus the fact that corporations have been defined as persons under the Fourteenth Amendment to the Constitution, have permitted U.S. industry to operate largely without local restrictions[119] and thus to impose environmental injustices on unwilling communities.[120]

Although many states are challenging federal regulation of commerce and seeking to control the imposition of environmental burdens such as atmospheric pollution, noise, and nuclear waste,[121] the courts have determined that "private transport of pollutants between states constitutes interstate commerce."[122] Even the pipelines used for crude oil, gas, and natural gas, for example, are under federal (Interstate Commerce Commission) jurisdiction.[123] In one coal-slurry pipeline study, cited earlier, the authors said quite

bluntly that "any state prohibition [even in the western United States where water is scarce] or unusual restriction on the use of water for coal slurry may be an unconstitutional discrimination against interstate commerce in coal."[124] In the landmark case of *First Iowa Hydro-Electric Cooperative v. Federal Power Commission*, the Supreme Court ruled that where there is a national plan to promote interstate commerce, even in pollution, decisions must be made "by the federal government . . . on behalf of the people of all the states."[125]

Several doubtful assumptions appear to be built into policy on interstate commerce. One is that laissez-faire interstate commerce is desirable. The courts can declare illegal any state restriction, designed to guard the health and safety of citizens or to protect the environment, as "an unconstitutional discrimination against interstate commerce." Yet laissez-faire commerce ought to be tolerable only if it is in the public interest.[126] Quality of life ought not always to take a back seat to economic growth.[127] Consider the example of nuclear technology, where many federal–state conflicts have occurred. The federal government has preempted nearly all attempted state restrictions on nuclear power plant emissions, sitings, liability, and waste disposal on grounds of giving free rein to interstate commerce. In so doing, presumably the federal government believes that untrammeled development of interstate commerce in nuclear energy serves the public interest. But this belief would be true only if atomic energy were the only, or the cheapest and safest, energy option. It is not. As of the year 2000, nuclear energy is more expensive, per kilowatt hour, than all forms of generating electricity, except for oil, despite the fact that it is the most heavily subsidized energy technology of all time. There are cheaper, safer alternatives to nuclear energy, such as wind power. And if so, then even if one wishes to encourage interstate commerce in this technology, it may not be in the national interest to promote atomic energy,[128] particularly in the light of the Chernobyl nuclear accident and its 475,000 additional premature fatal cancers.[129] Moreover, why should the interstate commerce principle be interpreted to force all states to use a particular energy technology, when the U.S. Energy Reorganization Act of 1974 requires the United States to develop *all* energy resources?[130] If the interstate commerce principle does not always justify the exclusion of state and local EJ decision-making, then assessors arguably ought to use the PPFPE to evaluate invocations of the commerce principle.

A fourth means often used to justify U.S. preemption of state or local authority to prevent environmental injustice is the law of *eminent domain*. It stipulates that government has the power to purchase land to be used for some public purpose, such as a freeway. Because the Fifth Amendment to the Constitution prohibits the taking of private property without compensation, eminent domain requires landowners to sell their property to the government unless they can show that the government's appeal to eminent domain was arbitrary.[131] Because particular uses of land might not be in the authentic public interest, it is reasonable to use the PPFPE to assess effects of proposed use of eminent domain. More generally, because federalism could re-

sult in inconsistent policies, in environmental injustice, and in pursuing goals contrary to the common good, it seems reasonable to use the PPFPE to analyze the environmental impacts.[132]

A Case Study

To illustrate the potential for harm when assessors do not adequately evaluate unequal environmental impacts, consider the effects of current offshore oil and gas development. Such oil development poses a particularly interesting question of ethics. Should roughly half of all Americans, those who live or work within 50 miles of a beach, bear the economic and environmental costs of offshore oil technology while virtually all citizens receive the benefits? Although these unequal impacts do not affect mainly poor people and members of minority groups, nevertheless, examining this case study will help illustrate how to assess apparent EJ problems through the PPFPE. These problems have been significant, and they are likely to increase, in part because in the year 2001 the Bush administration began pushing for additional offshore oil and gas development. Assessment of this development began in November 1976, when the Office of Technology Assessment (OTA) completed its evaluation of offshore oil and gas technologies, *Coastal Effects of Offshore Energy Systems*.[133]

Regulation of Offshore-Energy Technology

United States companies now produce oil from developments off the coasts of states such as Louisiana, Texas, California, and Alaska, and they engage in exploratory drilling off many other coastlines.[134] Jurisdiction over these offshore oil and gas deposits has been subject to dispute since midcentury in the United States. By the Outer Continental Shelf (OCS) Lands Act of 1953, Congress and the federal government have exclusive control of these lands (that is, those beyond the 3-mile limit), their deposits, leases to them, and pipeline corridors within a state's territorial waters. Because the U.S. Geological Survey (USGS) has estimated that one-third of all U.S. oil reserves could lie in the OCS regions, and because roughly 50 percent of all U.S. oil is imported from foreign countries, there has been great pressure to develop OCS resources. Indeed, by the year 2005, the Senate Committee on Foreign Relations warned, foreign nations may supply two-thirds of all U.S. oil.[135] Congress passed the Coastal Zone Management Act (CZMA) of 1972 because "state and local arrangements for regulating coastal development were inadequate to meet the energy demand and to evaluate all national interests."[136]

The CZMA deals with all coastal areas and all land within 3 miles of the shore. Although the states theoretically have control over these regions, the CZMA and its 1976 amendments prescribe the necessary conditions for coastal development related to OCS oil activity. The act provides for matching grants (with the federal government paying up to 80 percent of the cost)

to states to plan coastal development, such as refineries.[137] Although the Commerce Department is responsible for making such grants, the secretary of commerce must approve formally all plans, contingent upon the state's taking "adequate consideration of the national interest" and establishing state and local implementation of the plan.[138] According to present procedures, the states and the general public may formally participate in decision-making regarding leasing OCS lands at only one point in the process, after the release of the draft EIA. However, they are allowed to challenge only the *procedures* by which the OCS decision was made and not the *substance* of the decision itself.[139]

Three Uncompensated Local Costs of Offshore Technology

Often, however, the substance of environment-related decisions, and the federal regulations governing them, are the key to EJ problems. When coastal residents oppose development of offshore energy technologies, usually they disagree with the relevant laws and procedures themselves, even when government does follow them perfectly. Coastal residents typically believe it is unfair that they have no decision-making power regarding whether to allow OCS oil development, while they must bear the uncompensated costs of oil spills. They say such a situation violates principles of participative justice. Moreover, insofar as assessors calculate oil-spill losses, they tend not to include damages to the public or funds necessary to handle liability claims but only the value of the product lost and the cleanup cost.[140] One government study provided data on how OCS development might expand employment and provide tax revenues, but it ignored the distributive costs of spills.[141] Such assessment methods skew the analysis in favor of the technology and its inequitable environmental impacts.

Using statistics from offshore oil development in the Gulf of Mexico, OTA estimated, for example, that in one Atlantic Coast region, the Baltimore Canyon, the United States could expect 18 spills (releasing about 40,000 barrels of oil) over 30 years. The assessment also noted that *no* offshore spill to date "has been contained and cleaned up on site," and that "there is no assurance that the technology utilized . . . would be adequate for oil-spill surveillance, containment, and cleanup."[142] In fact, if a spill occurred as far as 50 miles out at sea, the government calculated that the odds were at least 1 in 10 that the oil slick would reach the Atlantic coast.[143] Comparatively speaking, the assessment noted that, within the region out to 50 miles off the New Jersey and Delaware shores, for example, OCS developments are likely to spill more oil than small tanker operations.[144]

Perhaps one reason government assessors did not calculate the various distributive effects of oil spills on the public is that "under existing law, damaged parties lack protection against economic losses that may result from oil reaching shore."[145] Another reason is that the government does not require offshore operators to demonstrate financial responsibility.[146] As the assess-

ment team admits, "existing laws are not adequate either to assign liability or compensate individuals or institutions for damages from oil spills resulting from exploration, development, or production."[147] In addition to the regional costs associated with development-related oil spills and limited liability coverage, coastal residents also face financial burdens from onshore facilities.[148] The assessors clearly point out that "localized fiscal problems" *will arise from the development technology,*[149] *in part because the tax revenue–producing offshore facilities are unlikely to be located in the tax jurisdiction of the communities that must provide public services for the population supporting OCS development.*[150]

Assessment Failure to Calculate Local Costs

Because assessors admitted that localized negative impacts are likely to occur as a result of OCS technology, it is puzzling that they tend to make no attempt to quantify them, although the authors use dollar amounts for employment benefits, per capita tax revenues, capital expenditures, and other positive impacts of the technology.[151] Assessors made brief mention of adverse onshore fiscal impacts but apparently discounted them because they were not put in quantitative terms.[152] This is consistent with Gresham's Law, according to which quantitative drives out qualitative information. As I will show in chapter 4, the 1994 EIA for a proposed uranium enrichment facility in Homer, Louisiana, followed the same methodology. The authors quantified alleged positive impacts, discussed negative environmental impacts only in qualitative terms, then ignored these negative impacts, and concluded the facility was desirable. Obviously qualitative data are easier to *misinterpret than quantitative information. Moreover, without a common* quantitative basis for comparing diverse impacts, it is unclear that a comprehensive assessment can take place.[153] In the case of the OTA oil-development EIA, failure to quantify the costs of significant distributive impacts appears to have biased the evaluation in favor of offshore development. The OTA assessors noted that the oil and gas facilities would have negative consequences on regional air and water quality, but they included no quantification of these impacts.[154] The EPA authors noted various forms of water pollution resulting from OCS development but cited no costs of the pollution, such as onshore effects or reduction of the fishing catches.[155] The OTA authors likewise admitted "uncertainties about environmental and economic impacts" of the technology,[156] and they noted that good water quality is essential to the tourist, fishing, and sport industries of the area.[157] Nonetheless both the OTA and EPA assessors ignored these uncertainties and inequalities, then made unsubstantiated value judgments in favor of OCS oil development.

Value Judgments about Negative Impacts

The OTA assessment conclusion is that none of the alternatives for supplying "equivalent amounts of energy" offers "clear social, economic, or

environmental advantages" over offshore oil development.[158] Although quantitative data are necessary to support this conclusion, the OTA gave none. Nor did the OTA assessors give any explanation of how/why they discounted qualitative information about negative regional environmental impacts. As a result, the OTA EIA conclusion appears to have begged the environmental justice question. Likewise, the assessors judged that the net fiscal benefit of offshore technological development outweighed the "localized fiscal problems,"[159] but they did no distributive or participative analysis. They did say that "dramatic changes in regional energy prices should not be expected to follow OCS development."[160] Because of the report's emphases on energy independence,[161] "national security" or "the war power" might be the OTA and EPA justification for the assessment conclusions in favor of offshore oil development.[162]

There also is some evidence that the OTA assessors assume that offshore oil technology ought to be permitted to operate in a laissez-faire fashion:

1. "The federal government does not set definitive standards for the industry to follow in carrying out its responsibility to provide cleanup equipment in the event of a major oil spill. The USGS does not inspect cleanup equipment but relies on industry to make its own inspections."[163]
2. "When the BPTCA [Best Practical [Pollution-Control] Technology Currently Available] limitations were derived it was concluded that they should be based on what was [already] being achieved by all [industrial] facilities."[164]
3. The required "environmental baseline study" for the Mid-Atlantic area was not scheduled for completion until 6 months after the lease sale of OCS lands for offshore development in the area. Moreover, "there is no requirement that the information gathered [in the environmental baseline study] be used in the decisionmaking process for the sale of offshore lands and subsequent operations."[165]
4. There are no precise federal regulations with regard to construction of offshore platforms or pipelines,[166] "no standards that cleanup and containment equipment . . . must meet, and no assurance that a major oil spill actually could be confined, and removed from the water even if the best equipment is available."[167]

Despite this apparent evidence for approval of unrestricted development of offshore oil, and despite uncertainties about impacts of the technology,[168] the assessors nevertheless conclude that "no significant damage to the environment or changes in patterns of life" are anticipated.[169] This conclusion is an argument from ignorance, a logical fallacy. (The argument from ignorance consists of drawing some specific conclusion about a thing despite fundamental ignorance or uncertainty about it. More specifically, it consists of the assumption either that failure to prove some claim is sufficient to disprove it or that failure to disprove some claim is sufficient to prove it.) The quarrel here is with using an argument from ignorance, not with assessment conclu-

sions that are protechnology or procommerce. In the case of offshore oil development, the assessors' essentially positive conclusions about the technology may well be correct, particularly in the Northeast, because it consumes 26 percent of the nation's petroleum products but has only 9 percent of the total refinery capacity.[170]

Apart from whether the assessors' oil-development conclusions are substantively correct, the argument in this chapter is that there is no methodological justification for evaluating a technology in such a way that the authors ignore the PPFPE and negative distributive impacts such as environmental injustice. They ought not draw an overall conclusion without noting the distributive uncertainties limiting its validity. Where value judgments (e.g., that progress is desirable, that technological growth helps the poor, that energy technologies ought to operate in a laissez-faire fashion) influence assessment conclusions, assessors ought explicitly to note the evaluative presuppositions in their work. Otherwise they may beg the question of the importance of unequal impacts, predetermine their conclusions, and sanction business as usual. So long as assessors evaluate no EJ impacts, they may sanction unequal protection and the tyranny of the majority. It seems puzzling that shoreline motel owners, for example, could suffer economic losses (from an oil spill) for which they could not receive compensation. Because assessors did not evaluate such localized losses in any clear fashion, they have neither followed the PPFPE nor provided morally relevant grounds for failing to apply the PPFPE in the case of offshore oil development.[171]

Everyone, including owners of coastal motels, arguably has a legal right to equal protection and to due process. Admittedly national interests might sometimes outweigh the interests of localized rights holders, as already mentioned. But before the OCS assessors could establish this conclusion, they would have to use (something like) the PPFPE to determine both the costs to the rights holders and the ethical justification for using the appeals to alleged "common good" to trump these rights. In the OTA study discussed in this chapter, assessors did neither. They may have rendered meaningless the concept of rights. As Daniel Callahan put it, "The concept of a right becomes meaningless if rights are wholly subject to tests of economic, social, or demographic utility, to be given or withheld depending upon their effectiveness in serving social goals."[172]

Perhaps one reason that government typically has not employed the equal-protection clause of the Fourteenth Amendment to the Constitution in order to prevent local inequalities is that the amendment is supposed to refer only to *state action* that violates claims to equal protection and due process.[173] Currently, however, there is disagreement as to whether the equal protection clause applies only to the states or whether it also prohibits individuals from discriminating.[174] Such a broadened interpretation of the Fourteenth Amendment may be desirable to help people cope with environmental injustice.[175] Thomas Jefferson, writing to Samuel Kercheval in 1816, noted that "laws and institutions must . . . become more developed, more enlightened . . . must advance also, and keep pace with the times."[176] Charles A. Reich, in

The Greening of America, put it well when he wrote: "lawyers talk about the rationality and equality of the law, but they simply do not get outside the accepted assumptions to think about how the law operates as an instrument of one class in society against another."[177] If the poor bear disproportionate environmental justice impacts, then any limited interpretations of the equal protection clause, in effect, discriminate against the poor. As Abraham Lincoln warned, "if [citizens'] rights to be secure, in their persons and property, are held by no better tenure than the caprice of a mob, the alienation of their affections from Government is the natural consequence."[178]

Consequences of Ignoring Local Inequalities

If this chapter is correct in arguing that failure to assess local inequalities in environmental impacts can lead to EJ violations, then technology may well be "out of control," or autonomous, if those delegated to monitor it fail to do so comprehensively.[179] Assessment inattention to distributive impacts likewise suggests that policy analysts have not examined the second- and third-order consequences of their values.[180] And if not, it may be more difficult for society to move toward the goal of equal concern for all persons. One authority noted recently that economic inequality, often a cause of political inequality, is presently on the increase in most Western industrial societies. "What I see," he said, "is the emergence of an affluent majority, the hardening of its attitude toward the poor, and the imposition of a majorial tyranny in which the poor are increasingly ghettoized."[181]

Assessors' and policymakers' ignoring EJ evaluations also contributes to a loss of freedom, especially among those who bear the disproportionate geographical costs of technology. If one's fishing business is threatened by OCS oil spills, or if one's property values fall because oil-spill damage is not compensable, then one's freedom is limited. If freedom involves both the opportunity to choose among genuine alternatives and ready access to knowledge that will make the selection an informed one,[182] then ignoring EJ issues may limit freedom. Ignoring distributive impacts deprives citizens of access to knowledge that could encourage more equitable public policy and social progress,[183] and it arguably helps to create a closed rather than an open society.[184] Perhaps this is one reason that Jacques Ellul believes the price of technological power is loss of freedom.[185] The fact that certain technologies and modes of assessing them threaten freedom also suggests that they threaten democracy as well. One government representative said recently that "technology assessment is performed almost secretly and outside the usual framework of the democratic process."[186] Given limited allowance of public participation in OCS-related decision-making and resultant threats to participative justice, the EIA authors appear to have used their positions so as to ignore environmental injustice. Dwight D. Eisenhower worried about such a situation when he spoke of the "danger that public policy could itself become the captive of a scientific technological elite."[187]

Scientific elites often are responsible for EIA and ultimately policy because society frequently erroneously defines many questions of environmental impacts as issues of scientific fact, not social policy. Although factual information is essential, informed public decision-making cannot be accomplished on a purely factual basis. As one author put it, the "central question . . . is what society really wants."[188] So long as people think EIA concerns largely factual issues, then EJ problems will never be handled adequately. Political and ethical problems need to be handled as political and ethical problems, not merely as legal or scientific ones.[189] Otherwise, democracy suffers. In EJ issues, there ought to be a framework for nonexperts or impacted stakeholders to speak about how the policy affects them. Such a framework is consistent with the fact that, in a democracy, *trial* by peers determines guilt or innocence. A *decision* by psychologists or psychiatrists, alone, does not do so because the issue is not purely technical. As a 1996 committee of the National Research Council/National Academy of Sciences emphasized, stakeholder deliberation is equally as important as scientific analysis in assessing societal risks.[190]

Current assessment methodologies also threaten democracy because a majority of assessment scientists work for corporations and may have a pro-technology bias.[191] Assessment decisions also may be "skewed in favor of well-organized and well-financed" interests.[192] Victims of environmental injustices are likely to have both poorer organizations and poorer finances than those who promote particular technologies. To address these problems, in chapter 8 I outline several strategies to help overcome the way such bias often results in environmental injustice.

Conclusions

As OCS development technology reveals, geographical minorities likely will continue to bear disproportionate risks from hazards such as oil spills, given current inattention to environmental justice. To ignore such impacts is not only to rely on the argument from ignorance, presuppositions about laissez-faire technology, and misapplications of "national security" arguments, but also to ignore the PPFPE and its provisions for distributive and participative justice. As Aristotle recognized, justice is the first of all the virtues of human life. There also are good reasons to ensure it is the first virtue of technological and environmental decision-making.

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3 Appalachians, Access to Land, and Procedural Justice

Nearly 2,500 years ago, Thucydides bemoaned the fact that many Athenians were dedicated to their own private interests rather than also to the public interest. Like an early Walter Lippmann, he wrote that his fellow citizens

> devote a very small fraction of the time to the consideration of any public object, most of it to the prosecution of their own objects. Meanwhile each fancies that no harm will come of his neglect, that it is the business of somebody else to look after this or that for him; and so, by the same notion being entertained by all separately, the common cause imperceptibly decays.[1]

Like the Athenians of Thucydides' time, many people are busy carving out their private interests, even among public goods like clean air, water, and land. One of the most common ways people reduce public goods to private ones is by polluting the commons of air and water or by restricting access to finite natural resources like land. Moreover, the people frequently unable to take advantage of environmental goods, like land, typically are those already victimized by social structures. As a result, they have little access to the ways land ownership confers political and economic power. One of the ways to help ensure this equal access, to serve the public good, and to promote environmental justice (EJ) is land-use planning. This chapter outlines some of the reasons that, if society is to recognize the distributive and participative demands of environmental justice and the principle of prima facie political equality (PPFPE), as sketched in the previous chapter, it must pursue more consistent land-use planning.

Overview

The most basic assumption underlying all land-use planning is that land, as a natural resource, ought to serve equality rather than inequality, justice rather than injustice. It ought to promote public rather than merely private interests. For example, if family farms need to be preserved in order to safeguard equal opportunity, environmental justice, and the U.S. agricultural base, then zoning laws, taxation, and other forms of land-use controls ought to secure these societal goals. If small farmers are victims of injustice because of monopolistic control of large tracts of land, then land-use controls may be necessary to remedy this environmental injustice. The participants in the 1992 National People of Color Environmental Leadership Seminar, in Washington, D.C., recognized the interdependency of land use and environmental justice. They demanded, as their third (of 17) principles of environmental justice, that government enforce "responsible use of land everywhere," uses that discriminate against no one.[2] They recognized that if citizens—like *Latino farm workers—need to be protected from the dangerous chemical* spillovers of agriculture, then planning and other forms of land-use controls ought to secure both environmental justice and the public good. Every public good, however, is bought at a price. And part of the price of land-use controls is greater restriction of property rights. Of course, property rights are not absolute, as cases of eminent domain, already discussed in chapter 2, reveal. At least in the United States, however, people often serve property rights before civil rights and before human rights like those recognized in the PPFPE. As a result, the more extensive the land-use controls that society proposes, the more powerful must be the philosophical justification for these restrictions. To undergird the environmental justice movement, this chapter offers some first steps in justifying greater restrictions on property rights in land and natural resources.

The argument in this chapter is twofold. (1) Procedural justice (methods for guaranteeing fair distribution of opportunities and goods) requires, *in particular* cases, that society restrict property rights in natural resources (e.g., Appalachian coal land), in order to provide environmental justice, including equal access to resources, to all citizens.[3] (2) Conditions imposed by Locke's political theory and by expanding population require, *in general*, that society restrict property rights in finite or nonrenewable natural resources such as land, in order to serve justice. If these arguments are correct, then society's most basic Lockean beliefs can be enlisted to promote environmental justice, distributive justice, and the ideals behind the PPFPE. If the arguments are correct, then there is a moral imperative to use land-use controls (such as taxation, planning, zoning, allocation of water rights, and acreage limitations) to restructure opportunities for land ownership and land use in a far more egalitarian way than in the past. There also is a need for society to be sensitive to the ways its philosophical assumptions about procedural fairness and EJ contribute to misappropriation and misuse of land and other natural resources.

Setting the Scene for the First Argument: The California Farmer

Consider first the more particular argument, that there are ethical grounds (procedural justice), in specific cases, for restricting property rights in natural resources, especially among large land owners. As background for this argument, consider two illustrative groups, victims of environmental injustice regarding land use. These are small farmers in California and in Appalachia.

California agricultural land presents an important context for land-use controls and for understanding one type of environmental injustice, because owning even a small piece of it may confer a great deal of economic and political power. California is the largest producer of many specialized crops, and ownership of several hundred acres with rare soil and a specific climate can give one a great amount of power to set the price of crops like broccoli, asparagus, or artichokes. For example, 83 percent of California macadamia nuts are grown in only one county (San Diego), and 58 percent of California avocados are grown in only one county (San Diego).[4]

One of the most interesting things about California farm land is its concentration in the hands of a few; the top 25 private owners hold at least 58 percent of all land in the state.[5] A 1992 government study revealed that 65 percent of California farm land consists of farms larger than 2,000 acres each. Moreover, 45 California corporate farms, representing less than one-tenth of 1 percent (by number) of the commercial farms in the state, control approximately 61 percent of all California farm land.[6] In addition, approximately 82 percent of all California acres receiving government-subsidized irrigation are in farms larger than 220 acres, while approximately 18 percent of irrigated acres are in farms smaller than 220 acres. Farmers can buy a thousand cubic meters of water for $2.84, even though it costs the government $24.84 to deliver it.[7] Homesteading and sales did reduce California's land empires in the eighteenth and nineteenth centuries. Nevertheless, at least since 1958, land concentration in the hands of absentee landlords has increased in California agriculture. One survey, done by the U.S. Department of Agriculture and the Agricultural Extension Service of the University of California, showed that the larger the number of acres held by owners, the more likely they were to be nonresidents of California.[8]

The same study reveals that this highly concentrated, absentee ownership of farm land has resulted in more concentrated political and economic power. Large owners also have greater ability to oppose contrary interests than do smaller farmers. Large land owners, said the authors of the study, direct far more of their earnings toward political ends than do smaller owners. Their expenditures cause large holders' land-use decisions to have a greater public impact and give them greater bargaining power with officials. Only a few large land owners are sufficient to unite and force particular, self-interested legislation (e.g., subsidized water). As the authors of the study put it: "The few, who own more and more of California's land, control their own political and economic destinies; the many are more subject both in economics

and politics to the automatic regulation of competition."[9] Such a situation suggests violations of procedural justice. It also suggests that small California farmers do not enjoy equal treatment under the law, as required by the PPFPE, and therefore do not enjoy environmental justice. 84 percent of farm-support payments annually in the United States ($8.5 billion) go to the top 30 percent of farms, ranked by gross income. Such data suggests that California farmers have neither equal opportunity in the marketplace nor equal access to land and resources like water, in large part because of the distorting political and economic power of large agricultural land holders, power that can subvert procedural justice. (Procedural justice specifies correct or fair methods, procedures, for arriving at justice.)[10]

Some of the practical reasons that small California farmers cannot compete with the large absentee-controlled conglomerate farmers include inflated land values in the state. Such land values benefit the large holders (i.e., big growers, big speculators, and big investors) who drive up the land prices even further. Inflated land values, in turn, hurt the small farmers who attempt to do all or most of their own work.[11] If they are to compete with the larger holders, then they must continually purchase or rent more land. But inflated land values make purchase or rental even more difficult, and the pressure for expansion inflates real estate values further. Moreover, because of higher land costs, smaller farmers receive proportionately less returns for their labor. Even government farm-income maintenance programs have only aggravated this problem, since the programs have made the relatively richer farmers wealthier than the poorer ones, all at considerable expense to the public.[12]

How do state and federal policies put the small farmer at a disadvantage relative to the large absentee conglomerate owners? Substantial capital gains, favorable depreciation rates on equipment and machinery, and tax losses written off against nonfarm income are the main ways. These benefits return sizeable tax savings to absentee investors and large corporations that engage in farm and nonfarm enterprise. They also permit the large, absentee owners of farm land to operate with a cost structure entirely different from that of the small owner-operator. Of course, the small farmers, who earn their living entirely from the land, may make some use of depreciation and capital-gains provisions. Unlike large corporate farmers, however, they are not likely to have taxable nonfarm income against which to offset farming losses. For this reason, a recent secretary of the treasury told the House Ways and Means Committee that current tax policies "create unfair competition for [small] farmers who must make an economic profit in order to carry on their farming activities."[13]

Recent statistics on the difficulty that the small farmer has in competing with the large absentee corporate farmer bear out the preceding observation on the effects of current tax policies. Between 1930 and 1990, the number of U.S. farms dropped by 30 percent; between 1954 and 1973, small U.S. farms (under 10 acres) declined by 53 percent, whereas those between 500 and 999 acres decreased by only 9 percent, and farms larger than 999 acres

decreased by only 8 percent.[14] The 1992 census data reveal equally grim statistics. Since 1982, the number of California farms under 180 acres decreased by almost 7 (6.9) percent, whereas the number of California farms larger than 180 acres decreased by only 1.4 percent.[15] Moreover, since 1982, family farms in California decreased by 8.1 percent, while the number of corporate farms increased by 4.5 percent.[16] Since 1987, the number of U.S. farms operated by Asians or Pacific Islanders decreased by 4 percent and the number operated by African Americans dropped by 18 percent.[17] Because smaller farms and farms owned by members of minority groups have fared significantly worse than large farms and farms owned by whites, these statistics suggest potential problems of environmental justice, problems of equal access to natural resources like land. Together with the preceding discussion, these statistics also suggest that *procedural injustices* (unfair competition, unfair tax laws) contribute to these problems of environmental injustices.

Part of the problem is that, because the profit margins in farming are so narrow, smaller farmers have a credit squeeze. They lose their credit base because they are losing their land and, therefore, their ability to secure a loan. Large conglomerate absentee-owned farms and small family farms operate in completely different capital situations. The local bank is usually the only source of funds for the small farmer, while the corporate farms enjoy a broader source of capital that includes issuing securities and bonds as well as obtaining loans.[18] Hence the small farmer is clearly no match for the huge corporate conglomerate. Because of apparent discrimination, perhaps unintentional, minorities and small farmers are unable to accumulate the resources of land and credit that would give them opportunities (and therefore procedural justice) equal to that enjoyed by corporate farmers.

The California data suggest that land-use controls such as acreage limitations and increased taxation of larger corporate farms (to offset their existing tax advantage relative to the small farmer) might help to solve many problems of procedural and environmental justice. Equalizing the tax advantage, for example, might help both to decrease the amount of prime farm land lost to other uses and to enable small farmers to purchase more land. Land-use controls also might help equalize competition between the small or minority farmer and larger corporate land owners.[19] Before examining a philosophical justification for more extensive land-use controls, I will consider another example, that of the Appalachian farmer.

Another Instance of Environmental Injustice: The Appalachian Farmer

Even though California is geographically, demographically, culturally, and economically quite different from Appalachia, in both regions small and minority farmers face problems of procedural and environmental injustice. California land has increased in value primarily because of the desirable

climate, fertile soil, and federal subsidies (for example, for water). Appalachian land has increased in value primarily because of its vast coal reserves. The natural resources of prime agricultural land and coal land have invited speculation and caused much of the heightened real estate value and unequal access to resources there. In both areas, most of the environmentally valuable land is concentrated in the hands of a few absentee, corporate holders, resulting in unequal political and economic opportunities for poor and minority citizens (procedural injustices), as well as unequal access to natural resources such as land (environmental injustices). As a result, the number of small and minority-held farms has declined faster than that of larger farms and those owned by whites.[20]

The Appalachian Regional Commission sponsored a major study of land ownership patterns and their impacts on the small farmer and on life in Appalachian communities. Completed in 1981, the study conclusions nevertheless remain valid today.[21] The analysis is one of the most comprehensive land ownership studies ever completed in the United States. Presenting profiles of 80 Appalachian (or mountain) counties in Alabama, Kentucky, North Carolina, Tennessee, Virginia, and West Virginia, the study was coordinated by the Appalachian Alliance, Appalachian State University, and Highlander Research Center. The scholars traveled 75,000 miles and gathered information on more than 20,000 acres. In their analysis, the researchers concluded that most of Appalachia's woes—that is, the decline of the small farmer, the housing shortage, and environmental degradation—were caused by concentrated absentee ownership of most of the resource-rich land.[22] The scholars discovered that almost all owners of mineral rights pay less than a dollar an acre in annual property taxes, and three-fourths pay less than 25 cents. The researchers also determined that 53 percent of the total land surface in 80 Appalachian counties is controlled by only 1 percent of the total population—by absentee individuals and by corporations. Furthermore, they showed that absentee owners control about three-fourths of the surface acres surveyed, and out-of-state or out-of-county owners own four-fifths of the mineral acres. Of the top 50 private owners, 46 are corporations.[23]

Using more than one hundred socioeconomic indicators, the land-use researchers drew some startling conclusions. (1) The greater the concentration of land and mineral resources in the hands of a few, and the greater the absentee ownership, the less coal production money remains in the poverty-ridden Appalachian counties giving up their resource wealth. (2) Little land is owned by, or accessible to, local people. (3) Because of (1) and (2), many ills plague Appalachia: inadequate local tax revenues and services; poor educational services; the absence of economic development and diversified job opportunities; losses of environmentally desirable acres such as agricultural lands; insufficient housing; a lack of locally controlled capital; and a rate of outmigration from Appalachia that is proportional both to corporate ownership and to concentration of land and mineral wealth in the hands of a few.[24] Fifty-five percent of Kentucky farms, for example, and 61 percent of

Tennessee farms, are smaller than 99 acres.[25] The 60 researchers (who worked for 2 years on the Appalachian study) argued that the concentrated absentee ownership of mineral-rich land is the cause of virtually all of the social and economic ills besetting Appalachia. Both in California and in Appalachia, researchers concluded that land reform or land-use controls were a necessary, although not a sufficient, condition for correcting socioeconomic ills and providing equal opportunity and environmental justice to the small farmer.[26]

Procedural Justice and End-State Principles

The researchers who drew these conclusions about the causes of environmental injustice in both California and Appalachia admittedly based their causal inferences on mere correlations. They used correlations between poverty and lack of access to land and between poverty and minority-owned farms. If one assumes that the researchers are *factually* correct (both about the causes of unequal opportunity and environmental injustice among California and Appalachian farmers and about at least one necessary remedy, land-use controls), then what ethical reforms are necessary? Are there important *ethical* grounds for limiting the property rights of California's and Appalachia's corporate absentee landlords? One might attempt to establish such grounds by some sort of argument based on principles of *equal distribution* of environmental resources. One might build a case for the claim that, because much Appalachian and California land is concentrated in the hands of a few persons, the property rights of large owners should be limited so far as is necessary to promote equal opportunity in the competition for natural resources such as land. Some people might argue even for acreage limitations to promote more equal ownership of land. This latter argument, however, has the shortcoming that it appeals to a socialistic rather than capitalistic or libertarian political philosophy.

The constant struggle among socialists, libertarians, and moderates indicates that people notoriously disagree on "end-state" principles, that is, principles about how to distribute societal goods such as environmental resources.[27] Socialists typically prefer end-state principles based on equality, whereas libertarians reject all end-state distribution principles but argue that all people ought to be allowed to keep, free from redistribution, what they have acquired legitimately. Libertarians and many moderates recognize no principles of "end-state" or distributive justice but only principles based on *procedural justice*, on the legitimacy of the procedures for distributing goods such as land. Procedural justice prohibits cheating or stealing so as to obtain goods, but it does not prohibit unequal distribution of them. Is there an argument for land-use controls and environmental justice based purely on the procedural justice of the land transactions by which people obtain alleged property rights in land?

A Procedurally Based Argument for Limiting Property Rights in Resources

Using conclusions of the recent California and Appalachian land ownership studies, one could develop a procedurally based argument for environmental justice. A rough formulation of one such line of reasoning is as follows.

1. Concentrated absentee ownership of environmental resources such as Appalachian coal land and California agricultural land leads to concentrated political, legal, and economic power in the hands of a few owners.[28]
2. Such concentrations of political, legal, and economic power limit the *voluntariness* of land and other transactions between the large owners (holders of power) and small or minority farmers.[29]
3. Apart from legitimate reparation or punishment, whatever social institutions limit the voluntariness of transactions (between large property owners and others) also limit the "background conditions" necessary for procedural justice, environmental justice, and equal opportunity.[30]
4. Whatever limits procedural justice and environmental justice should be avoided.[31]
5. Concentrated absentee ownership of resources such as land ought to be avoided.

Of course the main stumbling blocks in this argument are premises (1) and (2). They are factual (and therefore contingent) propositions whose truth depends on the soundness of a number of related arguments, all made in the land ownership studies. These premises appear plausible, not only because they are conclusions drawn by the authors of the California and Appalachian land ownership research but also because they rest on the intuitive soundness of several insights.

Resource Transactions, Voluntariness, and the Lockean Proviso

One such insight is that monopolies tend to reduce the freedom of market transactions. The other insight is that extensive property holdings can generate unequal opportunity, and unequal opportunity menaces equal liberty. Land economists, in particular, have explicitly noted how concentrations of rural land in the hands of a few owners leads to monopsony (owners' control of wages), the absence of developable land, the lack of a diversified economy, and the absence of local capital.[32] These factors (lack of a diversified economy, etc.) in turn limit the voluntariness of transactions between large land owners and others.[33] Because they limit voluntariness, they limit both the equal opportunities of all citizens to compete for resources such as land, as well as the "background conditions" (e.g., the existence of a *free* competitive

market) necessary for procedural justice. When transactions are not voluntary, and when the involuntariness is not caused mainly by the victim, then the transactions may be made under duress, extortion, coercion, and the like. Such involuntariness limits procedural justice and environmental justice because it limits fairness. For Robert Nozick, John Rawls, and virtually all moral thinkers, justice requires fairness, and fairness requires background conditions such as the existence of voluntary transactions. For this reason, rights and obligations incurred in justice arise only if the transactions generating them are voluntary.[34] If the transactions (whereby large owners obtain land and other resources) are not voluntary, and if this involuntariness does not arise mainly through the fault of the victims, then there are grounds for questioning the owners' rights to such resources.

Perhaps the main reason that large Appalachian land transactions might not be voluntary is that they do not satisfy background conditions for procedural justice. If they wish to survive, the small farmers and land owners often are forced, given economic and political constraints, to sell their land to the large absentee landlords and coal companies. Yet most philosophers maintain that a person's action is not free or voluntary unless the person could have done otherwise.[35] If land concentration, monopsony, and the absence of local capital and developable land mean that economic hardships or discriminatory economic and tax practices force small landowners to sell their land, then their selling is not obviously voluntary. It is not voluntary because they could not have done otherwise than they did. And if their selling is not voluntary, and if the constraints on voluntariness arise from social institutions and practices and not from their own fault, then the selling is ethically questionable, for the reasons sketched in the previous paragraph.

But what does it mean to say that the small landowners could not have done otherwise than they did? In order to understand the sense in which their actions were voluntary or not voluntary, one must analyze the concept "could." Such an analysis would be difficult to accomplish, however, because of the great ambiguity in the word "could" and its many uses.[36] This ambiguity is so great that, when P. H. Nowell-Smith, J. L. Austin, and others fought over the meaning of "could" and "voluntary," they decided that it was better not to try to unravel these "notoriously difficult" concepts.[37] Instead, they joined Gilbert Ryle, H. L. A. Hart, and A. M. Honore in claiming that they could merely attempt to specify when an action was *not* voluntary (that is, when it was accomplished under external coercion or duress, or when it was done by mistake, by accident, in the absence of muscular control, under duress, under pressure of legal and moral obligation, or even under the pressure of making a choice as the lesser of two evils).[38] In other words, Hart, Nowell-Smith, Austin, and others (following Aristotle) have claimed that words like "could have," "freedom," and "voluntary" are not positive but negative terms. Austin claimed that the negative use of words—such as "freedom"—predominates, and that to say that one behaved freely or voluntarily is primarily to say that one behaved in a way that was not nonvoluntary. Hart, for example, argued that although voluntary actions are a subset of

intentional actions, there is not anything positive that is common to all voluntary actions and that is missing from all actions that are not voluntary. Instead, he and others claimed that words like "free," "unfree," "voluntary," and "involuntary" are defeasible concepts, concepts not definable in terms of necessary and sufficient conditions or by means of any criteria but understandable only in terms of the various particular ways in which an action may be unfree or not voluntary (e.g., by accident or duress). And admittedly, the ways in which an act may be rendered not voluntary or unfree are numerous; hence there is no general criterion for when an action is voluntary or not voluntary, other than to say that when persons act voluntarily, they could have done otherwise.[39]

Note, however, that when one claims that people did not act voluntarily, meaning that they "could not have done otherwise," one really means that they "could not be *expected* to have done otherwise." This is because even a person ordered to perform an action under threat (by someone holding a gun, for example) "could have done otherwise" than what the gunman ordered. The person could have chosen death rather than performing the action.[40] In addition, when one asks whether a person "could not be expected to have done otherwise," one does not typically mean, in a sense of exclusive disjunction, whether the individual could or could not be expected to have done otherwise. Rather, one typically means to inquire into the degree to which the person could have done otherwise. The issue is not simply either/or. The issue is, *ceteris paribus*, the more duress or external coercion imposed on a person to perform an action, the less the person could be expected not to perform it, hence the less voluntary the action.[41]

Using the case of the small California or Appalachian farmer, the argument in this chapter is that they could not be expected to do otherwise than to sell their land because factors such as monopsony, the absence of local capital, and unfair tax structures have coerced them. The argument is that the coercion is so great that their land transactions probably are voluntary only in some minimal sense. As already noted, however, what makes such an argument problematic is that there are no necessary and sufficient conditions rendering an act voluntary or involuntary. As a result, one can only point to factors such as the lack of a diversified economy in order to show how such factors (outside normal individual control) render small or minority farmers incapable of not selling their land.

The argument that small Appalachian farmers may not voluntarily decide to sell their lands relies in part on moral philosopher Alan Gewirth's analysis of voluntary action. Gewirth argues that voluntary action is uncoerced and unforced, and that nonvoluntary or coerced action has at least three characteristics: it is compulsory, undesirable, and the result of threat. As Gewirth points out, a choice is compulsory if it is between undesirable alternatives, none of which people would choose if they were totally free. The choices of many Appalachian and minority land owners are surely compulsory in the sense that they probably do not wish to choose either of the main options open to them: either to lose their small farms or to live on the brink

of starvation. Likewise, the main options open to them are undesirable. What decisions they make, because of the power of monopsony, the lack of local capital, and the absence of developable land, appear to be the result of their attempts to avoid threats of serious harm. Hence Gewirth probably would say that such Appalachians' choices were "irreducibly involuntary," like choices between taking a pay cut or being fired when jobs are scarce.[42] Moreover, as Gewirth notes, just because "the normal or natural or expected course of events" is that many people face just such choices (e.g., between taking a pay cut or being fired)—just because their incidence is so great—does not mean that their choices are voluntary. "Surely the forcedness of choice is not removed when these features [of compulsion, undesirability, and threat] are a regular part of someone's life or of the institutional structure of a society. . . . [For example,] when industrial workers function as cogs in vast machines and as dominated by huge impersonal corporations, their choices to work under such conditions might be held to be forced by the threat of unemployment and the unavailability of alternative conditions."[43] Likewise, this chapter argues that some Appalachians' choices are forced.

The obvious objection (to the claim that many choices in contemporary industrial-agricultural society are forced) is that such a claim makes the conditions of morality (such as voluntariness) both irrelevant and impossible to attain, because virtually all choices seem nonvoluntary in this sense. This objection will not hold, however, and for two reasons. One reason the pervasiveness of involuntary choices does not make morality irrelevant is that, first, many choices in contemporary society are not made in the context of serious threats to well-being in the sense that, at least in developed nations, many people are well off and financially secure. Obviously these well-off people do not face the serious threats of those who are less financially secure and more subject to external coercion. Second, some of the alternatives many people face in their choices are somewhat desirable, as in the choice of where to live in a developed nation. To say that all choices are undesirable for all persons, as in the case of Appalachians' deciding whether to sell their land, would be to presuppose a great exaggeration of human desire. Such exaggerated desires probably are more characteristic of Plato's insatiable tyrant and of Freud's id than they are of many human beings. Normal human beings have more modest desires and hence often have reasonable choices among several desirable alternatives, provided that the choosers are not severely constrained by factors such as illness and poverty.[44] But if so, then it is likely that, although many choices are largely voluntary, the land transactions of typical small Appalachian farmers, and others like them, are largely involuntary.

It is not difficult to show that Appalachia illustrates how concentrated property holdings in natural resources can limit the voluntariness and hence the fairness and procedural justice of transactions. Concentrated property holdings cause the choices of those "less propertied" to be made under compulsion, among undesirable alternatives, and under threat. To see this, consider how background conditions very likely affected historical opportunities

for environmental resource use and land ownership. In the early days of this country, in New England, land was divided fairly evenly among the many. In the South, mostly because of large royal grants, land was concentrated in the hands of the few. As a consequence, New England politics revolved around such institutions as the town meeting, while the landed gentry dominated all aspects of Southern society and politics. This means that, in Appalachia, where most of the land was and is held by only a few individuals, their speculation had the effect of driving up land prices and impeding settlement by poor Americans.[45] As a consequence, because there has been little industry in Appalachia and because the population has been rural-agricultural, the small farmer rarely has been able to attain equal competition with the large land owner. The powerful owner very likely owned the community bank and the general store and "noncoercively" controlled the loans, laws, and taxes of the whole community. But suppose a coal mining company, owned by a multinational corporation, contracts with a small farm family to purchase title to its land. Granted, the corporation may not coerce or defraud the farm family; the farmers may "voluntarily" sell their property. Yet consider the following factors: the family has been chronically impoverished, perhaps poorly educated, and (in part because of tax laws) faces the impossibility of competing with the large farmer. The family has no capital investment for keeping the land and for farming or mining it itself, perhaps because of no available loans. Suppose also there are no other (i.e., nonagricultural, nonmining) jobs available. Surely the family is not in an equal bargaining position with the large absentee landlord. Because they are not, it is not clear that family members are wholly *voluntarily* selling their land.[46]

Although the contract between the small farmer and the landlord may be legal, nevertheless it may not be completely ethically justifiable. This is because (perhaps through no fault of the landlord) necessary background conditions have not been met for the exercise of procedural justice. These background conditions include the possibility of voluntary transactions between the small farmer and the large land owner and the existence of a free, open market. Justice is not possible if allegedly voluntary transactions are coerced or forced. Just transactions presuppose just background conditions. But if the background conditions necessary for procedural justice are unlikely to be met, especially in cases such as those described in California and in Appalachia, then there well may be ethical grounds for additional limitations on the property rights of large absentee landlords like those in California and Appalachia. If their property rights were limited, then perhaps they would be less likely to hold coercive power over typical market transactions. And if so, then decision-making and land sales might take place in a situation providing more background conditions for the exercise of procedural justice and more opportunity for environmental justice, for equal-opportunity access to environmental goods.

Basically, the argument to limit property rights in natural resources (through acreage limitations, restricted right to income, or restricted right to use) requires people to accept at least one crucial premise. This premise is

that they ought to avoid certain societal institutions to the extent that they preclude the existence of important "background conditions," such as a free, competitive market, necessary for procedural justice. The key insight on which this argument rests is fundamentally Rawlsian: "Only against the background of a just basic structure . . . and a just arrangement of economic and social institutions, can one say that the requisite just procedure exists."[47] If one accepts the previous argument for limiting property rights in natural resources, then one has admitted that, *in some instances*, the actual operation of the market runs afoul of the Lockean proviso. This proviso is that the condition of others ought not be worsened by someone's appropriation and use of property. And because virtually all political and moral theorists, as well as democratic decision-makers, accept this proviso or constraint on property rights, then showing that the Appalachian and California cases violate this proviso amounts to showing the need for change in land-use policy and practices.

Because a full investigation of the theoretical justification for the Lockean proviso has already been accomplished elsewhere,[48] there is no need to repeat those arguments here. At least four of them show the need to limit property rights in natural resources such as land: (1) Locke makes property subject to the requirements of the original community and to natural law. (2) The first proviso, that land may be appropriated, provided that as much and as good remains for others, holds for all time. (3) Because the value of land is not derived completely from labor, some control over property rights to it rests with the community, not merely with those who labor over it. (4) All property, including land, is subject to the productivity criterion and hence to the control of the community regarding its use. It also is possible to argue that, although Locke does not always present his moral beliefs as philosophical arguments (some are based on religion, for example), at least one of these beliefs tends to support these four arguments. This is Locke's view that desiring more than we need is the root of all evil. For all five reasons, scholars have argued effectively that there are Lockean grounds for asserting that the community has at least a partial right to control certain property rights, especially in land, and that, although the *historical* Locke may not have meant to do so, his writings provide a basis for such control.[49]

Most people probably accept the basic idea behind Locke's arguments, in part because they appeal to equal opportunity to use/hold resources like land. It also would be easy to show that violating such a procedural or equal opportunity criterion would result in violating the PPFPE, or equal treatment under the law. In theory at least, all market proponents also should accept Locke's arguments because they require just background conditions, such as a free and competitive market, and these conditions are essential to the smooth and continuing function of the market. If so, the argument in this chapter is not against the market but against its improper operation. (Note also that this argument has attempted only to establish that in some instances, like Appalachia, particular patterns of property rights in land produce poverty, social instability, and environmental injustice. The argument

is that, in these particular cases, society ought to limit property rights. It would be far more difficult to make the argument that property rights in natural resources always limit fairness, democracy, social stability, and so on. This chapter has not attempted to argue for the larger claim.) But if the operation of the market, at least in cases like Appalachia and California, often runs afoul of the Lockean proviso, then, on their own terms, even libertarians ought to accept the arguments of this chapter. They ought to accept limitations of the property rights whose exercise is responsible for violation of the Lockean proviso.[50] Given this argument, the burden of proof is on the proponent of unrestricted property rights, such as the Harvard philosopher Robert Nozick.

Suggestions for Limiting Property Rights in Land

But if there are ethical grounds for additional limitations on the property rights of large, absentee landlords, especially in resource-rich areas, then the obvious issue is what sorts of limitations are defensible. One reasonable position would be to argue for the least restrictions necessary in order to meet minimum conditions for procedural and environmental justice. If certain minor restrictions (acreage limitations, for example) were successful in meeting these minimum requirements, then one would not need to consider greater limitations. If these restrictions were not successful, then greater ones might be necessary. Space does not permit an argument here for which limitations are likely to meet these minimum conditions. Nevertheless, it does not seem difficult to show that certain controls on the *right to use* one's property, and specific limitations on the *right to income* from it, would counteract most ill effects of concentrated ownership.[51] One might limit the right to use agricultural or coal land, for example, by requiring that, for every 1,000 acres held in a particular county, a large owner would have to help create X number of jobs in nonagricultural or nonmining industries in that county. Such land-use controls might lead to a number of benefits affecting background conditions. They might help to diversify either the agricultural or coal economy and thus render it less susceptible to booms or busts. They also might create more job alternatives and provide residents with greater freedom not to sell their lands and instead to enjoy their environmental resources. Likewise, one might limit the right to income from resource-rich property, for example, by requiring that concentrated land or resource holdings be heavily taxed. One also could require that X percent of a large corporation's income from mining or agriculture, in a given county, be reinvested in that county. Such a limit on property rights clearly would promote economic diversification, job opportunities, and more equal access to environmental resources such as land. As a consequence, it would enhance the voluntariness, and therefore justice, with which small farmers and large landlords made transactions.

Another relatively minor version of land-use controls likely to have desirable effects in terms of procedural justice would be to place acreage limita-

tions on land holders. Just as the U.S. Preemption Act of 1841 and the U.S. Homestead Act of 1862 limited ownership by a single person to 160 acres, so also there could be similar restrictions on resource-rich acres such as California agricultural land or Appalachian coal land. Minnesota, North Dakota, South Dakota, and Kansas already have acreage limitations on the amount of farm land that can be held by corporations.[52] Such acreage limitations, as well as taxing or restricting the right to income, are powerful vehicles for promoting environmental justice and for avoiding coercive land concentrations.[53] Admittedly, however, these vehicles alone probably are not *sufficient* to do so.[54]

Objections to the Argument

In response to this procedurally based argument for land-use controls, a number of objections can be made. One criticism comes from the camp of libertarian philosophers like Nozick. They might claim that the argument rests on end-state principles that are socialistic,[55] since its net *effect* would be the same as an end-state argument, that is, redistributing some advantages currently held by absentee landlords with large holdings.[56] Such a counterargument does not work, however, and for several reasons. For one thing, it erroneously assumes that two principles are the same if following them leads to the same consequences or actions. However, principles obviously are specified by criteria other than the consequences or actions to which following them might lead.[57] Otherwise, it would make no sense to speak of doing the right thing for the wrong reasons.

Further evidence that this chapter's argument (for land-use controls and for environmental justice) does not rely either on socialistic justification or on end-state principles is that it specifies no *particular* distribution of land as desirable. As Thomas Scanlon probably would agree, it does not require one to follow end-state principles, such as equality or need. Instead it requires only that land not be so concentrated in the hands of a few owners that this concentration itself limits procedural or environmental justice, for example, the voluntariness of transactions.[58] Moreover, on Nozick's criteria,[59] the argument does not rely on any end-state principles. This is because "it focuses on a particular way that appropriative actions affect others, and not on the structure of the situation that results."[60] Admittedly, in not having some specific end-state principles to guide the limitations on property rights for which this chapter has argued, there is no clear criterion for when social processes are truly voluntary and for when the background conditions for procedural and environmental justice are satisfied. One can show, however, that this flaw is neither devastating nor unique to this proposal. In fact, a similar problem faces someone who argues for reparation for blacks who have been victimized by illegal discrimination. Just as there is no clear criterion for when social processes are truly nonracist, likewise there is no clear criterion for which social processes are voluntary or when background conditions

for procedural or environmental justice are met. In both cases, however, it is possible to make a reasonable judgment that particular social transactions are, for example, blatantly racist or blatantly unfree and hence that they require, respectively, reparation or limits on property rights.

Another objection to these arguments for extensive land-use controls is that, as Nozick puts it, "no one has a right to something, such as background conditions for procedural justice, whose realization requires certain uses of things (property) and activities that other people have rights and entitlements over."[61] This objection, however, begs the relevant question. This question is whether people *continue* to have rights over things when their exercise of them limits the autonomy or rights to equal opportunity of someone else. Nozick's objection seems to presuppose that one need not analyze and adjudicate rights claims. It seems to presuppose there are never competing rights claims. Hence his objection must be wrong.

Still another objection to this chapter's argument for land-use controls might be along the lines of a Nozickian claim that, so long as absentee landlords had a *right* to act as they did, in obtaining concentrations of property in resources such as land, then their actions cannot be said to have made either Californians' or Appalachians' actions nonvoluntary. The problem with this objection, however, is that it presupposes Nozick's definition of property rights, which he interprets as nearly absolute. Yet the question at issue in this chapter is the status of those property rights. And if so, then such an objection fails unless the objector shows precisely why rights ought not be limited so far as necessary to provide background conditions for procedural or environmental justice. This argument cannot be met simply by reasserting the very property rights in question.[62]

A Second Argument for Limiting Property Rights in Resources

Obviously one could make a great many other objections to the first, particular argument for land-use controls in Appalachia and in California. Likewise, one could raise numerous questions concerning various theories of property rights and procedural justice. Rather than deal with any additional objections here, consider instead a second, and more general, argument for limiting property rights, especially property rights in natural resources, in order to serve procedural and environmental justice. Recall that the first argument presupposed that it was possible to have property rights in natural resources. The second argument calls into question this very presupposition, that property rights in natural or environmental resources are possible.

There are at least two general, and different, grounds for doubting the claim that one can have property rights to natural resources that are as extensive as some other property rights. First, it is not clear that one can have full property rights in anything that was not created by human labor, and natural resources are not created primarily by human labor. As numerous Lockean

commentators have pointed out, it is not clear that mixing one's labor with something gives one full property rights over it, as Locke believed. Instead it is arguable that one's labor generates merely property rights over that part or aspect of the thing created by the labor. This is because conceivably one could be said to have property rights only to the *value added* to the environmental resource or property, given that one did not generate, by labor, the initial value in the environmental resource. This point is illustrated aptly by Robert Nozick. He points out that, if someone pours her can of tomato juice (labor) in the ocean and mixes it around, then she doesn't thereby gain property rights to the ocean. Rather, she simply loses her tomato juice (labor). Proudhon makes a related point: if society didn't ask a person to labor on land, then why should society repay the person with property rights in the land?[63] But if one has rights only to the value added to property by one's own labor, then it is questionable whether any alleged owners (who traded money for labor to acquire natural resources) have full property rights to environmental resources. Second, it is not clear that property rights to land and other natural resources could be justified if their implementation involved (or rendered highly probable) the exhaustion of a significant resource, such as coal, by a subset of the total population. To see why this alleged justification fails, recall that Locke's theory is generally acknowledged to be the foundation of property rights. Recall also that Locke stipulates that one may own or appropriate property, subject to his proviso, only so long as "as much and as good" is left for others. In other words, one may not take or retain land so long as one's doing so is a loss to others or results in others' having less equal opportunities to use and enjoy resources such as land.[64]

But consider the situations in which one's taking or keeping property is a loss to others. As applied to land and finite resources, Locke's proviso—that as much and as good be left for others—seems to require at least one sort of environmental justice or equal opportunity. It appears to require that one's appropriation of property not put others at a competitive disadvantage. Whenever acquisition of property takes away another's competitive parity, or causes another's competitive situation to deteriorate, then one has indeed taken away a "good" from a neighbor and thus deprived the neighbor of equal justice under the law. This "taking," it could be argued, would probably constitute (1) environmental injustice and a violation of the PPFPE as well as a violation of procedural justice; (2) a loss to those left out; (3) interference with others' liberty; or (4) production of a net disutility.[65] Hence the extent to which one has full property rights to finite natural resources—especially in a competitive situation, one of rising population, or one of increased demand for such resources—appears to be quite limited.

Objections to the Second Argument

According to this second general argument, property rights to finite natural resources like land ought to be limited, because one's labor does not create

all their value and because appropriating them may put others at a competitive disadvantage. As such, this argument is open to several objections. Among the more important of these are (1) that even though one's labor does not create the entire value in natural resources, there are utilitarian grounds for recognizing property rights to natural resources; and (2) that there is no reason that industrious people should not gain competitive advantages, because of their work, over the nonindustrious. Consider each of these objections. Robert Nozick formulates one of the best versions of objection (1). Nozick admits that there are grounds for denying property rights in natural objects but then argues that "social considerations" favor private property in environmental resources. Some of these social considerations (which he alleges outweigh the failure to provide a natural-rights justification of property rights in natural objects) include the claim that private property increases the social product by putting the means of production in the hands of those who can use these means most efficiently or profitably. Proponents of this view argue that allowing property rights in natural resources encourages experimentation, because only one person, the property owner, has to decide to try out a new idea. They say that private property enables people to choose the risks they wish to bear and protects future persons by leading some to hold back resources, from current consumption, for future markets.[66] The main thrust of Nozick's objection is that although one cannot give a natural-rights justification for property rights in natural resources, one can do so on utilitarian grounds. But this utilitarian appeal suggests that if property rights do not contribute to the alleged benefits Nozick claims, then he may have no justification for them. Therefore, a crucial question besetting his objection is whether his factual assumption about the social benefits (derived from property in natural resources) is correct. There are several reasons to believe that it is not.

First, it is not obvious that private property in environmental resources encourages experimentation with them. If people are eager to use resources profitably and efficiently, as Nozick claims, then this desire seems to run at odds with any tendency to experiment. People are unlikely to experiment with valuable resources if doing so risks their loss. Second, it is not obvious that private property protects the interests of future generations by leading some persons to hold back resources, from current consumption, for future markets. For one thing, as numerous economic studies have documented, the pervasive tendency is to use resources at an exponential rate. The current market provides little evidence that people are "holding back" resources for the future.[67] Instead, people tend to maximize net present value. For example, both the 1974 MIT study, *The Limits to Growth*, as well as its 1992 successor, *Beyond the Limits*, conclude that the world usage rate of every natural resource, including land, is growing exponentially, in part because technologies and markets "overshoot."[68] Moreover, even if resources are occasionally "held back," in order to gain a higher profit, it would be difficult to show that such a "holding back" actually benefited future generations, as Nozick claims. Owners of resources appear to hold them back within their

lifetime or that of their children. It seems unlikely that a person would hold back resources so that some future owner, many generations later, could realize a profit. Such a situation would contradict economists' notions of the supremacy of the net present value. It might also presuppose an altruism often not evident in a profit-oriented market focused on short-term gains.

Apart from whether Nozick's arguments for benefits derived from private property in natural resources are factually correct, there are reasons for suspecting that they are ethically and logically misguided. One reason for property rights in natural resources, says Nozick, is that environmental resources should be put in the hands of those who can use them most efficiently. This reason may be ethically suspect because it assumes that natural, and therefore common, resources can be employed for private gain, even though private labor did not create them. It assumes that environmental resources ought to be placed in the hands of economically efficient users rather than in the hands of all persons, including future generations. It assumes that economic efficiency outweighs considerations of equality, equal opportunity, environmental justice, and duties to future generations. Most important, all these ethical assumptions lead Nozick to beg the very question at issue: that there ought to be full property rights in natural resources. Only if one makes this assumption (that there ought to be full property rights in natural resources) do his other claims about maximizing economic efficiency make any sense. It makes no sense to say that private individuals ought to be allowed to maximize the economic efficiency of something unless they antecedently have property rights over the "something." Nozick's arguments for property rights in natural resources also are suspect on ethical grounds because he assumes that risk-taking and experimentation with natural resources, at the decision of only one person, the owner, is justifiable and desirable. If land is indeed a common resource, then it is questionable whether any single person could be said to have the right to risk it and experiment with it. Again, Nozick's alleged arguments beg the very question he addresses, namely, that there ought to be full private property rights in natural resources like land. Only if one presupposes, ahead of time, that there are property rights in natural resources does it make any sense to claim that an owner could experiment or take risks with those resources in ways that theoretically could jeopardize other goods, rights, and duties.

What of the second objection to the claim that one cannot have full property rights to finite natural resources, because Locke's proviso, about "as much and as good" being left for others, would not be satisfied? This second objection is that there is no reason the industrious should not gain competitive advantages over the nonindustrious. After all, Locke himself remarks that God gave the earth "to the use of the industrious and rational."[69] The main flaw in this objection is that it assumes that allowing private property rights to environmental resources gives advantages to the industrious over the nonindustrious. In many cases, this is false. If industrious people obtain property in natural resources because of their hard work, intelligence, and ambition, it is not clear that they have won something "away from" the lazy,

unintelligent, and unambitious. In large part, they have won something away from future generations, most of whom have not even been born yet. And many of them are likely to be hard working, intelligent, and ambitious. Moreover, even if one concedes, erroneously, that allowing full property rights in natural resources allows the industrious to be rewarded over and above the nonindustrious, a major ethical problem remains. Why should the aggressive inherit the earth, as the objector presupposes? Why should the natural advantage of intelligence, whether its origin is genetic or environmental, allow people to receive greater benefits than those who, through no fault of their own, did not receive such natural endowments? Moreover, as Lawrence Becker points out, the social Darwinist rationale for the rights of the strong (to the advantages conferred by property in environmental resources) reduces to an absurdity. That is, to the extent that property rights to natural resources protect possession and inheritance, the strong do not need them. And if not, then such rights protect the weak against the strong.[70] But if so, then there are no clear grounds for arguing that weak persons have full rights to property in natural resources, if the rationale is that the strong have rights to the advantages conferred by property.[71]

Conclusion

If the preceding analysis, despite its admitted incompleteness, is largely correct, then there are strong grounds for further consideration of two conclusions, one particular and one general. In particular, in areas such as Appalachia and California that are prone to monopolistic control of land, procedural (and therefore environmental) justice suggests that property rights to finite natural resources ought to be limited. In general, because one's labor does not create most of the value in natural resources and because appropriating them puts others at a competitive disadvantage, there are ethical grounds for limitations on property rights in finite environmental resources. Although this chapter does not use the PPFPE, including its aspects of distributive and participative justice, to argue for these limitations, the limitations clearly would promote the PPFPE.

If there are rational and procedural grounds for limiting property rights in finite, natural resources such as land, what land-use controls might be appropriate? As already mentioned in connection with the particular argument concerning areas such as Appalachia and California, these controls might include acreage limitations, restrictions on the right to use land when it obstructs operation of a free and competitive market, and heavier taxation of owners with large holdings, so as to offset the tax breaks they have relative to small farmers. If the arguments in this chapter are correct, then ownership of vital, finite, natural resources such as land may have to be restricted to the rights of income, transfer, and limited transmissibility. Additional aspects of property rights—rights to management, use, and actual possession—might have to remain under public control,[72] to the degree necessary to serve the

public interest and to promote environmental justice, especially in areas such as California and Appalachia.

Aldo Leopold said that future generations would look back on people today as guilty of moral myopia. He noted that people wonder how the Greeks could have killed or raped women and slaves, on the grounds that they were merely property. Similarly, Leopold predicted that future generations will question how current landowners can continue to treat the earth merely as property, on the grounds that it is only an economic commodity.[73] If the arguments of this chapter are correct, then future generations also ought to ask a second question. How can current land owners continue to treat the earth merely as property when it also is a vehicle for securing or destroying environmental justice?

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4 African Americans, LULUs, and Free Informed Consent

One reason environmental justice is so difficult to secure is that often its victims claim that a dangerous facility or life-threatening land use will bring needed economic benefits to a poor area. If environmental injustice always involved a powerful majority's imposing a disproportionate public health or environmental threat on an unwilling and vulnerable minority, as with the offshore-oil technology discussed in chapter 2, then the cases would be easier to evaluate. Often, however, some of the victims themselves appear to have consented to the facility. If so, it is unclear whether an obvious injustice is occurring. Consider the case of one recent opponent of environmental injustice, Reverend Adolph Coleman. He fought a waste incinerator, considered a locally unacceptable land use (LULU), in the largely African-American Chicago south side.

Reverend Coleman and the South Side

As pastor of the West Pullman Church of God, Coleman has had more opportunities for education and leadership than his fellow African Americans who are members of this church in the Chicago suburb of Robbins, Illinois. As part of his community and religious leadership, Robbins has worked hard to protect others from environmental racism, that is, from environmental injustice directed against African Americans. After learning of a plan to truck garbage from other areas to a proposed incinerator in his community, Coleman educated himself about incinerators and took the lead in organizing 7 years of opposition to the proposed waste facility. He argued that the incinerator would threaten both public and environmental welfare

in Robbins, an area of already high pollution and poverty.[1] Despite the pastor's activities on behalf of his community, the facility cleared its final legal hurdle when the Illinois Supreme Court ruled, in December 1994, that siting the incinerator—in a poor, heavily polluted, minority area—had not been unfair.[2]

Robbins, Illinois, the site of the proposed incinerator, was founded in 1917 as the North's first African-American town. It also became the first city in the North to be governed by African Americans. Later it hosted the nation's first airport managed by African Americans. Today, however, full of small old clapboard houses with narrow front yards and cracked sidewalks, it is among the poorest towns in America. In 1990, the city's annual budget was $1.6 million, but the local property tax produced only $250,000; the city was $6 million in debt. The town has no gas station, laundromat, or fast-food franchises. Its 34 churches outnumber its 26 tax-paying businesses.[3] Many residents viewed Robbins's proposed electricity-generating garbage incinerator, operated by the Reading Energy Company, based in Philadelphia, as an economic boon. Even though the facility would cost Chicago residents an additional $42 million over 10 years,[4] many of the seven thousand Robbins residents, including the mayor, claimed it would bring their town jobs and economic recovery. Proponents also said it would generate nearly a million dollars in royalties, lease fees, and taxes. When the Reading Energy Company proposed the incinerator in the mid-1980s, average per capita income in Robbins was less than $7,000 per year. Few communities needed development more than Robbins.[5]

With two sisters and some friends, Reverend Coleman called or visited virtually every Robbins household to rally opposition to the facility. He also became a member of the South Cook County Environmental Action Coalition (SCCEAC). But the community was desperate for economic growth, even development that other towns rejected as unsafe and unhealthy; Robbins police arrested and jailed Coleman and some supporters for leafletting against the proposed incinerator. Pointing out that electric power in the area was cheaper than any that could be produced by an incinerator, the minister argued that tax subsidies for the waste facility were the only economic reason for operating the burner.

The Reading Energy Company was eager to develop the incinerator because it would bring the company $300 million in no-interest loans over 20 years, plus more than $400 million in tax incentives (including freezing the incinerator's taxes for 23 years). In exchange for approving the facility, Robbins residents would receive several payments, in the hundreds of thousands of dollars, from the developers. For the next 23 years, however, the tax base for Robbins would slowly decline as a consequence of freezing the plant's tax payments.[6] As a result, school districts and other bodies would not benefit from the higher property tax revenues traditionally occurring when the value of improved land increases. Moraine Valley Community College, for example, calculated it would lose $21 million in tax revenues, over 20 years, because of the Robbins tax break.[7] In addition to the economic risks

brought by the proposed facility, there were also health threats. Within a few blocks of the proposed incinerator, there were a housing project, a senior citizen home, and a medical center.

Coleman had trouble organizing citizens against the burner because no school or church in Robbins would give him a meeting place; all of them accused him of acting against the best interests of his own African-American community. Coleman was forced to meet in a Pentecostal church in Blue Island, a working-class, racially mixed city adjacent to Robbins. There he argued that incinerators compete with recycling efforts. He also maintained that the plant would allow heavy metals like cadmium, as well as dioxin and furans, into the air and thus threaten anyone within a 30-mile radius. Each year it would belch 1,000 pounds of lead and 4,400 pounds of mercury into the air. Coleman also argued that Robbins already had severe air pollution and that its children were six times more likely to suffer from the dangerous effects of air pollution than were adults. Even the American Public Health Association said no incinerators should be built in an area that was already so heavily polluted. One minority radio announcer, from station WVON, called the proposed Robbins incinerator another cause of the "economic and environmental apartheid" on the South Side of Chicago.[8]

Coleman knew that community activists had already stopped proposed incinerators in the south Chicago suburbs of Stickney, Harvey, Crestwood, Dolton, and Ford Heights (East Chicago Heights); the last community is the poorest in the entire Chicago metropolitan area. What disturbed him was that few other African-American clergy in Robbins were willing to speak out against the incinerator. "Leadership gets bought out," he said.[9] Despite the involvement of numerous local opposition groups, the Illinois Environmental Protection Agency (EPA) issued the permit for the Robbins facility. Nevertheless, the Illinois EPA's required studies did not include the development costs of any incinerator alternatives—like recycling. Incinerators have major development costs, but the primary expenses for recycling are labor, something much needed in towns like Robbins. Had it not been for the Reverend Adolph Coleman and his community coalitions, however, the incinerator would have been a reality long ago; it was completed by 1998. Although Coleman lost the battle,[10] other fights continue. Five new garbage burners are slated for the Chicago area, and all are located in poor, minority communities on the South Side.[11]

Are the Chicago incinerators really evidence of environmental injustice?[12] Or have local communities, and those affected by the facilities, given authentic free informed consent to the burners? And if they have consented, ought societal victims to be allowed to trade their health for economic benefits? To trade a bloody loaf of bread for no bread at all? Would it be wrong and unjustly paternalistic for government to reject additional South Side incinerators? The answers to such questions depend on a detailed, case-by-case analysis of whether conditions for free informed consent are met, whether the alleged harms are grave, and whether apparent victims are in a position to provide or withhold free informed consent.

Overview

Using a Louisiana case study, this chapter examines some of the ways that violations of free informed consent jeopardize distributive justice, participative justice, prima facie political equality (PPFPE), and therefore environmental justice. Reviewing analyses in the two previous chapters, I argue that, if resource- and pollution-related decisions result in unequal treatment of individuals on the basis of race and socioeconomic status, then such decisions are prima facie wrong. Second, the chapter surveys the history of the doctrine of free informed consent and argues that the consent of those affected is necessary for ensuring the fairness of decision-making about siting hazardous facilities. Presenting a case study on the proposed uranium enrichment facility near Homer, Louisiana, the chapter defends three main arguments: (1) Selection of the Louisiana site probably would violate prima facie norms for free informed consent and therefore norms for participative justice. (2) Community solicitation procedures for the facility violated actual norms for free informed consent. (3) Socioeconomic and environmental impacts at the site almost certainly would violate norms of distributive justice. The chapter concludes that the attempted siting of the Louisiana installation is ethically unjustified. Because it violates the PPFPE defended in chapter 2, the attempted siting therefore is probably a case of environmental racism. The chapter closes by answering possible objections to these conclusions.

A Case Study: Homer, Louisiana

Near Homer, Louisiana, there are two small African-American settlements: Center Springs and Forest Grove. They are laced with loblolly pines, cottontails, dirt roads, and unpainted outhouses. Once the homes of freed slaves, they are towns of rural hospitality and warmth, kin and cornbread, towns where children learn to catch crawfish by night and catfish by day. Although these settlements are nestled in a lush, almost pristine, natural environment, they are among the poorest communities in the United States. Per capita earnings are only about $5,800 per year. Unemployment and school dropout rates are 50 percent. In the early 1990s, Center Springs and Forest Grove became the target site for a uranium enrichment plant that would bring needed jobs to the area but also increase the radioactive pollution borne by local residents. Although NIMBY would be the typical response of an affluent white town, the corporation siting the facility expected acceptance from the two African-American communities.[13]

As I showed in chapter 1, evidence indicates that the Center Springs/Forest Grove situation is typical of environmental injustice cases. Minorities in the United States who are disadvantaged in terms of education, income, and occupation bear a disproportionate share of environmental risks.[14] More-

over, race appears to be an independent factor, not reducible to socioeconomic status, in predicting the distribution of noxious facilities.[15] Yet to use race as a basis for discrimination is unjust and especially groundless. William Frankena notes that it is especially unfair "to treat people differently in ways that profoundly affect their lives because of differences for which they have no responsibility."[16] Differences can be ethically relevant for matters of distributive and participative justice only if individuals can be responsible for them. But no one can be responsible for being of a particular race. Moreover, on the basis of fairness and equal opportunity, chapter 2 argued that one should give the interests of the least advantaged members of society highest priority.[17] If these arguments are correct, then discrimination against individuals of lower socioeconomic status is especially wrong and violates the PPFPE.

How were the rights of African-Americans in Center Springs and Forest Grove, Louisiana, violated? Their rights to free informed consent and to equal treatment were jeopardized recently after Louisiana Energy Services (LES) applied for a license to build and operate a uranium enrichment facility, the Claiborne Enrichment Center (CEC), nearby. As a consequence the NRC prepared an environmental impact statement EIS analyzing the potential consequences associated with the construction, operation, decontamination, and decommissioning of the facility.[18] According to the EIS, the primary function of the proposed CEC installation would be to produce various grades of enriched uranium for use in commercial nuclear power generating stations in the United States.

According to the NRC, there is a need for the facility because, as of 1990, the DOE supplied approximately 89 percent of the national purchases of enriched uranium.[19] By 1996, LES projected that 60 percent of the U.S. demand for enrichment services would be uncommitted to DOE suppliers and that, by the year 2000, this percentage would grow to 70.[20] Owners of LES said that the growing uncommitted demand for uranium provided an opportunity for a competing company to enter the enrichment market, especially because the proposed plant would use the gas centrifuge technology, which requires about 50 times less electrical energy than the DOE's old gas diffusion technology.[21] The LES owners also claimed that the CEC would (1) pressure other U.S. enrichment suppliers to maintain competitive positions in the world enrichment market, (2) reduce U.S. dependence on foreign suppliers, and (3) provide an opportunity to replace the older gas diffusion process with an energy-efficient one.[22]

To identify a suitable site for the proposed enrichment facility, LES followed a three-phase screening process.[23] The first phase identified geographical areas within the United States suitable for locating the plant. This coarse-screening process led to the selection of the northern Louisiana region. Some of the socioeconomic criteria used for this first phase included siting the facility in a location where it would (1) "be considered an asset to the community"; (2) "promote local community acceptance"; and (3) have "a

favorable business climate exemplified by the presence of communities with large labor pools available and states having right-to-work laws."[24]

The second and third screening processes for the proposed plant focused on the selection of a final site in northern Louisiana. LES canvassed community leaders "for their interest in being the host site for a new manufacturing facility" and requested that they "nominate potential sites" using LES's "criteria." After receiving 21 offers from solicited groups, LES eliminated some nominated locations through the use of additional criteria, such as the need for the community to have a "strong manufacturing mentality." To further narrow the list of potential sites, LES then used a decision-making methodology of "musts" and "wants." "Musts" had to be satisfied; for example, the site had to meet certain geological and soil requirements. On the other hand, LES assigned a weighting factor to each "want." According to LES, among the most desirable "wants" were local citizen support for the facility. In the final phase, researchers selected a proposed location near Center Springs and Forest Grove, 5 miles from Homer, Louisiana.[25]

According to the EIS, the site selected was in Claiborne Parish, an economically depressed area with a high percentage of minority residents. The racial/ethnic composition was 53.43 percent white, 46.09 percent black, 0.16 percent Native American, 0.07 percent Asian, and 0.23 percent Hispanic.[26] The specific host communities for the facility, Center Springs and Forest Grove, were almost entirely African American.[27] Moreover, as the EIS explained,

> [e]mployment in Claiborne Parish . . . is generally low-wage and low-skill. Per capita earnings for the residents is about $5,800 per year. . . . The average for the broadly defined LES labor market is only about $8,500 per year compared to the national average of almost $12,800. These figures, in particular the Claiborne Parish figures, make it one of the poorest regions in the United States as measured by per capita earnings.[28]

The EIS also asserted that, in terms of total per capita personal income, Louisiana was ranked forty fifth in the United States, and Claiborne Parish was ranked in the bottom third of Louisiana parishes. Unemployment in Claiborne Parish was 8 percent, with "minority unemployment" being "minimally 50 percent greater than white unemployment." The high school dropout rate in Claiborne Parish was listed as 47 percent.[29]

Despite the economically depressed conditions of Claiborne Parish, the NRC concluded that licensing LES for the construction and operation of the proposed enrichment facility would not result in a significant impact on the environment. The NRC also said that,

> on balance, CEC should be a major socioeconomic asset to Homer, Claiborne Parish, and neighboring parishes. The negative impacts of CEC are likely to be similar to those of any relatively large-scale socioeconomic development in a small, rural area. . . . [T]he costs of CEC to the local population and municipalities should be minimal.[30]

The Louisiana Siting Was Not Ethically Justified

On the basis of the information in the EIS and the associated documents, the remainder of this chapter argues that the ethical assumptions used to justify siting the CEC were seriously flawed in at least three respects. (1) Selection of the Louisiana site probably would violate prima facie norms for free informed consent and therefore norms for participative justice. (2) The community-solicitation procedures of LES violated actual norms for free informed consent. (3) Socioeconomic and environmental impacts at the site almost certainly would violate norms of distributive justice.

Free Informed Consent

To see why members of the communities hosting the LES facility probably were unable to give free informed consent to it, one needs to understand the requirements for obtaining free informed consent. These requirements rose to importance during the late 1950s when legal cases brought the concept of consent to the attention of physicians who were defendants in malpractice suits. The concept began to receive more serious ethical analysis in the 1970s,[31] when the new interdisciplinary "biomedical ethics" helped emphasize the ethical dimensions of consent.[32] Wider societal concerns, about individual liberties and social equality, also heightened interest in the legal right to self-determination, and they increased philosophical interest in concepts of autonomy. The same social concerns generated wider recognition of civil rights, women's rights, consumer rights, and prisoners' rights, all of which influenced interest in the concept of informed consent.[33]

Over the past two decades, two principles—protection of individual human autonomy and protection from harm—have emerged as the main grounds for justifying rights to free informed consent.[34] In recognition of this justification, virtually all medical, legal, and professional codes of ethics require physicians and other professionals to obtain the free informed consent of employees, patients, and subjects before putting them at risk. There is currently consensus in medical ethics that, in order to satisfy conditions necessary for free informed consent, at least four requirements must all be satisfied: the risk imposers must disclose full information about the threat; potential victims must be competent to evaluate it; they must understand the danger; and they must voluntarily accept it.[35] (1) *Disclosure* requires professionals to pass on risk information to potential victims and decision-makers. (2) *Understanding* requires professionals to help persons overcome factors such as irrationality, immaturity, and distorted information, all of which can limit their comprehension of a situation to which they have a right to give or withhold consent. (3) *Voluntariness* requires that subjects be free from manipulation and coercion. (4) *Competence* requires subjects to have the ability to give autonomous authorization, on rational grounds, to some act.[36]

In general, there are certain types of cases in which, prima facie, risk imposers cannot meet the requirements for free informed consent of subjects.

Risks imposed on prison inmates, for example, constitute one such case. Prisons provide a very coercive context for decision-making, prima facie, because inmates expect early release in exchange for their cooperation and thus may not meet the voluntariness criterion.[37] In other instances, it is prima facie doubtful that the understanding and competence requirements can be met, as in the case of a 14-year-old girl's consenting to a risky medical procedure in order to help save the life of her mother.[38] Likewise, a community's depressed economy, high unemployment rate, and low level of education constitute conditions that, prima facie, can jeopardize its ability to meet the four standard requirements for free informed consent. Low levels of education can prevent the understanding condition from being satisfied, and a depressed economic situation can provide a coercive context that does not allow the voluntariness condition to be met. Very attractive, but dangerous, offers (such as risky jobs promising large salaries or risky facilities offering economic benefits) also can force poor persons to accept questionable situations.[39] This force is one reason that participants at the 1992 National People of Color Environmental Leadership Summit, in Washington, D.C., in adopting principles of environmental justice, specified both "strict enforcement of principles of informed consent" and "universal protection from production and disposal of toxic/hazardous wastes," as necessary for environmental justice.[40]

One main ethical problem with the Louisiana EIS was its failure to take account of factors that could jeopardize free informed consent, such as the town's severely depressed socioeconomic conditions. This situation, prima facie, probably prevented members of these communities from meeting the requirements for free informed consent. The main reason is that the CEC promised badly needed jobs, but few for the lowest and poorest groups. It also promised high salaries and attractive secondary economic effects,[41] such as high-paying construction and operations jobs (averaging $37,000 and $44,000, respectively) in an area with average earnings about half those levels and high unemployment and underemployment.[42] Because educational levels in the communities surrounding the proposed site were low, this situation likewise militated against residents' having the understanding adequate to give or withhold free informed consent. Furthermore, because unemployment for minorities in Claiborne Parish was high—twice what it was for whites—this situation also compromised minorities' having the freedom to accept or reject a risky CEC facility that might employ some of them. For all these reasons, depressed socioeconomic conditions created a situation in which, prima facie, it is likely that neither the voluntariness nor the understanding criterion for free informed consent could have been met by the African-American communities hosting the facility.

LES Violation of Free Informed Consent

Claiming that it is prima facie questionable—on grounds of consent—to impose additional risks on disenfranchised communities, however, does not

tell people what their actual duties will be in a particular case. Such norms reveal actual duties only if all other things are equal. Particular circumstances may require people to override a given prima facie norm in favor of other ethical requirements. For example, there is a prima facie obligation to tell the truth. A particular situation, however, may require people to override this duty if they face circumstances in which lying is necessary, for example, to save an innocent person's life. But if so, then the actual obligation will be to save the person's life, despite the prima facie duty to tell the truth. Although people may have different and conflicting prima facie obligations, the particular circumstances of the case under consideration may determine what their actual duties will be.

In the case of free informed consent, governments have duties to respect citizens' prima facie rights to consent to risk imposition. As I argued in chapter 2, however, other rights or goods (such as national security) may override rights to free informed consent, as in the case of wartime. But if so, then particular cases require analysis, in order to determine whether or not one ought to override prima facie norms of consent. An ethical problem with the Louisiana EIS is that the particular circumstances of the case arguably show violations of free informed consent. Consent norms apply to the site selection process because the LES solicited the community to determine its alleged preferences about the proposed CEC facility. As mentioned earlier, the LES canvassed communities in northern Louisiana for "their interest in being the host site for a new manufacturing facility." The company requested communities to use LES's "criteria" and to nominate potential sites for a proposed chemical facility."[43] The CEC nominations and solicitations violated community rights to free informed consent, however, in at least seven ways, nearly all of which also violated fairness. First, the procedure presupposed that some chemical facility would be built somewhere, and only the location needed to be determined. In begging the question regarding whether (and what kind of) a facility would be built, the LES procedure violated fairness and noncoercion because it undercut the freedom of respondents to reject any chemical facility nearby.

Second, in its solicitations the LES avoided disclosure of certain criteria that it judged to be necessary for siting the facility, such as finding locations within the Louisiana Power & Light (L P & L) service area. They also did not disclose that the site should avoid flood-prone areas, even though LES used these and other unknown criteria to eliminate nominated sites.[44] Withholding criteria for site selection also indicates that LES was unfair. It begged the question regarding site rejection by canvassing communities outside of the L P & L service area but then rejecting their nominated sites on grounds that the locations lay outside that area; LES eliminated four proposed sites in this way.[45] Moreover, because LES did not tell communities to avoid flood-prone locations, residents in or near such areas were much more likely, unknowingly, to select unacceptable sites than those who were not near such areas. This likelihood, in turn, biased site selection against locations that the residents otherwise might have chosen; the LES in effect coerced some

communities to choose sites that would be rejected. Hence LES violated both norms of fair play—procedural justice—and the voluntariness norm for free informed consent.

Third, LES did not show that it fully informed solicited communities about the precise nature of the proposed facility. The EIS says that LES officials canvassed communities for their interest in being the host site for a "new manufacturing facility" and asked them to nominate sites for "a proposed chemical facility."[46] Although the terms "manufacturing facility" and "chemical facility" may have helped laypersons understand some of the functions of the proposed LES plant, they misrepresented the significant radiological risks posed by the facility. They misrepresented the fact that the installation would be a chemical plant manufacturing enriched uranium for use in nuclear reactors.

Fourth, even if the precise nature of the facility had been accurately conveyed to solicited communities, citizens could not have understood the accident and health hazards associated with the plant, because CEC representatives could not have disclosed them. They could not have done so because there was neither a probabilistic risk assessment (PRA) for the proposed facility nor a quantitative determination of many of its hazardous impacts and costs (e.g., increased crime). Because LES did not fully assess such risks, it was impossible to know, reliably, the actual risks associated with the plant.[47] The LES officials could not have properly disclosed risk and cost information that they did not have. Thus, community decision-makers could not have understood these threats and could not have given free informed consent to them.

Fifth, EIS assessors from LES based their conclusions concerning hazards of the proposed facility on old data, omissions, and largely subjective judgments formulated in purely qualitative language. As a result, it is likely that any risk information they gave to solicited communities was biased and greatly underestimated the risks involved with the proposed plant. For example, the EIS used a 10-year-old study of facilities that differ "significantly from the CEC" to identify potential accident scenarios. In addition, some events that could produce the "largest potential release to the atmosphere for accidents" were "not analyzed in detail." The EIS assessors ignored some catastrophic accident scenarios (and assumed they would never occur) merely on the grounds that they had "never occurred" in 32 years of enrichment facility experience or on the grounds that there were "redundant protection controls." Even redundant protections, however, often fall victim to human and operator error, and 60 to 90 percent of serious technological accidents (according to the OTA) typically involve human error. In addition, an alleged accident rate of 0 in 32 years is not necessarily low but is consistent with a rate as high as 1 in 10 or 20 years, for example. Because the U.S. government typically regulates risks larger than 1 in 1,000,000, the possible enrichment facility accident rate of 1 in 10 or 20 appears quite high. Moreover, the NRC assessors used subjective and qualitative judgments, rather than quantitative assessments, in their evaluation

of accident releases. They claimed, for example, that operator errors (associated with inadequate degassing of the lines) could result in dangerous "releases of relatively small magnitude," yet they gave no probabilities for such accidents and no justification for the predicted range of possible quantities of materials that could be released. Thus, even if LES had given some information to solicited communities concerning the risks of the facility, it appears likely that the information would have underestimated the actual risks. And if so, LES representatives appear to have violated the consent criterion of understanding.[48]

Sixth, the site-solicitation process and scoring or evaluation procedures were obviously unfair because they did not involve the host communities, Center Springs and Forest Grove. Both communities are virtually entirely African American and are located approximately 0.25 miles and 1.25 miles, respectively, from the proposed CEC. Instead, LES solicited the opinion of leaders from Homer (located 5 miles from the chosen site).[49] Because the LES scoring process did not take into consideration the opinions of the two communities that would actually host the proposed CEC, the site-selection process was unfair. It prevented these communities from voluntarily giving or withholding consent to the facility.

Seventh, the LES screening process did not fully inform decision-makers and affected parties regarding alternatives to the proposed site. Although LES claimed that the third and final part of the siting process allegedly identified "alternative" sites, the EIS admits that "alternative sites considered by LES are not alternatives available to the NRC, and are therefore not alternatives for the purpose of this EIS."[50] Because the screening process limited consideration of alternatives yet claimed to present alternatives, it was unfair and violated norms of participative justice. Thus it is arguable that the CEC activities violated community rights to free informed consent.

Violations of Rights to Equal Treatment and Compensation

Despite the apparent unfairness of the LES solicitation procedures, as just discussed, someone nevertheless might believe that the overall benefits of the facility somehow could justify citizens' lack of free informed consent to it. Such overall benefits are questionable because the socioeconomic and environmental impacts of the proposed facility on the host communities threaten the PPFPE as well as free informed consent. In this section I argue that having the facility, without adequately compensating communities for the impacts imposed on them, is unjustified. Therefore, I argue that the benefits do not appear to outweigh the costs. Impacts resulting from CEC operations include higher housing and land prices, loss of land use, crime, higher taxes, and public exposure to radioactive material.[51] I will show that these and other consequences unjustifiably impose unequal impacts among groups within Claiborne Parish and between the communities surrounding the CEC and other areas of the United States. The uncompensated imposition

of such regional inequalities is contrary to distributive justice, to the PPFPE, and to NEPA guarantees of distributive equity.[52] Because the EIS ignores regional inequities and does not show that any alleged benefits outweigh the costs to the community, it does not provide an adequate ethical justification for the CEC.

The EIS provides no adequate evaluation of the distributive impacts of the CEC but admits that those lower on the economic scale will carry the burden of the social costs of the facility, while those better off will enjoy the benefits. The EIS says that "the distribution of benefits is likely to be concentrated in the middle-income groups," not the lower-income groups; it admits that "higher-income households benefit most from the income generation process." Higher-income people benefit most because low-income households spend a higher percentage of their money on goods and services supplied by higher-income households than vice versa. The draft EIS concludes that "the income benefit to the unemployed or very low-income people . . . will be less than might be expected." The EIS also admits that, if local residents were employed at the facility, they probably would work in the lowest-paying jobs. The EIS says, for example, that high-paying "radiological and specialized chemical or nuclear-related jobs are unlikely to be filled by local residents," and "construction jobs, especially high skilled construction jobs, are more likely to attract temporary workers from outside the area." In addition to receiving fewer benefits (like jobs) from the CEC, the EIS reveals that lower-income groups also would carry a disproportionate burden of the costs of the facility. For example, because of the influx of additional residents and increased economic activity, the LES says it expected an increase in crime, which would impact largely lower-income groups. Furthermore, in part because of increased demand arising from the influx of facility workers, the EIS says the plant would be likely to raise both housing and land prices. But because higher property prices increase rental and home-purchase prices, people who do not own property are more likely to suffer from the increase. Higher property costs, on the one hand, are more likely to benefit those who own real estate, especially more expensive property. On the other hand, violent crime and drug-related property crimes are likely to decrease property values in low-income areas. The proposed facility also would impose extremely inequitable risks (from radiological hazards) on infants and children. For example, because there is a greater potential for children to consume contaminated cows' milk, the EIS estimates that potential radioactive doses from liquid releases from the facility will be two to ten times higher for children and infants than for adults. For these reasons, it is likely that siting the CEC actually will exacerbate inequities among groups within the Claiborne Parish area.[53]

Siting the CEC also would discriminate against Louisiana residents who would bear the costs of the facility and other people nationwide and worldwide who would receive the benefits. Benefits enjoyed nationwide include promotion of nuclear technology, economic expansion, increased production, and cheaper enriched uranium. Private profits also would accrue to

people worldwide from the facility. Urenco Investments, the general partner that would have majority control of the CEC, is owned by the United Kingdom, the Netherlands, and Germany.[54] Because significant profits resulting from the facility would go to foreign investors, nationwide economic benefits that could reach Louisiana communities arguably might be less than if all private income from the facility had remained in the United States. Although Louisiana residents might enjoy some of the nationwide benefits, people living near the plant—especially those in the poorest groups—would bear almost all of the costs of the facility. In addition, the depressed socioeconomic situation of the two host communities suggests that they would not enjoy the nationwide economic benefits of the proposed CEC, because the poor are usually "isolated from economic growth."[55] As I argued in chapter 2, in the United States in the last four decades, although there has been an absolute increase in the standard of living, wealth has become less equitably distributed.[56] Because the Center Springs/Forest Grove area is one of the poorest in the United States, it is likely that siting the plant would exacerbate the socioeconomic inequalities that exist between these communities and other areas of the country.

Despite the inequities arising from the proposed facility, the EIS provides a justification neither for the imposition of negative geographical and socioeconomic impacts nor for its threats to free informed consent. In its section on environmental justice, the EIS argues that because the proposed facility "will not cause any significant adverse impacts on nearby residents or anybody else," it follows that "there will be no significant disproportionate adverse impact" on low-income minorities.[57] The NRC staff concludes that "the proposed LES facility is not an example of environmental injustice."[58] This argument is unsound for at least three reasons. (1) Because of the economic, consent-related, and equality-related consequences already discussed, it is questionable whether the CEC would have no significant negative impact. Instead the CEC appears to have violated distributive and participative justice. (2) Already there have been violations of fairness and of free informed consent in the EIS itself, as already argued. In addition, (3) inequitable distributions of burdens and benefits, like those already discussed, can result in environmental racism. For all three reasons, the EIS allegation that there is no significant threat to public health and safety from the CEC is highly questionable and probably underestimates the real accident risk because, as previously explained, assessors performed no probabilistic risk assessment. They based their conclusions on largely subjective judgments formulated in purely qualitative language. They used old empirical studies to draw their conclusions, and they did not analyze worst-case accidents in detail. Without correcting these inadequacies, it is impossible to determine, reliably, that there would be no adverse impacts from the proposed plant.

Moreover, although the EIS recognized costs associated with the facility (e.g., increased crime and higher radiation exposure), it offered no balancing of risks and benefits. It ignored the fact that an inequitable distribution of benefits can result in environmental injustice. As argued earlier, alleged benefits

from the proposed facility (e.g., economic expansion, promotion of technology, and private profits) would not serve the overall interests of everyone in an equal way. The poor—especially minorities—who would bear most costs of the facility would enjoy a disproportionately low share of the benefits, if any. Such inequalities violate distributive justice if they amount to treating one set of persons merely as means to the socioeconomic ends of others.[59] If all humans have equal rights and equal dignity, as chapter 2 argued, then using some people as means to the ends of others, without justification, is ethically wrong.[60] Because the EIS answered none of these problems with balancing or justifying apparent environmental injustices, it appears that the EIS has violated both distributive and participative justice. It has not followed the PPFPE.

Objections and Replies: An Environmentally Just Energy Policy

One objection to the claim that the attempted siting of the CEC is unethical because it violates environmental justice is that the plant has to be located somewhere. According to this objection, it is better to put it where it will help the economy.[61] There are at least two problems, however, with this response. (1) It assumes that the plant is needed. (2) It assumes that the facility will help the economy. Even if both assumptions were true, it is not clear that they would offset the problems already mentioned with consent and environmental justice. Nevertheless, both of these assumptions are questionable.

First, there are good reasons to think that (1) is false and that the LES installation was not and is not needed. As previously discussed, LES officials argue that there is a need for the facility.[62] But although they claim that their plant would be a complementary supplier of enriched uranium, siting the CEC would arguably run counter to the U.S. government's response to current enrichment problems.[63] For example, both the DOE and American taxpayers currently face the enormous costs of future decontamination and decommissioning of old enrichment facilities, environmental restoration of plant sites, and new technology deployment related to uranium enrichment.[64] The EIS says that the proposed Louisiana facility would be in direct competition with DOE suppliers.[65] It is questionable whether such domestic competition would help the United States solve its enrichment problems because competition from the LES facility would take customers away from the DOE, and this could hinder the DOE's ability to handle future expenses related to U.S. enrichment needs.

Furthermore, the current U.S. enrichment strategy, which includes privatizing the United States Enrichment Corporation and developing more cost-efficient technology, arguably would eliminate the need for the proposed LES facility.[66] The DOE is committed to the Uranium-Atomic Vapor Laser Isotope Separation (U-AVLIS) process, a means of enriching uranium at a cost that is 50 percent lower than any other enrichment process, including

the centrifuge technology to be used at the proposed CEC.[67] Experts indicate that the new technology can be put in operation shortly, and in facilities whose production will be much greater than that of the proposed CEC.[68] Moreover, according to the EIS, "in 1993, the U.S. and Russia reached an agreement which provides for the U.S. to buy Russian uranium"; the uranium from dismantled Russian nuclear weapons will supply more than "50 percent of projected U.S. demand" during the first 15 years of the proposed CEC operation.[69] Given these U.S. strategies for addressing current enrichment problems, it is very uncertain whether there would be a need for the proposed CEC facility.

Moreover, the EIS does not show that there is a need for the LES plant because the EIS adequately discusses neither the status of the U.S. nuclear power industry nor U.S. policy regarding the industry. The justification for building any enrichment facility seems to depend in part on the existence of a healthy nuclear industry. According to the EIS, LES projected that U.S. requirements for enrichment services would begin to increase significantly in the year 2000.[70] However, despite the desire of the Bush administration to build more nuclear reactors, this projected increase is doubtful for many reasons. For one thing, the nuclear industry in the United States has been in a state of severe decline since the 1970s.[71] The cessation and eventual cancellation of all orders for new commercial reactors marked the collapse of the nuclear industry. Even industry trade journals denied the reactors were safe, and only 15 reactors were ordered after 1974; all of the latter, including over one hundred other nuclear plants, were canceled or indefinitely deferred, even though many were already under construction.[72] Furthermore, no utility has ordered a new nuclear plant since 1978. This decline is a far cry from the 1,000 U.S. reactors the DOE said would be built by the year 2000. Many of the approximately 110 U.S. commercial reactors now existing (or under construction) will have ended their 30-to-40-year lifetime by the year 2004—before the proposed LES facility could be fully operational.

Second, it is arguable that, despite the desire to address climate change and avoid fossil fuels, the present collapsed state of the commercial nuclear industry will continue for the foreseeable future because many of the problems that precipitated the nuclear decline show no signs of being solved. Foremost among these problems are public fear of the carcinogenic, mutagenic, and teratogenic hazards of radiation, especially after the Chernobyl accident, and increased costs of nuclear energy. These increased costs have been brought about by inflation, construction time extensions, and unanticipated new regulatory requirements.[73] Despite the fact that nuclear power is the most heavily subsidized energy technology in the United States, receiving more than $3 billion per year in the form of taxpayer subsidies,[74] nevertheless it is one of the most expensive energy sources today. By 1993, nuclear fission–generated electricity was more expensive than most other forms of electricity generation, including hydroelectric, natural gas, geothermal, biomass, coal, wind, solar thermal with gas backup, and solar thermal. Even in 1993, only solar photovoltaic was more expensive.[75] When one includes

total fuel cycle costs, in 1994 the average cost of nuclear-generated electricity in the United States was 13.5 cents per kilowatt-hour, while the average cost of nonnuclear U.S. electricity was 9.3 cents per kilowatt-hour. Net energy costs (delivered energy less what energy was used or wasted to produce it) for nuclear are also higher than for all other forms of generating electricity.[76]

Once the enormous subsidies are included in the cost of nuclear energy, it is even more expensive than all other forms of generating electricity. Since 1973, 54 percent of U.S. energy R & D monies have gone to nuclear, while only 21 percent have gone to renewable energy and conservation together. Even for the year 1998, these respective figures were 30 percent and 22 percent. And if one includes the costs of permanent nuclear waste disposal, the only reason atomic power might look economically attractive is that economists discount future deaths and hazards from the waste, which must be secure for roughly a million years. According to this discounting scheme, for instance, analysts do not include the cost (X dollars) of radionuclide contamination of groundwater in the future or the cost (Y dollars) of deaths from waste transport accidents. Instead the nuclear benefit-cost analyses include the amount that, when invested at the current rate, would give X or Y dollars in the future. At a standard discount rate of 6 percent, one dollar now would be worth a million dollars in only about four hundred years. Thus if one person will die from nuclear waste in four hundred years, that death is represented in current nuclear cost-benefit analyses not as worth one million dollars, but as worth one dollar. It is obvious that, after several centuries, using a discount rate to value nuclear costs and deaths effectively reduces them to zero. But if most nuclear costs will occur in the future, and if most of those costs are represented as zero, then it is easy to see how atomic power erroneously can be described as inexpensive.[77] It is also easy to see how nuclear waste storage and disposal arguably is environmentally unjust to members of future generations. The same faulty economics are at work in decommissioning nuclear plants. The taxpayers will pay for these costs, and yet no successful decommissioning has ever taken place. The decommissioning has been projected to cost more than the initial capital cost of the plant, already the highest of all types of central generating facilities.[78] Such problematic nuclear costs remain the case throughout the world. Typically the only reason nuclear power is viable in France, with the world's largest nuclear program, is that it need not compete on the open market. The French government pays for it and periodically forgives billions of dollars in nuclear-cost overruns.[79] Some developing nations support commercial atomic energy, but often this is either for the prestige value, for the reactor's contributions to making nuclear weapons, or because the nations ignore expensive safety protections from radionuclides.[80] In any case, it is not possible to show that nuclear energy is currently cost effective, on the open market, when compared to other methods of generating electricity.

Third, nuclear power is not likely to have a comeback, despite problems of global warming and despite the efforts of the Bush-Cheney administration in the United States. There is massive public opposition to atomic energy, which

even the General Accounting Office (GAO) has noted.[81] The opposition is evident not only in the failure of any new nuclear power plant to be ordered in the United States since 1978, as already noted, but also because no communities appear to be willing to host either reactors or waste storage facilities. They fear the increased risks of a radiological accident. In the state of Nevada, the proposed location of the world's first high-level nuclear waste repository, 80 percent of Nevadans, as well as the state government, are opposed to the facility. They have argued that they are victims of violations of distributive and participative injustice. They have not been able to participate meaningfully in the siting, even though they bear disproportionate risks from the facility. As a result, the federal government is attempting to forcibly impose the dump on the state.[82] At least part of the public opposition to nuclear energy is that many nuclear nations, like the United States, have poor safety records, and the public has lost trust in them.[83] After all, the U.S. government is now liable for compensation to hundreds of thousands of nuclear workers and atomic veterans. These workers and veterans are victims of environmental injustice because of flagrant violations of safety standards that caused illness and premature cancers among them. They or their survivors had to wait nearly half a century for compensation, and the poor management in the nuclear safety area repeatedly has been noted by the GAO, Congress, and the OTA.[84] Nuclear management, mistrust, and resulting environmental injustice are all the more troublesome because, for the last half century, government repeatedly assured workers, soldiers, and the public that nuclear facilities and tests were harmless. In reality, even without any accidents, they were causing 2.4 million additional premature cancer deaths worldwide.[85]

A fourth reason that nuclear power is not a desirable energy technology, from the point of view of environmental justice, is that in most nuclear nations of the world, there is a government-guaranteed liability limit for nuclear industries, in the event of a major accident. In the United States this liability limit amounts to about $8 billion, or about 1 percent of the total losses from a worst-case nuclear accident.[86] The main logical problem with the liability limit is that, if nuclear power is safe, then no liability limit is needed. But only if it is unsafe is the limit needed. The main ethical problem with the liability limit is that it threatens the due-process rights of the minority of people who might be nuclear accident victims. As such it also exposes them to environmental injustice.[87]

Fifth, nuclear energy is a questionable component of U.S. energy policy, with respect to environmental justice, both because it imposes most of its costs on future generations, while present generations receive virtually *all* of its benefits. No nation of the world yet has a safe and acceptable method of radioactive waste disposal, and the disposal programs used so far have been plagued with numerous safety problems.[88] The disposal problem is particularly onerous because it is difficult to predict how to safeguard waste for the next million years. Any water in the repository would cause the waste to leach out into the groundwater. Yet the last ice age, which was followed by massive flooding, was only several tens of thousands of years ago.[89]

A sixth difficulty facing nuclear energy, from the environmental justice point of view, is that the 1986 Chernobyl nuclear accident, which so far has cost about $500 billion, has caused or will cause approximately 450,000 premature fatal cancers. Most of these victims are either poor or children, members of minorities unable to receive adequate medical attention.[90] Half the premature fatal cancers caused by this accident will occur outside the former USSR, and none of the countries whose farmlands, livestock, milk, and health have been harmed by Chernobyl radiation have been compensated.[91] In fact, in Belarus and Ukraine, up to 20 percent of government revenues are still being spent on the Chernobyl accident, even though there are inadequate monies available for medical care.[92]

Perhaps most important of all, a seventh problem with commercial nuclear fission is that it is not sustainable. Uranium fuel will run out, and radioactive waste will increase, if atomic energy continues to be used. Use of short-term, nonsustainable technologies not only imposes disproportionate pollution, resource depletion, and environmental injustice on future generations but also avoids investment in cleaner, safer, long-term technologies. The costs of these cleaner technologies are less likely to be borne primarily by poor people and minorities. Instead of promoting nonsustainable technologies, policy-makers should be working to conserve the 84 percent of all commercial energy in the United States that is wasted and focusing on renewables having lower life-cycle costs. Building a sustainable, nonnuclear energy policy likewise will require policy-makers not to keep energy artificially cheap, because such pricing encourages waste and misuse. Amory Lovins argues that, if the United States became serious about energy conservation, it could save $1 trillion per year. But because the United States is not serious, it continues to tolerate both the lowest (inflation-adjusted) gas prices since 1920 and the lowest energy efficiencies from coal-fired and nuclear plants. If all U.S. homes over the next 20 years installed the most energy-efficient lights and appliances now available, this savings would equal the entire energy content of Alaska's North Slope oil fields. If all U.S. households now used the most energy-efficient frost-free refrigerator currently available, 18 large electrical-power plants could close.[93]

Given these seven problems with commercial atomic energy—the collapse of the international nuclear industry, high costs, public opposition on safety and justice grounds, liability limits, waste disposal, catastrophic accidents, and nonsustainability—nuclear energy is not a desirable future energy choice. Obviously, however, given problems with climate change, fossil fuels likewise are not part of a desirable future energy plan. The central issue is what technologies might be more acceptable from the point of view of environmental justice, economics, climate change, and sustainability. Two of the most prominent options that come to mind are solar energy and wind energy. In a classic two-volume study, the OTA argued nearly 20 years ago that solar technology was, even at that time, cost effective for the 40 percent of U.S. energy needs that are low temperature. The OTA authors argued that there were neither technical nor economic obstacles, only political ones, to using solar

energy energy for these 40 percent of low-temperature needs. They said the political obstacles consisted of large oil, gas, and nuclear interests' lobbying against solar energy research, development, and tax breaks. They also lobby against low-interest loans for the initial on-site solar installations. Although the low-temperature forms of solar energy have been cost effective and competitive for years, the lobbying efforts of the utilities have kept the United States from promoting solar energy the way other nations have done. Japan subsidizes half the installation costs of all solar roof collectors, for example, and Germany gives a 65 percent capital subsidy for roof collectors. The United States, however, continues to give the bulk of its energy subsidies to nonsustainable nuclear, oil, and coal utilities.[94]

Another sustainable and economical energy technology is wind power. The DOE, a pronuclear government agency, points out that wind power is free, nonpolluting, and renewable. Although its initial-installation costs are higher, says the DOE, its life-cycle costs are comparable to those of existing forms of electricity generation. The reason is that wind power has no fuel costs, only minimal operating costs, and a 98 percent reliability factor. The DOE also notes that wind power gives more jobs per dollar invested than any other energy technology; wind power gives more than five times more jobs, per dollar invested, than coal or nuclear power. In Texas, the DOE confirms that wind power costs as little as 3.9 cents per kilowatt-hour (kwh) as compared to 5 cents per kwh in the Pacific Northwest. In most areas of the United States, local utilities are required to buy the excess power generated by people who install wind technology.[95]

Because the United States has been subsidizing nonrenewable energy technologies, other nations have taken the lead in developing and marketing wind technology. Although wind energy use grew more than 30 percent during each year of the 1990s, virtually all of this growth has been in Europe. Denmark, for example, began promoting wind technology in order to reduce its dependence on foreign energy suppliers, and wind now supplies 13 percent of the country's electricity. Denmark's cutting-edge wind technology industry supplies 60 percent of global wind turbine exports.[96] Instead of giving large oil and gas company subsidies, as the United States does, in 1979 Denmark began giving a 30 percent tax deduction to those who used wind technology. Since 1992, Denmark has given a 50 percent subsidy to those installing new cogeneration equipment. (Cogeneration is simultaneously produced electricity, heating, and cooling in a single process, such as using waste heat from industry to generate electricity. Cogeneration's efficiency normally exceeds 70 percent, more than double that of other power sources.) Currently cogeneration supplies 40 percent of Denmark's energy. By 2010 all Danish electricity is expected to be from wind or cogeneration. The key to the Danish success story, according to experts, is to subsidize renewable technologies that give energy independence and to stop subsidizing nonrenewable and dirty energy technologies.[97]

For an environmentally just transportation policy, one not tied to subsidizing nonrenewable technologies, like oil and gas, experts have recommended

a number of strategies. These include promoting the fuel cell, the successor to the combustion engine. The fuel cell can be used to generate electricity from hydrogen, but with fewer carbon emissions. Other strategies for developing more sustainable transportation technologies include subsidizing mass transit and use of bicycles, banning private autos in city centers, raising the variable cost of operating cars, and taxing air travel more heavily. One of the most important keys to sustainable transport technologies is eliminating large campaign contributions from vested interests. Nonsustainable energy companies make millions of dollars of contributions that often function as policy bribes to the candidates to whom they are given. Such contributions may encourage the billions of dollars spent annually for tax breaks to oil, nuclear, and coal companies, and they accelerate depletion of nonrenewable resources like oil. Currently in the United States, taxpayer subsidies provide 7 dollars for the auto oil industry for every dollar spent on subsidies for mass transit. By reforming such subsidies, government could not only provide more diversified and accessible transportation options but also address global warming.[98]

Once one examines a variety of lower-cost, renewable energy technologies, like those just surveyed, it becomes puzzling to know how the DOE could have supported the Claiborne Enrichment Center. The nuclear fuel cycle, of which it would be a part, seems to promote both environmental injustice and uneconomical energy policies. Even utility officials believe that many of the difficulties that led to the problems besetting the nuclear industry will persist.[99] Strong public opposition and high financial risks for utilities are likely to continue, for all the reasons already noted.[100] Because of the depressed U.S. nuclear industry, it is questionable whether there is a real need in the United States for the proposed LES enrichment facility. And if not, then it is questionable whether it would help the economy.

Objections and Replies: No Economic Need for the Plant

A second set of problems with the objection that the Claiborne plant has to be sited somewhere, and it is better to put it where it will help the economy, is that many of the alleged economic benefits of the proposed facility are questionable. For example, the draft EIS asserts (without evidence and without any quantification) that "for CEC most goods and services (excluding the centrifuges and related extremely specialized equipment) can probably be procured within the state."[101] However, if builders of the facility guaranteed that particular amounts of specific kinds of goods and services would be obtained within the state, then it would be reasonable to claim these goods and services as part of the benefits of the plant. Otherwise such benefits would be purely hypothetical. The EIS also assumes that benefits would flow to communities during the entire life of the facility, even though, as already discussed, the U.S. commercial nuclear program actually came to a standstill in the middle 1970s. If most U.S. reactors will have ended their useful lives by

the time that the proposed CEC facility could open, then it is questionable whether many U.S. economic benefits will flow from the plant.

Apart from alleged primary economic consequences, many of the claimed secondary economic benefits deriving from the proposed facility also are questionable. For instance, the EIS claims that many benefits would arise from the wages and construction that would be associated with the plant, as a result of more money being pumped into the community. This assumption about multiplication of secondary economic benefits may be invalid, however, for at least four reasons. (1) Most of the facility-related benefits would go to the middle, and not lower, economic classes. (2) Crime would increase as a result of the plant. (3) Drug trafficking would increase. And (4) property values would increase, but not in areas affected by drugs and crime. If the economic benefits of the LES facility would cause greater social inequities, more drug trafficking, and greater crime, however, then the "hidden economy" of the underworld might divert potential secondary benefits of the plant into crime-related activities rather than into strengthening the economy. In other words, if the regional economic infrastructure associated with the proposed facility could not utilize the secondary economic *benefits* associated with new construction and higher employment from the CEC, then criminal networks could divert these monies to create secondary economic *burdens*. Meanwhile, the plant could exacerbate problems, such as crime, that would require explicit and increased government expenditures for items like police and fire protection. Because the EIS never quantifies and prices the additional and serious costs brought about by drug trafficking, increased crime, exacerbated inequalities, and so on, it is clear that it underestimates the negative social impacts associated with the proposed facility and overestimates alleged secondary economic benefits. Indeed, the facility likely would cause an excess of secondary economic burdens. But if so, then economics probably cannot offset threats to free informed consent and equity.[102]

A *second* objection to the claim (that the proposed CEC siting violates free informed consent and environmental justice) could be that achieving the greater good for society requires some people to bear greater burdens than others. This objection is that because perfect equality and full consent is impossible, the greater good might justify building the CEC.[103] This objection, of course, assumes that one can justify inequalities and threats to free informed consent whenever they are necessary for achieving the greatest societal good overall. But as I argued in chapter 2, all justifications for unequal treatment must be based on morally relevant considerations, if they are to be acceptable. If all humans have equal rights and equal dignity, then people ought to respect others' moral autonomy. Such respect means treating them as ends in themselves and never merely as means to the ends of others. To impose involuntary, uncompensated, avoidable inequalities on innocent people, even though the imposition does not result in greater long-term equality among people, is to treat some individuals merely as means to the ends of others.[104] As chapter 2 argued, one can justify such inequalities only if one can show that they eventually lead to greater equality. But if so, then

this second objection is wrong in presupposing that inequalities always are acceptable if their proponents appeal to "the greater good."

Even if the proposed facility would lead to greater overall economic good, this good arguably would not justify the inequalities resulting from the proposed LES facility because it is unlikely that all the inequalities and negative consequences eventually would lead to greater equality. As already argued in chapter 2, members of the communities hosting the facility would bear a disproportionate share of the socioeconomic and environmental burdens. Because the plant would exacerbate inequalities and because the poor, unlike higher-income groups, do not enjoy the benefits of economic growth, the proposed siting of the CEC is not likely to promote greater equality. Therefore, allegedly maximizing the overall good is unlikely to justify the involuntary, uncompensated inequalities resulting from the LES plant and the violations of free informed consent.

Postscript

In this chapter I have argued that the ethical assumptions underlying the NRC's environmental impact statement for the proposed Louisiana enrichment center are seriously flawed in several respects. (1) The selection of the Center Springs/Forest Grove site would violate prima facie norms for free informed consent and therefore for participative justice. Moreover, (2) LES's procedures of community solicitation violated actual norms for free informed consent. (3) Because socioeconomic and environmental impacts at the site almost certainly would violate principles of distributive justice, greater-good considerations are unlikely to offset these violations of free informed consent. (4) Because the proposed siting would violate norms of distributive and participatory justice, it would be unethical and would violate the PPFPE. Because poor, minority members of the community, without their consent, would bear a disproportionate share of the burdens resulting from the CEC, the siting would be a case of environmental racism or classism.

Also I have answered possible objections to the conclusion that the CEC siting would be unethical. One objection is that the plant has to be sited somewhere, and it is better to put it where it will help the economy. This response fails because it makes two questionable assumptions: (1) the plant is needed; (2) the plant will help the economy. Neither assumption is correct, in large part because commercial nuclear energy is not likely to overcome its current economic collapse. In addition, atomic power is not acceptable, as part of a future energy plan, in terms of environmental waste. A second objection to these arguments against siting the CEC is that the greater good requires that some people must bear greater burdens than others, because perfect consent and perfect equality are impossible. This second objection also relies on a false assumption, that avoidable inequalities are justified whenever they merely are said to be necessary for achieving the greatest good overall. On the contrary I have argued that such inequalities are not ethically jus-

tifiable when they are involuntarily imposed, avoidable, and uncompensated and when they treat people merely as means to the ends of others. And if not, there are few grounds for believing that they can lead to some greater good that might compensate for violations of free informed consent.

Apart from whether this chapter's arguments are correct, in 1998 the NRC terminated the LES request for the CEC. In thus stopping the proposed Louisiana uranium enrichment facility, the NRC was forced to grant the United States its first major environmental justice victory.[105] The arguments in this chapter were some of those I put before the NRC at the request of the Forest Grove and Center Springs communities.

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Equity and Duties to Future Generations

The Case of Yucca Mountain

Nuclear proponent Alvin Weinberg described the problem of radioactive wastes as a "Faustian bargain." In return for the present benefits of atomic energy, we in this generation must export the risks of nuclear waste to future generations.[1] These future people are likely to be radiological victims of environmental injustice. How can we protect them? Since we already have made the Faustian bargain, we cannot turn back; we cannot avoid dealing with radioactive waste already generated. But is permanent, geological disposal of high-level nuclear waste (spent fuel from reactors and residues from reprocessing) our best option? The U.S. National Research Council of the National Academy of Sciences (NAS) affirmed in 1990 that "there is a strong worldwide consensus that the best, safest, long-term option for dealing with HLW [high-level waste] is geological isolation."[2] As this statement reveals, arguments for permanent disposal of the waste often come down to safety. This chapter argues, however, that we also need to ask "How safe is equitable enough?" and "How safe is fair enough?"[3]

Overview

As I argued in chapter 2, one important reason that environmental injustice is wrong is that it violates the principle of prima facie political equity (PPFPE), including its components of distributive and participative justice. Often one violates the PPFPE by treating people in different locales differently but having no morally relevant grounds for the discrimination. Chapter 4 provided a good example of how *geographical* inequality caused violations of the PPFPE in Louisiana. This chapter shows how *temporal* inequalities,

treating members of other generations differently, but having no morally relevant grounds for doing so, also can cause violations of the PPFPE. In this chapter I argue that such temporal inequalities are open to criticism on at least two grounds. First, they often sanction using members of some geographical or temporal minority who are most at risk so as to benefit an alleged majority. Second, they frequently sanction using some people as means to the ends of others.[4] The problem of temporal inequality is especially apparent in the case of nuclear waste policy because it is premised on the knowledge that complete, perpetual containment of the waste will not be achieved.[5] Experts freely admit that the canisters will remain intact only for several hundred years and that no significant levels of waste probably will escape for several generations.[6] As a consequence, permanent disposal burdens members of future generations with the greatest health and safety risks. In this chapter I argue that, because it places the greatest burdens on future victims, permanent disposal implicitly sanctions an inequitable risk distribution. I also argue that because there are no morally compelling grounds for this violation of the PPFPE, the temporal inequality is an instance of environmental injustice.

Prima Facie Arguments for Equal Treatment

Most moral philosophers have argued that it is ethically unacceptable to use other persons as means to one's ends; I will not repeat their reasoning here.[7] And, as I argued in chapter 2, there also are good grounds for believing that all people ought to receive prima facie equal treatment with respect to societal risk, equal consideration of their interests, according to the PPFPE. As already discussed in chapter 2, some of these reasons are that the comparison class, all humans, have the same capacity for a happy life;[8] free, informed, rational people would probably agree to equal rights or equal protection;[9] all schemes involving consistency, justice, fairness, rights, and autonomy presuppose such equality;[10] and law presupposes equality of rights.[11] In chapter 2 I also argued that all persons in all generations have an equal, prima facie right to life and therefore to bodily security, as the most basic of human rights. And if so, then allowing one group of persons to be put at greater risk—without adequate compensation and for no overriding, morally relevant reason—amounts to violating rights to life and to bodily security. This is why justice, at its most fundamental level, is fairness.[12] Of course, as mentioned in chapter 2, equal treatment of all persons, in the name of fairness, does not mean the *same* treatment but rather treatment that is proportional to their merits or to the strength of their claims. As I explained in chapter 2, factors such as merit, compensation, or special needs may justify treating persons differently but equally.[13] In other words, although there is no ethical requirement always to treat everyone the same, one needs to have *relevant moral grounds* for treating persons differently.[14]

Utilitarian Objections

Proponents of permanent geological disposal might argue, however, that there are relevant moral grounds for treating present and future persons differently. They might claim that utility, efficiency, or the greater good requires building permanent geological repositories. In response to this objection, the chapter argues that there do not appear to be relevant moral grounds for treating present and future persons differently with respect to risk. One reason for denying the legitimacy of this discrimination is that, if we accept the PPFPE, as discussed in chapter 2, then equal treatment of persons and generations requires no justification; it is presumed defensible. Only unequal treatment of different generations or communities requires defense.[15] Therefore, if we accept the PPFPE, the burden of proof is on the person who wishes to discriminate. Indeed, the NAS affirmed an even stronger position regarding our duties to future generations: "Moral intuition tells us that our descendants deserve a world that we have tried to make better."[16]

In response, proponents of utilitarian distributions of radioactive waste risk could claim that nuclear generation of electricity benefits everyone, even future generations. They also could respond that commercial nuclear power, with its by-product of spent fuel, serves a higher good, economic welfare, that makes everyone better off, even members of future generations. For example, they might argue that nuclear electricity and the generation of radwaste have prevented further use of nonrenewable resources, such as fossil fuels. Or they might respond that nuclear electricity, with its associated waste, has prevented a significant amount of global warming that would have been caused by our using coal instead of nuclear power. As a result, they might argue that nuclear fission and its wastes benefit future persons as well as present ones and that imposing risks on the future is a justifiable "discrimination" and therefore not inequitable.[17]

There are at least two problems, however, with the claims that nuclear electricity and its associated wastes will benefit future persons and that permanent geological disposal of the wastes would not impose inequitable burdens on distant generations. One problem is that, even on narrow economic criteria, the costs of nuclear electricity and permanent disposal exceed the benefits, provided that members of all generations are treated equitably, and provided that we do not discount future deaths from the facility. The costs exceed the benefits because economists believe that future generations do not benefit significantly from nuclear power. As I argued in chapter 4, one must discount future deaths from radwaste disposal in order to show that nuclear benefits exceed the costs. And as Derek Parfit points out, discounting makes even future catastrophes "morally trivial." At a discount rate of 5 percent, one death next year counts for more than a billion deaths in five hundred years. Hence nuclear electricity and permanent disposal are cost effective only for members of present generations, if at all, and only if we do not treat future deaths the same as those of present persons.[18]

Even if one believes that future generations have received as many benefits from nuclear technology as present persons have, and even if one claims that the overall benefits of nuclear fission and permanent radwaste storage are worth the risks,[19] these two admissions would not resolve the potential environmental injustice with respect to future generations. The inequity remains, despite these two admissions, because regardless of the equity of *benefit* distribution, future generations will bear extraordinarily disproportionate *risks* from permanent geological disposal. Even if the benefits are worth the risks, unless there are reasons to the contrary, the PPFPE dictates that nuclear-related risks need to be distributed equitably. Permanent repositories do not distribute the risks equitably across generations, in part because the waste will not be monitored and will leak. Indeed, alternative technologies for nuclear waste, such as monitored, retrievable storage, may be preferable to permanent disposal, at least with respect to environmental justice.[20]

A second reason the alleged benefits—received by future generations from nuclear fission—do not resolve potential environmental justice problems is that permanent repositories do not serve the overall interests of everyone in an equal way, even though they do bring many benefits. As chapter 2 explained, for a utilitarian decision to be truly successful in serving the overall interests of everyone, it must be "required for the promotion of equality in the long run." Any other interpretation of "serving the overall interest" would be open to the charge that it was built on using some humans (future persons) as means to the ends of others (present persons) rather than treating them as ends in themselves.[21] Therefore, we must ask whether supposed utilitarian decisions, such as building permanent repositories, would lead to the promotion of equality in the long run.

Given the history of technology and environmental welfare, there is little basis for believing that efficiency or utilitarian policy judgments will help promote a more equitable distribution of wealth and therefore more political equality. As I explained in chapter 2, for example, although there has been an absolute increase in the standard of living in the United States in this century, wealth distribution has not become more equitable. And if not, then economic and technological growth, coupled with efficiency or utility in the form of inequity of risk abatement, probably have not promoted economic equality. As I argued in chapter 2, because of the close relationship between wealth and the ability to utilize equal opportunities, it is unlikely that efficiency, economic expansion, and utility have promoted equal political treatment. If anything, they probably have made inequities even worse.[22] Moreover, as chapter 2 already noted, most environmental policies, including risk policies, distribute the costs of controls in a regressive pattern,[23] and one has lower risks and environmental quality only if one can pay for them.[24] For both these reasons, it is doubtful that supposed utilitarian risk distributions, as a result of a permanent geological repository, will help promote overall political equality.

Even if there are no *morally* relevant justifications for the allegedly utilitarian risk judgments presupposed by policies favoring permanent radwaste

disposal, people might object that there are *practical* justifications for the inequity. They might object, for example, that imposing a greater radwaste risk on future generations is justified because permanent disposal is safer than any other means of dealing with the waste. After all, the 1999 draft environmental impact statement for the first permanent U.S. repository, at Yucca Mountain, Nevada, alleged that the environmental impacts associated with it would be small, including cumulative impacts.[25] The safety claim in the EIS, however, does not provide a compelling argument for defending the inequities associated with permanent geological disposal, because several of its underlying assumptions are highly questionable. Permanent disposal may not be safer than other means of dealing with radwaste because there are so many uncertainties associated with predicting future events. Even the 1999 draft EIS admitted that future climate at the repository, warm upwelling water, future hydrographic yield, groundwater migration, and future performance of the repository were uncertain.[26] The draft EIS also did not attempt even to predict future human intrusion into the site because, like the NAS, it said such million-year predictions were impossible.[27] As a result, the EIS peer review committee said the EIS had not provided information requested by Congress about probable behavior at the repository.[28] And if not, then there is little reason to believe that geological disposal is safer than other methods of waste management. It may well be safer for several generations, but if this is the argument, then it begs the very question at issue, namely, whether inequitable risk distributions are justified by overall considerations of safety. One could always ask: "Safer for whom?" "Safer for which generation?"

Of course, nuclear waste does seem to be safer from hazards such as terrorist attacks when it is deep underground rather than stored and monitored above ground. Unfortunately, the risk of leakage increases with permanent disposal. And if so, the safety argument for permanent waste disposal is at best an argument for trading one risk (terrorism) for another (leakage). It also is not obvious that permanent disposal is safer than monitored, above-ground storage, both because permanent repository waste will not be monitored and because it will be retrievable only for the first 50 years. Moreover, most countries are currently pursuing a policy of long-term (30 to 50 years) interim storage. If above-ground storage were extraordinarily risky, compared to geological disposal, then presumably most countries would now be storing their radwastes in permanent geological repositories.

Another reason that there do not appear to be relevant practical grounds for imposing different radwaste risks on present and future persons is that we already recognize the importance of equity in risk distribution. Indeed, the U.S. government already has accepted laws to compensate persons and regions that bear a higher risk as a result of permanent radwaste disposal. The government recognizes the principle that persons and regions ought to be treated equally and that, if they are not, then they ought to be compensated. For example, extensive 1987 amendments to the Nuclear Waste Policy Act of 1982 authorized compensating a U.S. state, locality, or Indian tribe

willing to accept either a monitored retrievable storage facility (MRS) for radwaste or a permanent geological repository. According to the benefits provision of the 1987 Amendments, annual payments to the locale hosting such a facility could range from $5 million to $20 million, payable on execution of a benefits agreement.[29] The existence of such compensation schemes in current U.S. law dealing with high-level radioactive waste indicates that we as a society recognize the importance of environmental justice. We recognize that Nevadans, for example, ought to be compensated by the citizens of the rest of the country if the state agrees to take on the burden of disposing of spent reactor fuel. If we recognize the requirements of the PPFPE and environmental justice, however, then we ought to be consistent and recognize the importance of temporal or intergenerational equality. Moreover, recognizing intergenerational equality would lead to the consequence that we ought not impose higher radwaste risks on future generations without both discussing morally relevant grounds for compensation and compensating them in full. We have done neither.

Duties to Future Generations

At this point, proponents of permanent nuclear waste repositories might object that although the PPFPE and principles of equality and environmental justice are recognized in current law, there are no comparable principles of intergenerational equality. They might argue that we have no obvious duties to members of future generations. And if so, objectors might argue that future people cannot be said to be holders of legal rights, and we cannot be said to have duties to them, duties such as avoiding permanent disposal.

Scholars have offered many reasons for attacking duties to future generations. Derek Parfit has made one of the most famous of such attacks. He calls it "the identity problem." Parfit says that the policy choices we make now not only will determine the circumstances of later individuals but also will alter social patterns, so that *different* individuals will come into existence as a result of different choices. Thus whatever choice we make cannot be said to harm future individuals, or make them worse off than they might otherwise be, says Parfit, because different choices will mean that different persons will exist. He concludes that whatever our duties toward future generations, they cannot be justified by appeals to how our actions will affect the particular individuals of later generations.[30] Parfit's argument has become quite famous in the literature on future generations, and many people have taken it to mean that future individuals can have no moral grounds for complaining against members of present generations. They say that those future individuals would not have existed at all, had present persons adopted more desirable policies.[31] (Parfit, however, denies that his argument has caused him to become less concerned about effects on future generations.[32] Instead, he takes his argument to show that people cannot solve the identity problem by appeals to people's rights or interests. He claims people need a new theory of

beneficence to handle his objections. Although Parfit admits he has not found such a theory, he believes others could do so.)[33]

Some of the other arguments against duties to members of future generations are the following. (1) We are unable to predict the course of the future and hence unable to predict the consequences of our actions. (2) We are unable to ensure that the needs or wants of our descendants can be met, since intervening generations might not take account of them. (3) Future persons are indeterminate or unknowable to us as individuals. (4) The existence of future persons is contingent, not actual. (5) We are ignorant of the needs or desires of future persons. (6) We are ignorant of the number of future people and hence unable to make utility calculations regarding them. (7) We are unable to determine whether future persons will share our social ideals or be members of our moral community. (8) We are uncertain as to whether we share a social contract with future persons, because we have no reciprocal relationship with them; possibly we can affect their welfare, but they cannot affect ours.[34]

In response to the previous arguments against the existence of duties to members of future generations, philosophers have provided a variety of counterarguments.[35] Because a number of scholars, such as Douglas MacLean,[36] have seen the Parfit argument as compelling, despite Parfit's own claims about it, it may be most important to defuse it. Both Parfit and MacLean appear to err when they allege that because different individuals will come into being as a result of different policy choices in the present, we cannot be said to harm future persons (or to make them worse off) because different choices will mean that different persons will exist. Our choices, they claim, cannot make the same person worse off; rather, our choices will cause a different person to exist. The main problem with the Parfit and MacLean line of thinking is that the identity problem should not matter to the ethical evaluation of an act, as Joel Feinberg and others have recognized.[37] If someone is murdered, for example, or if an innocent person is killed without provocation, we know that the act is wrong regardless of the identity of the victim. Likewise, who the members of future generations turn out to be should not matter to the ethical assessment of our acts that will affect them. Those who bear the consequences of our reckless actions, regardless of who they are, have grounds for complaint. For example, if an airplane steward negligently fails to close the rear cabin door properly, then persons hurt in the event of depressurization have grounds for complaint. Indeed, there are grounds for complaint even if, when the door is improperly shut, we are not certain who will occupy the plane and what their identities will be.

Another important response to those who argue against duties to members of future generations is that some of the claims—on which the arguments against duties to future persons are based—are false. It is false to claim that we cannot predict the future, although admittedly many precise aspects of the future are uncertain. For example, the precise climate and hydrogeology at Yucca Mountain one million years from now are uncertain. But we can predict, for example, that future persons are likely to need clean air and

water. Some arguments against our duties to members of future generations also fail because they contradict ethical principles that we already hold. For example, as we argued earlier, we believe that murder is wrong regardless of whether the victim is knowable to us an individual, or whether she has the same needs and interests as we. Hence if knowing the victim as an individual or knowing her tastes and interests is not a necessary condition for asserting the wrongness of murder, then knowing both these characteristics is likewise not a necessary condition for condemning environmental injustices affecting members of future generations. Just as it is ethically improper to put an unknown living person in possible jeopardy, it is ethically improper, all things being equal, to place some unknown future person in possible jeopardy.

One of the most significant recent philosophical discussions of our duties to members of future generations is that of the philosopher John Rawls. He argues that any reasonable person, not knowing to which generation, social class, intelligence bracket, and so on he belongs, would accept the principle of equal apportionment of risks, resources, and goods as the distribution that is fair. Although there is no time to discuss Rawls's elaborate scheme in detail, he calls for a redistribution of goods that would benefit the least well off, and at least some commentators see his views as a corrective to those of Bentham and to those emphasizing a meritocracy and perfectionism.[38] Although it is not clear that Rawls succeeds,[39] nevertheless he offers a vehicle for overcoming some of the natural inequalities of birth.[40] At the least, principles of equality in the distribution of opportunity seem intuitively obvious and fair. If we accept at least this principle of egalitarianism, Rawls says we have a threefold task: (1) to preserve the gains of our civilization; (2) to maintain intact our just institutions; and (3) to hand over to posterity an accumulation of capital and technology greater than we received from our ancestors, so as to compensate for resource depletion.[41]

Less abstract and theoretical, and perhaps more successful, than those of John Rawls, Daniel Callahan's arguments for a social contract among all generations also are quite persuasive.[42] According to Callahan, social contracts exist even when there is no prearranged plan of explicit reciprocity. In the parent-child relationship, says Callahan, there is indeed a social contract, but it is not brought about by reciprocity, each party's having the ability to help the other. Rather, he says, the contract arises because one party, the parents, choose to accept an obligation. Children are not asked whether they wish to be born, says Callahan, but their parents' taking on the obligation of children nevertheless initiates a social contract among them. The contract exists, in part, says Callahan, because the children owe their parents a debt in return for their life. And according to Callahan, the parents' duty is not contingent on the child's reciprocity. The parents have duties, regardless of whether they are ever reciprocated, regardless of whether the children are asked if they wish to be born, and regardless of whether the parents know the needs of the children. Likewise, one can argue that members of present generations—as recipients of benefits from their ancestors—have duties to fu-

ture persons, regardless of whether or not the future persons are asked if they wish to receive benefits, regardless of whether or not the future persons can reciprocate their giving, and regardless of the degree to which the present persons know the needs of future generations. As Joel Feinberg points out, regardless of our ignorance about the needs of future persons, we know that they will have an interest in living space, fertile soil, fresh air, and so on. Because present persons can affect the interests of future persons, and because we have some general ideas about what they will need, he says it is reasonable to claim that opportunities ought to be distributed equitably, even across generations. Hence it is reasonable to claim that we have duties to future persons.[43]

Even skeptics admit that "most people would agree that a total disregard for the future is unreasonable." Equally important, some of our most distinguished ethical thinkers have presented compelling cases for our duties to future generations.[44] In addition, there appear to be no morally relevant grounds for discriminating against members of future generations and treating them unequally. For all these reasons, it makes sense to assume that we do have duties to future persons, duties to help ensure temporal equality and environmental justice. And if so, then the burden of proof, according to the PPFPE and as in all cases of alleged discrimination, is on the person who favors discrimination, the person who is willing to treat future persons less equitably than present persons. But what does it mean to treat future persons less equitably than present persons?

At the simplest level, as Brian Barry points out,[45] each person's or each generation's being treated equitably means that each person or generation will have the same opportunity to use resources (oil, clean air, soil, and water) as another. Each person deserves the same *opportunity*, rather than the same level of *resources*, because factors like merit and effort also ought to determine the level of one's resources. For example, the level of resources ought not always to be the same for all persons if the effort expended to obtain the resources is different for different persons. Obviously, however, each person and generation cannot have the same opportunity to use resources if some of them are finite and if people are to use them and leave the rest for others. Therefore, equal opportunity to use resources must mean that people in different spatial and temporal groups enjoy the protection of the PPFPE and are treated equally by virtue of being compensated for the depletion of resources, perhaps through improved technology. In other words, we are bound in equity to do whatever is necessary to provide future generations with the same level of opportunity as they would have had if we had not depleted some resources or polluted their environment. Obviously, however, not all losses of opportunity are compensable, so fairness and equity dictate that one person not diminish opportunities for another in a way that is not compensable. And determining what is compensable, in a given case, requires extensive analysis.

In the case of making policy decisions about handling radioactive waste, ensuring that future generations have equal opportunity presumably means

that the risks imposed on future people ought to be no greater than those they otherwise would have faced if no radioactive wastes had been produced. Yet even the 1999 draft EIS for the proposed Yucca Mountain facility admits that, as time goes on, the radiological impact from the facility will continue to increase.[46] But if no wastes had been produced, future persons would face no radioactive risk greater than that of naturally occurring uranium. Indeed, the uranium or neutrality criterion is exactly the one used in U.S. laws and regulations.[47]

Because federal laws and regulations are based on the uranium or neutrality criterion, an equal-opportunity criterion for radioactive risks, it may be ethically appropriate for repositories. Several problems arise, however, with its application and interpretation. One difficulty is that naturally occurring uranium is a dangerous material, although not nearly as dangerous as spent fuel. Because those who generate radioactive waste are creating *more* of a dangerous substance, it is not clear that, once spent fuel has decayed to the level at which it is like naturally occurring uranium, the uranium criterion has been met. It may not have been satisfied because, as a result of our creating radwaste, we impose a greater *volume* of dangerous material on future generations. A second problem with the uranium, or "neutrality," criterion is that there is no guarantee that any repository, including Yucca Mountain, could meet it. As already noted, the draft EIS admits that Yucca Mountain would not meet this criterion. The canisters may be breached, and the waste may leach out long before it decays to a level where it is no more harmful than naturally occurring uranium.

The uranium criterion also is questionable because, in the centuries prior to the time that the high-level nuclear waste decays to the level of hazard of uranium, the risk would presumably be higher than that caused by natural uranium. Hence at least three difficulties face the U.S. government's interpretation of the uranium or "neutrality" criterion for equality across generations. (1) We would be imposing a greater volume of hazardous material, not the same amount that future generations otherwise would have faced. (2) We cannot reasonably guarantee that no repositories will leak before the spent fuel has become only as hazardous as naturally occurring uranium. And (3) for the first several hundred years of the repository life, the risk is clearly greater than that posed by natural uranium. Because of these three difficulties with the criterion, future generations clearly bear a disproportionate radwaste risk from permanent repositories and will not receive correspondingly great benefits. And because the risks imposed on future persons by geological repositories are, at best, highly uncertain and, at worst, higher than those imposed on present persons,[48] they appear greater than the risks that future persons otherwise would have faced. Moreover, for the reasons given earlier in this chapter, there do not seem to be any morally compelling grounds for claiming that future persons would be adequately compensated for the inequities associated with geological repositories. And if not, permanent disposal appears ethically unacceptable on grounds of environmental justice.

Consent and Future Persons

Allegedly permanent storage of nuclear waste is not merely problematic on grounds of temporal distributive justice. It also is questionable on grounds of participative justice, because future persons would be unlikely to consent to it. As the previous chapter argued, there are a number of situations in which it is prima facie doubtful that the criteria for free informed consent can be met. Imposing greater risks on unborn people appears to be one such situation. Members of future generations obviously have no opportunity, *in practice*, to consent to the additional radwaste risk that permanent waste dumps would impose on them. Moreover, as I argue in this section, there are several reasons it is unlikely *in principle* that future persons would consent to such risks. Yet some form of consent, either implicit or explicit, appears to be a precondition of both the PPFPE (defended in chapter 2) and of most just laws and policies—indeed a precondition of the power of government over persons.[49] When the delegates to the first Continental Congress met in 1774, for example, they affirmed this point: "the inhabitants of the English colonies in North America . . . have the following RIGHTS: . . . life, liberty, and property: and that they never ceded to any power whatever, a right to dispose of either without their consent."[50] When the Congress met 2 years later, members proclaimed in the Declaration of Independence that

> to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed,—that whenever any Form of Government becomes destructive of these ends, it is the Right of People to alter or abolish it, and to institute new Government.[51]

Moreover, early in American history, the federal judiciary, in justifying judicial review of legislation, recognized that consent is required to abrogate natural rights, such as the right to life: "There are certain vital principles in our free Republican government, which will determine and overrule an apparent and flagrant abuse of legislative power; as to authorize manifest injustice by positive law."[52]

The Founders also may have recognized that the duty to ensure free informed consent extended even to future generations. As Thomas Paine wrote:

> Every age and generation must be as free to act for itself, in all cases, as the ages and generations which preceded it. The vanity and presumption of governing beyond the grave is the most ridiculous and insolent of all tyrannies. Man has no property in man; neither has any generation a property in the generations which are to follow.[53]

Those who favor permanent, geological disposal of radioactive waste probably would agree that government disposal policy ought to be premised on citizen consent and the PPFPE. After all, governmental authority depends on the consent of the governed. In addition, in an ethical sense, no one has the right to impose an avoidable and serious risk of harm on another without his consent. Therefore, in the case of permanent repositories, supporters of the

facilities likely would give two supporting arguments. They might say (1) that future generations have given second-party consent, by virtue of present persons' acting as proxy decision-makers for them, and (2) that serving the common good outweighs considerations of whether future persons have consented to the radwaste risk.[54]

Do either of these defenses, (1) or (2), justify our failure to obtain explicit informed consent from future people before subjecting them to the increased risks of permanent radwaste disposal? Earlier in this chapter I argued against thesis (2), showing that discrimination against members of future generations appeared to be unjustified because there were no morally compelling grounds for treating them unequally. I also argued that utilitarian considerations did not outweigh the inequities imposed on future persons. Hence thesis (2) does not appear to provide grounds for discrimination against future persons.

The more important issue, however, is (1) whether one could reasonably argue that second-party consent justifies exposing future generations to the greater risks of a permanent nuclear waste facility. Such second-party consent is at least prima facie plausible because, in a democracy, we recognize that all citizens must make some concessions to one another, to majority rule, to operate a constitutional government. At least one of these concessions could be that our representatives can make decisions for us and therefore that the representatives of future persons could make decisions for them. If so, perhaps it is arguable that second-party consent justifies building permanent repositories that will affect future persons, just as second-party consent justifies many other actions that impact our descendants. "There is no other way to manage a democratic regime."[55] If so, permanent disposal may not be an instance of environmental injustice.

In the case of a permanent radwaste repository there seem to be at least three reasons that future generations ought not be said to have given consent via a second party. The first and most obvious reason is that a majority of persons, across time, probably does not support permanent radwaste disposal. Yet forgoing explicit consent and accepting the duty to comply with government rules and regulations presupposes at least that the rules and regulations are the product of authentic and informed majority rule. Of course, a policy's being sanctioned by an authentic and informed majority is not a sufficient condition for the policy's being just, but it is arguably a necessary condition.[56] If so, the next question is whether the policy of employing permanent radwaste repositories meets this necessary condition. Is it a policy that would be sanctioned by an authentic and informed majority?

Using permanent radwaste disposal appears to be the policy pursued by a minority. It is the policy chosen by representatives of the two or three generations living now who have benefited from atomic power and who see commercial nuclear energy and waste disposal as part of a cost-effective way of generating electricity for themselves.[57] These two or three generations are probably a minority, whereas members of future generations—likely to be af-

fected by stored waste—may be a "silent majority." Hence it is not clear that the imposition of permanent disposal represents anything but a minority decision based on relatively short-term economic interests. Indeed, some authors have argued that, because of factors such as the nuclear proliferation problem, present use of nuclear electricity provides little benefit to future persons.[58] To the degree that the policy of permanent disposal does not represent a decision to which an authentic, informed *majority* of persons, present and future, would theoretically agree, to that extent current policy and law sanctioning geological repositories do not outweigh considerations requiring the consent of future persons. Presumably there are times that one can dispense with explicit consent, but only when the greater good, as recognized by an authentic, informed majority, defines this dispensation as a greater good. For all the reasons already given, it is not clear that a majority of persons would support dispensing with informed consent in the case of permanent geological disposal.

A second reason that future persons probably have not given consent, via second parties, to permanent radwaste disposal is that even a majority of present people cannot be said to have given any form of consent to geological disposal. Polls indicate that a majority believes that radioactive waste disposal is not safe.[59] Indeed, the NIMBY (Not In My Back Yard) syndrome is pervasive. In Nevada, for example, 80 percent of the population is opposed to a permanent repository in the state.[60] If one makes the reasonable assumption that the preferences of present persons indicate something about the preferences of future persons, then this generation's opposition to permanent disposal is significant. It provides grounds for arguing that subsequent generations also would be likely to oppose it since they would face an even greater risk from waste facilities built now.

A third reason that future persons probably cannot be said to have given consent, via second parties, to permanent radwaste disposal is that "putting up with" unjust or undesirable policies or laws is reasonable only if the burden of injustice is evenly distributed. As Rawls puts it,

> when they adopt the majority principle the parties agree to put up with unjust laws only on certain conditions. Roughly speaking, in the long run the burden of injustice should be more or less evenly distributed over different groups in the society, and the hardship of unjust policies should not weigh too heavily in any particular case.[61]

But as I argued earlier, the burden of radwaste risk from permanent repositories is not equitably distributed. Hence one of the apparently necessary conditions for affirming the second-party consent of future persons—that the consent is to a scheme that evenly distributes societal risks, costs, and benefits—cannot be met. Therefore, because permanent disposal represents neither a policy to which a majority of all persons probably would agree nor a policy to which present persons agree nor a policy in terms of which risks and costs are evenly distributed, future persons probably cannot be said to

have given implicit political consent to it. If they were able to act in their own behalf, future persons probably would withhold consent, perhaps in part for these three reasons.

The traditional doctrine of free informed consent, as employed in other cases of risk, also provides additional reasons for claiming that future persons cannot easily be said to have given consent, via second parties, to permanent nuclear waste disposal. As mentioned in the previous chapter, the term "informed consent" arose roughly a decade after the Nuremberg trials, and the issue of free informed consent began to receive a substantial consideration in the literature after 1972. Very little of this consideration, however, has focused on free informed consent to technological or environmental risk.[62] Most of the discussion has been directed at consent in cases of medical ethics.[63] The main *motive* behind interest in free informed consent appears to have been reduction of risk, avoidance of unfairness, and elimination of exploitation. The main *justification* for supporting the necessity of free informed consent, however, has been to protect individual human autonomy, to promote beneficence, and to curb nonmaleficence.[64]

To determine whether future people affected by a permanent radwaste repository can be said to have given second-party consent to such a facility, we must know exactly what notions are imbedded in the concept of "informed consent." As I noted in the previous chapter, according to historians of the concept, it is best analyzed as "autonomous authorization" and may be broken down in terms of four analytical components: disclosure, understanding, voluntariness, and competence. This obligation regarding disclosure generally includes facts that the subjects believe are relevant to the decision about consenting to a proposal; information the professional believes to be material; the professional's recommendation; the purpose of seeking consent; and the nature of consent as an act of authorization.[65] The requirement of disclosure means, at a minimum, that professionals not withhold information relevant to a decision about risk and, especially, that they not withhold information about areas of uncertainty.

As already mentioned in chapter 4, understanding, the second element in the process of obtaining free informed consent, may be the most important. In order for subjects to give free informed consent, professionals have a duty to help them overcome illness, irrationality, immaturity, distorted information, or other factors that can limit their grasp of the situation. Understanding the choices among risky alternatives can be helped if various options can be understood in terms of projected benefits or opportunities, as well as risks.[66]

Voluntariness, or being free to act in giving consent, usually means that the subjects are acting in a way that is free of manipulation and coercion by other persons. Whenever significant influence is exerted by professionals through their roles, authority, or power, then consent is not truly voluntary. For example, some of the best-known obstacles to voluntariness of consent have involved giving subjects irresistible offers, such as rewards of early parole to prisoners' in exchange for their becoming medical research subjects. Very attractive offers, such as extra money, can leave some needy persons "without

any real choice other than to accept the offer."[67] Competence, the fourth and last element of the process of obtaining free informed consent, is the ability to perform a task. In the case of consent, it is the ability to give autonomous authorization to some act, like building a repository. Although the notion of competence is value-laden, it includes the ability to make a decision based on rational grounds.[68]

Given the elements that scholars acknowledge as necessary for informed consent—disclosure, understanding, voluntariness, and competence—is it reasonable to claim that future persons can be said to have given a form of second-party consent to the risk of permanent radwaste repositories? If one examines each of the four elements and applies it to the repository issue, the answer appears to be no. Even the NAS admitted it is impossible to project what will happen to a repository a million years into the future.[69] As a result, it is difficult to believe that the disclosure condition can be met. One cannot consent to a situation when so many vital safety factors regarding it are uncertain. Hence even if one assumes that second-party consent is legitimate in *the case of geological disposal, the scientific uncertainty about the relevant* repository risks appears to jeopardize the conditions necessary for disclosure and therefore the free informed consent of future generations. Likewise, if uncertainty blocks conditions necessary for disclosure, it probably also blocks conditions necessary for understanding the situation to which one must give or withhold consent. Members of future generations also seem unable to meet the condition of voluntariness because they are victims of coercion at its most extreme. It is impossible for our descendants to exercise control over present persons' making decisions that will affect them. There is no security bond, no trust to compensate them, on which future people can rely. As a result, their lack of control is absolute. For all these reasons, it appears impossible for future generations to be said to have given free informed consent to a permanent radwaste repository.

Even if one responds that present persons can act as guardians or proxies for future persons and that present persons are not being coerced or manipulated if they choose the repository, this response is doubtful. It is questionable in part because of the coercive tactics and the withholding of information practiced by the DOE. Indeed, even the general counsel of the DOE noted that the department has acted unlawfully in not carrying out the mandates for siting repositories as specified in the Nuclear Waste Policy Act (NWPA). The NRC, in a recent position statement on radioactive waste disposal, noted that because of such activities, the "DOE lacked credibility" in the siting process.[70] At least in the United States, even the laws governing high-level nuclear waste disposal appear to interfere in part with the voluntariness of the alleged consent of present persons. According to the provisions of the NWPA, for example, a state or a Native American tribe hosting a high-level radwaste repository can obtain millions of dollars per year to compensate it for the social costs of the facility. To obtain the money, however, the state must waive its right to veto the repository. Hence the NWPA requires citizens living near a proposed repository either to "sign a blank

check" in favor of the repository or to forgo reimbursement of all costs of investigating the site and perhaps legally challenging the federal government's site-selection process. Citizens hardly can claim that their decision about a particular site is voluntary.[71]

It also is questionable whether present people are being coerced or manipulated into consenting to permanent disposal because of the tactics currently being practiced by those attempting to build repositories, as they are at Yucca Mountain, Nevada. Allen Keesler, president of Florida Power and chair of the utility industry's American Committee on Radwaste Disposal, revealed in a confidential letter, leaked to the press, some disturbing information. In late 1991 he said that the nuclear utilities in the United States began a $9 million "advertising blitz in Nevada designed to overcome its resistance to serving as the dumping ground for other states' nuclear wastes."[72] In his letter to other nuclear utility executives, Keesler also revealed that the federal waste disposal program is progressing only "because of the active support, guidance, and involvement of our industry" in "re-educating" the people of Nevada. According to Keesler's plan, each utility owning a nuclear unit in the United States would be assessed $50,000 per unit, per year, for the cost of the Nevada advertising. For 112 U.S. reactors, this assessment comes to $5.6 million annually. Keesler called the campaign "sensitive," and he "asked utility executives to keep it confidential," especially because "Keesler expects all costs for the utility campaign to be charged to [utility] customers, not stockholders."[73] Given the nuclear advertising blitz designed to change the minds of the 80 percent of current Nevadans who oppose the Yucca Mountain permanent nuclear repository,[74] there is strong evidence of attempts to coerce present persons to consent to the disposal. Moreover, without equal funding and education efforts being provided on behalf of opponents of the facility, it appears highly manipulative for the U.S. public to pay, involuntarily, for one-sided "information" provided by the nuclear industry. And if so, then even if one argues that present individuals are competent to give second-party consent, on behalf of future persons, to a permanent geological repository, one cannot satisfy the criteria of disclosure, understanding, and voluntariness. And if not, second-party consent cannot obviously be said to justify building permanent repositories like the one proposed at Yucca Mountain.

In response to these arguments that a permanent nuclear repository cannot satisfy requirements for the free informed consent—even second-party consent—of future persons, there are likely to be a number of objections. One objection is that because future generations will be compensated for the risk that they bear, they would not be treated unfairly, even if they did not give consent to repositories like Yucca Mountain. In fact, the objectors claim, the 1987 amendments to the Nuclear Waste Policy Act call for affected states or Native American tribes, hosting a permanent repository or a monitored retrievable storage facility, to receive payments ranging from $5 million to $20 million per annum payable upon execution of a benefits agreement.[75] In the Yucca Mountain case, however, the compensation argument is unconvincing as

grounds for ignoring consent to a permanent repository. For one thing, the compensation might compromise the conditions for the voluntariness of the consent. (See the preceding discussion.) A second difficulty is that it is questionable whether one ought to allow compensation for serious risks to life and bodily security. Indeed, as I argue in chapter 7, there are a number of telling arguments against the ethics implicit in the so-called "compensating wage differential for workers who bear higher occupational risks.[76] These objections likewise raise similar questions about the compensation of future persons.

The most damning reply to arguments that compensation justifies imposing higher radwaste risks on future generations, however, is that despite hefty compensation offers, even present generations appear to be rejecting permanent disposal. As mentioned earlier, 80 percent of Nevadans do not want the Yucca Mountain site.[77] A 1986 poll showed that a majority of Americans do not believe that nuclear waste can be disposed of safely,[78] and the current problems with siting a disposal facility indicate that this belief remains true. Hence if compensation is inadequate grounds for present persons to consent to a permanent repository, it also is likely to be inadequate grounds for future persons to consent to an even larger risk posed by the same repository.

Another problem with compensating future generations is that it is impossible for them to agree in advance to an acceptable level of compensation, even assuming it is in principle ethically acceptable. As already mentioned, it is possible that the level of compensation will not be acceptable because it is limited by law. The difficulty here is both (1) that it is impossible for future generations to exercise their due-process rights by consenting to some level of compensation and (2) that it is unlikely the compensation will be adequate, given the magnitude of possible consequences and the legal limits set on compensation. If members of future generations have been injured because of a repository built by earlier generations, then the problem is not merely that it is impossible for them to collect damages from their ancestors. To deal with this difficulty, the government could set up a public trust. Because of current legal restrictions on levels of compensation, however, it would be impossible to know if the amount of money were adequate to compensate future persons for whatever harms they might suffer because of radioactive contamination. It also would be impossible to know if future governments would honor such prior compensation agreements. It would be impossible to guarantee that the due-process and compensation rights of future persons would be recognized because, if current residents of Nevada near the proposed Yucca Mountain permanent facility would not consent to it, regardless of the level of compensation, then future persons may not do so either. One difficulty with alleging that future persons can be compensated for the repository-related risks that they bear is that at least in the United States, Canada, and several other countries, the law guarantees only partial compensation for repository-related accidents and radioactive contamination. In response to the states' recommendation for unlimited, strict liability for any nuclear waste program or incident,[79] the DOE position

has been that "these activities should enjoy indemnity protection equivalent to other nuclear programs." Other U.S. nuclear programs, however, currently have a liability limit of just over $7 billion, a limit that is approximately 2 percent of the government-calculated costs—$358 billion—of the Chernobyl accident.[80] Because Chernobyl was not a worst-case accident, future accidents at reactors or repositories conceivably could run even higher. If compensation is needed to offset the effects of future generations' not being able to give free, informed consent to a proposed radwaste site, then limiting liability for repository accidents is doubly questionable: first on the grounds of violating the due-process rights of future persons and, second, on the grounds of not providing adequate compensation for future persons' forgoing their consent.

Perhaps the most significant objection—to the claim that a permanent geological repository cannot satisfy the standard requirements for free informed consent—is that the conditions for consent, like those for full environmental justice, are rarely met in real life. Therefore, according to repository proponents, it may be inappropriate to hold permanent disposal hostage to conditions for consent that other technological activities likewise cannot satisfy. Moreover, the objectors might say that in many situations, the standard for free informed consent is current professional practice.[81] They might claim that such practice admittedly sanctions many decisions—for example, decisions about production of toxic chemicals—that will affect future generations. According to the objectors, it is not clear that facilities like Yucca Mountain present more of an obstacle for free informed consent than do some other current activities.

To the degree that the preceding objection claims that no consent and no justice is perfect, it is correct. However, the objection errs both in affirming that permanent geological repositories are no worse than other situations, in terms of free informed consent, and in alleging that "current professional practice" provides an appropriate consent norm for permanent repositories. The professional-practice norm is inadequate, in part, because for 60 percent of states, the current norm is not professional practice but the "reasonable person" standard.[82] This norm asks what a reasonable person would do when confronted with a situation requiring free informed consent. As already mentioned, because 80 percent of Nevadans opposes the proposed Yucca Mountain facility,[83] it is unlikely that, on the reasonable person standard, current citizens would consent to a permanent repository. Even classical doctrines of implicit consent would require that if present persons (proxies for future persons) do not agree to the repository, then they cannot be said to have given implicit consent to it on behalf of future persons. As ethical theorists have pointed out, "it is not plausible to appeal to implicit consent to override current express refusals."[84] Moreover, actual or predicted future consent, according to most scholars, also is not likely to override the express refusals of present persons. Future consent does not satisfy the requirement for free informed consent because it does not respect the present autonomy of future persons.[85] "Future or retroactive approval is not

a substitute for the exercise of autonomy in giving informed consent or refusal at the outset."[86] If it were, then any activity to which present persons had refused consent could simply be said to be justified on the grounds of future consent, and the whole doctrine of free informed consent—in the present—would be undermined.

Repositories like Yucca Mountain also are not likely to provide opportunities for the free informed consent of future persons because they concern risks that are both significantly greater and substantially more unknown than most other situations involving free informed consent. Obviously information and consent need not be perfect, because they cannot be. Nevertheless, the possibility of free informed consent diminishes in proportion as the activity in question is more risky or more uncertain. As leading theorists of informed consent put it: as substantial risk is added, justification that the norms of consent have been met becomes progressively more difficult.[87] Although consent is never perfect, Yucca Mountain and other repositories involve high uncertainties and risks[88]—possibly thousands of deaths over millions of years. Because of these great uncertainties and risks, the case for Yucca Mountain informed consent is more difficult than for other facilities.

Practical and Legal Considerations Affecting Justice for Future People

If the previous arguments are correct, a persuasive case against permanent geological disposal of radwaste can be made on the basis of environmental justice and the uncertainty, inequity, and lack of free informed consent of affected persons. In addition, there are legal grounds for arguing that the repositories are likely to violate environmental justice. Both national and international law sanction duties to future persons that repositories could jeopardize. The Charter of the United Nations, for example, speaks of saving "succeeding generations from the scourge of war." And the 1972 preamble to the Stockholm Declaration on the Human Environment affirms that humans have "a solemn responsibility to protect and improve the environment for present and future generations." Explicit cases in both public and private international law likewise appeal to the notion of duties to future generations.[89] In the United States, the first stated goal of the 1969 NEPA is to "fulfill the responsibilities of each generation as trustee of the environment for succeeding generations."[90] In addition, NEPA proclaims that present persons should not impose risks on "a future generation . . . greater than those acceptable to the current generation."[91] Likewise, the EPA requires permissible risks imposed on future generations to be defined on the basis of their acceptability among the present generation.[92] For nuclear waste, the EPA says the risk to future generations should be "no greater than the risks from an equivalent amount of unmined uranium ore."[93]

Because the EPA has issued specific standards for high-level radwaste disposal, the agency seems to sanction some level of radioactive contamination

of future persons that is higher than that to which present persons are subject. For example, the EPA requires the disposal system to limit the maximum annual dose equivalent to any member of the public in the "accessible environment" to 25 mrem to the whole body or 75 mrem to any critical organ for one thousand years after disposal. For the period after one thousand years, the EPA has set limits for the contamination of drinking-water aquifers. One such limit, for example, is that the annual radiation dose equivalent to the total body or any organ must not be greater than 4 mrem.[94] Because the 1,000-year EPA rules allow significant radioactive exposure above background levels, permanent repositories are certain to impose higher risks on future people than on present ones. In addition, because uranium ore is normally deep underground and does not typically expose people to contamination, it is not clear that the 1,000-year rules will keep exposure to future people as low as that received from ore. As a result, the EPA repository standards appear to be consistent neither with the agency's desire to impose future risks that are no greater than present ones nor with its aim to impose future risks that are no greater than those from uranium ore. Apart from whether EPA standards do what they are claimed to do, the EPA has affirmed its commitment to protecting members of future generations. If one takes the EPA at its word, to impose risks greater neither than those faced by present persons nor than those presented by uranium ore, then it appears impossible to build permanent repositories.

Another legal obstacle to permanent disposal of radwaste may be the Safe Drinking Water Act (SDWA),[95] which gives a nondegradation policy for aquifers with respect to carcinogens like radionuclides[96] and prohibits disposal of hazardous waste within one-quarter mile of an underground source of drinking water. The act also forbids well injection of any substance that will "allow . . . the movement of fluid containing any contaminant into underground sources of drinking water."[97] Given these three requirements, it appears that the SDWA prohibits a permanent high-level radwaste repository unless it is in a location free of aquifers. Admittedly, there appears to be an inconsistency between the EPA standards and the SDWA, since the latter prohibits any contamination of drinking water, whereas the former allows radioactive contamination of aquifers up to 4 mrem per year.[98] It is unclear, however, that one could guarantee meeting the 4 mrem standard in a million years. Without this guarantee, justifying permanent disposal would be difficult.

In addition to the statements of the EPA and laws like NEPA and the SDWA, there are approximately 50 federal statutes in the United States that contain explicit reference to future generations. Most of these statutes aim at preserving some current benefit for future generations. Nevertheless, no public or private attorney is authorized to bring suit on behalf of future persons who might be injured by violations of such laws.[99] Legal limits on public indebtedness also circumscribe the current generation's opportunity to disregard the financial burdens it imposes on future generations. Debt limitations

appear in both state and municipal codes.[100] And if so, then even public-indebtedness laws may reflect concern for temporal environmental justice.

Within the Anglo-American legal system, property law also provides one of the best examples of concern for temporal environmental justice and for restraints on present generations who might impair the opportunities of future persons. Many of the rules concerning property determine the extent to which society will allow the current generation owning private property to dictate the configuration of property ownership for subsequent generations. The rule against perpetuities, for instance, prohibits creating interests in property that take it out of trade for a period exceeding that fixed by law. Another rule prohibits conditions that restrict the owners' ability to use or dispose of property in the future. Although both rules have exceptions, nevertheless they preserve the transferability of property and hence the possibility of its redistribution, for the future.[101] Likewise, whenever unborn persons are identified by law as beneficiaries of a trust, the trust creates an enforceable entitlement in some members of a future generation. In fact, the protection given to unborn beneficiaries under private trusts suggests that an expanded law of public trusts might provide a response to problems of intergenerational equity.[102]

Despite all these provisions in international and current U.S. law designed to protect future generations, assessors freely admit that the risks to our descendants caused by repositories such as Yucca Mountain will be greater than those imposed on present persons. This is because, following NRC standards, scientists expect the waste containment in the canisters to be "substantially complete" for no more than three hundred years. Regulations likewise require that no radionuclide migrate to the accessible environment for at least one thousand years, even though the waste will be highly dangerous for a million years.[103] Given such admissions and regulations, the Yucca Mountain facility would impose risks on the future that are both higher than those actually imposed on, and acceptable to, present persons. As already mentioned, both the state of Nevada and 80 percent of Nevadans oppose the repository,[104] just as residents of New Mexico have opposed the Waste Isolation Pilot Program (WIPP) repository for defense nuclear waste.[105] Such opposition indicates that if even current repository risks are not acceptable to many persons in this generation, future people also would not consent. Because of the obvious commitment of NEPA and the EPA to future generations, several scholars have argued that statutes supporting permanent disposal—such as the NWPA of 1982 and the Nuclear Waste Policy Amendments Act of 1987 (NWPAA)—are inconsistent with the goals of NEPA. At least part of the argument is that the two waste acts take inadequate account of our responsibilities as trustees for future generations.[106]

Apart from environmental justice arguments, permanent geological disposal of high-level radwaste also may be questionable on practical grounds. Because the disposal is permanent, there are no plans to monitor the waste permanently. Given the serious leaks already documented at other radwaste facilities, building an unmonitored repository appears highly impractical.

It may be cheaper to avoid monitoring a facility, but it is not safer, especially over the long term. A better alternative might be monitored retrievable storage.[107]

Conclusions

If the arguments in this chapter are correct, permanent geological disposal of radwaste is highly questionable on grounds of environmental injustice. These ethical grounds include potential temporal violations of both distributive and participative justice, inability to justify second-party consent on behalf of future people, and threats to their due-process rights. As a consequence, it is difficult to show that permanent disposal is able to satisfy the requirements of the PPFPE.

In response to these ethical obstacles to permanent disposal, the main objections are that permanent disposal is safer than other options, or that it is more resistant to terrorist attack, or that it is cheaper than other options. I have argued that all of these objections fail in general because they presuppose that some utilitarian goal (safety, avoiding terrorism, economic efficiency) justifies extreme distributive inequalities or failures in participative justice, such as violations of consent. Hence, in reply to arguments that permanent disposal is cheaper or safer, the environmentally just response is: "Cheaper for whom?" "Safer for whom?" Certainly not for members of future generations.

Obviously permanent disposal is cheaper and safer for this generation, the beneficiaries of commercial nuclear fission. As I have argued, permanent disposal is not cheaper or safer for future generations, and monitored retrievable storage may be preferable. The waste is certain to leak some day, and it is certain to cause some fatalities.[108] Hence, even on classical utilitarian grounds —the greatest good for the greatest number—it is difficult to justify permanent nuclear waste disposal. Analogous to racism and sexism, the narrow self-interest of this generation might be called "generationism." The power of whites over blacks does not give them the right to do to them whatever they wish. The power of men over women does not give them the right to do to them whatever they wish. Likewise, our power over future persons does not give us the right to do to them whatever we wish. Might does not make either right or environmental justice.

6 Native Peoples and the Problem of Paternalism

In August 1986, Kerr-McGee Corporation paid millions of dollars to the three children of Karen Silkwood for deliberately contaminating their mother with plutonium and for harassing her for union-related activities. Karen, a lab technician at Kerr-McGee, cleaned and polished plutonium fuel pellets for an experimental breeder reactor. A whistleblower, she died mysteriously in an alleged one-car collision. When she was killed in 1974, Silkwood was carrying with her a large manila folder of documents showing that Kerr-McGee had covered up major violations of health, safety, and environmental standards at their Cimarron facility outside Oklahoma City. On her way to a whistleblowing appointment with a *New York Times* reporter and with union officials, Silkwood was forced off the road, but local police dispatchers told patrolmen not to go to the scene of the accident. Kerr-McGee personnel confirmed that her documents were stolen by someone, and the NRC showed that Kerr-McGee had illegally used wiretapping and bugging equipment on Silkwood's phone and had contaminated her. After Silkwood's death, the NRC also substantiated that 20 of Silkwood's 39 charges against Kerr-McKee were accurate.[1] Several months later, in 1975, *Paris Match* proclaimed Silkwood, of part Cherokee Indian ancestry, "the world's first antinuclear martyr."[2]

Silkwood, however, actually may not have been the world's first antinuclear martyr. In 1952 Kerr-McGee purchased a uranium mine on the Navajo Reservation in Arizona. The company cut costs by paying 150 Navajo miners an average of $1.60 per hour for their work and by allowing lax enforcement of safety standards. This laxness included failing to repair mine-shaft ventilators and allowing radiation levels of 90 times the permissible limit. By 1980, 6 years after Karen Silkwood's death, 25 percent of the Native-

American miners already had died of radiation-induced lung cancer, and another 63 percent of them had either cancer or serious respiratory problems. Besides contaminating thousands of Native-American uranium miners, Kerr-McGee also ruined Native-American land. In the 1970s after Kerr-McGee abandoned its Shiprock (Arizona) mine, it left 17 acres of uranium tailings on the banks of the San Juan River, where they contaminated hundreds of acres downstream. American taxpayers paid $12 million to cover the cleanup of the tailings that Kerr-McGee left. And at its Churchrock mine near Tuba City (Arizona), Kerr-McGee continued daily to discharge 80,000 gallons of radioactive water into water supplies used by Native Americans. Investigators have charged that throughout all its plants Kerr-McGee uses substandard valves, ducts, pipes, gaskets, and designs in order to cut costs. Yet its annual revenues total more than $3.5 billion, and Kerr-McKee controls more than half of all U.S. uranium reserves. It is the largest U.S. uranium producer.[3]

Colonialism and the Exploitation of Indigenous People: The Case of Shell Oil

How has it been possible for so many Native Americans to be victims of nuclear-related environmental injustice? One reason has been the continuing problem of colonialism and the ability of wealthy developed nations (and their corporations) to exploit indigenous people.[4] The Urarina people of the Amazon, for example, have had their homelands destroyed by oil drillers from developed nations, and they present a classic instance of environmental injustice.[5]

Another well-known case of environmental injustice is that of Shell Oil's destroying the Ogoni agricultural and fishing lands in Nigeria. Royal Dutch Shell discovered oil in the Niger River delta in 1958, and it currently is the largest oil producer in Nigeria, responsible for half of the 2 million gallons of oil produced there daily. The company has come under heavy criticism from environmental groups because it provided oil revenues to the Nigerian military government but not to the Ogoni tribe whose land and people have been destroyed by its oil drilling. Approximately one thousand Ogoni people have been killed as a result of Shell operations in their lands, and 30,000 people have been made homeless because of explosions, oil pollution, and flaring natural gas. Many of the natural-gas flares are within 100 meters of Ogoni homes, and at some sites Shell Oil has been flaring or burning the natural gas for 24 hours a day for more than 30 years. The flaring has caused black soot everywhere; destruction of plants and animals; pollution of air, water, and soil; and acid rain. In August 1993, oil from Shell once leaked continuously for 40 days without the company's making any repairs. Although Shell operates in more than one hundred countries, 40 percent of its spills occur in Nigeria.[6] Even worse, Nigerian military officers have claimed that Shell put pressure on the Nigerian government to clamp down on Ogoni people who

protested Shell's lax environmental behavior. The Nigerian writer Ken Saro-Wiwa tried to help his people. He criticized "the collusion of commercial [Shell] and military [Abacha regime] force" responsible for destroying the Nigerian environment and dehumanizing the Ogoni people.[7] Although he had enough money to settle comfortably and continue as a television producer and writer, Saro-Wiwa instead founded the nonviolent human rights and environmental group the Movement for the Survival of the Ogoni People (MOSOP). He organized peaceful Ogoni protests against Shell, condemned Shell's genocide, and argued for cleanup.

Because it is not required to do so, Shell has never done an environmental impact statement in Nigeria. Instead, when African people protest pollution or the destruction of their homes, the company calls in the Nigerian military. The soldiers typically shoot the nonviolent protestors. As many as 80 people have been killed in a single incident, as in Umuechem in 1990.[8] In November 1995, in spite of widespread protests from the international community, the Nigerian military government, dependent on Shell money, hanged Saro-Wiwa and eight other nonviolent MOSOP environmental advocates. Shell's lawyers were present at Saro-Wiwa's "kangaroo court" and repeatedly advised the court. It gave death sentences to the Ogoni activists. After their "convictions," Shell issued a statement that said: "there are now demands that Shell should intervene and use its perceived 'influence' to have the judgment overturned. This would be dangerous and wrong."[9] Brian Anderson, head of Shell Nigeria, told Saro-Wiwa's brother, Owens, that he could save his brother's life, provided that Saro-Wiwa and MOSOP stopped protests against Shell. But Saro-Wiwa and MOSOP refused to stop their nonviolent attempt to protect their lands. As a result, the military government hanged the nine environmental activists. Shortly afterward, Shell had to hire seven U.S. public relations firms to handle global protests of Shell's and Nigeria's behavior.[10] For his efforts on behalf of his people, the late Saro-Wiwa has won numerous international civic and environmental awards. His son, a Nobel Prize–winning author, Wole Soyinka, is continuing the human rights efforts of his father.[11]

After Saro-Wiwa's death, condemnation of Shell and the Nigerian military arose from all over the world. A huge coalition boycotted the Nigerian military dictatorship, Shell, Chevron, and the Mobil Corporation. The coalition includes TransAfrica; the AFL-CIO; AFSCME; Greenpeace; the Teamsters; the Coalition of Black Trade Unionists; the Oil, Chemical, and Atomic Workers Union; and many other African and American labor, human rights, and environmental groups. Members of Britain's Royal Geographical Society voted to expel Shell as one of its sponsors because of its Nigerian operations. And the 52-member British Commonwealth suspended Nigeria from the organization. Britain, the United States, South Africa, Germany, and Austria recalled their ambassadors to Nigeria in response to the hangings. So did the 15 member nations of the European Union. The EU also suspended its development aid to Nigeria, and the World Bank rejected a $100 million loan to Nigeria.[12]

In response to criticism by many nations of the world, including the United States and the EU, and by many human-rights organizations, Shell Oil has reformed some of its operations in Nigeria and has answered the charges of the international community. It withdrew from Ogoni land in 1993, and production from the 96 wells on Ogoni land ceased that year, although Shell has remained in the rest of Nigeria. It claims that "there are not enough facts available for informed debate" about its problems with the Ogoni people, but it has admitted that it flares almost all its natural gas in Nigeria, roughly 1,100 million standard cubic feet per day. Nevertheless, Shell argues that allegations of environmental destruction in Ogoni land "are simply not true." It says that it obeys the laws of the country and that it is committed to dealing with whatever environmental problems it has caused. Shell Nigeria also argues that the same environmental safeguards are not appropriate everywhere in the world, and that it is not responsible for compensating Africans for oil spills on its property that it has not caused. On the one hand, the company promises that it will reduce flaring by 35 percent by the year 2004. On the other hand, it argues that the environmental demands of MOSOP are not its responsibility but the responsibility of the Nigerian government. Shell has taken roughly a million gallons of oil per day from Nigeria over the last 60 years, and it says that it has paid $575,000 in total compensation for its spills. MOSOP says Shell owes $6 billion in royalties and $4 billion for environmental devastation of Ogoni lands.[13]

Although Shell has been criticized for remaining in Nigeria, because of its human rights problems, Shell executives point out that, when the Nigerian government arrested environmental spokesperson Batom Mittee and others in January 1998, it appealed to the government for their release, and they were released. Moreover, in its November 1996 report, Amnesty International said that Shell had acknowledged its responsibility to do all it can to uphold human rights. In addition, Shell says it has built classrooms in Nigeria and given scholarships to local high school and university students. In the last 2 years, Shell also says that it has paid to immunize 100,000 Nigerian children.[14] Sir Mark Moody-Stuart, chair of the board of Shell managing directors, says that Shell is committed to stopping routine gas flares in Nigeria by the year 2008 and that, annually, Shell spends about $20 million on community development projects, such as roads, in the areas where it extracts oil.[15]

Despite Shell's efforts, conflict continues in Nigeria between the oil company and the African people harmed by oil-related pollution. At present, Shell runs a joint-venture operation in which the Nigerian National Petroleum Corporation controls 55 percent of the company, Shell controls 30 percent, Elf controls 10 percent, and L'Azienda Generale Italiana Petroli (AGIP) controls 5 percent. In 1999, the Nigerian government gave all the major oil producers 6 weeks to formulate remedial efforts to control pollution. In response, Shell made the promise to reduce flaring by 35 percent by the year 2004. In March 2000, however, approximately two hundred African youths seized a natural-gas plant operated by Shell. The young men held all its staff

and soldiers hostage and refused to release them unless the company promised stricter cleanup. Shell Nigeria responded by saying that it is obeying the laws of the land in its operations. It says the problem is that Nigeria has no pollution control policies.

Who is right in the conflict, the Africans or the company? The U.S. Department of Energy says that 75 percent of the gas produced in Nigeria is still flared, and the flares create significant pollution. Another difficulty is that, according to the DOE, Nigeria produces 2 million gallons of oil per day, representing 90–95 percent of its export revenues and more than 90 percent of its foreign exchange earnings. Nevertheless, the total debt of the nation is $34 billion, and the annual debt-servicing costs of Nigeria are roughly $500 million, considerably more than the $500,000 total that Shell has paid for oil-spill compensation. According to the DOE, in June 2000 a Nigerian court found Shell guilty of a large leak that contaminated Ogoni land in the 1970s. The court ordered Shell to pay $40 million to clean up this environmental damage. Instead Shell has filed an appeal to contest the ruling of the Nigerian *court.*[16]

Anita Roddick, founder of Body Shop, has joined other CEOs who say Shell is wrong. Roddick says it is possible to make significant money and yet follow environmental justice dictates and traditional Western ethical principles like equality, free informed consent, and compensation. If Roddick is wrong, then EJ may not be attainable. If Roddick is right, then corporations, scientists, and EJ advocates have good reasons to take the moral high ground. Unfortuntely, however, not all advocates for native peoples are able to mobilize as much international protest against environmental injustice as Saro-Wiwa and Roddick were able to do. The conflicts continue, even in the developed world.

Overview

In the United States, for example, the victimization of native peoples bears some similarity to environmental and public health oppression of indigenous people elsewhere in the world. As semisovereign nations within the United States, Native-American tribes are not subject to state and local regulations, including environmental regulations. Yet they do not have strong environmental or zoning standards that compensate for their state and local exemptions. Because Native-American unemployment is typically above 50 percent and their per capita income is significantly below the national average, the tribes are favorite targets for companies siting noxious facilities such as the Kerr-McGee fabrication plant, uranium mines, and hazardous waste dumps. Sometimes, however, the tribes fight back. The Navaho of Dilkon, Arizona, recently turned down an incinerator, as did the Kaw Tribe in Oklahoma and the Paiute-Kaibab in Arizona. The Mississippi Choctaw voted against a hazardous waste dump on their land, and the Mohawk of Canada and New York have battled at least nine waste proposals. A variety

of companies have tried to persuade Chikaloon Village in Alaska, the Moapa-Paiute, the Campo, the Standing Rock Sioux, and many other tribes to accept white people's waste, including nuclear waste.[17]

One reason Native Americans are victims of so much apparent environmental injustice is that waste proponents argue that siting noxious facilities on tribal lands is not exploitative. They also claim that efforts to protect Native Americans amount to unethical paternalism. But is protection of indigenous people, such as Native Americans, an unethical instance of paternalism or a praiseworthy example of helping them fight environmental injustice? To answer this question, in this chapter (1) I present an overview of ethical arguments for justified paternalism; (2) I survey the main arguments of a recent article alleging that prohibiting hazardous waste storage on Native-American land is paternalistic; and (3) I use the theory developed in (1) to show why the arguments in (2) fail. In this chapter I argue that protecting indigenous peoples from exploitation or environmental injustice need not be a case of illegitimate paternalism.

Paternalism, Consent, and Participative Justice

What is paternalism, and is paternalism justifiable to protect vulnerable individuals, like indigenous people, from exploitation? Or is paternalism an illegitimate limit on people's rights to participative justice, to participate meaningfully in decisions affecting them? As Gerald Dworkin points out, paternalism always involves limiting the liberty of people in their own interests or for their own good. It is not a case of paternalism to limit the liberty of people in order to protect others.[18] Some of the interferences that people take as paternalistic include laws requiring motorcyclists to wear helmets, forbidding swimming at beaches without lifeguards, requiring people to have social security, forbidding certain sorts of gambling, and regulating maximum interest rates.[19]

Perhaps the most extreme prohibitions against paternalism come from Robert Nozick. He argues that paternalism toward person A is justified only to protect the rights of person B.[20] Most people do not accept this extreme position against paternalism, and for at least two reasons. One reason is that protecting person B, by limiting the freedom of A, is not an instance of paternalism. By definition, as I noted in the previous paragraph, paternalism involves limiting the freedom of a person for that person's own good, not someone else's. Nevertheless, most people would agree with (what I call) "proposition (O)": limiting people's freedom to protect the strong or basic rights of others, like rights to life or rights to bodily security, is desirable. A second reason that most people do not accept Nozick's view is that, regardless of whether others' rights are violated by person A's act, it is often questionable whether A has given genuine free informed consent to the act in question. If A has not, then paternalism may be defensible. In fact, most people tend to agree with the position known as "weak" or "soft paternalism"

(SP): it may be defensible to restrain someone's liberty if the individual has not given free informed consent to the act that will seriously harm him physically or take away his liberty.[21] Where people tend to disagree is over the position known as "strong" or "hard paternalism" (HP): it may be defensible to restrain someone's liberty if the individual is not knowledgeable or competent enough to assess the act that will seriously harm him physically or take away his liberty.[22]

Although most people tend to accept propositions (O) and (SP), they tend to be divided not only on whether (HP) is correct but also on what it means. Much of the discussion of (HP) has arisen in the context of the classic arguments against paternalism given long ago by John Stuart Mill. In some cases Mill seems to accept proposition (HP), if it is understood to mean that the person restrained can easily gain access to the missing knowledge necessary to a reasonable decision. For example, Mill claims that if a person began to cross an unsafe bridge but did not know it was unsafe, others would be justified in paternalistically restraining him from crossing it.[23] Mill's reasoning seems to be that protecting people from their own ignorance is defensible, at least in cases in which they would consent to the restraint, were their ignorance removed. In such cases, Gerald Dworkin says the people have given "hypothetical consent."[24] Mill's more general argument, however, is that paternalistic restraint typically is not justified either because (1) one cannot advance the interests of the individual by compulsion or because (2) the attempt to do so involves evil that outweighs the good done. Mill defends (1) and (2) by arguing that people generally are the best judges of their own interests, that much interference with others is wrong, and that people's own choices are best, not because they are the best in themselves but because they are their own choices, because they are free. This is the fundamental notion behind the concept of participative justice, defended in chapter 2. Following this principle of the primacy of freedom, Mill argues that the one exception to his prohibition against paternalism is that people should never be permitted to sell themselves into slavery. His reasoning is that one cannot promote freedom by allowing people to alienate permanently their freedom.[25]

Although people disagree about (HP), as Dworkin points out, most people seem to have accepted (what I call) "Mill's claim (F)": paternalism is justified only when it is necessary to preserve a more extensive range of freedom for the individual in question.[26] In other words, if paternalism is, in general, wrong because it violates individual autonomy or freedom, then it is consistent for Mill to justify paternalism to keep people from selling themselves into slavery. And if so, then paternalism can be justified, in a particular case, only on grounds that it is necessary to preserve a greater autonomy.[27] Recognizing principle (F), Dworkin argues that paternalism may be at least potentially justifiable regarding decisions that are "far reaching, dangerous, irreversible," presumably because of the degree to which such decisions can restrict later freedom and autonomy.[28] That is one reason parents, for example, are justified in behaving paternalistically toward their children. Their doing so ensures the child of greater freedom later and does not allow the

child to preempt future desirable choices. Their supposition is also that the children eventually will see the wisdom of the parents' paternalistic interventions. The issue in individual cases of paternalism, like that of supposed exploitation of indigenous people, is whether paternalistic intervention actually does preserve a greater range of freedom for the people whose liberty is restricted. But to answer this question requires investigating the nature of exploitation.

According to Joel Feinberg, exploitation occurs when there is a misdistribution of profits and losses between two people, A and B, such that A profits by taking advantage of some characteristic of B. As such, exploitation can be a violation of distributive or participative justice. He says exploitation is coercive when A has more bargaining power than B and the characteristic that is taken advantage of is this lack of power.[29] Exploitation occurs, for example, when people take advantage of others' character traits (such as trust), moral weaknesses (such as greed), or unfortunate circumstances (such as poverty or depression). This exploitation is typically wrong either because it is unfair (as when people are cheated or economically desperate) or because people have not consented to the exploitation (as when they are misinformed).[30] But when is paternalism justified to prevent exploitation? Feinberg argues for (what I call) "principle (E)": paternalism is justified in cases of exploitation that either cause harm or that occur without the free informed consent of potential victims.[31] Because people often wrongly use "moralistic principles" to defend paternalism in questionable situations, Feinberg refrains from defending any other principles of justifiable paternalism in cases of exploitation.[32]

If one examines some of the major ethical principles, relevant to paternalism, that most theorists already accept—principles such as (O), (SP), (F), and (E)—what do those principles reveal about whether paternalism can be justified in cases of supposed environmental injustice involving indigenous peoples? Consider a recent case involving controversy over siting a waste facility on Mescalero Apache land in the southwestern United States.

The Mescalero Apache, Paternalism, and Waste Disposal

In the 1990s, tribal leaders of the Mescalero Apache orchestrated acceptance of a Monitored Retrievable Storage (MRS) facility for spent nuclear fuel. In response, critics said allowing the tribe to take the waste would constitute a case of environmental injustice. Charging the critics with unjustified paternalism, Noah Sachs defended the agreement, arguing (1) that paternalistic criticisms of siting the Mescalero MRS are flawed; (2) that because siting the MRS does not amount to exploitation and bribery of the Mescalero, it does not violate EJ; and (3) that siting the Mescalero facility does not represent a more serious inequity than siting it somewhere in the East.[33] In this chapter I show that siting the dump on Mescalereo land would be likely to violate EJ and that all three arguments rely on historical, scientific, and ethical flaws. If

these arguments of Sachs fail, then there is reason to believe that sometimes EJ-related paternalism may be justified.

Asserting that it would be paternalistic to try to stop the Mescalero from hosting the waste facility, Sachs argues in claim (1) that the Mescalero tribe has the right to "host hazardous waste projects if it believes such projects will be beneficial to it." He argues that it is wrong for paternalistic opponents to thwart the Mescalero action because the government should not interfere in a "private venture between the Mescalero and the [U.S. nuclear] utilities." Repeatedly he says that the MRS Mescalero project is a "private venture."

Sachs may be correct insofar as he presupposes that paternalistic government has no place in legitimate actions that are purely private. However, his claim (1) is seriously incorrect in alleging that the Mescalero project with the U.S. utility companies is a purely *private* project. It is not private for at least four different reasons. First, the United States government is responsible for the waste; private companies are not. Second, current U.S. citizens could be hurt by the waste, if past events at waste facilities are an indicator. Third, *members of future generations are threatened by the waste, because it will be* lethal for a million years. Fourth, the gene pool can be impacted by the waste, given that ionizing radiation is one of the easiest ways to induce mutations. The U.S. government admits that the waste will be lethal in perpetuity and that the half-lives of some of the radioactive isotopes, such as iodine-129, extend into the hundreds of millions of years. Both government and independent scientists, such as health physics associations, admit that the waste has the potential to hurt present persons, future persons, and the gene pool.[34] As a result, projects involving high-level nuclear waste and transuranics, because of their longevity, are among the least private today. Actions with strong potential to harm other people, innocent third parties, are never private. And if not, although the Mescalero may have the right to decide their own fate, they do not have the right to decide the fate of innocent third parties, such as members of future generations or their own children. Moreover, as I argued earlier, most theorists accept proposition (O): limiting people's freedom, to protect the strong or basic rights of others, is desirable. And if so, because the Mescalero project could threaten the rights of third parties, it is *not merely a private venture.*

If Sachs had defined what he meant by "paternalism" or investigated its legal and ethical status, he would have discovered a strong ethical consensus regarding (O): paternalism to protect innocent third parties always is ethically required, and thus some paternalism may be justifiable in some cases. As already mentioned in the previous section, the English moral philosopher John Stuart Mill is responsible for the traditional account of paternalism. He said paternalism was justifiable only to protect third parties or to prevent someone from selling herself into slavery.[35] Because protecting other people is ethically defensible, dismissing EJ arguments as paternalistic is both simplistic and historically inaccurate. It is simplistic because it fails to consider that protecting others need not always be paternalistic and because condemning all interference with projects ignores how they may affect others. If

they are not private, then alleged benefits to one group are not necessarily adequate grounds for putting another group at risk.

Sachs's position also is historically inaccurate because it ignores much ethical theory of the last 50 years. As I noted in chapter 5, ever since at least the Nuremberg Accords, biomedical ethicists have agreed that it is wrong to experiment on (or to put at serious risk) people who are medically, socially, or economically disenfranchised because it is so difficult to guarantee that they actually have given free informed consent to the proposed experiments or the risks.[36] And as my arguments in chapter 3 about Appalachian farmers and in chapter 4 about African Americans illustrated, it is prima facie wrong to put economically, physically, or politically vulnerable people at risk. It is wrong because such people often are unable to engage in genuinely free transactions or decisions. They are more constrained by the hardships in their life situations than many other people, and thus they often do not enjoy the conditions necessary for free informed consent, for procedurally just interactions, and therefore for participative justice. As a result, most theorists accept proposition (SP), that paternalism may be defensible in cases where consent is lacking or limited (see the preceding section). Following proposition (SP), government has mandated a variety of regulations to protect vulnerable groups such as children, the aged, the ill, the less-educated, prisoners, and the poor precisely because their vulnerabilities often compromise the necessary background conditions for consent and for pure procedural justice. Their poverty or lack of education might give them less bargaining power, less equal opportunity, and less equal treatment in any societal transaction. As a result, they might be more vulnerable to exploitation, and they might need the paternalistic protections of proposition (E). But if so, then government should protect them as citizens and not merely leave them to the mercy of their status as mere consumers.[37] Because "poverty acts through the prism of culture,"[38] democracy must shape culture in ways that do not reduce the citizenship of the poor or the vulnerable.

In the case of the Mescalero, the absence of state and local environmental regulations makes them more vulnerable to utilities and companies seeking waste sites. Their lower-than-average per capita income also constrains their lives as consumers. It limits their transactions and negotiations in ways that can threaten free informed consent and procedural justice. As a result, when one considers the public impacts of nuclear waste, free informed consent, and procedural justice, it seems impossible both to defend Sachs's position and to accept the classical ethical principles (O), (SP), (F), and (E). And if so, then protecting indigenous people like the Mescalero Apache need not amount to unjustified paternalism.

Environmental Justice and the Mescalero

Sachs's claim (2)—that because the Mescalero are not victims of exploitation and bribery in the monitored retrievable storage case, they are not victims of

environmental injustice—also is questionable. Noah Sachs gives two arguments that the proposed Mescalero MRS does not involve exploitation and bribery and therefore does not involve environmental injustice. He says (1) that compensation for hosting an MRS facility is preferable to alternative methods of siting that are "compulsive and coercive." He also claims (2) that groups should be "free to pursue economic options on their own." Sachs's argument (2) is flawed because, as I argued in the previous section, no one ought to be completely free to pursue economic options that could seriously jeopardize the welfare of innocent third parties. To do so would jeopardize principle (O). Sachs's argument (2) also begs the question that the siting is truly a private matter with only private, and not public, consequences.

His argument (1), that compensated siting is better than compulsory siting, is correct, but it is beside the point. It is beside the point because no-holds-barred compensated siting and compulsory siting are not the only two policy options. To assume they are is to commit a fallacy of bifurcation. Other options, already tried successfully, are to use compensated siting but to employ oversight and constraints—paternalistic protections—to safeguard vulnerable third parties and innocent victims.[39]

Sachs commits the same fallacy of bifurcation when he simplistically asserts that people ought not to advocate "open processes involving fair compensation and at the same time oppose the projects when poor communities step forward to host the facility." On the contrary, people can and do advocate open processes, yet they consistently oppose the projects that victimize vulnerable people. In cases of medical ethics and rules for experimenting on human subjects, the laws provide for open processes involving fair compensation but, at the same time, do not allow poorly informed, economically constrained, or socially deprived individuals to volunteer for the experiments. It is illegal, for example, to experiment on prison inmates precisely because their life conditions make their free informed consent unlikely. In virtually every area of public life, people support open competition and compensation for projects—such as applying for a job—yet they do not believe that anyone, independent of circumstances and qualifications, is suitable for those projects. Sachs equates "open competition" with "absence of criteria for winning the competition." Again, in his simple either/or prescription, Sachs's bifurcation presents a naive and unrealistic account of policy options. Ethics requires analysis, not simple one-liners or naive either/or choices.

Sachs's failure to consider the way that socioeconomic and political factors constrain the exercise of free informed consent, pure procedural justice and participative justice is puzzling because he admits that the Mescalero leadership coerced Apache tribal members at the second referendum on the MRS. He also admits that people who opposed the facility—and who opposed tribal leaders' promoting it—became victims of retaliation who were likely to lose their housing and their jobs on the reservation. The same tribal leaders have the power to punish those who disagree with them. And if so, it is inconsistent for Sachs to make such admissions about coercion and, at the

same time, to claim that there was no bribery or exploitation of the Apache people because the decision processes were "open." As already mentioned, most ethical theorists accept proposition (E), that paternalism is justified in cases where harm, lack of consent, or exploitation is likely. Likewise, it is inconsistent for Sachs to claim that the Apache tribe had "decided for itself" about the project and at the same time to admit that the utility (not the Apache tribal members) would have five of the nine votes on the board running the MRS facility. The tribe hardly "decided for itself" when the second Mescalero vote involved admitted intimidation and foul play. Similarly, it is inconsistent for Sachs to claim that the tribe had decided how "to improve its own welfare" yet to admit that the title to (and responsibility for) the spent fuel could move from the utility to the tribe, given the approval of the Tribal Council. One does not improve welfare by assuming perpetual responsibility for hazardous materials. Given these admissions, as well as the recognition that half the tribe lives below the poverty level and the median tribal income is less than half that of the median American,[40] the tribe hardly is able to decide, without being exploited, matters regarding the facility. Besides, it is not obviously in the interests of the tribe to have title to (and therefore responsibility for) the waste. What is at issue is a permanent financial burden for millions of years. Moreover, it is a burden, in Dworkin's words, that is "far reaching, dangerous, [and] irreversible"[41] and therefore a burden capable of restricting tribal freedom and autonomy. But if so, then recognition of proposition (F), discussed earlier, suggests that paternalistic intervention might be justified in order to protect Mescalero autonomy. Considerations of fairness also suggest paternalistic intervention. After all, the waste burden is one that either the utilities or the United States government should bear, in part because they decided to generate the waste and in part because only such deep pockets have the assets to care for it.

Geographical Inequality, Distributive Justice, and the Mescalero

Regarding claim (3), Noah Sachs asserts that putting the Apache MRS in New Mexico (where no commercial nuclear waste is generated, instead of in the East, where most of the nuclear reactors are located) is not unacceptably inequitable. The reason, he says, is that "nuclear waste facilities, and hazardous facilities in general, impose local burdens and generalized benefits. This geographic imbalance can never really be restored."[42] In this argument, Sachs makes a crucial erroneous assumption: that because all dangerous facilities impose some inequities, there is no ethical obligation to minimize inequities. He erroneously assumes that because perfect equity is not possible, people can be as inequitable as they wish. There are no defensible ethical or logical grounds for such an assumption.

If one follows the suggestions of chapter 2 and investigates Sachs's claim with respect to distributive justice, at least two facts suggest that locating the

MRS in the West is more inequitable than locating it in the East. First, the West receives less benefit than the East from the nuclear-generated electricity that created the waste because eastern and western utilities are less likely to buy and sell excess electricity among themselves than eastern utilities are. Second, the western United States already has borne a more significant national burden, as compared to the East, because of nuclear weapons testing.[43] It is particularly onerous for Sachs to dismiss the distributive inequities that worry citizens of New Mexico when he himself is unlikely to suffer from these inequities. Nonvictims do not have the right to dismiss the inequities suffered by victims, particularly when the nonvictims have arguable ethical responsibilities to reduce the distributive inequities. Moreover, when nonvictims dismiss the inequities suffered by victims, they encourage patterns of abuse to continue. Factually speaking, Sachs's argument (3) also errs because he completely ignores the fact that Native Americans already bear a disproportionate environmental burden. There has been a continued pattern of inequity borne by Native Americans, as the beginning paragraphs of this chapter revealed. Yet Sachs's argument almost completely ignores these inequities.

History of the Nuclear Waste Issue

Why do Sachs's defenses of the Mescalero MRS project err? In part they fail because he has not integrated relevant nuclear-related history into his analysis. He ignores the history of the systematic exploitation, discrimination, and inequities visited on Native Americans, especially by nuclear-related interests.[44] He ignores the history of violations of free informed consent and procedural justice.

Similarly, Sachs maintains that the MRS proposal is flawed in violating U.S. nuclear waste disposal policy,[45] but he reveals little understanding of the way that the history of United States nuclear-waste policy itself is flawed. There already is a consensus that United States nuclear waste policy is a shambles. Congressional hearings repeatedly have revealed it to be a policy that, for half a century, has been characterized by secrecy, deception, and flagrant violation of environmental laws. Congress and the GAO have shown that nearly all DOE and Department of Defense (DOD) nuclear-related sites have soil and groundwater contamination that violates environmental laws, many by a factor one thousand times greater than the allowable level of radiological pollution. Their cleanup will cost approximately $300 billion to $1 trillion. Poor waste management has occurred at all these facilities, and congressional hearings have revealed that waste policy-makers in the DOE deliberately have withheld safety information, penalized whistleblowers, and failed to spend the money necessary to avoid radioactive contamination. As a result, members of Congress and the NAS have charged that the DOE has lost credibility.[46] Apart from environmental violations, mismanagement, and deception, U.S. nuclear waste policy is problematic for other reasons. It

is based on highly controversial and subjective judgments about repository risk and on cutting costs even when they jeopardize safety.[47] For example, U.S. waste policy is based on using single-walled stainless steel waste canisters (that show stress corrosion cracking after one year) rather than long-lived, double-walled, or copper canisters, like those used in Sweden.[48]

Implicitly endorsing such questionable aspects of U.S. nuclear policy, Sachs assumes that MRS facilities are not desirable because U.S. waste policy requires permanent disposal. However, MRS facilities allow overseers to monitor the nuclear waste, to retrieve it when necessary, and to correct leaks. U.S. permanent disposal policy is based on no long-term monitoring or retrievability and no ability to correct waste leaks. It is a "dump it and run" policy, even though the DOE admits that the waste is sure to leak.[49] U.S. waste policy, in other words, is a policy of jeopardizing future generations—by dumping unmonitored, nonretrievable, lethal waste into the ground and forgetting about it. As I argued in chapter 5, it is a policy of discounting the waste-induced deaths of members of future generations in order to make permanent waste disposal appear cost effective.[50] Even the NAS has repeatedly criticized U.S. waste policy and has said the "DOE lacks credibility" in siting a permanent facility.[51] The NAS also has affirmed that it is impossible to predict intrusion into a permanent waste repository over the next million or more years.[52] Because intrusion is the most likely way to compromise the safety of a repository, this admission shows that a permanent nuclear facility—whose waste is not monitored and not retrievable—is not safe and may be less desirable than using MRS facilities, whose waste is both monitored and retrievable. In failing to take account of such facts, Sachs's analysis ignores both the liabilities of permanent disposal and the assets of MRS facilities.[53]

Sachs's analysis also is factually and historically incomplete when he discusses federal responsibility for nuclear waste. He says the federal government has taken responsibility for disposal of spent nuclear fuel because the technical challenges are great and because of the enormous expenditures. However, the federal government assumed responsibility for radioactive waste, in the early 1950s, primarily because it wanted to induce utilities to use commercial reactors so that it would be able to obtain the plutonium by-product for its weapons program. To induce industry to use atomic energy for generating electricity, the government agreed to cover the costs of nuclear liability and waste storage. As I showed in chapter 4, nuclear generation of electricity would not be economical if rate-payers and utilities had to cover the costs of decommissioning, insurance, and waste storage. Spokespersons for the U.S. utility industry and congressional documents revealed, in fact, that all U.S. utilities refused to embark on nuclear generation of electricity in the 1950s, because they said that the accidents would bankrupt them and that waste disposal made nuclear-generated electricity prohibitively expensive.[54] But the federal government wanted the reactor by-product, plutonium, for the nuclear weapons program and for this reason agreed to cover the costs of liability and waste storage for the utilities.[55] As a result, govern-

ment picked up the tab for both. It passed the Price-Anderson Act, to limit nuclear liability to approximately 1 percent of the total costs of a nuclear catastrophe, and it agreed to have taxpayers cover the costs of radioactive waste disposal.[56]

So long as Sachs and others do not realize the extremely uneconomical character of nuclear-generated electricity, as already outlined in chapter 4, they will not understand why utilities need to force taxpayers to pay for nuclear-generated waste disposal in order to remain competitive. They will not understand why both government and utilities need to force states and communities to accept facilities for radioactive waste within their borders. They will not understand, consequently, the way such coercion can justify paternalistic intervention. According to the late Nobel Prize–winning physicist Henry Kendall, of the Massachusetts Institute of Technology, U.S. government subsidies for commercial nuclear reactors and waste disposal run on the order of $20 billion per year. Kendall claims that if government removed these subsidies, the costs of fission-generated electricity would double. Yet *already the diseconomies of nuclear power have destroyed it in the United* States; no new reactors have been ordered for nearly 30 years.[57] In other words, contrary to Sachs's claim, military goals—in addition to the diseconomies of nuclear-generated electricity and the inability of commercial nuclear fission to "pay its own way"—are the main reasons that the government has picked up the tab for disposal of spent fuel. And if these are the arguments for current nuclear policy, then it is questionable whether one should support this policy. But if so, then it is questionable to reject the MRS option as contrary to current policy, as Sachs and others do.

Science Relevant to the Nuclear Waste Problem

Sachs's arguments about the Mescalero proposal also err because of scientific problems with his arguments. He claims that the MRS proposal is flawed because it would force utilities and their customers to "pay twice" for waste storage, because the monies spent for the MRS would be in addition to the $5 billion that utilities already have paid into the federal Nuclear Waste Fund. However, Sachs ignores at least two facts. One is that the entire U.S. taxpaying public has provided hundreds of billions of dollars of subsidies for nuclear utilities and radioactive waste storage, as already discussed in chapter 4. The other fact is that the nuclear utilities pay only a small fraction of the cost of waste storage. In the last 10 years, the beneficiaries of nuclear power (utilities and rate-payers) have paid $5 billion into the Nuclear Waste Fund. Yet if Kendall is right, United States taxpayers have contributed $200 billion (or $20 billion per year) in subsidies (in part for waste disposal) to the same nuclear interests.[58]

If Sachs is going to make an equity argument, in considering Native Americans and environmental justice problems, then he needs to recognize that utilities and rate-payers have never paid, even once, for the total costs of

waste storage. The burden has been borne by taxpayers. Because the government has released all nuclear facilities from full liability for accidents, through the Price-Anderson Act,[59] it arguably has jeopardized citizens' due-process rights. But if nuclear utilities and rate-payers are not paying their own way, they may be violating the principle of prima facie political equality (PPFPE), defended in chapter 2. Moreover, without the military incentives that gave nuclear utilities heavy subsidies for nuclear-generated electricity, there would be no nuclear power plants in the United States. Sachs appears not to know this fact. As a result, his call for justice, for not making the utilities and rate-payers "pay twice" for waste storage, is wrong. The point is important because, given the nuclear program cost overruns, the expense of waste disposal, and the diseconomies of commercial nuclear fission, there are likely to be additional financial pressures to cut costs and to jeopardize safety at either MRS facilities or permanent repositories. This cost-cutting could jeopardize further both the proposed Native-American hosts of the facility and other Americans.

Sachs also errs in criticizing using the MRS option because it takes "the pressure off the federal government to seek sound long-term solutions to the waste problem." Sachs's argument here begs the question of whether there are sound long-term solutions to the waste problem. If all the previous arguments and data given are correct, including those in chapter 4, MRS solutions may be the only solutions to radioactive waste. Moreover, no state is willing to accept a permanent repository, and 80 percent of Nevadans are militantly opposed to current plans for the Yucca Mountain repository.[60] And, as already mentioned, the NAS says it is impossible to predict repository intrusion over the next million years.[61] As I argued in chapter 5, given that future generations, in principle, cannot be said to have given proxy consent to an unmonitored facility, and given that there is so much uncertainty regarding permanent disposal, there are strong grounds for opting for MRS over permanent disposal.[62] The problem with the Mescalero MRS proposal, however, is that it seems to have violated norms of free informed consent, procedural justice, and environmental justice, for all the reasons already given.

Conclusion

Ethicists are generally agreed in accepting propositions (O), (SP), (F), and (E)—as specifying conditions for justified paternalism. Yet these propositions suggest that paternalistic intervention, in the Mescalero case, is ethically justified. It is justified primarily because of distributive injustices that Mescalero storage would bring and because of contemporary norms requiring free informed consent, participative justice, and recognition of the PPFPE. Moreover, if there are government-imposed limits on free informed consent in cases such as biomedical ethics, then it is reasonable to consider

government-imposed limits on free informed consent in cases of technological and environmental ethics. The biomedical ethics that protects experimental subjects offers a similar justification for the environmental justice that ought to protect indigenous peoples. And if so, the proposed Mescalero MRS should be rejected on grounds of environmental injustice.

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7 Risky Occupational Environments, the Double Standard, and Just Compensation

In May 2000, a federal judge sentenced a corporate executive to 17 years in prison and ordered him to pay $6 million to the family of one of his workers who was permanently brain damaged from cyanide poisoning on the job. The sentence was the largest ever imposed anywhere for an environmental crime. In May 1999, a Pocatello, Idaho, jury had found the executive, Allan Elias, guilty of knowingly endangering the lives of his employees at Evergreen Resources, a company that made fertilizer from vanadium mining waste. Elias did nothing to protect his workers, said the court, despite the fact that employees repeatedly complained of sore throats, said they needed protective gear to clean company tanks, and argued that the tanks needed to be tested for toxic chemicals. When he was overcome by hydrogen cyanide gas while cleaning a tank, the 20-year-old employee Scott Dominguez was not rescued for more than an hour. Because the company did not have the proper equipment, no one was able to help the fallen worker.[1]

Although the court award and the prison sentence are large, the fact of workers dying or being seriously injured on the job, because of an unsafe occupational environment, is nothing new. In 1991, a fire in a North Carolina chicken-processing plant killed 25 workers because management had bolted shut the fire exits. In 1985 a U.S. immigrant who could not speak English dropped dead from poisoning while using chemicals for his company's processing work; 8 months later, three executives of the company, Film Recovery, were tried and convicted of murder. While examples such as the Idaho and North Carolina cases rarely hit the front pages of newspapers, they are widespread. Annually in the United States, 7,000–11,000 people die prematurely from injuries sustained in the workplace and another 62,000–86,000 people die prematurely from occupationally induced diseases like cancer.

This means that a total of nearly one hundred thousand workers die needlessly each year in the United States from unsafe work environments, even though their deaths could have been prevented. These victims of environmental injustice represent a largely silent minority, not only because their number represents less than one one-thousandth of the U.S. work force but also because their deaths frequently have undetected causes for which it is difficult to hold employers responsible. There are only 2,700 practicing occupational medicine physicians in the United States, and only a handful of Occupational Safety and Health Administration (OSHA) inspectors. At the time of the North Carolina chicken-processing plant fire, for example, officials had enough inspectors to check a worksite for safety only once every 75 years. And although from 1980 to 1988 the U.S. OSHA referred 30 cases of job-related criminal homicide to the Justice Department, only four had been prosecuted or were being prosecuted by 1989, in part because the Bush administration cut the funding of the Justice Department section responsible for prosecuting companies for workplace deaths. Yet annual occupation-related deaths in the United States are approximately five times greater than those caused by the illegal drug trade and approximately four times greater than those caused by AIDS. Few people are aware of the alarming occupational-fatality data, and almost no epidemiological studies track worker deaths over the long term. In addition, most casualties of the workplace environment are poor, African American, or Hispanic, and they have few advocates.[2]

Overview

Although unhealthy workplace environments annually cause three times more deaths and injuries than street crime,[3] even in developed nations employers often have so much power, privilege, and status that they can avoid responsibility for what happens to employees. In developing countries, apparent injustice in the workplace environment is even more evident. Worldwide, workplace risks are increasing, in part because of the World Trade Organization (WTO), established in 1995 as part of the Uruguay Round Agreements of the General Agreement on Tariffs and Trade (GATT). The WTO has defined all worker health or safety protections, including prohibitions against child labor, as "barriers to trade" that violate the WTO international regulations by which all member nations must abide.[4]

Still another reason society minimizes the massive number of occupation-related fatalities is that economists tend to justify risky workplaces on the grounds of the *compensating wage differential* (CWD). The CWD, or hazard-pay premium, is the alleged increment in wages, all things being equal, that workers in risky jobs receive. According to this theory, employees trade safety for money on the job market, and they know some of the workers will bear the health consequences of their employment in a risky occupational environment. To determine whether the CWD or hazard-pay premium suc-

ceeds in justifying alleged environmental injustices in the workplace, this chapter addresses three main issues. These include (1) the theory behind the CWD, used to defend the double standard for threats in the occupational environment; (2) the doubtful success of four main arguments for the CWD; and (3) the three prominent reasons for rejecting the CWD, as a proposed rationale for allowing apparent environmental injustice in the workplace. After analyzing these three issues, I use the CWD arguments to assess a current empirical case: whether the CWD provides a justification for the apparent environmental injustice faced by the 600,000 U.S. nuclear workers.

The Double Standard

Some policy experts argue that there should be no double standard, one for occupational and one for public exposure to various gases, chemicals, particulates, radiation, noise, and other forms of environmental pollution. They believe that unless industrial employees are protected by health and safety standards that are equal to those protecting the public, then workers will face environmental injustice. According to critics of this double standard, employees ought not to have to trade their health and well-being for higher wages. Moreover, say critics of the CWD, paying people to put themselves at risk at work is not significantly different from murder for hire. Sanctioning this belief, Judge Patrice de Charette, a French magistrate, caused substantial controversy when, in 1975, he and a deputy went to a refinery to arrest and imprison the plant manager where a worker had been killed in an industrial accident. When he was denounced by higher French authorities, de Charette maintained: "I don't see why it is less serious to let men die at work than it is to steal a car."[5] Representatives who drafted the 17 principles of environmental justice, at the 1992 meeting of the National People of Color Leadership Summit, agree with de Charette. At least three of their principles focus on workers' rights to environmental justice, and they explicitly affirm that "environmental justice demands the right of all workers to a safe and healthy work environment, without being forced to choose between an unsafe livelihood and unemployment." They also explicitly affirm the rights of all victims of environmental injustice to "full compensation."[6]

Those who agree with the double standard for worker and public exposure to environmental risk usually maintain that the CWD, the additional pay received by employees in hazardous occupations, compensates them for their increased risks. Mary Douglas and Aaron Wildavsky, for example, claim that workplace risk is overemphasized and sensationalized by "the danger establishment." They say most countries, notably the United States, have unacceptably "rigid standards" for workplace risks. For those who believe that occupational safety requirements are too strict, a recurrent target of ridicule is the OSHA portable toilet standard for cowboys.[7]

Historical Background

Disagreement over alleged occupational injustice is nothing new. Controversy over workplace risks originated at least as early as the emergence of a division of labor between manual and nonmanual work. In fact, the Greek word for work, *ponos*, has the same root as the Latin word for sorrow, *poena*, which also means "penalty." The French word *travailler*, "to work," is derived from a Latin word referring to "a kind of torture." And ancient Greek and Roman writings are filled with references to the diseases peculiar to one or another profession. Perhaps the first publication to address occupational hazards and their prevention was a booklet written in Germany in 1472. It told goldsmiths how to avoid poisoning by mercury and lead. In 1556, in his treatise on the mining industry, the German mineralogist Agricola wrote the first known review of miners' health problems. He noted that some women who lived near the mines of the Carpathian Mountains in eastern Europe had lost seven successive husbands to mine-related accidents and diseases. Urging his medical colleagues and statesmen to make workplaces safer, in 1700 the Italian physician Bernardini Ramazzini wrote *Diseases of Workers*.[8]

Despite the historical knowledge that various diseases are associated with particular jobs, governments have done surprisingly little to avoid or to reduce many known occupational risks. As J. K. Wagoner of the National Institute for Occupational Safety and Health (NIOSH) observes, two centuries have passed since Percival Pott linked coal tars to the scrotum cancer that killed young chimney sweeps in England. Yet "thousands of coke-oven workers in steel mills around the world continue to inhale the same deadly substances, and they are dying of lung cancer at ten times the rate of other steel workers."[9]

One reason for the continuing controversy over workplace hazards, and over whether to employ a double standard for public and occupational risk exposures, is that some nations have the same health and safety standards for public and worker exposures. For example, in 1972 New Zealand passed a universal, state-run scheme to compensate all victims of accidents—workers and nonworkers—the same. In this sense, New Zealand has no double standard for protection, as the United States does. Another reason for controversy over the safety of the occupational environment is that United States standards for health in the workplace appear to permit greater risks than do those of many other nations. In terms of fatal-injury risk, for example, Australian workers appear to enjoy a wage increment that is nearly triple the U.S. increment for risky work.[10] And in terms of permissible levels of chemicals in the work environment, U.S. regulations are less strict than those of countries such as Germany, Sweden, and Czechoslovakia. Standards in Argentina, Great Britain, Norway, and Peru are approximately the same as those in the United States. In Sweden and Germany, for example, unlike the United States, workers have more extensive rights to be informed about hazards and to take steps to reduce exposures. Strikes there are rare, and labor productivity rates are among the highest in the world, while maximum-allowable-con-

centration (MAC) values are among the lowest in the world. The United States, however, has not adopted the approach of Sweden and Germany.[11]

Unlike the United States, the former USSR had a long tradition of providing for occupational justice. In 1923, the USSR founded the first hospital devoted entirely to the study and treatment of occupational diseases. No such hospital exists in the United States. Of course, the Soviet enforcement patterns are not known and, although MAC values may have been lower in the USSR and in the new Soviet republics such as Belarus and Ukraine, control there probably is far less stringent than in Western countries. If so, then despite safer environmental standards in these nations, workplace risks could be higher. Regardless of whose enforcement patterns are better, however, risk comparisons among countries raise a number of interesting philosophical questions. Among these are when a workplace environment is so dangerous that it is unjust. Do the Germans have a more or less desirable risk philosophy than their American counterparts? Why do German MAC values tend to be lower, often by a factor of 10 or more, than corresponding U.S. standards, even though Germany must confront many of the same problems that the U.S. faces?[12] Apart from whether risky workplace environments *ought* to be improved, are lower MAC values even technically possible? If they are possible, would they be so costly as to jeopardize economic well-being? Would most workers and citizens be willing to pay for them by raising the price of goods and services produced in risky ways?

The Theory of the Compensating Wage Differential

A variety of factors are probably responsible for the more lenient occupational safety standards in the United States as compared to those in other countries. One of the reasons is the surprising lower emphasis on equity or environmental justice in the United States; U.S. standards typically allow much higher pollution-exposure levels for workers than for the public. In large part, this is because U.S. policy-makers do not believe that equity requires occupational and public exposure levels to be the same, given that workers allegedly receive higher pay because of their higher exposures. For example, the U.S. maximum permissible dose of whole-body ionizing radiation that can be received annually by the public is 100 millirems. The maximum permissible dose for the same time period for industrial workers is 2,000 millirems per year, averaged over 5 years, with a maximum of 5,000 millirems for any given year. Thus a nuclear worker could legally receive 50 times as much radiation as a member of the public in a given year.[13] This double standard is even more troubling when one realizes that before 1990 the public standard was 10 times stricter than the worker standard for ionizing radiation. After 1990 the public standard became 50 times stricter for a given year. These numbers reveal that, while the government is doing a better job of protecting the majority, the members of the public, it may not be doing the same for workers, especially since there is no safe level of ionizing

radiation. Indeed, since 1990 worker protection from ionizing radiation has been getting worse, not better.

The main reason U.S. policy-makers do not believe that equity or environmental justice demands the same standard, for occupational and public exposure to various pollutants, is that they do not believe the two types of exposures are analogous. If people apply the principle of prima facie political equality (PPFPE), defended in chapter 2, to occupational risks, they could easily argue that higher wages in risky jobs justify more lenient workplace safety standards. Likewise, they could say that the current double standard meets criteria for participative justice, as discussed in chapter 2, because the workers consent to take risky jobs. Proponents of the method of revealed preferences for evaluating risks,[14] for example, define occupational risks as *voluntary* risks but public risks as *involuntary* because people give no explicit consent to them. Because proponents of the CWD claim, correctly, that involuntarily imposed risks ought to meet more stringent safety requirements, they say the double standard for occupational and public risks is reasonable.[15] On the one hand, Kip Viscusi and Chauncey Starr, two of the preeminent proponents of the CWD and the method of revealed preferences, claim that empirical data show that, as the workplace risk increases, so do the wages. Elephant handlers at the Philadelphia zoo, for example, receive an extra thousand dollars per year because of the risks they face of being mauled by an elephant.[16] On the other hand, opponents of the CWD say the wage–risk relationship is not so simple, especially in Western countries. They claim that many factors, in addition to risk, determine the wages people accept for given work. Some of these factors include the degree of education or training necessary for the job; the extent to which people are available to perform the work; the physical strength required to do the task; or the lack of other employment opportunities. Hence, although there is some sort of wage–risk relationship such that wages often rise as job risks increase, they say this relationship is not simple. In fact, they note that different economists actually calculate different CWDs—different increments of pay per risk increment.[17]

Viscusi's and Starr's view, widely accepted among risk assessors, is part of the classic theory of the CWD. Adam Smith formulated the fundamental economic principles of this theory long ago. As Smith expressed it, "the whole of the advantages and disadvantages of the different employments of labor" continually tend toward equality because the wages vary according to the hardship of occupation. On Smith's theory, people exposed to a risky workplace had advantages and disadvantages whose sum was equal to that for people not exposed to such risks, because those in the high-risk occupations were provided with higher rates of pay than those in low-risk jobs. They voluntarily agreed to "trade" some degree of workplace safety for higher wages. In other words, the classic market solution to the problem of how to control occupational risks is to use an "economic fix" for setting standards.[18]

According to Smith, employers using dangerous technologies will lack employees unless they raise wages or offer some other inducement to attract

workers. These hazard-pay premiums or CWDs thus partially compensate workers for the expected economic costs of their later work-related injury or illness. Smith's theory also suggests that the necessity for firms with risky jobs to pay higher wages also gives them incentives to invest in safety and health precautions. According to the theory, they can recover these investments in the form of lower CWDs or hazard-pay premiums. Smith's theory thus predicts that workers will be aware of many of the hazards to which they are exposed, that quit rates will be higher in hazardous jobs than in safe jobs, and that—all things being equal—risky occupations will pay higher wages than safe occupations.

Smith's theory of the CWD falls short on several counts. For one thing, dangerous jobs typically are not filled by rational agents who are well informed of the risks. Workers who have little formal education and who have difficulty recognizing subtle hazards often have risky jobs. This fact makes it important to note that at least two assumptions underlie Adam Smith's theory of compensating differentials. First, workers must be aware of the hazards they face. Second, they must have a number of meaningful job possibilities. Both of these assumptions often are at variance with the facts in the real world. The number of realistic job options enjoyed by different workers varies widely depending on their skills and social status. To the extent that hazardous occupations are filled with less skilled and socially disadvantaged workers, Smith's theory requires that such jobs will offer meager CWDs or hazard-pay premiums.[19]

In arguing for a market mechanism, the CWD, to compensate for the problems of alleged environmental injustice and distributive inequities raised by the double standard for occupational and public risk, economists, risk assessors, and public policy–makers generally employ at least four arguments. In this chapter I examine and evaluate each of them, in order to determine whether they succeed in justifying apparent environmental injustice.

The Welfare Argument for the CWD

One defense of the CWD relies on a welfare-based argument. Its proponents maintain that "insistence on uniform hazard regulations will inevitably lead to . . . detrimental" results. They claim that this detriment will occur because the double standard enables those in high-risk occupations to boost

> their income status above what it would otherwise have been. If all jobs were required to be as safe as the most highly paid white-collar positions, the income status of those at the bottom of the income scale would be lowered further. Wage premiums for risk do exist, but they are not sufficient to offset all of the other factors generating the low-income status of the workers who receive them.[20]

In other words, advocates of the welfare argument maintain that the double standard for risk benefits low-income groups because it provides them with

higher wages than would a uniform standard. As Viscusi puts it, the CWD increases welfare by enabling society to ration expenditures and by providing incentives for safety. He notes that

> if coke-oven workers are willing to endanger their lives in return for substantial salaries, or if India chooses to develop nuclear energy as the most promising energy source for its long-term development, government efforts to interfere with these decisions will reduce the welfare of those whose choices are regulated.[21]

Although the welfare argument is highly persuasive, in part because it correctly emphasizes the importance of worker autonomy over government intervention, it is premised on a number of assumptions that are highly doubtful. Perhaps the most basic of these is that worker *preferences* are authentic indicators of desirable *values*, or at least that workers are better able than government to determine what is in their best interests. However, in many cases, even workers' own preferences are not legitimate indicators of authentic welfare, as can be seen if one examines some persons' preferences for particular marriage partners or for dangerous habits, such as smoking. Preferences merely indicate wants or demands, regardless of whether they are correct or desirable, whereas welfare is concerned only with legitimate demands, correct wants. Not only is it doubtful that preferences measure welfare, but even economists admit discrepancies between willingness-to-pay and CWD measures of welfare. These empirical discrepancies suggest there may be a problem with using even worker preferences to measure welfare.[22]

Another questionable assumption of the welfare argument is that it is ethically acceptable to allow persons to trade their health and safety for money. Clearly some such tradeoffs would be wrong, such as those in which people allowed themselves to be cruelly tortured in exchange for money. They might be wrong either because they failed to acknowledge someone's rights, because they did not respect the dignity of humans, because they allowed the perpetrator (of the torture) to behave in reprehensible ways, or because they permitted one human to use another as a means to an end, when humans ought to be treated only as ends. In other words, as I argued in chapter 6, it is not generally ethically acceptable to allow persons to trade their health and safety for money. One reason is that those at risk might not exercise genuine free informed consent to the risk. As I argued in chapters 2 and 6, their alleged agreement to take risky jobs also might violate norms of participative justice. Another reason is that consent alone, even if genuine, often is not sufficient to guarantee that an act is moral. Although they often are necessary conditions, consent and compensation are not sufficient conditions for the morality of an action. They are not sufficient because the moral quality of an act is also determined by various rights, duties, virtues, and agreements.[23] Thus it may not be adequate to defend apparent environmental injustice in the workplace by appealing to the welfare argument for the CWD.

The Market-Efficiency Argument for the CWD

A second argument for accepting the CWD is that it allows individuals to determine more efficient job–risk tradeoffs. Viscusi notes that

> market allocations of individuals to jobs will promote efficient matchups in many instances. If the worker bears all of the harm associated with the risk and if he is cognizant of his own particular risk, not simply the average risk for all, he will select his job optimally . . . workers are not in jobs at random and the market promotes the most efficient matchups.[24]

For example, Viscusi says, "African-Americans with the gene for sickle-cell anemia may incur a greater risk of harm from the low-oxygen conditions faced by a pilot, and female mail sorters have a greater frequency of back injuries when moving the standard seventy-pound mail sacks." If these minorities and women have accurate knowledge of the greater risks they face in particular circumstances, Viscusi says, they will use the market mechanism in an efficient way so as to select the job for which they are the most suited. Or, as Dorman puts it, occupational safety is a commodity traded on a market, and people can buy what they want of it.[25]

As is probably evident, the assumptions underlying the market-efficiency argument are similar to those supporting the welfare argument. Both approaches require one to assume that employees' *preferences* measure authentic worker *welfare.* As already argued, however, this assumption is not generally true. If it were, there would never be grounds for government intervention in markets, for example, to protect potential victims or to set minimum standards for workplace conditions. Likewise, if this assumption were true, then one would have to condone the sweatshop conditions of a century ago. One would have to agree that 12-hour workdays of a bygone era were ethically desirable because they allowed workers to choose an "efficient matchup." On the contrary, the efficiency and the optimality of worker choices, whether among anemia-prone African Americans or backache-prone women, is in part a function of the choices *available* to workers. If an economy is not diversified, and if employees have no real occupational alternatives in the face of the need to feed their families, then it hardly can be said, as Viscusi and others do, that the "market . . . will promote efficient matchups." As Elizabeth Anderson puts it, the CWD reveals neither the value of life nor how the market efficiently distributes occupational safety; instead the CWD reveals only the risks people are obliged to take in order to discharge their responsibilities.[26]

The market-efficiency argument for the CWD also is questionable in that the ethical conditions necessary for desirable market transactions frequently are not met in real life. Recall that economists admit that information is necessary for the market to be efficient. As Viscusi put it earlier (emphasis mine): "*If the worker bears all of the hazard associated with the risk and if he is cognizant of his own particular risk*, not simply the average risk

for all, he will select his job optimally" with respect to his own risk potential and personal advantages and disadvantages. This means that, even on the terms of CWD proponents, the validity of the market-efficiency argument is premised on workers' having adequate knowledge of their particular risk situations. But are people generally aware of the hazards they face? Most risk assessors probably would say they are not. Chauncey Starr and Christopher Whipple, as well as Baruch Fischhoff, Paul Slovic, Edward Lichtenstein, and other risk assessors and economists, have repeatedly pointed out that intuitive or subjective estimates of risks made by educated laypeople are quite divergent from analytical, allegedly objective, assessments of risks made by experts. Laypeople typically overestimate low-probability risks and underestimate higher-probability ones. For example, they overestimate catastrophic chemical risks but underestimate risks associated with automobile accidents.[27] If these economists and risk assessors are correct, then the conditions necessary for ethical use of the argument from market efficiency (full information and the ability to pay to obtain it) often may not be met in real life. But if these conditions are not satisfied, then the argument may not provide convincing grounds for supporting the CWD and for claiming that it offsets apparent injustices in the workplace environment.

The Autonomy Argument for the CWD

A third reason for risk assessors' using the CWD, to justify apparent environmental injustice in the hazardous workplace, is their allegation that it provides for more worker freedom and autonomy than would a theory not based on a monetary differential but based instead on uniform standards. As Viscusi puts it, if individuals are fully informed, "then in a democratic society we should respect these [wage and employment] choices." He also warns that "uniform standards do not enlarge workers' choices; they deprive workers of the opportunity to select the job most appropriate to their own risk preferences" and they enable rich persons to impose their lower-risk preferences on lower-income classes. According to this autonomy argument, acceptance of uniform risk standards (for the public and workers) and rejection of the CWD are not desirable because they represent "interference with individual choices."[28]

Like the previous two arguments, this one also is based on the doubtful presupposition that freedom and autonomy are served by identifying occupational *preferences* with authentic worker *welfare*. As already argued, such an identification does not work in all cases. The presupposition also fails to take account of the fact that just because people hold particular jobs does not mean that their occupations are expressions of their preferences. Many people engage in certain work simply because they have no other alternatives. Moreover, in the absence of minimum standards for occupational safety, and in the absence of alternative opportunities for employ-

ment, people could hardly claim that their occupations were a result of autonomous choice. In fact, minimum risk standards, or stricter safety requirements, actually might enhance occupational autonomy, because workers might not be forced by circumstances to accept jobs whose risks were higher than those they actually wished to bear. As Christopher Sellers notes, even the courts recognize that protective legislation sometimes ought to take precedence over worker autonomy. A Utah decision in 1896, upheld in 1898 by the U.S. Supreme Court in *Holden v. Hardy*, provides a paradigm case of a successful argument for protective legislation over worker autonomy. The decision confirmed that the law limiting the workday of smelter employees did not violate the "freedom of contract" theory of employers because the noxious lead gases endangered the health of the workers. This case became a symbol for the legal power of worker protection over laissez-faire insistence on worker autonomy or "freedom of contract." Workers' autonomy became subject to protective legislation because courts determined that, given certain background circumstances, workers might be forced to endanger their health in exchange for wage compensation needed to survive.[29] In failing to take account of the numerous factors that limit free choice, Kip Viscusi, Peter Dorman, and other proponents of the autonomy argument appear to assume, erroneously, that government safety regulations always limit workers' freedom and that these alleged limitations are worse than those imposed by more lenient standards governing occupational safety. If their assumptions are wrong, then the autonomy argument may not support using the CWD to justify apparent environmental injustices in risky workplaces.

The Exploitation-Avoidance Argument for the CWD

Many proponents of the CWD realize, however, that occupational safety and worker welfare are not always guaranteed simply by letting market forces operate. They know that often employees can be exploited by employers if the managers are not forced to provide a safe working environment. To counteract this tendency to exploitation, economists maintain that a necessary condition for ethical implementation of the CWD is that workers have adequate information about the risks they incur. They admit that "the most salient" form of market failure is inadequate worker information and that "if workers and firms are not fully cognizant of the job risks resulting from their decisions, the desirable properties usually imputed to market outcomes may not prevail." They say if workers avoid "mistakes in [risk] estimation" and "distortions in monetary evaluation," then the CWD will operate both ethically and efficiently.[30] To avoid worker exploitation and market failure of the CWD, its proponents often advocate employee education.

Admittedly, this exploitation-avoidance argument is an improvement over CWD arguments that ignore the role of occupational-risk education. Its flaw, however, is its major presupposition that education and compensation, alone,

provide sufficient grounds for worker consent and autonomy. The argument takes too simplistic a stance as to the requirements for legitimate consent and free choice. Other factors besides people's knowledge of a situation and their being compensated for losses determine the moral quality of choices about that situation. As already argued, even perfectly informed workers who consented to the level of compensation for their high-risk jobs nonetheless might have been forced to take the work, particularly if alternative employment opportunities were not available or if they needed the money. And if so, then in addition to workers' having full knowledge of their risk situation and being compensated for it, genuine market efficiency and environmental justice also require that occupational choices be made in a context of ethically desirable background conditions. Such background conditions might include the operation of a free market and the existence of alternative employment opportunities. Without these background conditions, it is not clear that ethically desirable employee–employment matchups will occur.[31]

Consider, for example, the Appalachian situation described in chapter 3. How desirable are the wages and job conditions of miners working in Appalachian coal fields? (Appalachia includes much of the states of Kentucky, West Virginia, Virginia, Tennessee, North Carolina, and South Carolina.) It is well known that mining is one of the highest-risk occupations,[32] that poorer workers are typically employed in the most risky jobs,[33] and that residents of Appalachia generally have no alternative to working in the mines unless they want to move out of the region. There are few alternatives because the Appalachian economy is not diversified, because there is no job training for a variety of occupations, and because absentee corporations (controlling 80 percent of all Appalachian land and mineral rights) also control the only jobs. The Appalachian situation often is one of monopsony, where owners of most of the land also control most employment.[34]

Even if Appalachian coal miners were compensated generously and even if they all had perfect information as to the dangers of their jobs, background conditions in the Appalachian economy likely would prevent their making minimally voluntary choices to work in the mines. But if they were not able to make minimally voluntary choices as to the form of their employment, then it is not clear that proponents of the CWD succeed in arguing that it justifies a riskier workplace environment. Those who want to defend such an environment thus face at least two obstacles. They seem unable to argue that if workers are aware that their jobs are extremely risky, they freely choose those risks. They also are unable to argue convincingly that the prevailing double standard (with respect to occupational and public risks) actually is acceptable to workers. In fact, as noted in earlier chapters, if background conditions necessary for procedurally just employment choices are not met, it is not clear that alleged acceptance of the CWD is just. As John Rawls put it, "only against the background of a just basic structure . . . and a just arrangement of economic and social institutions, can one say that the requisite just procedure [for occupational and other choices] exists."[35]

Despite the soundness of this insight about background conditions, many economists and risk assessors often neglect it in their considerations. For example, in an otherwise excellent book on risk, even the philosopher Nicholas Rescher appears to neglect the role of background conditions in determining ethically acceptable risk choices. He speaks, for example, of suicide as being a "wholly voluntary" mode of death and of incurable disease as being a "wholly involuntary" mode of death.[36] Such language ignores the importance of background conditions in determining what is more or less voluntary. Death by suicide might not be "wholly voluntary," as he says, if it is a consequence of medication-induced depression, especially if the medication's side effects were unknown by the patient and the doctor prescribing it. Likewise, death by incurable disease might not be "wholly involuntary," as he says, if it is brought on more quickly by a person's unwillingness to take proper medical treatments, follow prescribed diets, and so on. To the degree that philosophers, economists, and risk assessors ignore the numerous ways in which background conditions can affect the voluntariness of an action—and therefore its environmental justice—to the same extent are they also likely to misjudge the voluntariness with which persons genuinely accept a particular level of risk in a specific job.

In addition to the Appalachian example, there is further evidence for the thesis that, even with full information about risk, workers often are unlikely to make minimally voluntary decisions to accept high-risk employment. This evidence is that people who can afford to do so usually avoid working in hazardous occupations. It is well known that—apart from adventure recreation—as people's income increases, their general willingness to accept extremely risky situations decreases.[37] If this wealth–risk relationship often holds, then workers' alleged acceptance of high occupational risks may be explicable more by the constraints imposed by their low income and limited job skills than by their understanding the dangers to which they are exposed. Even if proponents of the exploitation-avoidance argument are correct in believing that proper education of workers theoretically can block exploitation of employees in high-risk occupations, it is still not clear that, practically speaking, such education typically can be accomplished. Two reasons for doubts are that if employers provided full information, this would probably cut their work force[38] and that those who accept high-risk jobs tend to be less educated and thus less able to understand risks they face. If full education is not possible, it is not clear that one would be justified in implementing a system of compensating wage differentials as a way to offset apparent environmental injustice in the risky workplace.

What do empirical data reveal about employee risk education? Deliberately or out of negligence, companies and regulators often have kept their research findings about hazards secret from employees exposed to them. In the case of vinyl chloride, for example, long before anyone knew that workers were at risk from liver cancer, there was strong evidence to support a

presumption of a serious occupational hazard. Similarly, decades after countries such as Japan banned carcinogenic dye ingredients from the workplace, American workers "are still literally sloshing in them."[39] When company doctors have been aware of employment-induced illness, for example, from asbestos in the Johns-Manville factory in Pittsburgh, often they have covered up this fact for decades.[40]

Even some proponents of the CWD admit that "available evidence suggests that few firms make a comprehensive effort to inform workers of the risks they face." For example, no firms tell their employees the average annual death risk they face. Much information that corporations do provide is not intended to enable workers to assess the risk more accurately but to lower employees' assessments of the risk. For example, the most widespread claim by firms is that National Safety Council statistics indicate that the worker is safer on the job than at home.[41] This statement is intentionally misleading because although the average job is safer than living in the average home, clearly risky jobs, like mining, are not safer than living in the average home. The claim also misleads because other factors (than safe jobs) account for homes, on average, being riskier. Homes include old people and very young people, both more prone to die than workers. According to this "healthy-worker" effect, job-age people thus are less likely to die than average members of the population. And if so, then this healthy-worker effect is not a result of especially safe workplaces. Moreover, many companies hire only the healthiest workers, after performing genetic tests on them; as a result, such workers are likely to remain healthy, even in somewhat unsafe work environments.[42]

In situations where there is no deceit on the part of employers regarding the relevant risks faced by their employees and in which workers receive full information, even this is not enough to ensure that the practical conditions necessary for wholly rational occupational choices have been met. One reason is that employees exposed to high-risk situations typically take on the "it won't happen to me" syndrome.[43] The pervasiveness of this syndrome indicates that, even when the theoretical conditions for full employee education are met, they might not be satisfied in particular concrete cases. This in turn means that, because their knowledge is not operative, many employees probably are not making wholly voluntary decisions to work in high-risk situations.[44] And if not, their decisions fail to justify the apparent environmental injustices in risky workplaces.

Arguments against the CWD

In addition to these considerations that full education and compensation do not constitute sufficient conditions for affirming that employees in high-risk occupations accept their jobs in a fully voluntary sense, there are several other reasons that the CWD may not succeed in justifying risky workplace environments. These reasons include the facts that the differential may not

exist; that acceptance of CWD risks may impose them involuntarily on others; and that such acceptance may rely on faulty risk perceptions.

There May Be No CWD

Perhaps the most basic reason for doubting that the CWD provides an ethical justification for risky workplace environments is that the CWD may not exist. Some researchers have shown that, when all workers are lumped together from lowest to highest paid, then risk and salary increase proportionately, as the CWD theory predicts. However, when researchers separate the workers into two groups, with white, male, unionized, college-educated, or skilled workers in a primary group, and with nonwhite, female, nonunionized, noncollege-educated, or nonskilled workers in a secondary group, the CWD theory falls apart. The primary group workers enjoy a CWD, while those in the secondary group do not. Hence the alleged CWD for the entire group (primary and secondary workers) appears to be merely an artifact of data aggregation. In fact, the primary-group CWD actually may exacerbate unequal treatment of those in the secondary group (nonwhite, female, nonunionized, and so on)[45] because it covers up the lack of CWD in the secondary group once the data are aggregated.

Indeed, some economists have shown that, for nonunionized workers, there is a negative CWD. As risk increases, wages get lower. And as already noted, to the degree that risky jobs are filled by less-skilled or socially disadvantaged workers, even Adam Smith's theory suggests there may be no hazard-pay premium or CWD. In fact, when one compares wage rates across jobs, not adjusting for skill requirements, one observes that hazardous jobs pay 20–30 percent less than safe employments. The expedient way for employers to hold down wages thus is to hold down skill requirements. Social and economic inequality in society at large provides these employers with a supply of disadvantaged workers willing to accept health and safety risks in return for compensation. In fact, a pattern of hazards and low wages could not exist without a large supply of socially disadvantaged workers willing to accept both high hazards and low wages. This general association between hazards and wages across occupations suggests that unsafe jobs are generally lower-paying than safe ones. But if market competition is to generate wage premiums in hazardous jobs, this must occur in occupations where the workers themselves are aware of the risks of the job. If a job is hazardous but the workers are unaware of this fact, there is no need for the employer to pay a CWD or wage premium in order to keep the employees on the job.[46]

If the preceding reasoning is correct, then at the very least, the CWD may not exist for all labor groups.[47] If not, then the economic rationale for higher risks and apparent environmental injustice in the workplace cannot exist where the CWD does not exist. And even if there is a genuine CWD for some workers—those already most privileged in society—that compensation, alone, may not provide a general ethical justification for higher workplace risks.

CWD Acceptance May Hurt Innocent People

A second reason for believing the CWD may not justify riskier workplaces is that workers might not have the right to accept the CWD because of the attendant risks imposed on innocent people. Consider the case in which workers allegedly accept high occupational exposures to some carcinogen in exchange for a very high wage differential. The employees might be fully cognizant of the health hazards involved, and they might agree that the compensation afforded is adequate. Nevertheless, workers who expose themselves to carcinogenic materials may be exposing their families to them via avenues such as shoes and work clothes. Because most carcinogens also are mutagens, they also may be exposing their potential children and their descendants to mutagenic hazards. Of course, one might argue that carcinogens on work clothes are minimal or that unborn members of future generations have no rights to be protected from mutagenic risks.

While the issues of minimal risk levels and rights of future generations are too extensive to be discussed here,[48] one fact about the carcinogenic/mutagenic risk situation does seem clear. Provided they genuinely consent and are not being exploited, workers might have rights to take risks that threaten only themselves. It is less obvious that they have rights to take risks that might damage something—the gene pool—that is beyond themselves. Hence it is questionable whether any people intending to reproduce have rights to accept workplace risks that are mutagenic when those risks are higher than those to which the public is normally exposed. As Rescher puts it so well, people ought only take risks for themselves, not for others: "morality enjoins conservatism."[49] The moral aspect of risk-taking arises when the choices of individuals bear upon the interests of others.[50]

One does not have to move to future generations, of course, to discover innocent victims of workers' alleged rights to expose themselves to industrial toxins in exchange for higher wages. Some occupations, such as that of air-traffic controller, produce high psychological risks. It is questionable whether employees have rights to accept such high-stress risks when their effects are not borne merely by them but also by their families. Likewise, it is questionable whether particular workers, for example, in asbestos factories, have rights to accept higher workplace risks if such risks also affect their families. As already suggested, it is commonplace for family members of asbestos workers to contract cancer because they have been exposed to the fibers carried home on clothing. Some wives have died of asbestos-induced cancer merely because they washed their husbands' clothing. Close contact with their fathers has also caused the children of asbestos workers to contract cancer, and recent U.S. examinations have revealed dangerous levels of lead in the blood of lead workers' children, chiefly as a consequence of inhaling lead dusts brought home on clothes.[51]

Admittedly, some workers might be forced to accept risky jobs to support their families. And admittedly some of the hazards faced by the families of those in high-risk occupations could be eliminated or reduced by simple

practices such as workers' bathing and discarding their work clothes before coming home. Nevertheless, to the extent that employees' acceptance of hazards thereby places a higher health risk on those other than themselves, then to the same degree their right to take such risks is questionable.

The CWD and Inconsistent Risk Attitudes

A third argument that the CWD does not justify a workplace environment with higher risks than a public environment is that proponents of the CWD often defend their stance by making inconsistent appeals to workers' risk *perceptions.* When Starr and other proponents of the CWD wish to justify workers' acceptance of higher risks in return for higher wages, they take an interesting stance. They maintain that once employees are adequately educated regarding the risks they face, regulations ought to follow employees' risk *preferences.* They also say that regulators have no right to tell workers they cannot follow their preferences for higher risks.[52] However, when the same proponents of the CWD wish to justify government imposition of particular standards for public risk in the face of citizens' demands for stricter regulations, they take a different stance. They maintain that risk preferences, even of highly educated laymen, are subjective, intuitive, and generally erroneous. Therefore, they say, regulators ought not to accept the public's demands for lower risks but instead ought to follow risk experts' opinions because these reflect "rational" preferences for higher risks.[53] For example, speaking of the public's "irrational" aversion to low-probability, high-consequence nuclear accidents, Starr and Whipple maintain that lay perceptions regarding this technology are incorrect. They say public demands for greater nuclear safety are not reasonable, since they fly in the face of experts' beliefs about acceptable levels of nuclear risk.[54] They also ignore the public's right to determine risk levels. Moreover, psychometric surveys of attitudes about risk reveal that there is no significant difference, in level of relevant technical knowledge, between those members of the public who favor greater, and those experts who favor less, safety.[55] And if not, then there may be no grounds for rejecting risk-averse attitudes of either workers or the public, contrary to what CWD proponents suggest.

Proponents of the CWD, who claim workers voluntarily accept risky jobs, often *advocate* uncritical acceptance of worker perceptions of risk. They do so in order to justify less stringent *occupational standards.* They contradict themselves when they *condemn* acceptance of lay risk perceptions in order to justify their proposals for less stringent *public standards.* They cannot have it both ways. They ought not accept worker risk perceptions when they suit their laissez-faire economic mentality but reject public risk perceptions when they do not. If risk assessors claim that relevantly educated people err in their risk perceptions and ought to be "corrected" by experts, then both workers and the public ought to be so corrected and not just the public.

Of course, the main objection to this appeal for consistency in valuing risk perceptions of those who are adequately informed about a particular hazard,

is that the cases of worker and public perceptions are not analogous. One might object that workers voluntarily accept given modes of employment, specific CWDs, and risks, whereas the public receives none of these. Because of the alleged consent and compensation involved in the worker case, the objector could argue that workers' preferences ought to be followed, whereas the risk preferences of the public need not be followed because there is no compensation and contractual consent.

As this objection correctly notes, the cases of workers' perceptions and public perceptions are disanalogous with respect to consent and compensation. It does not follow, however, that these disanalogies are morally relevant in justifying inconsistent treatment of risk perceptions. Why not? Virtually all risk assessors maintain that voluntary risks are more acceptable than risks of the same level that are involuntarily imposed.[56] If so, then there is greater reason to follow public preferences for lowering risks to which citizens are involuntarily exposed than for following worker preferences for higher risks. In other words, the very compensation-and-consent disanalogies between worker risk and public risk indicate that, if anything, there is more reason to follow public preferences for lower risks than to follow worker preferences for higher risks. This conclusion follows for at least two reasons. First, because the public is not compensated for societal risks, it is hard to defend the distributive justice behind risks imposed on it. Second, because the public is not given a choice whether to accept the risks, it is difficult to justify the notion of participative justice on which the risk imposition relies. Moreover, workers' acceptance of jobs often is not voluntary, owing to questionable background conditions. For all three reasons, proponents of the CWD are on shaky ground when they reject public preferences for lower risks but accept worker preferences for higher risks.[57]

A Case Study: Six Hundred Thousand DOE Workers

What happens to the CWD rationale for apparent environmental injustice when one examines an empirical case, that of nuclear workers exposed to high levels of ionizing radiation as a result of employment in DOE nuclear facilities? The DOE has 3,500 nuclear installations at 34 sites in 13 states of the United States. Of these facilities, 80 percent are defense related, and the remainder do commercial or laboratory work; 23 are national laboratories, such as Los Alamos National Laboratory (LANL), Lawrence Livermore National Laboratory (LLNL), Idaho National Engineering and Environmental Laboratory (INEEL), and Sandia National Laboratory (SNL).[58] For several reasons, the 600,000 current and former U.S. nuclear workers represent a classic case for applying the EJ arguments given earlier in this chapter. For one thing, of the 17 principles of environmental justice adopted in 1992 at the National People of Color Environmental Leadership Summit, three specify special duties to workers in risky jobs and two additional ones condemn

lack of protection from nuclear and military risks. Of these 17 principles, fully one-third are specifically applicable to DOE employees. A second reason that nuclear workers represent an ideal case study is that, as employees of the U.S. government—its contractors, or subcontractors—in theory they ought to receive excellent treatment. Moreover, because they are such a large group, they should support statistically robust conclusions about wages and risks. Still another reason nuclear workers represent a good case study is that roughly one-sixth of them are unionized and belong to the Paper, Allied-Industrial, Chemical, and Energy Workers Union.[59] Because the percentage of DOE union members is roughly the same as that for all U.S. workers, they may constitute a fairly representative labor group.

Does the CWD of workers at these and other DOE facilities justify the higher radiological risks (and potential environmental injustices) they have faced in their occupation? One way to answer this question is to evaluate the four earlier arguments for the CWD relative to this DOE case.

The Welfare Argument and Nuclear Workers

As the previous discussion revealed, the welfare argument may fail if workers' safety-for-money tradeoffs allow them to be used merely as means to ends. Even if the CWD serves the welfare of the majority or that of the economy, nevertheless if it is implemented in situations in which worker dignity or security is jeopardized, then the CWD cannot be said to justify the apparent injustice of riskier occupational environments.

There appear to be problems with DOE worker dignity and security if Dr. Tara O'Toole is right. Appointed to help remedy the health and safety problems at the DOE sites, in 1994 O'Toole, the Assistant Secretary for Environment, Safety, and Health at DOE, testified before Congress that at DOE, weapons production has been valued more highly than the safety of workers. She said that the DOE system of caring for employees made ill by their jobs does not "serve the interests of the workers very well."[60] One reason is that the DOE analyzes the health and safety of its workers by operating an enforcement program that is limited to the injuries and illnesses reported by the site operators. There is no external regulation by any group outside the DOE, such as OSHA or the NRC. Instead, as the U.S. government oversight agency, the GAO reveals, the safety of U.S. nuclear workers depends completely on a system of self-reporting of violations by the DOE and its contractors, the very people who have the most to gain from not reporting health and safety problems at the sites.[61] As a result, the GAO concluded in a 1998 report to Congress that the DOE was not aggressive enough about safety and about holding its contractors responsible for worker safety. Even when contractors cannot cover up safety problems, Congress has said that the DOE is slow to correct them. After a November 1996 fire, explosion, and contamination at LANL, for example, it took DOE 2 years to fine the site contractor for failure to implement the required radiation protection. And after a November 1996 nuclear facility appraisal identified "significant and widespread

problems with nuclear safety procedures" at LLNL, the U.S. DOE did nothing. As a result, 8 months later, five workers were exposed to high levels of radiation during waste-processing activities.[62] Even worse, 12 years after Congress instructed the DOE in 1988 to assess civil penalties and to develop enforceable "rules" based on its "safety orders," DOE had developed rules for only 2 of the 11 safety areas.[63] According to the GAO, the DOE's foot-dragging and obstructionism has even extended to not classifying some of its nuclear sites as "nuclear facilities" so that they need not comply with required rules for nuclear facilities.[64]

When asked its rationale for delaying safety corrections, for using only self-regulation, for failing to assess penalties for contractor safety violations, and for asking to expand the system of not collecting the congressionally mandated safety penalties, how has the DOE responded? The agency attempted to defend itself by claiming that assessing such safety-violation penalties, for example, "would put at risk the endowments of these institutions" [the labs].[65] The DOE's own claims thus suggest that worker injury and illness is a means to the end of laboratory economic welfare, even when the laboratories violate the law.

Disturbed by the plight of nuclear workers, as early as 1991 the OTA recommended that the DOE be subject to external regulation; the OTA also said the DOE might need to be dissolved and established as a new commission.[66] In 1993, the secretary of the DOE said the agency would implement external regulation for worker safety, but this reform still has not occurred. In a 1998 report, the GAO also concluded that external regulation of the DOE was essential, for at least four reasons: (1) worker safety; (2) avoiding a conflict of interest; (3) compliance with international and national regulations and recommendations; and (4) regaining its credibility and public trust. In 1998 the GAO warned: "We have long criticized DOE for weaknesses in its self-regulation of the environment, safety, and health at its own facilities. . . . Widespread environmental contamination at DOE facilities . . . provides clear evidence that [DOE] self-regulation has failed."[67] But if so, and if the DOE has failed because it appears to have made workers mere means to economic ends, then appeal to the CWD seems unlikely to justify the apparent environmental injustices in DOE workplaces.

The Market-Efficiency Argument and Nuclear Workers

But suppose the DOE tries to justify its CWD and its mode of operation by appeal to the market-efficiency argument—the claim that the CWD and attendant nuclear risks are defensible because an efficient market allocates the commodity of safety in ways people desire. For the market-efficiency argument to succeed in justifying riskier occupational environments, its proponents admit that workers must be cognizant of their own individual risks, in order to make economically efficient choices about employment and compensation. But are DOE employees cognizant of their risks? The answer appears to be "no."

In exchange for nuclear-liability protection of up to $9.43 billion for DOE contractors and subcontractors,[68] the Congress asked the DOE to assess penalties for safety violations at DOE sites.[69] Yet when one examines these penalties it is clear neither that they are responsive to information about site-safety compliance nor that the penalties provide information to workers about how to make efficient market choices about trading pay for safety. The penalties are supposed to be effective because DOE contractors not only receive a fixed amount for running a facility but also can receive an annual "performance award" if they adhere to health and safety requirements. For example, for 1999, the DOE contractor Lockheed-Martin received a guaranteed $3.5 billion for operating the SNL, the INEEL, and the Oak Ridge National Laboratories. Its possible "performance award" for that year was $94 million, if it adhered to worker health and safety requirements. The possible Westinghouse "performance award" for 1999 was approximately $82 million, for Fluor Daniel $64 million, for Bechtel $57 million, and so on.[70]

Despite government documentation of massive worker safety problems at all the DOE facilities, DOE typically awards from 89 to 100 percent of the full, annual "performance awards" to its contractors. The LANL and LLNL, for example, both facilities with repeated, serious safety violations, have never had their performance awards reduced because of their poor safety record. In fact, the DOE proposed in March 1999 to exempt them, in the future, from any penalties (for safety violations) altogether.[71]

The LANL, in particular, has experienced many fires and explosions; the LANL alone received approximately 94 percent of all DOE laboratory safety penalties from 1992 through 1999. Yet the DOE never shut the LANL down, and it forgave all its penalties, making them what the GAO calls "phantom penalties." Similarly, in May 1996, the DOE identified a host of "multiple and recurring failures to follow criticality safety procedures" at LLNL and problems with contamination of five workers. Yet one year later, the DOE noted that many of the same criticality problems were still occurring, including a loss of control of plutonium. Despite these facts, the next year the GAO reported that the DOE gave the LLNL a health and safety rating of "good" and awarded the LLNL 96 percent of its optional performance fees. In fact, although the LLNL receives $1.1 billion annually to operate the facility, its DOE contact specifies that, regardless of its safety record, the DOE can never reduce its additional "performance award" by more than 4 percent.[72] Despite the DOE's giving a safety rating of "good" to the LANL and the LLNL in the face of massive safety deficiencies, the GAO claims that the real reason for the incorrect rating is that if a DOE laboratory receives less than a "good" rating, two-thirds of its full contract amount is in jeopardy.[73]

At the same time that these massive DOE performance awards are virtually guaranteed, regardless of contractor performance, the GAO and Congressional oversight groups have revealed that the DOE gives its contractors a mere slap on the wrist for serious safety violations. For example, for 1999, while Lockheed-Martin had an annual performance award of $94 million, its serious safety violation penalties were minuscule by comparison. For

instance, on February 27, 1997, the DOE criticized Lockheed-Martin for its safety violations at the INEEL because it had no complete monitoring program and as a result five workers were seriously contaminated. Yet the penalty for these violations was only $25,000—approximately one one-hundredth of a percent of its annual performance award. Similarly, on September 21, 1998, the DOE cited Oak Ridge National Labs for "failure on multiple occasions over a 2-year period, to identify significant intakes of radioactive material by 2 workers" and "failure to implement an internal dose evaluation program." Yet for these violations it assessed the site contractor, MK Ferguson, no penalty whatsoever, even though its annual performance award was approximately $47 million. Likewise, when the SNL destroyed records that revealed unauthorized reactor operations, the DOE nevertheless assessed no penalties and paid the site contractor millions of dollars in an annual performance award. And on July 16, 1996, the DOE cited Westinghouse for failure to have adequate worker safety monitoring equipment and therefore for causing the contamination of workers at the Hanford, Washington, nuclear facility. Nevertheless, the DOE assessed only a $37,500 penalty, while Westinghouse's annual performance award was $82 million. Its penalty was about a hundredth of 1 percent of its performance award. Likewise, on October 7, 1996, the DOE noted that Kaiser-Hill, the contractor that operates the DOE Rocky Flats (Colorado) facility, had made "repeated failures" to follow radiological work controls that caused worker exposures. The DOE also noted that Kaiser-Hill later failed to report the exposures, then later failed to correct the problem. However, DOE fined the contractor only $37,500, a tiny fraction of Kaiser-Hill's annual $18 million performance award. Similarly, on June 5, 1997, the DOE discovered that Mason and Hanger Corporation, which operates the DOE Pantex facility, had falsified worker safety records. Yet in response, the DOE levied no penalty whatsoever, despite the Mason and Hanger annual performance award of $21 million. And on September 19, 1997, the DOE cited Bechtel for inadequate workplace monitoring, for allowing workers to keep working after "stop work" radiation levels were exceeded, and therefore for exposing two workers to excessive radiation. But in response to these violations, again the DOE levied no penalty and instead gave Bechtel an annual performance award of $57 million.[74]

Such trivial or nonexistent DOE penalties for serious safety violations at nuclear facilities are all the more amazing because they are inconsistent with the way the United States treats other threats to worker safety. Congressional oversight committees revealed that, while the DOE repeatedly assessed no penalty or a $25,000 penalty for continuing safety violations and contaminations over a 2-year period, OSHA would have assessed $70,000 *per day*, for a total of $51,000,000 over 2 years, for each safety violation in the industrial facilities that it monitors.[75] Thus the DOE response to information about poor worker safety is extraordinarily more lenient than that of the main U.S. agency that monitors worker safety, OSHA. It is not surprising that, in the 3-year period from 1996 to 1998, the GAO revealed that the DOE mandated only $1.2 million in penalties for 3,500 United States nuclear facilities, while

it paid some negligent contractors as much as $94 million each in an annual bonus or performance award, even when their facilities were cited for safety violations.[76] The same pattern, rewarding poor performers and failing to make them accountable in terms of market information, was evident when the GAO revealed that the DOE Office of Enforcement identified more than 1,000 cases of nuclear safety noncompliance but the DOE issued only 33 notices of violations and required a total of only $1.2 million in penalties for these violations.[77] Safety information appears not to modify the DOE's market behavior in an appropriate way, and the DOE's market behavior, in turn, appears not to provide helpful bases for workers to make decisions about employment and pay. If not, then the market-efficiency argument probably cannot be used to justify the apparent environmental injustices at risky DOE nuclear facilities.

The Autonomy Argument and Nuclear Workers

But suppose someone might respond—to these criticisms of using the CWD to justify risky nuclear workplace environments—that the employees nevertheless chose to accept the occupational risks and the CWD. As noted earlier in discussion of the autonomy argument, the validity of this response rests on the presupposition that workers are freely informed about the risks they allegedly choose to accept in return for higher pay. In the DOE nuclear facilities, however, there are some grounds for believing that the workers are not informed about the risks and thus cannot appeal to the autonomy argument. As already noted, one reason is that the facilities receive high safety ratings and little or no safety penalties, despite serious safety violations.

Another reason that workers do not have full information is that careless DOE contractors often keep it from them. For example, at the Mound facility in Miamisburg, Ohio, from 1991 through 1994, congressional testimony revealed that the DOE contractor allowed bioassay samples from the workers to sit on the shelf unanalyzed, even though the workers were doing decontamination activity involving dangerous materials, including actinium-227. These employees were ordered to work "without knowing what isotopes they were likely to encounter." By 1994, when the contractor finally analyzed the bioassay samples, the results showed that 15 of the 31 workers tested positive for actinium-227 contamination. Even worse, the contractor withheld this information from the DOE for another 9 months. Finally a government assessment team came to the Mound facility and concluded that there was no adequate dosimetry program, no accredited lab doing the dosimetry and contamination work, no radiation-worker safety program that complied with the laws and regulations, no radiation-control technician, and no presentation of exposure reports to the workers for 3 years. To correct all these problems, the congressional hearings revealed that in 1996, the contractor filed a recovery plan. Yet in May 1997 the DOE discovered that most of the serious problems remained. The contractor still was undercounting radiation exposures, improperly calculating worker uptakes of radionuclides,

not testing all workers in the bioassay program, and not requiring all workers to have and wear respiratory protection. In response to all this mismanagement, coverup, delay, and illegal action over the 5 years from 1992 through 1997, Congress noted that the DOE assessed a penalty of only $112,000—less than what OSHA could have assessed for only two days of such problems. Such a trivial fine would not even cover the cancer care for one of the exposed workers. Despite all the preceding problems, when the new contractor took over the Mound facility in 1997, Congress revealed that the DOE later discovered that this company was deducting some radiation exposures from its reports, was leaving worker bioassay samples unanalyzed for as long as 2 years, and had not implemented a worker bioassay program for metallic forms of tritium.[78]

When Congress and the GAO show that radiation workers often do not even have the results of their bioassays during years when their exposures exceed the allowable limits, it is difficult to argue that DOE employees are informed about their occupational risks. And if not, they hardly can make informed choices that are truly autonomous. Moreover, the Mound facility example does not appear to be atypical. Congressional hearings revealed that at virtually all DOE facilities there were "significant and potentially widespread problems with workers not adhering to nuclear safety procedures," problems resulting in contamination, fires, and explosions involving radioactive materials.[79]

If DOE nuclear workers were aware of such problems, then it is possible that they were able to make informed occupational choices to accept both the risk and the CWD. However, they may not have been aware of the risks, largely because at least three different governmental oversight agencies—Congress, the GAO, and the OTA—confirmed that the DOE has engaged in widespread and repeated coverup of nuclear-safety problems. Indeed, just as the government covered up information about cancers from U.S. nuclear-weapons testing, it has covered up health problems with nuclear workers; the GAO concluded that the DOE has used secrecy as "a shield to deflect public scrutiny" of its poor worker safety and environmental practices.[80] For 40 years, the DOE and its predecessor agencies have said that "no releases" at its facilities posed a health threat. Yet in August 1990, Congress noted that the secretary of energy, James D. Watkins, was forced to admit, in the face of overwhelming evidence, that thousands of U.S. children had suffered significant radiation doses because of the Hanford facility. As many as 13,000 U.S. children received up to 70 rads of radiation because of drinking milk contaminated by releases from the Hanford facility. As a result, the OTA warned that offsite health impacts from the DOE facilities were likely. In addition, the OTA documented excess cancer deaths near the Rocky Flats plant and an increase in leukemia among workers at the Savannah River facility. The OTA noted that these findings were consistent with an increase in childhood cancer among those whose fathers worked at the Sellafield nuclear reprocessing plant in Britain, as documented in the *British Medical Journal*.[81]

The OTA also confirmed that the DOE has made it almost impossible for non-DOE scientific researchers to have access to DOE worker-exposure and safety records. The OTA noted, in its report, that even state departments of health have no access to the DOE exposure and radiological-release records that might reveal causes of illness and disease among their citizens. Confronted with all the DOE coverups and lies, the OTA recommended establishment of a new agency and external regulation of the DOE.[82] Such evidence and OTA recommendations argue against the claim that DOE workers have information essential to their choosing the CWD and its attendant risks.

Of course, even though government oversight shows that the DOE has covered up safety records, such records do not accurately reveal the threats DOE operations pose to nuclear workers and the public. Rather, congressional hearings have revealed that DOE dosimetry data are inaccurate and incomplete. Despite the fact that conditions at the DOE facilities have been "extremely hazardous," nevertheless "monitoring programs . . . were inaccurate, and in many cases, nonexistent." After 40 years of DOE nuclear facilities, the Congress discovered in the late 1980s that the "DOE health and safety program was solidly in shambles" and that levels of radioactivity "repeatedly exceeded the maximum allowable levels" at U.S. DOE installations. Congressional investigations showed, for example, that Fernald nuclear workers were allowed to leave the site even though they were contaminated. A Congressional appraisal at Rocky Flats noted that it had "inadequate capabilities for monitoring and sampling air," that there was no instrument calibration program at the facility, and that its dosimetry data were inaccurate. One nuclear facility, Fernald, claimed that there were complete exposure data on only 150 of several thousand nuclear workers. Operators at Fernald said that the accuracy of its radiation-dose monitors was plus-or-minus 100 percent. To cover up these worker safety problems, congressional investigators discovered, DOE contractors repeatedly applied "correction factors" to worker dosimetry-badge data, so as to reduce the apparent radiation doses to workers. In a number of cases, the congressional investigators said, the "correction" was so extreme that some worker doses were listed as negative! As a GAO official put it, "problems exist with monitoring workers' exposures and collecting exposure data at DOE sites." Even according to the DOE, as late as 1989 air-sampling techniques were inadequate at 83 percent of its facilities. An additional problem with the DOE worker-exposure data is that employees often have not returned the dosimeters and measurements for many workers are missing. When occupational exposures are unknown, even the DOE admitted that it often recorded these missing doses as zero rather than as uncertain. Hence a zero in the dosimetry data could mean a zero dose, an unknown dose, or an unmonitored dose.[83]

Given all these dosimetry problems, it is not surprising that the GAO concluded that "for most DOE facilities, the methods used to calculate recorded radiological doses for workers varied considerably over the years . . . [and] documentation . . . is fragmented." A 1989 National Research Council/ National Academy of Sciences review of worker health and safety at DOE

facilities concluded that data were "inadequate" to determine worker safety. And the DOE's own internal reviews in 1989 and 1999 "found thousands of problems with radioactive monitoring practices and the actual dosimetry information. . . . The individual dosimetry devices suffer from inadequate calibration, so even the data that they did have appears to be not very credible." Given such findings, the GAO concluded that the "DOE's credibility in this area [dosimetry to establish worker safety and health] has been almost zero." Although the DOE admitted that 2,000 employees had exceeded the 5-rem annual exposure limit, even this claim is probably too low because of the "lack of workplace exposure data" that are reliable. As a result, the GAO said that it is impossible to tell what has caused the high rates of recurrent illnesses among DOE nuclear workers. Even DOE officials admitted in 1994 that worker-exposure data were unreliable because some exposures were not measured, some were measured with uncalibrated or incorrect instruments, some were reported incorrectly, and some were lost. As a result, the top DOE health official admitted that "the application of DOE exposure data in the field of epidemiological studies is unsatisfactory." Using DOE exposure data in studies is unreliable in part because of the absence of reliable data on internal doses, because of little data on chemical exposures, because most data are not linkable to individuals, and because of all the problems already noted.[84]

Congressional investigators concluded that it is impossible to reconstruct fully what has happened to workers at DOE nuclear facilities because only paper records of exposures are available for the last 50 years. The investigators also noted that the radiation badges are gone, and the paper data make it difficult to aggregate worker-exposure levels across the nuclear industry. Moreover, it appears that the DOE has not learned from its mistakes and still employs no reliable methods for tracking worker radiation doses. As late as 1994, Congress revealed that only 7 of the DOE's 33 types of facilities were covered under its medical monitoring program for workers. And congressional investigators noted that DOE health and safety data are unreliable because, for the most part, workers who contracted cancer or other diseases simply retired and did not remain part of any monitoring program. Because their only assistance was from a state worker's compensation program and because the DOE did not take care of them, the Congress affirmed that the DOE does not have accurate data on workplace-induced health problems. For all these reasons, it is not surprising that DOE worker-exposure data, on the admission of DOE officials, have been contested in the courts. Recognizing all these problems with exposures to the 600,000 nuclear workers, in April 2000 President Clinton promised that all nuclear workers would have government-financed compensation and health care for their ailments. Because of inadequate dose and exposure records, Clinton further guaranteed that all missing or unknown dose data would be assumed to be at the maximum level.[85]

A final reason for doubting that DOE nuclear workers are informed of occupational risks, to the degree requisite for the autonomy argument, is that the DOE is well known for retaliating against employees who reveal safety

problems or try to get them corrected. Even DOE officials have admitted as much and said that such workers were threatened with harassment and with loss of their jobs or their security clearances. The DOE also forced employee whistleblowers to see psychiatrists. The GAO noted that when David Lappa of the LLNL revealed criticality safety problems and tried to have them fixed, problems for which the LLNL was given "phantom fines," the DOE harassed and demoted him, even though the Department of Labor concluded that there was merit in his safety concerns.[86]

Because of all the lies, coverups, and information gaps regarding nuclear worker safety, as documented by Congress, the GAO, and the OTA, it is questionable whether the autonomy argument can succeed in the DOE case. Perhaps the exploitation-avoidance argument does a better job of justifying the riskier nuclear workplace environment of DOE facilities.

The Exploitation-Avoidance Argument and Nuclear Workers

For the exploitation-avoidance argument to succeed in the nuclear case, there must be empirical evidence that employers adequately educated their work force about risks and thereby promoted their free and efficient market choices. Has this worker education been accomplished? As the previous discussion showed, U.S. government oversight agencies have confirmed lies, coverups, and inadequate and incorrect exposure data for workers at DOE facilities. Given all these data gaps, there are grounds for believing that DOE contractors have not educated their workers adequately about safety risks at the facilities.

Not only has the DOE lied and covered up vital safety information but, as already mentioned, it has retaliated against workers who raised safety concerns, and it has used taxpayer money to fight against employees who have raised these issues. In one 3-year period, for example, congressional testimony revealed, the DOE reimbursed attorneys for $50 million in legal expenses used to fight workers' safety charges.[87] Congressional testimony also confirmed that the DOE and its contractors were able to stop press releases about safety and health violations at its facilities, so that newspapers never printed the information. Given such coverups, it is questionable whether the DOE did an adequate job of educating either the public or its own workers about nuclear safety.[88] If the DOE did not fulfill the educational role necessary to the exploitation-avoidance argument, this suggests yet another reason that CWD arguments probably do not succeed in justifying apparent environmental injustices at risky DOE workplaces.

Conclusions and Alternatives

This analysis of arguments, about using the CWD to justify more dangerous workplace environments suggests that appeal to the CWD is not adequate

grounds for defending a double standard with respect to occupational and public risks. Compensation and even apparently voluntary choice of occupation may not guarantee that a particular level of worker risk is ethically acceptable, any more than compensation and consent, alone, guarantee that other alleged environmental injustices are ethically acceptable. As already pointed out, if a particular action is wrong, such as engaging in nontherapeutic experimentation on human beings, then the fact that the people may have consented to it or received compensation for it does not always change the ethical quality of the act from "undesirable" to "desirable." As already argued, questionable "background conditions" may compromise the alleged consent and compensation.

But if compensation and consent are not the only relevant considerations in deciding whether the double standard for occupational and public risk is ethically acceptable, then the CWD, alone, does not provide grounds for accepting a double standard. In the absence of some ethical justification for the double standard, the best policy might be to follow the PPFPE, as outlined in chapter 2. If it turns out that there are plausible reasons, other than the CWD, for maintaining a double standard with respect to occupational and public risk and for allowing alleged environmental injustice in the workplace, then those reasons need to be investigated. One place to begin such an ethical investigation might be to think of worker risk as analogous to patient risk. Although there is an ethical and legal requirement for informed consent on the part of patients being treated by a medical doctor, one of the limitations of the current CWD policy is that there are no comparable legal requirements for guaranteeing background conditions for informed consent in the workplace. Applying the medical ethics analogy, one might well argue that just as people now claim that a doctor's withholding information from a patient is a violation of the medical doctor's fiduciary role and a way of undermining the patient's autonomy, an analogous point holds in the workplace. Were there recognized ethical and legal requirements for attempting to guarantee background conditions necessary to informed consent in the workplace, then the case for the ethical acceptability of the CWD would be much stronger.

Regardless of possible justifications for the current double standard for risk, one thing seems apparent. The CWD, as now implemented, does not adequately safeguard either worker autonomy and welfare or distributive and participative justice, for all the reasons spelled out earlier. Even the fact of nearly one hundred thousand annual workplace-induced premature U.S. fatalities suggests that the occupational environment, for high-risk jobs and for minority or poor workers, may be unjust. If so, society needs both to take steps to correct this environmental injustice and to reassess the CWD theory that supports it.

8 Developing Nations, Equal Protection, and the Limits of Moral Heroism

Ever since 1927, scientists have known that asbestos is a carcinogen for humans. A British study showed that by the year 2030, asbestos exposure will have led to five hundred thousand premature deaths in the European Union alone. In 1996, France joined Germany, Austria, Denmark, the Netherlands, Finland, Italy, Sweden, and Belgium in banning all forms of asbestos. Canada, the second-largest exporter of asbestos in the world, challenged this ban in 1998 as a violation of the World Trade Organization (WTO) Agreement and the General Agreement on Tariffs and Trade (GATT). Established in 1995 as part of GATT agreements, the WTO now has 134 member nations; under the current WTO requirements, any member nation can challenge health, safety, environmental, child labor, or human rights regulations of other nations on the grounds that they are barriers to "free trade." Although the WTO panel has not ruled on the 1998 Canadian challenge, to date the WTO has never supported any health, safety, or environmental regulation of any nation once another country has challenged it. Instead the WTO has declared all such regulations "illegal trade barriers." If offending nations do not reject such "barriers," then the WTO panel issues economic sanctions against them. For example, when all the countries of the European Union banned beef containing artificial hormone residues, the WTO rejected this ban as an illegal trade barrier. When the EU nations refused to remove their ban and argued that it was necessary to protect public health, the WTO leveled $116.8 million in sanctions against the member nations.[1]

As the asbestos and beef hormone examples illustrate, the WTO provides a way for vested interests to impose environmental injustices on those who, against their will, are forced to accept environmentally dangerous imported products or risky, tainted food. The WTO actions are arguably unjust because

one exporting nation has no right to threaten the health and bodily security of another country into which it wishes to bring risky products, especially when the importing nation has refused to give free informed consent to the physical threat brought to it.

In the case of environmental injustices caused by the WTO, most of the victims have been people in developed countries who are eager to preserve their health and their environment. The most troubling cases of environmental injustice, however, do not concern informed Western nations' seeking to avoid risks that other countries want to impose on them but threats that developed nations impose on developing ones. The cases are bothersome precisely because Third World peoples are likely to be much less well informed and thus much less able to protect their health and welfare than those in developed countries. In the wake of the WTO, if even Western nations cannot rely on their own health, safety, and environmental regulations to protect them against other nations' imports, consider how much more vulnerable are those in poorer countries. Pesticides provide a case in point.

According to the GAO, 29 percent of all U.S. pesticide exports are products that are banned (20 percent) or not registered (9 percent) for use in the United States. The World Health Organization (WHO) estimates that there are approximately half a million cases of pesticide poisoning annually, with a death-to-poisoning ratio of one to ten. This means that about 49,000 persons, many in developing nations, die annually from pesticides. In developing countries, one person is poisoned by pesticides every minute.[2]

Pesticides are not the only Western products that raise questions of harms to those in developing nations. Between three hundred thousand and four hundred thousand of the one million current and former U.S. asbestos workers are expected to die of occupation-induced cancer. Rather than installing safer technologies mandated by OSHA, many U.S. corporations are continuing to use dirtier manufacturing methods and moving their operations to other countries, such as Mexico. For example, Amatex, a Norristown, Pennsylvania, firm, closed its U.S. asbestos facilities and opened plants in Agua Prieta and Ciudad Juarez, Mexico, both just across the U.S. border. There are no Mexican regulations to protect workers from asbestos, dust levels in the Mexican plants are not monitored, and workers wear no respirators. Employees receive minimum wage and are told nothing about the hazards they face. Asbestos waste covers the factory floor and clings to the fence and the dirt road, behind the factories, where Mexican children walk to school.[3]

Shipping hazardous waste abroad also raises environmental justice issues. Several years ago, the Nedlog Technology Group of Arvada, Colorado, offered the president of Sierra Leone up to $25 million to dump millions of tons of toxic chemical wastes in his west African nation. Each year U.S. companies offer nations in the Caribbean and in west Africa hundreds of dollars for every 55-gallon barrel of toxic waste that can be dumped legally. Although the United States and more than one hundred other nations have ratified the 1989 Basel Convention (on the Control of Transboundary Movements of Hazardous Wastes), they have not stopped such transfers. Accord-

ing to the convention, companies wishing to ship hazardous waste must notify the receiving country and obtain written permission. Often citizens are unaware of what their corrupt leaders have permitted, and few receiving nations have adequate information about the wastes they import. Such situations rarely include free informed consent.[4]

One of the greatest problems with transfer of hazardous technologies arises in connection not with dumping but with pesticides. Massive advertising campaigns by corporations such as Dow and Chevron have turned the Third World into a market for dangerous chemicals, especially DDT. For example, Ortho (a division of Chevron and an arm of Standard Oil of California) in Costa Rica is the main importer of eight banned or heavily restricted U.S. pesticides: parathion, DDT, aldrin, dieldrin, heptachlor, chlordane, endrin, and BHC. In Ecuador, Shell, Velsicol, Bayer, American Cyanamid, Hercules, and Monsanto are the main importers of pesticides banned in the United States. In Columbia, 14 different corporations import virtually every U.S. pesticide banned since 1970.[5]

Overview

The fundamental moral problem raised by each of the preceding cases is whether either corporations, or the nations in which they are located, have an obligation to guarantee equal protection from risks across national boundaries. Do corporations and nations simply have an obligation to provide whatever protection is legally required in the country to which they export? Perhaps the dominant attitude toward transfers of hazardous technologies is that environmental justice in developed nations is isolated or separate from analogous moral requirements in developing countries. I call this view the "isolationist strategy." It sanctions corporate transfers of hazardous technologies to other countries, provided only that the transfer meets whatever conditions are imposed by the host nation. For those in developing nations, these conditions are typically minimal or nonexistent. In chapter 2 I defended the principle of prima facie political equality (PPFPE) and argued for equal treatment under the law. But because people in different nations face such radically different circumstances, it is much more difficult to argue for the global applicability of the PPFPE, in part because there are no global laws in terms of which people can be held accountable for equal treatment of others. Another problem with global applications of the PPFPE is that often it simply is not possible to guarantee genuinely equal treatment to people in diverse areas of the world.

Advocates of the isolationist strategy characteristically reject environmental injustices close to them in space or time but sanction those that are distant from them. My object in this chapter is to provide some grounds for challenging the isolationist strategy—for questioning the view that one may ignore environmental injustices that are spatially or temporally distant. In order to evaluate this strategy, in this chapter I discuss four main arguments

used to justify transfers of hazardous technologies to developing nations that are likely to be unable to guarantee free informed consent to them: the social progress argument, the bloody loaf argument, the consent argument, and the economic reality argument. I show that all of these arguments, except the last, are seriously flawed. Because the economic reality argument offers persuasive reasons for the transfers, I argue that corporations and governments alone cannot protect those in developing nations. If the analysis here is correct, then effective action to safeguard citizens in the Third World may demand not only individual efforts but also coordinated political activity, particularly through nongovernmental organizations (NGOs). If this chapter is correct, then a rational and ethical response to global environmental injustices may require political activity that is more demanding than many people have thought.[6]

The Social Progress Argument

Often people defend transfers of hazardous technologies on the grounds that one is not ethically bound to accept any principles of environmental justice or equal protection for all persons. Many utilitarian moral philosophers, especially act utilitarians, for example, are opposed to accepting principles of equal protection, whether within a nation or across nations.[7] For this reason, many act utilitarians probably would hold with some variant of what I call the social progress argument. They would maintain that, although they do not wish to see Latin American, Asian, or African people killed or injured by asbestos, hazardous wastes, or banned pesticides, adopting a principle of equal protection for all people, like the PPFPE defended in chapter 2, could jeopardize economic and social progress. Act utilitarians like J. J. C. Smart also typically believe that more human suffering is caused by following principles of equal treatment than by attempting to maximize the well-being of the majority. They believe there is no "right" to equal treatment and equal opportunity because, if there were, then this would delay making things economically and socially better for the majority of the people.[8]

Pursuing the social progress argument, act utilitarians might point out, for example, that worker fatalities during the building of the U.S. westward railroad reached a peak of approximately three per thousand per year.[9] Although this death rate is three orders of magnitude greater than the current allegedly acceptable level of regulated risk in the United States,[10] they might view it as a necessary evil. They might claim it was something essential to greater social progress, just as many current proponents of the North American Free Trade Agreement (NAFTA) and GATT claim that deaths caused by overriding environmental and safety requirements, in the name of "free trade," are necessary evils.[11] They might see such health threats as the price paid to bring prosperity to a greater number of people.

The main problem with the social progress argument, however, is its presupposition that there is no in-principle obligation to recognize individual rights—that there are ethical grounds for sacrificing the welfare of some people for the sake of the majority. As I already argued in chapter 2, this presupposition is questionable in part because it is inconsistent with basic principles of justice, including those underlying the liberal, democratic traditions that are embodied in the U.S. Bill of Rights. Act utilitarians even admit that, on their view, every individual would not be protected from capricious or expedient denials of justice.[12] This admission is problematic, for reasons already outlined in chapter 2: discrimination is unjustified unless it works to the advantage of everyone, including those discriminated against. The social progress argument also is doubtful because often the prosperity alleged to follow from ignoring health, environmental, or human rights concerns never materializes, just as the touted economic benefits of GATT and NAFTA have not materialized. Proponents of the 1995 establishment of the WTO, as part of GATT, promised that U.S. families would enjoy a $1,700 annual income increase, that the U.S. trade deficit would decrease by $60 billion in 10 years, and that developing nations would become more prosperous. Instead, all these predictions have failed to come true, and the U.S. trade deficit is increasing wildly. In developing nations, the WTO has brought increased wage inequality, increased food import prices, annual drops in export earnings of between 2 and 5 percent, and lowered tariffs on raw commodities exported by developing countries. In short, the attempt to justify environmental injustice by means of the social progress argument is doubtful.[13]

The Bloody Loaf Argument

If failure to treat people equally sometimes can be justified on the grounds that this failure helps everyone, including those treated unequally, then perhaps there is a second defense of the environmental injustices associated with the transfer of hazardous technologies. This second argument, which might be called the "bloody loaf" argument, amounts to the claim that although it would normally be wrong to transfer technologies known to cause injury and death, recipients of risky technologies are better off than they would have been without them: a bloody loaf of bread is better than no loaf at all. Proponents of this argument admit that although there are health costs, for example, to Third World asbestos workers or victims supplied with banned U.S. pesticides and toxic wastes, there also are associated benefits, and these benefits outweigh the costs. They argue that the Mexican asbestos worker might not have a job if he did not work in substandard asbestos production facilities. They say that the African village might have neither a local school nor clean water were it not for the revenues supplied by storing toxic wastes from the United States.[14] According to this argument, a dangerous job is preferable to no job. Food riddled with banned pesticides is better than no food at all.

Perhaps the greatest presupposition of the bloody loaf argument is that any cost is allowable, provided the benefits are greater.[15] One could easily challenge this assumption, however, by arguing that some costs are *preventable evils* that ought never to be allowed, even for countervailing benefits. Following the principles of distributive justice outlined in chapter 2, one likewise might argue that some unfair distributions of risks or costs are so unacceptable that no benefits could counterbalance them. One also might argue that not everything—such as torturing innocent people—"has its price." Instead one might agree with the authors of the 17 Principles of Environmental Justice adopted in 1992 at the National People of Color Summit, that people have inalienable rights. Principle 8 affirms that all people have rights to a healthy environment "without being forced to choose between an unsafe livelihood and unemployment." Principle 4 requires "universal protection" from toxic and hazardous wastes, and principle 14 condemns the "destructive operations of multi-national corporations."[16] Each of these principles presupposes that not everything has a price. Safety ought not always to be traded for a job. Money ought not always be traded for dangerous exposure to toxins, and profits ought not be traded for destructive corporate actions. Because utilitarians typically would be the moral philosophers most likely to claim that every cost can be counterbalanced by some benefit or that "everything has its price," one way to challenge the bloody loaf argument would be to show that not even all utilitarians would support it. Would John Stuart Mill, for example, be likely to defend the bloody loaf argument?

Mill and Violation of Rights to Security

Although Jeremy Bentham rejected the notion of moral rights that disallowed certain preventable evils, utilitarians such as John Stuart Mill challenged this rejection. One can read Mill as a rule utilitarian, as holding that utilitarian principles require adherence to rules, even rules conferring rights, and that such rules exclude a case-by-case appeal to the general welfare.[17] After all, Mill does not apply the general-welfare standard to all cases of moral reasoning. In his classic essay, "On Liberty," he does not condone paternalistic intervention in order to serve the general welfare. Instead, as I noted in chapter 6, he allows paternalism only to prevent harm to other people or to prevent persons from selling themselves into slavery. This position suggests that Mill believed a rule about paternalistic noninterference was the best way of serving the general welfare and that his principle of liberty can be construed as a defense of a related right.[18]

A second reason that Mill might be interpreted as a rule utilitarian, and even one with commitments to human rights, is that he specifically distinguishes between immorality and mere expediency.[19] Mill also points out that utilitarians have particular obligations to recognize moral rights.

> The moral rules which forbid mankind to hurt one another (in which we must never forget to include wrongful interference with each other's

freedom) are more vital to human well-being than any maxims, however important, which only point out the best mode of managing some department of human affairs.[20]

Mill explains that the primary object of moral rights is security, which he calls "the most vital of all interests," "the most indispensable of all necessaries, after physical nutrition," and "the very groundwork of our existence."[21] He affirms: "to have a right, then, is, I conceive, to have something which society ought to defend me in the possession of. If the objector goes on to ask, why it ought? I can give him no other reason than general utility."[22]

These passages suggest that Mill believes that, because of their basic needs, persons have something like "rights" to security and "rights" not to have their liberty constrained, apart from the requirements of the general welfare. Nevertheless, Mill believes that the reason society ought to recognize rights to security is that such recognition promotes the general welfare.[23] All this suggests, in turn, that classical utilitarian doctrine is not "a hunting license, allowing the infliction of whatever wounds one likes, provided only that one's pleasure in the infliction is greater than the victim's pain."[24] Rather, one is not allowed, under classical utilitarian doctrine, to threaten another's security. Were one allowed to do so, then maximization of net benefits could be said to justify the worst sort of barbarism or sadism.

There also are a number of nonutilitarian grounds for believing that all persons have equal, basic rights to security. And if so, then it is not clear that there are any compensating benefits that might justify failure to recognize these rights. One of the strongest arguments for recognizing equal, transnational rights to security is that human *interdependence*, across national boundaries, *creates* transnational moral *obligations* to recognize basic human rights. As Lichtenberg puts it, certain kinds of actions by some people are likely to affect other persons in a significant way, and no one can escape such effects by staking out new territory.[25] As the argument goes, since the *effects* of one's actions (e.g., burning fossil fuels and possibly causing the Greenhouse Effect) are not limited to those within one's country, the *constraints* on one's actions are not limited only to the basic rights of those in one's nation.

Following the reasoning already outlined in chapter 2, other considerations also suggest that all people in all nations have inalienable moral rights, regardless of their country or their generation.[26] (1) All persons possess the two essential powers of moral personality: a capacity for an effective sense of justice and the ability to form, amend, and pursue a conception of what is good.[27] (2) Individuals and national societies are not self-sufficient but exist within a scheme of social cooperation.[28] (3) The comparison class is all humans, and all humans have the same capacity for a happy life.[29] (4) Free, informed, rational people would agree to a social contract based on treating all humans equally.[30] (5) Equal treatment of all persons provides the basic justification of all schemes involving justice, fairness, rights, and autonomy.[31] (6) All law presupposes a social contract guaranteeing equal rights.[32] Therefore, without the recognition of basic human rights, it would be impossible for

anyone to enjoy any particular right (e.g., to property) that is legally guaranteed. It also seems reasonable to believe that there are ethical, as well as prudential, duties to provide some standard of equal protection to those outside our national borders. For example, on Peter Singer's scheme, reasonable and benevolent people ought not forego a chance to do great good for others, in order to avoid a trifling sacrifice. If so, then there may be duties to protect others from environmental injustices such as transfer of hazardous technologies, especially if it is possible to do so without great sacrifice of comparable values.[33]

But if there are potential grounds for recognizing either a moral right to security or a duty to protect others from threats to their security, then the bloody loaf argument could be wrong. It could be wrong to try to justify violations of rights to security in exchange for a job or economic well-being. If so, a critical question is whether the transfer of hazardous goods or technologies threatens security. As Henry Shue points out,[34] in the case of Mexican asbestos workers, for example, their security is threatened because (1) the technology does *physical damage* to their life, limb, and vitality, not just harm to their lifestyle; (2) it injures them in a *life-threatening* way; (3) the technology damages them in a way that is *irreversible*; (4) the technology does bodily harm that is *avoidably undetectable* (because people in such a situation are likely to be poor and hence unlikely to have proper medical advice and examination); (5) it does damage that is *avoidably unpredictable* (because workers lack the technical information about the risk, even though their employers may have it); and (6) the technology induces injury having a *high probability of occurrence.*

Is Hazardous Technology Beneficial?

Even if transfer of hazardous technologies, especially to developing nations, were not questionable on the moral grounds that it jeopardized individuals' rights to bodily security, it still might be problematic for factual or practical reasons. The whole bloody loaf argument, like the social progress argument, rests on a central factual assumption, namely, that transferring hazardous technology provides great benefits to those who receive it. Some proponents of this argument claim, for example, that exporting banned pesticides to developing countries is defensible because they are cheaper than other forms of pest control and thus beneficial to poor nations. For them the chemicals are a necessary evil, the price of averting famine. An executive of Velsicol Chemical Company, defending his company's sales of Phosvel after it was banned in the United States, said: "We see nothing wrong with helping the hungry world eat."[35]

The problem with such an argument, however, is that it is built on several doubtful factual premises: that hungry people are helped and that those in developed nations are not harmed. Yet, as the earlier discussion of GATT and NAFTA noted, this premise is questionable. Between 50 and 70 percent of pesticides used in underdeveloped countries are applied to crops destined

for export. Although the poor and hungry labor in the fields and expose themselves to pesticides, they rarely are able to eat the crops on which they work. In Latin America, 70 percent of agricultural production (mainly coffee, cocoa, and cotton) is exported. Moreover, cotton is the crop to which most pesticides are applied.[36]

It might be assumed, however, that even if those in developing nations do not benefit directly from the pesticide-ridden crops they grow, they might benefit *indirectly* from the foreign exchange earned. Even this assumption is questionable, however, because foreign exchange monies often are not used to improve wages, housing, schools, and medical care for farm laborers. Instead they are typically used for luxury consumer goods, urban industrialization, tourist facilities, and office buildings. Most of these goods, in turn, benefit the upper classes living in the cities.[37] Such use of foreign exchange earnings brings benefits to farm workers and pesticide users only if one is able to assume that "trickle-down" economic procedures improve the overall welfare of those workers who are most subject to the hazards of transported technology. Yet especially since 1995, when the WTO began undercutting many health, safety, and environmental regulations as "illegal trade barriers," such "trickle-down" theories are even more doubtful. As the UN Commission on Trade and Development puts it, after WTO, the gains in national income "have been captured by profit—and not by wages."[38]

If the preceding analysis is correct, then the bloody loaf argument is questionable on both moral and practical grounds. The *practical* problem is that many of the benefits alleged to accompany environmental injustice might be overestimated. The *moral* problem is that the argument could lead to undesirable consequences (e.g., justifying sadism) because it is premised on the assumption that great benefits could justify any cost, however great. It also erroneously ignores classical emphases on rights to security.

The Consent Argument and a Moral Response to It

In response, however, one easily could argue that, even if such environmental injustices do threaten individual security, the recipients of hazardous technology have consented to them. Moreover, as I noted in chapter 6, some people believe it is paternalistic to tell other nations what things are good for them. Unless one denies the autonomy of native peoples and their rights to make their own choices, they say one is bound to allow them to have the technology transfers they request. Even if such transfers involve substandard asbestos processing or importing pesticides banned in the United States, goes the argument, native peoples have a right to determine their own fate. In a nutshell, this "consent argument" is that corporations are not morally responsible for inflicting harm through technology transfer so long as the recipients agreed to it.

The plausibility of the consent argument rests in part on the classical economic theory of the compensating wage differential, discussed earlier in

chapter 7. According to the theory of the CWD, when people accept risky jobs for higher pay, they implicitly consent to the hazards. As Adam Smith expressed it, "the whole of the advantages and disadvantages of the different employments of labor" continually tend toward equality because the wages vary according to the hardship of the occupation.[39] Analogously, proponents of the consent argument might claim that imposition of greater public health risks is acceptable because citizens voluntarily agree to trade some societal safety for greater public benefits, such as a stronger economy or a higher standard of living.

Clearly the acceptability of the consent argument is a function of whether recipients of technology transfer accepted these risks, in situations of informed consent. This acceptance depends both (1) on whether the *workers* and citizens were informed of the severity and probability of harm and (2) on whether the *governments* allowing imports of hazardous technologies, for example, banned pesticides, also gave free informed consent on behalf of their citizens. Consider first the freedom issue with respect to workers.

As I argued in chapter 7, just because a worker holds a particular risky job, one ought not assume that the occupation is an expression of freely expressed preferences. And as already noted in this chapter, prominent principles of environmental justice proclaim that workers ought not to have to choose between no employment and unsafe working conditions. Many people engage in certain work not because they voluntarily and autonomously choose to do so but because they have no alternatives. Several years ago the official U.K. government scientific Advisory Committee on the Safety of Pesticides (PAC) was locked in battle with the National Union of Agricultural and Allied Workers (NUAAW) over the spraying of 2,4,5-T by farm workers. On the one hand, the PAC asserted that the pesticide was safe when used properly. On the other hand, the NUAAW argued that

> the organizational realities of farm life often do not allow a farm worker to refuse to spray just because the climate is not correct, or because specified protective equipment is defective or nonexistent. Chemicals, called "adjuvants" that speed up the action of the main chemical are often added . . . and new spraying technologies designed to improve economic efficiency have had marked effects on exposures.

In other words, the cultural realities of low-paid, "dispensable" farm workers do not allow them to say that they are concerned about risks. And if not, such workers are not likely to be able to give *free* informed consent to the risks they incur.[40] A similar example concerns the conflict over beef-cattle hormones. In 1985 a scientific committee of the European Commission said certain "growth promoters" were safe if used (1) by means of earlobe injection; (2) with a specified dose thresbold; and (3) in connection with a 90-day waiting period before sale of the cattle. The Council of Ministers rejected the alleged safe use of the hormones on the grounds that, in reality, such conditions of use are not enforceable. Similarly, when the WTO recently allowed Australia to use the "USDA Approved" stamp on its meat exports so as not to

give the United States an unfair trade advantage, the conditions of use of the stamp clearly were not enforceable in reality, since there was no USDA inspection. Nor did consumers really consent to the risks of the Australian meat, since those risks were unknown to them, given the misleading use of the USDA stamp. And if not, then there are grounds for believing the public often may not be able to give *informed* consent to many societal risks, given the cultural realities of international trade and the threats to health and safety they present.[41]

Often market constraints or greed militate against conditions necessary for free informed consent to environmentally dangerous imports. For example, after the 1985 Bhopal chemical disaster, which killed thousands of Indians, a French inquiry discovered numerous improprieties in France in the handling of the same toxin, methyl isocyanate (MIC). The MIC was imported through Marseilles and sent to a plant in Beziers. At the Marseilles docks, because of the economics of unloading operations (e.g., piece rates being paid to increase productivity) and the necessity to fill shifts productively, barrels of MIC were being thrown, lifted, and hauled as if they were bales of straw. The cultural and economic realities of the dock situation made *free informed* consent (among workers and residents living near the docks) highly questionable.[42] One reason that an occupation and its associated risks may not be the result of a free decision is that job choices are often *not* made in the context of what John Rawls might call ethically desirable "background conditions." As I noted in chapter 3, such background conditions might include the operation of a free market, lack of coercion by employers, and the existence of alternative employment opportunities. This means that, if background conditions necessary for procedurally just, voluntary, employment decisions are not met, then appeal to the theory of informed consent cannot justify exposing persons to workplace hazards created because of technology transfer.[43]

Consider a farm worker, for example, hired to apply pesticides in a developing country. It is well known that such jobs are very risky and also that, as education and income rise, employees are far less likely to remain in hazardous occupations. This means that workers in high-risk jobs are more likely than not to be both financially strapped and poorly educated. Moreover, the situations in which African, Asian, or Latin American peoples would be most in need of work are precisely those in which background conditions are likely to preclude genuine *free* consent to accepting those jobs. In Mexico, for example, the unemployment rate is typically 50 percent, and the average wages are $3–4 per day. This suggests that, in rural developing countries likely to employ pesticides, for instance, there is probably no diversified economy that would provide a variety of alternative employment options. Hence the situations in which people would be most likely to take risky work are precisely those in which genuine *free* consent probably could not be given to the job.[44]

Indeed, for half the world's population, free informed consent may not be possible. About eight hundred million people, one-fifth of the humans on the

planet, are deprived of all income, goods, and hope. They live primarily in India, Bangladesh, Pakistan, Indonesia, sub-Saharan Africa, the Middle East, Latin America, and the Caribbean. Another one-fifth to two-fifths of the world's population, above the one-fifth that Robert McNamara called the "absolute poor," are chronically malnourished. Moreover, according to the UN Development Program (UNDP), the situation is getting worse for the poor of the world. The ratio of average income of the richest 20 percent of people on the planet, as compared to that of the poorest 20 percent, has gone from 30:1 in 1960, to 60:1 in 1990, to 74:1 in 1997. Although in 1960, people in rich nations made $30 for every dollar earned by those in poor countries, by 1997, rich people earned $74 for every dollar earned by the poor. And according to the UN Food and Agriculture Organization (FAO), when relative earnings drop, so does nutrition. In 1999, more than half the children in nations such as Bangladesh and India were underweight. In Africa there were 22 million underweight children in 1980, and that number rose to 38 million in the year 2000. Given pervasive and increasing disease, malnutrition, illiteracy, and squalor—not to mention few job alternatives and an economy that is probably not diversified—it is questionable whether, even with perfect information about the relevant risks, half of the world's workers could be said to *freely* choose to work with environmentally hazardous technology, like banned pesticides shipped from abroad.[45]

Often consent is not likely to be truly *informed*, since the same conditions that militate against free consent (in the developing world) also militate against education. An isolated African or Latin-American region where banned pesticides are used, for example, is unlikely to have an educated populace to help make citizens aware of pesticide danger. It also is unlikely to have a local chapter of the Sierra Club or of Ralph Nader's Public Interest Research Group (PIRG). This means that people in many developing countries not only lack the ability to be informed but, more important, lack the *social institutions*—the background conditions, such as education and a free press, that could help remedy their inability to give free informed consent.

Moreover, even in some of the most developed countries of the world, like the United States, where *societal institutions* are in place, free informed consent is sometimes rare. When the state office building caught fire recently in Binghamton, New York, it was highly questionable whether the accident victims gave free informed consent to the risk of reentering the building. The fire spewed about 180 gallons of coolant (containing polychlorinated biphenyls, or PCBs) from the electrical transformers throughout the building. Later, despite the fact that the building's garage was contaminated with PCBs, officials opened the garage because of "the shortage of parking space in downtown Binghamton." Officials were allowed to open it only because they withheld crucial information about testing the garage and about the toxicity of PCBs. The director of health for the state "intentionally concealed important information . . . to mollify public concern." Likewise, it is not clear that U.S. citizens, in general, consent to the health, safety, and environmental threats to which they are exposed from imported goods. After all, the WTO

specifically disallows importing governments from providing health, safety, environmental, and human rights information—about particular products—on the grounds that such information is a barrier to free trade. If even highly developed nations cannot always guarantee free informed consent and participative justice to their citizens, then surely such consent and participative justice is even less likely to be available to those in developing nations. And if not, it is questionable whether the consent argument is able to justify transfers of hazardous technologies to less developed countries.[46]

The Economic-Reality Argument and a Moral Response to It

If the analysis thus far has been correct, then all three arguments enlisted to support transfer of hazardous technologies—the social progress argument, the bloody loaf argument, and the consent argument—face serious objections. However, someone still could maintain that such transfers are legitimate on the grounds that it is impossible to prevent them. This response might be called the "economic reality" argument. This fourth argument is based on the ethical maxim, "*ought* implies *can*"; if governments or corporations *ought* to be required not to transfer banned technologies to developing countries, then this requirement must be one that *can* be achieved. If the requirement is not achievable, then it ought not to be required.

The main reason for believing that it might be neither possible nor realistic for a corporation to introduce safer technology on its own, without mechanisms to control the behavior of competing firms, is that such an action could financially destroy a company. According to the economic reality argument, governments, not individual corporations, are in the business of securing environmental justice and regulating worker and citizen safety. To expect a firm to introduce safer technology, and thus be undercut by other corporations with fewer moral qualms, is thus ethically questionable because it is unrealistic. Such expectations might impose a self-sacrificial burden on a corporation. But morality does not require heroism, only justice.[47] Because it does not, Alan Gewirth, in his classic argument for the absolute right not to have cancer inflicted on one, argues that it is necessary for *the state* to regulate and enforce this right. Similarly, one cannot expect corporations to give voluntary compliance to strict environmental and technological standards that could undercut profits and perhaps make them bankrupt. Admittedly, as discussed in chapter 2, there is evidence that stringent global environmental standards are competitive assets for the companies using them. Even if such companies perform better economically, nevertheless they have no obligations to employ strict standards that could destroy them because they have no obligation to behave heroically.[48]

Attorney Richard Stewart likewise has recognized that strong federal regulation, rather than heroism, is necessary to restrain dangerous technologies and to secure environmental justice. Stewart points out that even states cannot afford to impose more stringent environmental standards than their

neighbors, unless they want to hurt their economy. Otherwise, industry would simply move to a less-regulated state. For similar reasons, some corporations cannot be required to accept more stringent environmental standards than other firms, unless they want to go out of business or lose customers to less ethical competitors.[49]

Despite the plausibility of Gewirth's and Stewart's suggestions that morality cannot rest on heroism, several considerations suggest that it is both reasonable and possible—not heroic—to reject the economic reality argument and to work against transfer of banned, hazardous technologies. Henry Shue, for example, argues that corporations are morally bound to cease transfer of hazardous technologies because: (1) no institution has the right to inflict harm, even to hold down production costs; and (2) underdeveloped countries, alone, cannot be expected to impose strict environmental and technological standards because they are competing with other countries for foreign investments.[50] Although Shue's first argument may be correct, that one ought not inflict harm, so as to hold down production costs, a critical problem is knowing how to define "infliction of harm." At what point does inflicting a higher *probability* of damage constitute infliction of harm?[51] Contrary to an assumption behind Shue's argument, manufacturers do inflict harm in the form of increased *probability* of risk, in order to hold down production costs in the United States. United States pollution-control regulations are specifically designed to trade a particular amount of safety for a given amount of production savings. The typical norm, adopted by the EPA, a NAS panel, the NRC, and other government groups, is that safer technology is not required unless it imposes greater than a one in a million increase on the average annual probability of fatality faced by the public. Moreover, allowable worker risk is typically 10 times greater than that for the public, in part because permitting higher workplace risks is sometimes more cost effective than prohibiting them.[52]

In the case of many technologies, U.S. corporations are merely required to keep environmental hazards "as low as is reasonably achievable," on the basis of a "favorable cost-benefit analysis." In the case of nuclear technology, for example, if it costs the licensee more than $1,000 to avoid an additional person-rem of radiation exposure to the public, then he is not required to do so. If it costs less, then the licensee must aim at reducing maximum radiation exposure to the public to 0.0005 rem per person per year. Hence, according to current law, there is no absolute prohibition against harm (where "harm" includes increased probability of risk), in part because such a prohibition would be impossible to achieve in a technological society.[53] And if not, then Shue's argument (1), as it stands, may sanction a proposed ethics (absolute prohibition of harm) that is impossible to fulfill. Therefore this ethics cannot be binding.

Shue's objection (2), that underdeveloped countries cannot be expected to impose strict environmental standards because they are competing with other nations for foreign investment, also makes a reasonable point, but it contains a flawed assumption. This assumption is that because *countries* compete with

each other for foreign technology investment dollars just as *corporations* compete with each other for profits, nations have no more responsibility (than do private industries) to protect their citizens' health and safety by regulating technology. This assumption is flawed because it presupposes that countries and corporations have the same level of responsibilities to protect citizens. But do they? Firms are concerned primarily with promoting *private* interests, that is, maximizing shareholders' profits, whereas nations are obliged to promote *public* welfare. A strong case also could be made for the claim that citizens, by virtue of their citizenship, share an explicit contract with their country. If so, then in exchange for citizens' acts such as paying taxes, the country performs many services, such as protecting citizens' health and welfare. Except in the case of the employer–employee relationship, there is no comparably strong contract between a corporation and members of the public. And if not, then it easily could be argued that the greater responsibility for protecting public health and welfare belongs to the country. Moreover, at least in part, the nation appears to have the stronger obligation to protect citizens because corporations so often fail to do so.

Consider the consequences that would follow if one were to accept Shue's objection (2) that corporations have more responsibility to force use of safe technology than do host countries. If private industries did have more responsibility but did not willingly *accept* this responsibility, then they would be more likely to do as they wished—in the face of governments that were alleged to have *less* responsibility (than corporations) to protect their people. In such a case, firms would be able to act with impunity, knowing that governments would not be checking on them. In the situation prescribed by Shue, governments would be less able to "right" corporate wrongs, since they would have *no* mandate *to* protect citizens working in risky facilities. Indeed, one of the most common industry arguments against government regulation is that it is "not needed" and that corporations themselves can do the job. This seems to be the argument made by Henry Shue. Obviously, however, industries cannot police themselves completely, as the actions of Shell Oil described in chapter 6 suggest.[54] If they could, then they might have nothing to lose through government regulation. If firms believe they have something to lose, however, they are likely to oppose governmental regulation. And if so, then the regulation appears to be needed.

Citizens' Responsibilities for Environmental Justice

But if government regulation typically is needed to protect citizens and workers from environmental hazards, and if *industry alone* cannot do the job, then it may be neither reasonable nor possible, as the economic reality argument notes, to expect corporations to cease transfer of hazardous or banned technologies, especially if government does not require them to do so. Because "ought implies can," corporations are morally obliged to use safer technologies only if they can do so without heroic sacrifices.

Even if it were reasonable to argue that firms are morally obliged to make heroic sacrifices, they are unlikely to do so, at least for long, because they will not survive. Hence, regardless of the degree to which one believes that corporations are *morally* required to use safer technologies, the fact remains that they are *likely* to do so only if government requires it and if the safety does not threaten their competitive advantage. Apart from what is ethically desirable, one cannot realistically expect companies to cut their profits, in the name of safety, unless governments, corporate employees, and consumers force them to do so. But if not, then society is faced with an interesting practical problem, one quite different from the one with which this chapter began: Do citizens have any ethical obligations, as consumers in developed nations, to help avoid environmental injustice or to force transfer only of the safest technologies? Consumers in developed countries may have the greatest power, and thus also the greatest obligation, to help ensure environmental justice abroad and to help solve the problems of transferring hazardous technologies, in part because they have special duties generated by special circumstances.

Responsibility through Ability

Citizens in developed countries arguably have a moral obligation, proportional to their ability, to help prevent transfer of hazardous technologies to underdeveloped countries. This is a "responsibility through ability."[55] To the degree that people have the ability to make a positive difference in such situations, therefore they are obliged to do so. Special abilities generate special duties. (Later I will discuss *how* one might make a positive difference.) As already mentioned, duties to help largely defenseless people, like victims of environmental injustice, arise in part from the fact that human beings are interdependent and not self-sufficient and hence share an implicit social contract. Some people thus are more obliged to help other persons because they are more able to do so and because they are human beings.[56]

The fact that people have no *explicit* social contract with members of other nations as they do with citizens in their own country, however, need not significantly change this obligation. For example, if two people are facing almost certain death, either because of banned pesticides or because of their working in substandard asbestos-processing plants, why should people be bound to aid one set of victims, merely because they are fellow citizens and not bound at all to aid the other victims, simply because they are not compatriots? Admittedly, fellow citizens have prior claim to personal loyalties, in large part because of an explicit social contract citizens share with each other. But because citizens have *prior* claims does not mean that they have *exclusive* claims to each others' loyalties. What all people share as humans, with common conceptions of the good life and with equality as members of the same species, is at least as important a foundation for interpersonal duties as is common citizenship. And if so, then people arguably have some obligation to aid Third World victims of the transfer of hazardous technolo-

gies.[57] Even the U.S. Agency for International Development (USAID) has been forced, in recent years, to perform environmental impact assessments for the technologies they transfer abroad; USAID has implemented the NEPA so as to review, for example, its pesticide programs in other nations. These reviews have "resulted in significant changes in USAID's operations," particularly in the area of pest management. This suggests that U.S. agencies are beginning to recognize that recipients of technology have rights to protection from their hazardous transfer.[58]

The obvious problem with the argument that people are obliged to help citizens in other nations, however, is specifying the limits on such a duty. One could explain, "Look, I have my own life to lead and my own children to raise. I ought to be free of the obligation to help developing nations by promoting transfer of only the safest technologies."[59] As James Fishkin formulates this objection, people are morally required to "prevent great harm" when they are able to do so and when the costs to them are minor. He says that this moral obligation breaks down, however, when it is applied to large numbers of people. Fishkin's reasoning is as follows. If one has only a modest number of occasions to help others, then the obligation to prevent great harm is not excessively burdensome and does not restrict one's freedom of action. This "minimal altruism," however, could have the *cumulative* effect of imposing great burdens and severely restricting one's choices. The result, says Fishkin, could be "breakdown," or "overload."[60]

Fishkin's objection is obviously correct in the sense that there is an upper bound to the cost that can be said to be required of people striving to help those who need more physical security. Individuals clearly have a right to pursue their own commitments, apart from the sacrifices that appear to be demanded by impersonal global morality. Nevertheless, if people believe in a transnational social contract among all humans or even minimal decency, then as was already mentioned, they ought not forgo a chance to do great good for others in order to avoid a trifling sacrifice.[61] Likewise, a nation ought not forgo a chance to do a great good for the people of other nations in order to avoid a trifling sacrifice. The obvious question this raises, of course, is whether the sacrifice is indeed trifling. Subsequent paragraphs address this issue.

Another limit on the duty to help others is set by the fact that individual sacrifices are more burdensome and hence less of a moral imperative when they set people, either individually or as nations, at a disadvantage relative to others who have sacrificed less. For example, poorer people obviously have less of an obligation (than do wealthier individuals) to share their goods with someone less fortunate. In particular they have less of an obligation if their doing so puts them (relative to wealthier persons) at a greater disadvantage with respect to others who have shared less of their goods. Henry Shue's distinction between the *scope* and *magnitude* of justice also provides some clues for an "upper bound" on obligations to sacrifice for others.[62] With respect to *scope*, everyone on the planet may have rights and duties grounded in global justice, because all may be said to share a social contract. Of course,

the *magnitude* of the duties imposed on people is not the same. This is because there are a number of considerations that limit individual obligations to bring about social change. For example, duties to others cannot be so great that fulfilling them jeopardizes one's own bodily security or the welfare of those for whom one is personally responsible. This principle is obvious on the grounds of consistency.

A final constraint is that justice ought to be said to require only what some normal, nonheroic people are capable of being convinced to do. If at least some people (having healthy self-interest) do not *freely* and *noncoercively* assent to these demands, then it is questionable whether the proposed standards of justice are legitimate. This is because people are bound to do only what it is possible to do. Moreover, people are not required to pay any price in order to achieve what is possible. Gains in security bought at the price of either bloody revolution or totalitarian enforcement are highly questionable, primarily because of the cost in lives and in civil liberties. "Sometimes an unbloody half loaf is better than a bloody loaf."[63]

What all these limits (on duties to others) suggest is that it is impossible for citizens in developed countries to reject completely the duty of helping to ensure environmental justice for citizens in underdeveloped nations. Although people cannot be expected to help protect everyone, they can, as Henry Shue puts it, protect "a few at a time until it becomes too heavy a burden."[64]

Responsibility through Complicity

People also have a "responsibility through complicity" to help Third World victims of technology transfer, to the degree that they have accepted lower inflation and lower prices for foreign-produced goods. These are two benefits bought, at least in part, at the price of health hazards for peoples in underdeveloped countries.[65] Therefore, those in richer nations owe them a debt of compensation or reparation. Judith Lichtenberg formulates a similar argument.

> Suppose we consider a relationship, R, between a developed country, D, and an underdeveloped one, U. It may be that both D and U are better off with R than without it (though, of course, we make the artificial assumption here that the state to which we compare R is just the absence of R, with nothing replacing it). But suppose that by any reasonable standard, D benefits much more than U, not just in the sense that D ends up absolutely better off but also that it is improved more incrementally as well. This accords with the claim that economic relations between rich and poor countries widen the gap between them even if those relations bring absolute gains for all. So D is benefitted more by U's participation than U is by D's. Here the principle of unequal benefit applies to show that D owes something to U by way of compensation, for D owes its advantageous position in part to U's participation.[66]

Lichtenberg's argument, that because D has benefited from U and is dependent on U, D has obligations of compensation, and perhaps reparation, to help

U, is similar to rebuttals to "lifeboat ethics." When Garrett Hardin proposed his famous "lifeboat ethics," he argued that members of developed nations had no obligations to help those in underdeveloped countries because doing so was futile, in that it would only cause the poorer populations to increase, making their progress even more difficult. Hardin also said that people in developed nations would have to reduce themselves to subsistence levels in order to make a difference in underdeveloped countries. To move, from a 5:1 ratio to a 3:1 ratio in the per capita income of developed to underdeveloped nations, would require about *eight times* the annual GNP of the United States. According to this argument, only massive redistribution could make much of a difference. Hardin also claimed that helping Third World people would cause only greater harm in the long term, both to the environment and to members of future generations,[67] because foreign aid might encourage population growth and greater poverty later.

Although there is no time here to analyze in detail the "lifeboat ethics" just outlined, it is important to sketch some of the responses to it, simply because those responses might help clarify the argument for "responsibility based on complicity." One can ignore this complicity-based argument only by making several erroneous assumptions also shared by proponents of lifeboat ethics. One such assumption is that developed countries are self-sufficient and do not need the help of underdeveloped nations. This assumption is false, however, as the oil crisis shows. It also is false because many of the wealthy countries were helped to prosperity through their buying resources cheaply from poor nations and then selling finished products back to them at high prices.[68]

Other "lifeboat" objections to the complicity argument err because they ignore the fact that wealthy nations are using a disproportionate share of the planet's resources. This depletion of nonrenewable materials might be questioned both on the grounds that it violates the Lockean proviso to leave "as much and as good" for others (already discussed in chapter 3) and on the grounds that those in developing nations deserve some compensation or reparation for having their opportunities (to use these resources) reduced. If so, then citizens in wealthier countries may have some obligation to assist those in poorer nations who are victims of environmental injustice, like that caused by transfer of hazardous technologies.

Prudential Responsibilities

From a pragmatic point of view, people in developed nations also have moral and prudential obligations to help prevent environmental injustice in developing countries because many of the associated harms affect them. The question of transfer of hazardous technologies, such as pesticide- or hormone-contaminated food, is not a question of "them versus us." People in both the developed and the underdeveloped world are victims of unsafe technology transfer and inadequate environmental standards, in large part because of global trade. As already noted, pesticides used in the developing world actually help feed developed nations, but they endanger the poor and the hungry

throughout the globe. As already mentioned, up to 70 percent of the food crop in developing nations is exported to developed countries. As of 1998, for example, 52 percent of all U.S. fruits and vegetables came from Mexico.[69] Yet over 15 percent of the beans and 12 percent of the peppers imported from Mexico violate Food and Drug Administration (FDA) pesticide residue standards, and half of imported green coffee beans contain measurable levels of banned pesticides. The GAO estimates that 14 percent of all U.S. meat is now contaminated with illegal residues. In the wake of NAFTA and GATT, the problem is getting worse, in part because, since 1991, FDA inspections have declined from 8 percent of total imports to less than 2 percent. The pesticide residue problem has become so great that all beef imports from Mexico, Guatemala, and El Salvador have been halted. Moreover, government investigators found that half of all the imported food identified as pesticide contaminated was marketed without any penalty to the producers and without any warning to the consumers. No wonder the Center for Disease Control (CDC) says that nine thousand Americans die each year from food-related illnesses and that six million annually become seriously ill from the same causes.[70]

What all these examples illustrate is that it is virtually impossible to protect even U.S. citizens from the hazardous effects of technology transfers to developing countries. Apart from the direct threats that return to U.S. consumers, for example, on imported food, there is still the problem of increasing global contamination because of hazards that initially are felt only in developing nations. There has been a significant increase in the concentration of lead in the successive snow layers from the Greenland ice cap and in seawater,[71] for example. Likewise, because of increasing levels of chlorofluorocarbons, there has been an expansion of the ozone hole over Antarctica.[72] As these two examples suggest, no spot on earth is ever wholly protected from the chemical or atmospheric hazards occurring elsewhere on the planet. Just as planetary interdependence at the political and economic level establishes an ethical foundation for people's duties to help those in underdeveloped nations, so also ecological interdependence establishes a *prudential* basis for their obligations to help themselves by helping others avoid environmental injustice.

Conclusion

If the analyses in this chapter have been correct, then people have an obligation to "make a difference"— to make it difficult for governments and corporations to subject unwitting peoples in developing nations to environmental injustice like that caused by transfers of hazardous technology. But the only clear way that people can "make a difference" is through coordinated political activity, especially through nongovernmental organizations and not primarily through individual efforts. People need to put pressure on U.S. agen-

cies, like the USAID, and on international groups like the WTO and the World Bank. People need to recognize that they have a moral obligation to public-interest advocacy designed to protect those who are at serious risk. The next chapter provides additional reasons for this obligation and suggests some forms the advocacy might take.

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9 Taking Action

Public Responsibility for Environmental Injustice

If the arguments of the previous chapters are correct, environmental injustices present multiple threats to welfare. They challenge human rights to equal protection, due process, consent, and compensation. And they put people at risk virtually everywhere, in the future as well as the present, in the developed as well as the developing world. How does one address problems of environmental justice if they are ubiquitous? As Wendell Berry has argued: "We are going to have to gather up the fragments of knowledge and responsibility that we have parcelled out to the bureaus and the corporations and the specialists. . . . We are going to have to put those fragments back together again in our own minds and in our families and households and neighborhoods."[1]

Overview

Why should people take Berry's advice? Why should they assume ethical responsibility for solving problems of environmental injustice? This chapter gives a number of additional arguments that environmental justice advocacy by citizens, and especially by professionals, is not only desirable but necessary. (1) Environmental-assessment strategies frequently ignore distributive and participative justice and the demands of the principle of prima facie political equality (PPFPE). (2) EJ advocacy helps educate people both about the vulnerability of victims of environmental injustice and about the EJ biases of government, industry, and academia. (3) People often wrongly assume positions of neutrality about environmental injustice. (4) Because societal decision-making is highly partisan and contrary to fair play, neutrality about EJ

problems makes them worse. (5) Remaining neutral does not always achieve objectivity regarding EJ issues. (6) Provided they meet several conditions of fairness, most people have duties to assume positions of EJ and public-interest advocacy. (7) Such advocacy would lead to a number of desirable consequences. After sketching these seven arguments and answering objections to them, the chapter closes with an outline of several practical strategies for EJ advocacy, particularly through working with nongovernmental organizations (NGOs).

How much responsibility for EJ advocacy does each citizen have? This chapter argues that except in unusual circumstances, such as being seriously ill, virtually all citizens have duties to become EJ advocates. But what are these precise duties? Formulating them is not easy because they are collective. And because environmental goods, such as clean air or water, are both public and indivisible, it is not easy to determine how much of these goods justice requires various people to have. Different people also judge environmental goods, like noise abatement, differently. As a result, persuading people to act collectively on behalf of EJ is difficult. This chapter takes some first steps at motivating and clarifying EJ advocacy.

Environmental Justice Advocacy

What is the environmental justice advocacy for which citizens arguably are responsible? It is taking a stand to help victims of unjust distributions of environmental impacts or victims of unequal participation in environmental decision-making. This advocacy, often accomplished through NGOs, amounts to taking a stand in a partisan sense, in one's civic or professional writing and speaking. It amounts to critically assessing alternatives, developing an ethically defensible stance, and then defending it and amending it through open exchange. Merely pointing out the assets and liabilities of alternative positions does not constitute advocacy. Merely maintaining a stance of informed neutrality is not advocacy. Environmental justice advocacy might be exemplified by taking a stand in favor of monitored retrievable storage of nuclear waste instead of permanent disposal, or against more incinerators on Chicago's South Side. Because in some situations EJ advocacy might be questionable or premature, section 6 of this chapter discusses some of the circumstances that make it more or less ethically defensible.

The Tilted Playing Field

One reason EJ advocacy is so necessary is that the tilted playing field, created by the unequal power of vested interests, often keeps government, industry, and academia from being as protective of public and environmental interests as they ought. Moreover, despite the human-rights leadership of companies such as Body Shop and the environmental responsibility of corporations

such as British Petroleum, history suggests that it is naive to assume the automatic public interest of vested interests. Some manufacturers campaigned against child labor laws. Some companies continue to lobby against increased environmental, health, and safety regulations. The U.S. nuclear industry has successfully gained protection against 99 percent of potential liability claims.[2] Chemical manufacturers, at least in the United States, have lobbied successfully both to protect themselves against the liability provisions of the toxic-waste Superfund legislation and to cut industry cleanup funds by two-thirds. The tobacco industry knowingly exposed people to life-threatening effects of smoking, lied about dangers, and intentionally addicted smokers (especially children) to nicotine.[3] Johns-Manville knowingly exposed four million U.S. workers to asbestos even after corporate officials knew the health effects, and the company fought to prevent disclosure of the danger. And Metropolitan Edison falsified the cooling-system tests at Three Mile Island prior to the nuclear accident.[4] Although such cases do not suggest that one should be suspicious of all private interests, they confirm that one should not be naive about what people may do in the name of profit. Profit may help explain the hundreds of thousands of environmentally induced cancers and approximately one hundred thousand occupationally induced fatalities each year in the United States.[5] Perhaps one reason truth and justice do not always win out in such cases is that many citizens and professionals do not help carry the burdens and promises of democracy. They do not act as environmental justice advocates. They do not counterbalance the bias of some vested interests. As the American Association for the Advancement of Science (AAAS) noted, "the relative power of contending parties [in environment-related disputes] is often grossly unequal; a powerful government agency, with strong political and industrial backing, can often prevail in its purposes."[6]

Consider the way vested interests suppressed the truth about pesticide policy. One reason so many people violently attacked the largely accurate work of Rachel Carson, in the middle of the last century, was that many of the leading scientists of the day had financial ties to the pesticide industry. As Edsall notes:

> Many if not most of them had financial and career ties to the use of pesticides and to the industries that produced them. The Committees of the National Academy of Sciences that dealt with these matters in those days tended to be dominated by people who were biased in this way.[7]

Similarly, a 1988 report indicated that, merely by reading the titles, authors, and financial supporters of certain funded research it was possible to predict the conclusions in 81 percent of scientific investigations.[8]

As the pesticide and research examples illustrate, EJ advocates often face a playing field that is badly tilted in favor of moneyed interests. In Brazil in 1989, for example, then president Fernando Collor de Melho noted that 70 percent of the wealth of the nation was in the hands of 1 percent of the population.[9] It is difficult to believe that this 1 percent does not exercise massive

control over both the media and public and environmental policy in Brazil. Even in developed nations like the United States, moneyed interests often tilt policy. And as earlier chapters documented, U.S. wealth is becoming more concentrated among a smaller group of people who, in turn, are able to wield more power. Citizens for Tax Justice, for example, has shown that the 1980s tax cuts for the richest one million Americans added $1 trillion to the national debt.[10] The tax cuts of the Bush administration, beginning in the year 2001, may have the same effect. Such actions suggest that concentrations of wealth and power may need to be counterbalanced by citizen advocates who speak out against environmental injustice.

Government Bias

Consider two examples of how the playing field of government is often tilted against environmental justice: occupational hazards and nuclear risks. As chapter 7 revealed, the U.S. government is aware of workplace dangers but often fails to do enough to curb the threats. As early as 23 A.D., people recognized occupationally induced risks to life. Pliny the Elder urged miners to wear protective masks. Workers also knew about the hazards of lead poisoning for several centuries before government did anything to regulate it. Even today, the situation has not improved substantially. According to the Bureau of Labor Statistics, more than 25 percent of the work force annually is killed or injured seriously in industries such as meatpacking, wood manufacturing, sugar cane processing, prefabricated wood building, rubber recycling, and mining.[11] Lack of adequate government action in these areas suggests bias that could cause injustice in the occupational environment.

Another example of government bias appears in its underregulation of commercial nuclear power. As chapters 5 and 7 illustrated, the industry is so powerful that the U.S. government has been unable to protect adequately the six hundred thousand U.S. nuclear workers. And instead of admitting nuclear threats, governments often deny them. Governments in France and the U.K. at first denied the 1986 Chernobyl nuclear accident. To this day, officials in countries such as France and Russia continue to claim that Chernobyl killed only 31 people and that the explosion and fire had no major health consequences.[12] A UN study, however, calls Chernobyl "the greatest technological catastrophe in human history."[13] According to the Ukrainians, 125,000 people so far have been killed because of Chernobyl,[14] and more people continue to die, especially among the 800,000 "liquidators" who helped clean up the accident. Physicists and medical doctors at the University of California, Berkeley, maintain that Chernobyl will cause 475,000 premature cancer deaths and approximately 500,000 premature nonfatal cancers.[15] Yet governments in the United States and other nations continue to underestimate Chernobyl consequences, and they uncritically promote commercial nuclear technology.[16]

Government bias regarding the environmental and public-safety threats of nuclear technology has extended even to its own military personnel. In May

1953, the United States conducted two atomic bomb tests in Nevada. Fallout rained on 10 herds of sheep grazing nearby. Although 4,500 animals died, and many ranchers went out of business, Atomic Energy Commission (AEC) scientists argued that the two weapons tests had not caused the livestock deaths. As a result, federal courts dismissed ranchers' claims for compensation. Years later, secret government documents showed that both scientists and the AEC had perpetrated a fraud upon the court. Their deception came to light in 1980 after the governor of Utah obtained the release of previously classified federal documents concerning the sheep deaths. The materials showed that the AEC researchers and officials—including Bernard Trum, a scientist who later became director of a primate research laboratory at Harvard University—had lied. They induced the original scientists to deny their conclusions that radiation had caused the fallout deaths.[17] Government fraud in the weapons case, however, has harmed more than sheep. Between 1951 and 1963, the United States conducted more than one hundred above-ground tests of atomic bombs in Nevada. Despite the tests' scientific, military, and national-security benefits, a 1991 study by physicians concluded that an additional 2.4 million premature cancer deaths, worldwide, will have been caused by these 12 years of U.S. above-ground weapons testing.[18] For example, the movie *The Conqueror* (1954) was filmed in a dusty canyon near St. George, Utah. No testing took place in the canyon, but the location was downwind from the Nevada test site. After the actors Pedro Almendariz, Dick Powell, Jeanne Gerson, Susan Hayward, and John Wayne succumbed to cancer, Agnes Moorehead remarked, "Everybody in that picture [*The Conqueror*] has gotten cancer and died."[19]

One would think that, because of the infamous history of the U.S. nuclear weapons testing program under the AEC, the former AEC director, Dixy Lee Ray, would have little credibility. The fact that she went on to become a state governor and to coauthor a book, *Environmental Overkill*,[20] suggests both the bias and the power of some U.S. government agencies and officials. Citing only newspaper stories and articles in libertarian magazines, Ray claims in her 1993 book that PCBs, dioxin, and asbestos present "insignificant or nonexistent risks."[21] She also writes that the government spent too much money to clean up the Exxon Valdez oil spill off Alaska[22] and that "aside from some psychological distress brought on by hysteria, not even a single common cold can be accurately attributed to the chemical wastes at Love Canal."[23] Such inflammatory errors by a former federal and state official show the degree to which the government playing field may be tilted.

Government bias is significant in part because of its ethical toll. On the sometimes-biased playing field of government activities, often those harmed by environmental injustice—stakeholders—have neither information about their risks nor the opportunity to exercise free informed consent. At Yucca Mountain, Nevada, for example, discussed in chapter 5, U.S. Department of Energy (DOE) procedures have violated Nevadans' rights to equal treatment, due process, and free informed consent. The federal government agreed to compensate Nevada for site studies of the proposed federal waste repository

only if the state promised to withdraw its veto of the facility. And Nevada was forced to go to court in order to obtain copies of taxpayer-funded DOE research studies (on site suitability). Nevada had to spend hundreds of thousands of dollars of taxpayer money to sue the DOE. On the scientific side, federal-government bias also was apparent in the government's claim to have "verified" site suitability by means of ten-thousand-year computer simulations. Government geologists likewise used porous-media models to estimate groundwater flow, even though such models are contraindicated for heavily fractured locations like Yucca Mountain.[24] The bias has been so great that even the U.S. National Research Council/National Academy of Sciences has criticized the Yucca Mountain research and government conduct of it.[25]

Government bias against fair play and environmental protection is not unique at Yucca Mountain. For some government agencies, the tilted playing field may be the rule, not the exception. A 1986 General Accounting Office (GAO) report revealed that 90 percent of the DOE's 127 nuclear facilities had contaminated groundwater that exceeded regulatory standards by a factor of up to 1,000.[26] Typically the public does not know about such dangers posed by government operations because they are kept secret. They often are manifested only as "statistical casualties," deaths revealed through epidemiological studies but not evident through some causal chain of harm.[27] Tracing the causes is difficult because latent or delayed cancers occur many years after the end of the projects, and people often are not aware of threats until long after it is too late either to collect data or stop the activities. Sometimes the government actively avoids doing epidemiological studies, as it did at Three Mile Island and in Southwest weapons testing. Or if government sponsors the necessary studies, often it asserts that increased environmentally-induced cancers have other causes.[28] When the United States engaged in above-ground testing of atomic bombs, for example, officials covered up data and then blamed livestock deaths on nutritional deficiencies. Epidemiological studies performed many years later finally exposed the causal connection between government nuclear testing and human health effects such as cancer and genetic deformities.[29] Such behavior suggests serious respects in which the government playing field probably is tilted against public safety and environmental justice.

Industry Bias

Even more evident than government biases are the vested interests of industry. Because the survival of a company or corporation depends on its profitability, cutting economic corners can take precedence over fair play, public safety, and environmental protection. Neutral and disinterested information often does not help corporate profits. Instead vested interests—tobacco and chemical companies, for instance—typically "buy" research and lobby for government support that serves their ends. One industry-funded book, *Toxic Terror*, for example, denied that Chernobyl caused more than 31 deaths, even though the pronuclear DOE puts the number at 30,000, just in this genera-

tion.[30] An excellent example of "hire research," in which subjective guesses or lies are passed off as expert judgments, *Toxic Terror* makes extraordinary claims, such as that toxic chemicals cause no damage to humans[31] and that Love Canal harmed no one.[32] Instead the author, Elizabeth Whelan, rails against environmental "hypochondria." Such biases would be laughable except that reputable companies, like the Free Press of Macmillan, often are willing to put their stamp on such volumes. Industry-funded research and advertisements also claim, for example, that "Americans today are healthier than ever before."[33] Such industry bias often consists of taking credit for medical progress but ignoring pollution threats and minorities' being less healthy because of environmental injustice.[34] Confronted with the charge that cancer costs the United States over $25 billion per year in medical charges and lost workdays, one corporate writer responded that, without cancer, more people would be alive, and it would cost the United States much more money to support more people.[35]

Industry bias is even more evident in developing nations because of the greater poverty and vulnerability of people there. Several corporations interested in African mineral resources, for example, have literally "bought" entire universities in Nigeria, Congo, and Ethiopia. Paying scientists to do industrial research, corporations at some African institutions have supported as many as 80 percent of the professors.[36] In Japan, the government has awarded the equivalent of hundreds of millions of dollars in taxpayer monies to fund university-industry cooperation so as to ensure that Japanese companies dominate the international biotechnology market. As of 1998, 50 percent of the worldwide industry patent citations for drugs, medicine, and biotechnology have been for research funded by the public, usually in academia.[37] Such industry dominance is a potential threat to environmental justice because it is able to control information about public-health risks that otherwise might motivate reforms.

Profits clearly have tilted the biotechnology playing field against environmentally safe activity. Experimenters for at least 27 U.S. chemical companies, for example, are genetically modifying at least 30 crop and forest tree species to withstand lethal does of herbicides. Yet such pesticides continue to injure and kill humans—at least 40,000 fatalities annually, mostly in developing nations, according to the WHO. Humans and other members of the biosphere, after all, have not been genetically engineered to withstand high doses of pesticides. Yet U.S. taxpayers annually provide more than $10.5 million for research on pesticide-resistant crops.[38] Instead of using monies to create herbicide-resistant crops, government and industry could use the same funds to develop pest-management strategies that contribute to EJ and to long-term sustainability.[39] Such industry research threatens to "kill the canaries." (Knowing that canaries succumb to methane poisoning before humans do, miners use them as "early warning" signals of dangerous levels of gas.) If researchers make crops genetically resistant to herbicides, those plants may be unable to function as early warning signals for dangerous levels of chemicals in human food.[40]

Academic Bias

Not only government and industry but even academia is biased in ways that suggest the need for EJ advocacy. Academia is not an ivory tower, if indeed it ever was. Adam Smith appears to have coopted large parts of it. For example, in the middle 1980s, of all corporate monies given to U.S. universities, one-third was provided by only 10 businesses, and one-fifth of all industry funds—millions of dollars—was provided by only two corporations.[41] Although current statistics are not available, other indicators suggest this problem is getting worse, as industry-funded research in academia rose from $545 million in 1991 to $1.05 billion in 1997. Overall, from 1980 until 1999, corporate funding of university research has increased fivefold. And according to an expert at the University of Wisconsin, corporate licensing of university inventions generates $21 billion in annual revenues. Industry-produced research articles, coauthored with academics, rose from 22 percent of all research articles in 1981 to 41 percent in 1995.[42]

In biomedical research, potential bias in academia appears even stronger. In 1981 the West German pharmaceutical company Hoechst gave $70 million to the Department of Molecular Biology at Harvard in exchange for rights to market all discoveries made in the department and to exclude all funding and research that interfered with Hoechst's proprietary position. The same year, Jack Whitehead gave $125 million to MIT's biotechnology research center in exchange for the center's relinquishing control over patent rights, finances, hiring, and choice of research. In late 1998, the University of California at Berkeley announced that it had signed a research partnership with the Swiss-based pharmaceutical giant Novartis. The company agreed to pay $25 million over 5 years to the university; in return, Novartis would be allowed to sift through the research of the department of plant and microbial biology at Berkeley's College of Natural Resources. The company would be allowed to license up to about one-third of the researchers' output. The potential for bias in such arrangements is massive, as past experience shows. Betty Dong at the University of California at San Francisco, for example, discovered data leading her to question the effectiveness of medication taken daily by millions of people. For 7 years she was unable to report these results because the company that paid for her study blocked her. Likewise, David Kahn, at the same school, was sued in November 2000 by the company that sponsored his AIDs drug study; Kahn had published a report that the company's drug was ineffective. Such cases are not isolated. The Tufts researcher Sheldon Krimsky discovered that in one out of three biological and medical journal articles, a chief author had a financial interest in the company for which the research was being done. In most cases, Krimsky discovered, this connection was not revealed to the readers. Mildred Cho of Stanford University likewise discovered in 1996 that studies of new drug therapies were questionable. In 98 percent of cases, industry-funded studies reported that their new drugs were more effective than standard treatment. Studies not funded by industry found effectiveness in only 79 percent of cases.[43]

Military funding also may be a source of bias in academia. In the late 1980s experts discovered that 60 percent of Carnegie Mellon's research funds were from the U.S. Department of Defense. As of the mid-1990s, over half of the world's scientists and engineers worked for the military. Two-thirds of U.S. scientists and engineers work in defense, and the Department of Defense spends $75 million per year, as of 1997, on university research.[44] Given such funding, any university person who takes a stand contrary to that of the corporate or military funders may be the victim of bias, just as Dong and Kahn were.

Some universities may be selling their integrity in much the same way that medieval churches sold pardons and indulgences. Often universities give the most power and internal support to departments that have the most external research funding behind them. As the noted Harvard biologist Richard Lewontin put it, when he heard about Harvard's deal with Hoechst:

> What about the rest of us who are so foolish as to study unprofitable things like poetry, Sanskrit philology, evolutionary biology, and the history of the chansons? Will the dean have time to hear our pleas for space and funds between meetings with the university's business partners?[45]

Indeed, it is doubtful whether academic administrators will give faculty a "fair shake" if their scholarship leads them to question the research methods, assumptions, and politics of the government and industry groups that fund academic work. In universities dominated by narrow technical, governmental, and industrial concerns, such as extramural funding from corporate sources, environmental and public-interest awareness may be almost nonexistent. As the Nobel Prize–winner Isidore Rabi warned, this narrowness could pave the way for a repetition of what happened in Germany during the 1930s. The rise of militaristic nationalism, fueled by the dominance of narrow technical and professional training, eroded ethical values and laid the foundation for Hitler's rise. It also can lay the foundation for allowing environmental injustice. Given a restrictive conception of the university and scholarship, it was no accident that in 1937 the Prussian Academy of Sciences condemned Albert Einstein because he criticized Nazi-regime violations of civil liberties. The academy said that he should have remained silent, neutral, and "objective."[46]

Because democratic institutions are fed by the free flow of information and criticism, democracies need universities to provide an independent perspective, especially on environmental and technological projects that can threaten human welfare. Otherwise government must blindly choose the answers offered only by self-interested individuals and corporations—by those who cannot be trusted to judge what is in the common interest. Because democracy needs the Socratic gadfly, the detached observer, and the social critic, neither society nor the university can afford to become dominated by special-interest groups. One way to avoid this domination is for citizens, and especially professionals, to enter the public debate as public interest and environmental justice advocates.

Objectivity, Neutrality, and Responses to Bias

People often fail to engage in EJ advocacy because they wrongly believe they ought to remain neutral. They frequently believe that whatever scholarship or action is not wholly neutral also is not objective and therefore is biased or subjective in a reprehensible way. But if it makes sense for people to be EJ advocates and not merely neutral observers of society, then this chapter must show that such neutrality is not objectivity. One reason neutrality is not objectivity is that there is no wholly neutral or value-free inquiry. Even scientists must rely on judgments about methodological values such as simplicity or heuristic power. They must rely on methodological values because there is no fact–value dichotomy, and facts alone never determine all aspects of any situation. Facts always are incomplete and saddled with implicit interpretations. As a result, no inquiry is value free. Nevertheless, genuine objectivity often is possible because not all methodological and ethical values are subjective in a reprehensible way. Not all values deserve equal respect, because there are rational reasons, short of empirical or factual confirmation, for accepting one scientific theory over another. Similarly, in ethics there are rational reasons, such as consistency or equal treatment, for accepting one ethical value over another.

If not all ethical and methodological values are subjective or biased, then one ought to advocate the best values and become a partisan on their side. In fact, there are at least six epistemological and ethical grounds, for believing that objectivity does not equal neutrality and that citizens ought not always remain neutral.

1. Failure to criticize indefensible or questionable values gives implicit assent to them, especially in ethics or public policy. Once one admits that methodological and ethical values are unavoidable in any speaking and writing, then not to assess those values is implicitly to sanction them. To avoid uncritical acceptance of ethically dangerous, status quo values, one must criticize them rather than remain neutral.
2. Not all ethical and methodological positions are equally defensible. Thus real objectivity requires one to represent indefensible positions as indefensible and less defensible positions as less defensible.
3. To represent objectivity as neutrality—in the face of a threat like environmental injustice—serves the interests of those responsible for the threat.
4. To represent objectivity as neutrality encourages people to mask evaluational and ethical assumptions in their speaking and writing and hence to avoid public disclosure of, and control over, those assumptions.
5. To represent objectivity as neutrality presupposes that objectivity is somehow "given," rather than negotiated and discovered socially through the give-and-take of alternative points of view.

6. Most disturbing of all, to represent objectivity as neutrality sanctions ethical relativism and therefore injustice. This is what happened during World War II when some anthropologists from Columbia University were asked about their position on the actions of the Nazis. They said that because conflicts between the Nazis and others represented a controversy over value systems, they had "to take a professional stand of cultural relativity," to be "skeptics" with respect to all judgments of value.[47]

At least three groups in contemporary society tend to support such stances of skepticism and relativism with respect to judgments of ethical value. They would reject the notion that citizens, especially scholars and professionals, have duties to act as EJ advocates. These groups include (1) the "deconstructive" postmodernists who have tried to undercut the foundations of ethical, social, and epistemological criticism; (2) the naive positivists sometimes found among natural scientists; and (3) the social scientists who have confused neutrality with objectivity. Because a number of authors already have shown why these three groups go wrong,[48] there is no reason to repeat their arguments here. Instead the remainder of this chapter will survey some additional ethical arguments for EJ advocacy and then suggest some practical steps for becoming an environmental justice advocate.

Consequentialist Arguments for Environmental Justice Advocacy

One of the most powerful consequentialist or utilitarian arguments in favor of environmental justice advocacy is that, without it, greater harm is likely to occur, more persons are likely to be hurt, and more important values are likely to be sacrificed. If more people had behaved as justice advocates, for example, Nazi experimentation on prisoners, Jews, gypsies, and leftists never might have occurred. Likewise, EJ problems—such as placing most hazardous-waste incinerators in minority communities—might stop if citizens, scholars, and other professionals took partisan stances against them. Advocates could help educate fellow citizens, join a civic group, or work with an NGO that has been organized to protect vulnerable people.

Of course, the obvious objection to taking partisan stances on public issues is that such stances may be wrong. Careful people, especially scholars, ought never move beyond the facts. But if knowing that one were completely factually and ethically correct were a necessary condition for taking a position, like EJ advocacy, many evils would be so advanced that it would be impossible to stop them. Moreover, in a situation of uncertainty, open-minded advocacy often promotes a search for the facts, counterarguments, public discussion, and resolution of uncertainties. Even if citizens or scholars were wrong in advocating particular courses of action, open-minded EJ advocacy might encourage public education and debate, correction of positions, analysis of

the issues, and progress toward the truth and right action. Such advocacy also might help to reverse a status quo dominated by the vested interests of industry, greed, big government, and the military. As already suggested, without such advocacy, silence or neutrality probably would serve the status quo. As Abraham Lincoln put it, silence or neutrality makes people cowards in the face of potential evils and thus implicitly sanctions those evils. If most citizens do not become public-interest and EJ advocates, then advocacy could become the prerogative of the worst elements of society, just as a volunteer army has often become the prerogative of ne'er-do-wells, and politics has often become the prerogative of the corrupt.

Environmental justice advocacy also is defensible on largely prudential grounds, as the last chapter suggested. Rising cancer rates provide a clear example of the potential harm. Since 1950, cancer has been increasing roughly 1 percent per year. The National Academy of Sciences confirms that pesticides in food, alone, will cause over one million premature cancers in the next 75 years in the United States.[49] More Americans are now dying, each year, from environmentally induced cancer than from murder. If society does not reverse these trends, then according to the National Academy, cancer will soon be the leading cause of mortality in the United States.[50] Each year, according to the American Cancer Society, more than a million new cases of cancer arise in the U.S., and more than six hundred thousand Americans die prematurely of cancer.[51] Breast cancer has been increasing by about 1 percent per year since 1973, colorectal cancer by 19 percent since 1950, and prostate cancer by 69 percent since 1950. Hodgkin's disease has risen by 24 percent since 1950 and non-Hodgkin's lymphoma by 123 percent since 1950. Cancer of the larynx has gone up by 70 percent during the same time period. Since 1950, stomach cancer has increased by 42 percent, bladder cancer by more than 50 percent, and kidney and renal pelvis cancer by 82 percent. Malignant melanoma of the skin has increased by more than 200 percent. For all cancer sites combined, there has been a 36-percent increase since 1950. Most disturbing, the incidence of cancers among children under age 15 has risen by 32 percent since 1950. Although medical progress has slowed cancer mortality, cancer incidence is increasing roughly six times faster than cancer mortality is decreasing. Moreover, cancer is no longer mainly a disease of old people. The average cancer victim dies 15 years earlier than other people.[52] As the public health expert John Bailer puts it, more people are dying prematurely of cancer, and to claim otherwise is "to mislead the American public."[53]

If the preceding cancer statistics are correct, then one way to avoid these cancers is for people to take a stand against preventable pollution from facilities that violate environmental justice. Another solution might be advocacy for tighter workplace-pollution controls. A recent U.S. Secretary of Health, Education, and Welfare said that at least 20 percent of all premature cancers were workplace related.[54] Some experts claim that cancer costs the United States over $25 billion per year in lost workdays, economic failures, and medical bills.[55] As chapter 7 argued, such data suggest there might be economic as well as ethical grounds for public interest and EJ advocacy.

Deontological Arguments for Environmental Justice Advocacy

There also are good deontological reasons for believing that citizens have duties to engage in EJ advocacy. As the previous chapter argued, if people have the ability to make a difference, and if it would cause them no serious hardship to do so, then they have the duty to attempt to act as EJ advocates. As the previous chapter also argued, people have a responsibility to act as EJ advocates, at least insofar as they are complicit in, and have benefited from, environmental injustices. Perhaps they have not endured particular pollution threats because politically and economically vulnerable people already had them in their backyards. If they have paid less for goods because those goods were produced by manufacturers who spew their pollution into poor areas, then they have a responsibility through complicity. Citizens in developed, western countries often bear a special responsibility through complicity. Western standards of living and luxuries frequently are made possible only through environmental injustice in foreign workplaces and only through developed nations' using a disproportionate share of environmental resources.[56]

Because citizens who are professionals may be the only people with education adequate for particular types of public-interest advocacy, they may have special obligations. Professional ethics also dictates that, by virtue of the benefits professionals receive from society, they have obligations to the public to protect its interests. Indeed, professionals' obligations to third parties (the public) often supersede obligations to first parties (employers) and to second parties (colleagues). In the case of employees of state universities, because the taxpayers of the state are literally the professors' employers, professors may have a special obligation to protect the public interest, one part of which includes environmental justice.[57] By virtue of their position, the anthropologists who failed to oppose Hitler, prior to World War II, probably failed both in their role responsibilities, as public educators, and in their objectivity. It is not objective to say that committing atrocities is neither right nor wrong. It is not objective to say that one should be neutral regarding experimentation on prisoners without their consent. It is not objective to be neutral in the face of systematic discrimination against minorities. Genuine objectivity requires calling a spade a spade. And if so, another important deontological argument for EJ advocacy is that objectivity requires not neutrality but treating a questionable ethical position as if it is questionable. As Aristotle recognized, equal treatment does not mean the same treatment. To the degree that they trivialize and treat morally different positions equally, people discriminate if they remain neutral in the face of environmental injustice.

Restrictions on Environmental Justice Advocacy

Admittedly, if one takes a position of EJ advocacy, then fairness requires one to give equal consideration to all relevant interests and to answer all relevant

objections of "the other side." But advocates sometimes are more interested in preaching to the converted than in critically evaluating alternative positions, especially their own methodological and ethical values. Another necessary condition for ethically defensible EJ advocacy is that it meet William Frankena's criterion for discrimination: over the long term, it must lead to greater overall equality and good for everyone. Otherwise, any "discriminatory" or partisan arguments, even for environmental justice, are not justifiable and may use other people merely as means to some end.[58] But herein lies the problem, as chapter 5 illustrated. Those who want to build the proposed Yucca Mountain waste repository, which might threaten future generations in perpetuity or might harm Native American communities nearby, typically *agree* with Frankena's philosophical principles of equal consideration of interests and with achieving greater equality and good, over the long term. Instead, usually they disagree over the facts. They disagree, for example, about whether Yucca Mountain will leak over hundreds of thousands of years or whether future humans can accommodate themselves to increasing exposure to pollutants from the respository. Given such disagreement, one of the most important tasks of EJ advocates is to understand and evaluate the factual assumptions they make.[59] Factual evaluation is particularly important because it determines the gravity of the threat against which advocates or partisans are justified in speaking and acting. Paul Gomberg argues that advocates even may be justified in killing others, provided that they have satisfied certain demanding factual and ethical considerations having to do with the gravity of the physical threat and the guilt of those responsible for it.[60] Where the threat is catastrophic, and killing its perpetrators is the only way to prevent catastrophe, Gomberg says it is ethical to consider killing. If he is correct, then the graver the EJ threat, all things being equal, the more justified is a partisan response to it. In his *Just and Unjust Wars*, Michael Walzer also is able to countenance even killing in the name of advocacy. He claims that because "the survival and freedom of political communities . . . are the highest values of international society," one can countenance even the killing of civilians who threaten the existence of a nation.[61]

But what about Earth First!'s actions? As discussed in chapter 1, Earth First! is an organization that promotes environmental protection through acts of ecotage or ecological sabotage, such as spiking timber so it cannot be cut. Is one justified in being an Earth First! advocate and a partisan if one's goal is to help ensure environmental justice and to protect a greater environmental good, survival of the planet and its people? If Walzer is correct, then might one be able to argue analogously that survival of the earth and its inhabitants is the highest of all values? Might even the most extreme forms of advocacy and partisanship, such as killing civilians, be countenanced if doing so were necessary to survival?

Although he did not write about philosophical advocacy or partisanship, John Locke appears to justify advocacy and its underlying partisan conception of human relationships when he says:

> One may destroy a man who makes war upon him, or has discovered an enmity to his being, for the same reason that he may kill a wolf or a lion. Because they are not under the ties of the common law of reason, they have no other rule but that of force and violence, and so may be treated as a beast of prey.[62]

Few people, however, are likely to find themselves in situations in which, because others are making "war" on them, they have the right to destroy their aggressors or to advocate their destruction. Ken Saro-Wiwa and his followers, discussed in chapter 6, may have been an exception. Although they behaved nonviolently, they may have been in a situation in which they had the right to destroy their Shell aggressors, precisely because Shell was making "war" on the Ogoni people. Whether Saro-Wiwa would have succeeded in a violent attempt to stop Shell, however, is another matter. Strong advocacy of a particular ethical and policy position, amounting to coercion or even violence, nevertheless is more justifiable theoretically to the degree that it is necessary to prevent some greater evil, such as destruction of the Ogoni people and their homelands. Although it is questionable whether he succeeds, Garrett Hardin attempts to justify the highly coercive measures he defends in "The Tragedy of the Commons" and "Living on a Lifeboat" by alleging they are necessary to prevent greater evil. Hardin argues that greater numbers of people and larger areas of the planet will be destroyed if western governments continue to provide aid to developing nations whose populations exceed the carrying capacity of the land. He argues that such aid will only encourage greater growth that is even more unsustainable.[63] As chapter 8 noted, however, Hardin errs because he forgets that people in developed nations bear some responsibility for the fact that developing countries so often exceed the carrying capacity of their lands.

Many people probably believe that EJ problems are not quite so simple as Hardin or as Earth First! members believe, just as the political world is not so simple as Marxist revolutionaries claim. Neither worldview clearly or easily justifies highly partisan positions and actions. Compelling factual considerations raise questions about the Marxist R. P. Dutt's claim,[64] for example, that fascist deeds and acts of war are inevitable under capitalism. And if so, capitalism may be more justifiable than Dutt realizes. Likewise, some acts of apparent environmental injustice or environmental degradation may be more justifiable once one understands the factual complexity of the situation. At the least, EJ advocates should recognize that most actions involve some uncertainty regarding their causal effects, and EJ actions are no exception. Advocates also should recognize that their opponents sometimes may be correct when they question whether a particular case provides authentic evidence of environmental injustice, or when they claim the greater good justifies some environmental injustice.

But if would-be advocates must engage in detailed factual and ethical analysis, then some acts of EJ advocacy may not be easily justifiable. For example, recent news reports indicated that there has been a cluster of primary

brain cancers, especially among Native American and Latino residents near the Los Alamos National Laboratory (LANL) in New Mexico, where nuclear-weapons research is conducted. Scientists know that radiation causes cancer, and they have a dose-response curve to measure the effects of radiation exposure. They also know that there is a statistically significant increase in the disease rate in the Los Alamos area. The epidemiological studies are inconclusive, however, because they cannot uncontroversially link the heightened effect, cancer, to the alleged cause, radiation exposure. For one thing, cancer typically has a latency period and may take decades to appear. Moreover, researchers frequently cannot rule out intervening factors and alternative causes of the cancer—*confounders*[65]—so massive scientific uncertainty besets claims about EJ near Los Alamos. Much of the uncertainty arises because of the faulty methodology used in required impact assessments like that at LANL. There the assessors used questionable risk models that ignored both accident magnitudes (in favor of accident rates) and the disproportionate risks faced by minorities. Such subjective models enabled the LANL assessors to ignore the doubling of risks faced by minorities, as opposed to those faced by nonminorities; to allege that the cancers were unrelated to Los Alamos; and then to approve massive expansion of LANL operations, despite public opposition, controversy, and uncertainty.[66] In order to justify any actions of environmental justice advocacy at LANL or elsewhere, one must attempt to address and alleviate such scientific error and uncertainty.

On the one hand, if partisan actions or advocacy are so strident they cause society to lose the ability to engage in rational analysis of a situation, then citizens might lose some of their autonomy, civil liberties, and capacity for free informed consent to environmental hazards. Partisan actions or advocacy also could lead to a politicization of science and to distrust of experts. As a result, other environmental advocates could lose credibility. Such a loss of credibility could hurt not only society and the environment but also the cause of environmental justice.

On the other hand, avoidance of all advocacy and partisan scholarship also could lead to negative consequences. As already mentioned, the U.S. Office of Technology Assessment claims that up to 90 percent of all cancers are environmentally induced and theoretically preventable.[67] Within the next several years, cancer will bcome the leading cause of death of Americans; every year, the disease now kills six hundred thousand Americans prematurely, more people than die of murder.[68] As already indicated, even the National Cancer Institute admits that since 1950 cancer has been increasing in the United States at the rate of about 1 percent per year, after one adjusts for increases caused by smoking.[69] Had more people spoken out to advocate reduction of suspected environmental carcinogens, these alarming cancer rates might not be what they are today. Had more citizens and professionals, especially moral philosophers, argued about the ethical constraints on behavior in situations of scientific uncertainty, then society might not so easily have accepted these carcinogens. If citizens and professionals had engaged in public-interest advocacy, those in a position to stop escalating cancer deaths

might have been forced to do so. As already noted, when the Chernobyl accident took place, nuclear-industry spokespeople and officials in the former USSR said (and continue to say) that it caused only 31 casualties. The Soviets forbade medical doctors from attributing any deaths to radiation-related causes, even though U.S. experts say the number of Chernobyl-induced premature fatalities from cancer will be approximately 475,000.[70] If citizens fail to act as EJ advocates for the four million people (one-fourth of whom are children) living near Chernobyl and receiving high exposures, then the resulting harm could be catastrophic.

As the chapter's discussion of the tilted playing field suggested, one also might be able to justify EJ advocacy or partisanship on the grounds that totally neutral or nonpartisan dialogue is impossible. The argument here is that those who need to hear nonpartisan analysis would not listen to it, and some of those at fault in situations of environmental injustice have not listened for a long time. This is the same justification suggested by John Locke and quoted earlier in the chapter. He believed that it cannot be taken for granted that two human beings are bound by the same morality or common law of reason, that they are capable of listening to each other. Instead Locke says that a common bond of morality depends on the actual relationships among people, including their intentions toward each other.[71] If so, one constraint on would-be advocates is that they attempt to examine their own and the intentions of those they confront, to determine the degree to which they are open to rational evaluation of the situation.

One intention necessary for advocacy is that advocates treat "persons on the other side" as being responsible for their actions and able to change. But to treat others in this way one must believe in their susceptibility to ethical dialogue.[72] Dialogue both helps to establish, and is presupposed by, a moral community of agents seeking agreement. If the opponents cannot be moved, and if rational persuasion is impossible, then people may not be required to be advocates. As Paul Gomberg puts it, if fascist brutality and fascist mindsets are inevitable, then morality is useless.[73]

According to Gomberg's and Locke's partisan or nonuniversalist conception of morality, a conception that helps to justify advocacy, there may be people with whom one does not share a morality and to whom one's moral duties are limited. But to the degree that advocates are committed to a universalist or common morality—to the belief that virtually everyone is open to rational suasion—they might not be able to justify either partisan acts or extreme advocacy. They might deny that some people were "out to get" others or that some people were incapable of recognizing the wrong done by environmental injustice. In Reuben Ainsztein's words, describing the Holocaust, "Because [Jews] . . . believed in progress and perfectibility of man, they were the last to realize how bestial the Germans were."[74] One central question, if this chapter is correct, is whether some people are bestial and thus outside moral community. If so, can they be written off or not? The obvious problem with the most extreme forms of environmental justice advocacy is that they may rely on questionable assumptions about the limits of

moral community, the absence of a universalist morality, or the imminent threat of catastrophe. On the one hand, because people often do not understand fully the ethical and factual conditions around them, they cannot always determine whether or not a particular type of advocacy is justified. Factual or ethical uncertainty requires ethically conservative actions, actions not likely to harm either people or the environment. On the other hand, if the arguments of this and the previous chapter are correct, then there is a tilted playing field in government, industry, and academia, and that playing field militates against environmental justice. If people have the ability to challenge that injustice and if they bear some complicity for it, then they have at least minimal duties to act as environmental justice advocates. But what do people have duties to do?

Practical Steps: Working with Nongovernmental Organizations

The end of an already long book is not the place to begin to spell out the precise nature of citizens' EJ duties. For one thing, such a response would require a detailed analysis of the concept of collective responsibility for social problems. There are lengthy treatments of this concept elsewhere, and there is no need to repeat them here, even were there space and time. Moreover, a precise answer to the question about citizens' specific EJ duties would require a case-by-case analysis. It would require people to know their own abilities, the precise needs of their own communities, and the organizations that already exist to address EJ problems. Instead, the remainder of this chapter suggests some general strategies and illustrations of how citizens might engage in EJ advocacy.

An individual acting alone can do little to correct social problems such as environmental injustice. As a result, the most effective methods for doing so must be collective. But collective groups such as governments, industries, and universities often are ineffective, biased, or directed at goals other than EJ. An alternative vehicle for addressing EJ is NGOs, voluntary associations of church, civic, political, recreational, or professional groups that are dedicated to a particular goal or political mission. A church soup kitchen, an NGO, might be dedicated to feeding the homeless. A book club might be dedicated to intellectual exchange about books the group has read. NGOs have been particularly effective recently, for example, in defeating the Multilateral Agreement on Investment (MAI) and in supporting signing a treaty to ban landmines. Negotiated in secret, the MAI was an international investment protocol that established rules favorable to investors but neither to the poor nor to the environment. After someone leaked a copy of the MAI to Public Citizen, an NGO, the group organized an internet campaign. Working with six hundred human rights, labor, and environmental organizations in 70 nations, Public Citizen stopped the MAI. Similarly, with the help of email and the internet, an NGO called "the International Campaign to Ban Landmines"

(ICBL) worked to promote an international treaty to ban landmines. By March 1999, 131 nations had signed the treaty.[75]

By paying an annual membership fee of only $25 or $30, one can help in many desirable EJ projects. One can remain informed through NGO mailings and email, lobby government officials, help educate others, and work on practical, justice-building projects. One of the most effective NGOs addressing EJ is the Earthjustice Defense Fund (EJDF), formerly known as the "Sierra Club Legal Defense Fund." The group uses U.S. courts and international tribunals to hold governments and corporations accountable for their actions affecting people and the environment. For example, in the year 2001, the EJDF convinced the author of a United Nations report to affirm that international law gives people rights to a healthy environment. Among many other achievements, the EJDF in 2001 also forced the U.S. EPA to enforce the Clean Air Act in San Francisco. In the year 2000, for instance, EJDF persuaded the federal government to write ozone-cleanup plans for metropolitan areas throughout the United States. It also forced the government to reverse the ruling of the State Water Commission in Hawaii so as to preserve the water rights of native communities. Some 1999 EJDF activities have included stopping the discharge of raw sewage into the Napa River in California and forcing the state of Florida to set pollution limits for seven hundred water bodies in the state.[76]

If one prefers an international focus on EJ issues, for example, one might join the International Commission on Occupational Health, based in Milan. With more than two thousand members in 93 nations, the group works with the World Health Organization and the United Nations Environment Program to promote environmental justice in the workplace. If one is more interested in human rights–related work in EJ, one might decide to join Minority Rights Group International, an NGO based in London. Members of this group have worked with UN agencies to study a variety of issues, such as effects of armed conflict on children, and to monitor minority-rights abuses throughout the world.[77] Someone dedicated to development-related EJ work might join the International Solar Energy Society (ISES). This group, based in Freiburg, Germany, provides funds, expertise, and coordination for a variety of global projects, such as rural electrification in Africa, sustainable energy in China, and solar cities throughout the world.[78]

NGOs are especially needed because individual citizens, as compared with business or government, have little formal power. But by acting together as consumers, voters, and NGO members, citizens can wield enormous power to initiate reforms in government and business and to promote human rights and sustainable development. Nonprofit NGOs number more than 23,000 globally. In the international economy, they comprise a $1.1 trillion industry that is larger than the gross domestic product of all but seven countries in the world. This nonprofit sector employs 19 million people in 22 countries. It can be a considerable force for reform.[79]

What are some of these reforms? Working through NGOs, people have the ability to make it more costly for firms *not* to use, than to use, safe technology

and reasonable environmental protections. They have the ability to persuade corporations to be better environmental citizens and to force governments to promote EJ. As the U.S. cases of successfully boycotting both nonunion lettuce and Nestle products revealed, well-organized Western consumers can send corporations and governments a message via their pocketbooks. They can force growers to hire only union farm workers, so that these workers have healthier working conditions. They can persuade companies like Nestle not to prey on vulnerable Third World people by false advertising and selling them infant formula whose safe and sanitary use is locally impossible. As the 1995 Shell Oil public-relations fiasco with the Brent Spar illustrated, and as British Petroleum public-relations successes prove, consumers can boycott or promote firms, depending on their EJ practices. They can ensure that when companies follow the least-cost method, it is less expensive in the long run, because of lost sales, to use environment-friendly technology and to avoid environmental injustice. United States citizens also can lobby for U.S. export controls, for a return at least to the Carter-administration procedures and for abandoning the more lax current policies of not warning importing nations about dangerous products when they are shipped. At present, dangerous exports to developing nations are increasing not decreasing. Between 1992 and 1996, U.S. chemical companies increased exports of banned pesticides by 18 percent, and of never-registered pesticides, by 40 percent.[80] Citizens working with NGOs likewise can help developed nations to recognize their citizens' rights to EJ and to bodily security. They can lobby for stopping all forms of assistance to all governments not recognizing, for example, their citizens' rights to organize in the workplace.[81]

Henry Shue suggests forcing abolition of the U.S. Overseas Private Investment Corporation (OPIC), an agency receiving congressional (taxpayer) funds to distribute to American firms locating abroad. OPIC has used taxpayers' money for many nonsustainable and dangerous efforts. For example, it helped a U.S. company, Abex, build a substandard asbestos plant in Madras, India. OPIC also has used tax dollars to underwrite a substandard African smelting complex owned by a U.S. corporation. In addition to forcing tighter control of OPIC, citizens also could help victims of environmental injustice by urging the United States to favor differentially governments that promote environmentally safe projects, that employ health and safety regulations, and that support strong, independent unions.[82] Another practical strategy for helping victims of environmental injustice would be to urge the USAID and the World Bank to promote only the safest and most environmentally sustainable development projects. United States Representatives John Seiberling and Claudine Schneider already made this proposal, and their suggestions were the focus of congressional efforts in this regard, although vested interests thwarted their attempt to abolish OPIC. Seiberling and Schneider likewise supported efforts to press multilateral development banks to promote sound development projects.[83] People also can lobby groups such as CARE, the World Bank, and the Church World Service and urge them to use lending and assistance guidelines that support only the

safest environmental and technological projects, those that promote environmental justice. As of the year 2000, the World Bank is promoting medical-waste incinerators in 20 developing nations, even though they will emit dioxins and other toxic chemicals, and even though local peoples say they do not want the risks. Environmental-justice advocacy might assist local people in these nations.[84]

Conclusion

Because we believe in progress and the perfectibility of humans, because we sometimes deny the evil around us, we often are slow to recognize the need for EJ advocacy and for joining voluntary associations, NGOs that help achieve civic goals such as environmental justice.[85] We fail to recognize that unless we are the agents of democracy and social reform, there will be neither democracy nor social reform.

Kris Kristofferson described his own democratic and participative transformation, from being the child of a career military officer and volunteering for Vietnam to becoming a Rhodes scholar, a longtime antiwar activist, a supporter of the United Farm Workers, and an opponent of United States policy in Central America. He claimed that his own idealism and naivete about both humans and the government kept him from recognizing the severity of the military and environmental dangers around him. His ignorance kept him from taking a position of advocacy for vulnerable people. "Growing up," he says,

> I was never aware of the fact that only white males who owned property were covered in the *Constitution* and could vote, and the whole country was built on genocide, the murder of natives. I've often thought that the more I read, the more I realized that our Government may never have stood for the things I believe in. But they made a mistake. Somewhere along the line they taught me that's what we stood for, and now I demand it.[86]

We must demand it as well.

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Notes

CHAPTER 1

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4. Hargrove, Foreword, pp. ix–xi.
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17. Ibid., pp. 9–11.
18. Ibid., pp. 7–9.
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26. Rosen, "Who Gets Polluted?" pp. 65–66; see Raquel Pinderhughes, "The Impact of Race on Environmental Quality," *Sociological Perspectives* 39, no. 2 (summer 1996): 231–249; hereafter cited as: Pinderhughes, "Impact."
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9. See chapter 1. For text of NEPA and the 1994 Executive Order, see Newton, *EJ*, pp. 119–125, 131–134. For comments on Executive Order No. 12898, see Rebecca Clay Hayes, "The Road to Justice," *Environmental Health Perspectives* 105 (September 1997): 920–922.
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(New York: Clark Boardman, 1978), p. 166; hereafter cited as: Stewart, "Pyramids," in Strom, LU-1978. The southwestern water example is used by W. G. Murray and C. J. Seneker, "Industrial Siting: Allocating the Burden of Pollution," in Strom, *LU 1979*, p. 433 (note 2).

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14. See Markovic, "Relationship," pp. 87–88 (note 11).
15. See O. Patterson, "Inequality, Freedom, and the Equal Opportunity Doctrine," in Feinberg, ESP, pp. 33–34, and Harold Laski, "Liberty and Equality," in Blackstone, *CE*, pp. 170, 173.
16. Markovic, "Relationship," p. 85. See John Rees, *Equality* (New York: Praeger, 1971), pp. 61–79; and H. J. Gans, "The Costs of Inequality," in *Small Comforts for Hard Times*, edited by M. Mooney and F. Stuber (New York: Columbia University Press, 1977), pp. 50–51.
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19. See note 16. John Rawls, "Justice as Fairness," in *Philosophy of Law*, edited by J. Feinberg and H. Gross (Encino, CA: Dickenson, 1975), p. 284; hereafter cited as: Rawls, Justice, in Feinberg and Gross, *POL*, also makes this point. See also Samuel Freeman, ed., *John Rawls: Collected Papers* (Cambridge: Harvard University Press, 1999).
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27. See Young, *Justice*, pp. 26–28, 64–65.
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31. Ibid., chs. 6–10.
32. Ibid., chs. 11–12.
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38. Pennock, *DPT*, pp. 148–149.
39. Rees, *Equality*, pp. 118–120.
40. Beardsley, "Equality," p. 193.
41. This point is also made by Rees, *Equality*, p. 122.
42. For analysis of this question, see W. K. Frankena, "The Concept of Social Justice," in Brandt, *SJ*, pp. 10, 14; hereafter cited as: Frankena, "Concept." See also Taylor, *Justice*, pp. 94–97.
43. For discussion of this point, see Rees, *Equality*, pp. 116–117, 120; R. B. Stewart, "Paradoxes of Liberty, Integrity, and Fraternity," *Environmental Law* 7, no. 3 (Spring 1977): 474–476; hereafter cited as: "Paradoxes"; Pennock, *DPT*, pp. 16–58.
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46. For arguments to this effect, see the third section, first subsection, of this chapter. See also notes 23–43; Ruth Rosen, "Who Gets Polluted?" in Goldfarb, *Taking Sides*, pp. 62–71.
47. R. A. Wasserstrom, "Equity," in Feinberg and Gross, *POL*, p. 246; see N. Dorsen, "A Lawyer's Look at Egalitarianism and Equality," in Pennock and Chapman, *E*, p. 33.
48. See Rawls, *TJ*; notes 19, 33; and S. I. Benn, "Egalitarianism and the Equal Consideration of Interests," in Pennock and Chapman, *E*, pp. 75–76.
49. In this regard, see Hans Bethe, "The Necessity of Fission Power," *Scientific American* 234, no. 1 (January 1976): 26–27.
50. This argument is made, for example, by assessors in the employ of the NRC. See Shrader-Frechette, *NP*, p. 29.
51. Frankena, "Concept," p. 15, uses this argument.
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53. Peter Drucker, "Saving the Crusade," in *Environmental Ethics*, edited by K. Shrader-Frechette (Pacific Grove, CA: Boxwood Press, 1980), pp. 102–103; see also p. 200; hereafter cited as: Shrader-Frechette, *EE*.
54. See, for example, M. M. Maxey, "Radwastes and Public Ethics," *Health Physics* 34, no. 2 (February 1978): 129–135.
55. See, for example, S. Hart and G. Ahuja, "Does It Pay to Be Green?" *Business Strategy and the Environment* 5 (1996): 30–37; M. Russo and P. Fouts, "A Resource-Based Perspective on Corporate Environmental Performance and Profitability," *Academic Management Journal* 40 (1997): 534–559; Glen Dowell, Stuart Hart, and Bernard Young, "Do

Corporate Global Environmental Standards Create or Destroy Market Value?" *Management Science* 46, no. 8 (August 2000): 1059–1074.

56. For U.S. income and wealth data, see Charles T. Stewart, *Inequality and Equity* (London: Greenwood Press, 1998), pp. 9–33. For inequality in wealth, see pp. 3–126, and for increasing-inequality data see pp. 31–92. According to the UN Development Programme (UNDP), the poor are getting poorer, throughout the world, in spite of development; the top quintile of people is getting richer, and the bottom quintile is getting poorer; for UNDP data, see Lori Wallach and Michelle Sforza, *Whose Trade Organization?* (Washington, DC: Public Citizen, 1999), p. 135. See also Gary Gardner and Brian Halwell, "Nourishing the Underfed and Overfed," in *State of the World 2000*, edited by Lester Brown, Christopher Flavin, and Hilary French (New York: Norton, 2000), pp. 61–62, for more UN data. Michael F. Foster, "Measurement of Low Income and Poverty," occasional paper no. 14 (Paris: OECD, 1994), notes that of Australia, Belgium, Canada, the United Kingdom, Sweden, Italy, France, Germany, Netherlands, and the United States, the United States has the highest rates of poverty for nonelderly families. See also D. G. Champernowne and F. A. Cowell, *Economic Inequality and Income Distribution* (Cambridge: Cambridge University Press, 1997).
57. See the remainder of this chapter. See J. P. Plamenatz, "Equality of Opportunity," in Blackstone, *CE*, p. 88; hereafter cited as: Plamenatz, "Equality."
58. E. J. Mishan, *21 Popular Economic Fallacies* (New York: Praeger, 1969), p. 236; hereafter cited as: Mishan, *PEF*.
59. John Adams, "Environmentalism and Justice at NRDC," *The Amicus Journal* 16, no. 1 (spring 1994): 2.
60. See Mishan, *PEF*, pp. 232–233, 245; Rees, *Equality*, p. 36. See also Plamenatz, Equality, and Larkin, Ethical, in Shrader-Frechette, *EE* (notes 101 and 102).
61. R. Grossman and G. Daneker, *Jobs and Energy* (Washington, DC: Environmentalists for Full Employment, 1977), pp. 1–2. See also K. M. Seethi, "Cleaning Chaligar River: Pollution Control or Jobs?" *Economic and Political Weekly* 35, no. 3 (2000): 97; and Bob Chase (National Education Association president), *Interesting Times Demand a New Unionism* (New York: National Center for the Study of Collective Bargaining in Higher Education, Baruch College, 2000).
62. See note 61.
63. Mishan, *PEF*, p. 237.
64. Michael Kraft, "Environmental Justice," *Policy Studies Journal* 23, no. 1 (spring 1995): 113–123. See also Daniel Faber, ed., *The Struggle for Ecological Democracy* (New York: Guilford Press, 1998).
65. Stewart, "Pyramids," in Strom, LU-1978, p. 172. See A. M. Freeman, "Distribution of Environmental Quality," in *Environmental Quality Analysis*, edited by A. V. Kneese and B. T. Bower (Baltimore: Johns Hopkins University Press, 1972), pp. 271–275; hereafter cited as: Freeman, "Distribution," in Kneese and Bower, *EQA*.
66. Barbara Dinham, "Introduction to the Charter of Rights against Industrial Hazards," *Social Justice* 23, no. 4 (1996): 164–167.
67. See, for example, Fen Olser Hampson, "Environmental Change and Social Justice," *Environment* 39, no. 3 (April 1997): 12–21; and Robert D. Bullard, ed., *Unequal Protection: Environmental Justice and Communities of Color* (San Francisco: Sierra Club Books, 1994).
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and 50 percent of Latinos live in the "most polluted areas"; Daniel Faber, introduction to *The Struggle for Ecological Democracy* (New York: Guilford Press, 1998), p. 5. See Virginia Brodine, "A Special Burden," *Environment* 13, no. 2 (March 1971): 24; D. N. Dane, "Bad Air for Children," *Environment* 18, no. 9 (November 1976): 26–34; A. M. Freeman, "Income Distribution and Environmental Quality," in *Pollution, Resources, and the Environment*, edited by A. C. Enthoven and A. M. Freeman (New York: Norton, 1973), p. 101; hereafter cited as: Freeman, "Income Distribution," in Enthoven and Freeman, *PRE*; (A. V. Kneese, "Economics and the Quality of the Environment," in Enthoven and Freeman, *PRE*, pp. 74–79; hereafter cited as: Kneese and Haveman, EQE). See also A. M. Freeman, R. H. Haveman, and A. V. Kneese, *The Economics of Environmental Policy* (New York: John Wiley, 1973), p. 143; hereafter cited as: Freeman, Haveman, and Kneese, *EEP*. See also Robert D. Bullard, *Dumping In Dixie: Race, Class and Environmental Quality* (Boulder, CO: Westview Press, 1990); John P. Tiefenbacher and Ronald R. Hagelman, "Environmental Equity in Urban Texas: Race, Income, and Patterns of Acute and Chronic Toxic Air Release in Metropolitan Counties," *Urban Geography* 20, no. 6 (16 August-30 September 1999): 516–537.

69. See, for example, Jane Stein, "Water for the Healthy," *Environment* 19, no. 4 (May 1977): 6–14. Freeman, Distribution, pp. 271–275; Freeman, Income Distribution, pp. 101–105; Freeman, Haveman, and Kneese, *EEP*, pp. 143–148; Kneese, *EQE*, pp. 78–80. See also Christopher Williams, "Environmental Victims," *Social Justice* 23, no. 4 (winter 1996): 1–7.
70. Hans Jonas, "Philosophical Reflections on Experimenting with Human Subjects," in *Ethics in Perspective*, edited by K. J. Struhl and P. R. Struhl (New York: Random House, 1975), pp. 242–353.
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73. See, for example, M. W. Jones-Lee, *The Value of Life: An Economic Analysis* (Chicago: University of Chicago Press, 1976). See also John Broome, *Ethics out of Economics* (Cambridge: Cambridge University Press, 1999); Frank Ackerman et al., eds., *Human Well-Being and Economic Goals* (Washington, DC: Island Press, 1997); and Peter Dorman, *Markets and Mortality: Economics, Dangerous Work and the Value of Human Life* (New York: Cambridge University Press, 1996).
74. Taylor, "Justice," pp. 86–97.
75. See J. R. Ravetz, *Scientific Knowledge and Its Social Problems* (Oxford: Clarendon Press, 1971), pp. 369–370, 396; S. Koreisha and R. Stobaugh, "Appendix: Limits to Models," in *Energy Future: Report of the Energy Project at the Harvard Business School*, edited by R. Stobaugh and D. Yergin (New York: Random House, 1979), p. 234; hereafter cited as: Stobaugh and Yergin, *EF*. See also E. F. Schumacher, *Small Is Beautiful* (New York: Harper, 1973), p. 38; J. K. Galbraith, *The New Industrial State* (Boston: Houghton Mifflin, 1967), p. 408, and E. J. Mishan, *Wel-*

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81. Gail Kennedy, "Social Choice and Policy Formation," in *Human Values and Economic Policy*, edited by Sidney Hook (New York: New York University Press, 1967), pp. 140–149.
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90. Shrader-Frechette, *BU*.
91. See Stewart, "Pyramids," in Strom, LU-1978, pp. 162–163, 216.
92. See Stewart, "Pyramids," pp. 162–163; see also Stewart, "Paradoxes," p. 472. See Markovic, "Relationship," p. 96 (note 11). See also Michael E. Solimine, *Respecting State Courts: The Inevitability of Judicial Federalism* (Westport, CT: Greenwood Press, 1999).
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100. See Nelkin, *CPTD*, pp. 9–10, 12–14. See Shrader-Frechette, *NP*, pp. 39–43. See also A. W. Murphy and D. B. LaPierre, "Nuclear Moratorium, Legislation in the States and the Supremacy Clause: A Case of Express Preemption," in *Environmental Law Review 1977*, edited by H. F. Sherrod (New York: Clark Boardman, 1977), p. 445; hereafter cited as: Murphy and LaPierre, "Nuclear Moratorium." See also J. L. Campbell, *Collapse of an Industry: Nuclear Power and the Contradictions of US Policy* (Ithaca: Cornell University Press, 1988).
101. E. D. Muchnicki, "The Proper Role of the Public in Nuclear Power Plant Licensing Decisions," *Atomic Energy Law Journal* 15, no. 1 (spring 1973): 46–47; hereafter cited as: Muchnicki, "Role." See also Ronald G. Shaiko, *Voices and Echoes for the Environment* (New York: Columbia University Press, 1999); Nancy Perkins Spyke, "Public Participation in Environmental Decision Making at the New Millenium: Structuring New Spheres of Public Influence," *Boston College Environmental Af-*

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102. This point is also made by Stewart, "Pyramids," in Strom, LU-1978, p. 161, and Stewart, "Paradoxes," p. 472. See note 100.
103. See Markovic, "Relationship," pp. 85–92; Stewart, "Pyramids," in Strom, LU-1978, p. 161, and Stewart, Paradoxes, p. 472.
104. Sanford Lewis, "Good Neighbor Agreements," *Social Justice* 23, no. 4 (winter 1996): 134–152; Stewart, "Pyramids," in Strom, LU-1978, pp. 148, 161, 170–178, and Stewart, Paradoxes, p. 472.
105. See Stewart, "Pyramids," in Strom, LU-1978, p. 148; Markovic, Relationship, p. 97; see J. R. Brydon, "Slaying the Nuclear Giants," *Pacific Law Journal* 8, no. 2 (July 1977): 767.
106. Markovic, Relationship, pp. 85, 98. See Robert E. Goodin, "Enfranchising the Earth, and Its Alternatives," *Political Studies* 44 (December 1996): 835–849, and John R. Baker, "Citizen Participation and Neighborhood Organizations," *Urban Affairs* 30 (July 1995): 880–887. See notes 102–105.
107. See Deb Starkey, "Environmental Justice," *State Legislatures* 20, no. 3 (March 1994): 27–31.
108. J. Mills and R. D. Woodson, "Energy Policy: A Test for Federalism," in Strom, LU-1978, pp. 291–377; hereafter cited as: Mills and Woodson, Energy.
109. Ibid., pp. 300–302, 331.
110. Ibid., p. 299, gives this example.
111. Ibid., p. 331 makes the same point.
112. Murphy and LaPierre, Moratorium, p. 437. See also Mills and Woodson, Energy, pp. 293–294.
113. Murphy and LaPierre, Moratorium, p. 438; see also p. 439.
114. See Shrader-Frechette, *NP*, pp. 39–43; G. B. Karpinski, "Federal Preemption of State Laws Controlling Nuclear Power," *Georgetown Law Journal* 64, no. 6 (July 1976): 1341; hereafter cited as: Karpinski, "Federal Preemption." See also David B. Spence and Paula Murray, "The Law, Economics and Politics of Federal Preemption Jurisprudence," *California Law Review* 87, no. 5 (October 1999): 1125–1207; Matthew D. Adler and Seth F. Kreiner, "The New Etiquette of Federalism," *Supreme Court Review* (1998): 71–144; and John P. Dwyer, "The Role of State Law in an Era of Federal Preemption: Lessons from Environmental Regulation," *Law and Contemporary Problems* 60, nos. 3–4 (summer–autumn 1997): 203–230.
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116. See J. Lieberman, "Generic Hearings: Preparation for the Future," *Atomic Energy Law Journal* 16, no. 2 (summer 1974): 147.
117. Shrader-Frechette, *BU*.
118. B. R. Beede and J. A. Sigler, *The Legal Sources of Public Policy* (Lexington, MA: Heath, 1977), pp. 89–90; hereafter cited as: Beede and Sigler, *LS*.
119. See Raquel Pinderhughes, "The Impact of Race on Environmental Quality," *Sociological Perspectives* 39, no. 2 (summer 1996): 231–249.
120. For discussion of this point, see Sheldon Novick, *The Electric War: The Fight over Nuclear Power* (San Francisco: Sierra Club Books, 1976), pp. 50–69, 72–74, 79–84, 89–91, 98–101, 240.

121. Beede and Sigler, *LS*, p. 104. See also Rosemary O'Leary, "Trash Talk: The Supreme Court and the Interstate Transportation of Waste," *Public Administration Review* 57 (July–August 1997): pp. 281–284.
122. Stewart, "Pyramids," in Strom, LU-1978, p. 173.
123. Beede and Sigler, *LS*, pp. 96–98.
124. Congress, OTA, *CS*, p. 131.
125. Murphy and LaPierre, "Moratorium," p. 450; see also pp. 448–449.
126. See Permanent People's Tribunal on Industrial Hazards and Human Rights, "Charter of Rights against Industrial Hazards," *Social Justice* 23, no. 4 (winter 1996): 167–182.
127. Shrader-Frechette, *BU*, pp. 90–96.
128. According to one OTA study of solar technology, by the middle 1980's solar energy was able to supply half this country's energy needs at competitive prices. See Congress of the US. Office of Technology Assessment, *Application of Solar Technology to Today's Energy Needs*, 2 vols. (Washington, DC: U.S. Government Printing Office, September 1978); H. M. Healey, "Cost-Effective Solar Applications for Commercial and Industrial Use," *Energy Engineering* 94, no. 4 (1997): 34–49; Y. Diab and G. Achard, "Energy Concepts for Utilization of Solar Energy in Small and Modern Cities," *Energy Conversion and Management* 40, no. 14 (September 1999): 1558–1568. See the sixth section of chapter 4, and G. Tyler Miller, *Living in the Environment* (New York: Brooks/Cole, 2000), pp. 390–400.
129. See Y. E. Dubrova et al., "Human Minisatellite Mutation Rate after the Chernobyl Accident," *Nature* 380 (1996): 683–686.
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131. See William A. Fischel, *Regulatory Takings: Law, Economics, and Politics* (Cambridge: Harvard University Press, 1995).
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133. US Congress, Office of Technology Assessment, *Coastal Effects of Offshore Energy Systems*, 2 vols. (Washington, DC: U.S. Government Printing Office, November 1976), hereafter cited as: OTA, *Coastal-1* or *Coastal-2*. C. J. Billington and H. M. Bolt, "Current Issues and Technologies for the Reassessment of Existing Offshore Installations," *Journal of Process Mechanical Engineering* 201, no. E1(1996); Robin K. McGuire, Gabriel R. Toro, and Robert T. Sewell, "Analyzing Risk," *Civil Engineering* 61 (December 1991): 66–68; Thomas R. Moss, "Auditing Offshore Safety Risk Assessments," *Journal of Petroleum Technology* 42 (October 1990): 1241–1243; National Oceanic and Atmospheric Administration, *Oil Spill Case Histories 1967–1991*, report no. HMRAD 92–11 (Seattle: National Oceanic and Atmospheric Administration, Hazardous Materials, Response, and Assessment Division, 1992); Leonard Nevarez, Harvey Molotch, and William Freudenberg, *San Luis Obispo: A Major Switching*, Department of Interior, Minerals Management Service (Camarillo, CA: Marine Science Institute, University of California at Santa Barbara, 1996); Krista Paulsen, Harvey Molotch, and William Freudenburg, *Oil, Fruit, Commune and Commute*. (Washington, DC: Department of Interior, 1996).
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135. *United States Dependence on Foreign Oil*, hearing before the Committee on Foreign Relations, US Senate, 104th Cong., 1st sess., March 22, 1995 (Washington, DC: U.S. Government Printing Office, 1995), hereafter cited as: Congress, *Dependence 1995*.
136. M. Gendler, "Toward Better Use of Coastal Resources: Coordinated State and Federal Planning under the Coastal Zone Management Act," in Strom, LU-1978, hereafter cited as: Gendler, "Toward," pp. 225, 228.
137. OTA, *Coastal-2*, part 1, pp. II-1.
138. Ibid., pp. II-2.
139. Ibid., pp. II-1.
140. OTA, *Coastal-1*, p. 169.
141. Ibid., pp. 157–160; see also p. 57.
142. Ibid., pp. 16–17, 57, 58–59.
143. Ibid., p. 15.
144. OTA, *Coastal-2*, Part 3, WP-3, p. 2.
145. OTA, *Coastal-1*, p. 51.
146. Ibid., pp. 52–53.
147. Ibid., p. 16; see pp. 51–56. In 1976, however, the Supreme Court did uphold Florida legislation demanding strict liability for oil-spill damage; see Mills and Woodson, Energy, p. 294. A liability limit for oil spills continues to exist; see, for example, Richard L. Jarashow, "The New Regime for Oil Spill Liability in the United States," *United States Law Journal* 18 (1992): 299; "Conferees Agree on Oil-Spill Liability Measures for US," *Oil and Gas Journal* 88 (August 6, 1990): 27; "NPC: MMS too Zealous in Oil Spill Liability Rules," *Oil and Gas Journal* 92 (August 8, 1994): 31; "California Imposes Oil Spill Liability on Certain Pipelines," *Oil and Gas Journal* 93 (October 23, 1995): 44; and John Davies, "Spill Liabilities Expanding," *Journal of Commerce* 409, no. 28809 (September 16, 1996): 4B.
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149. Ibid., p. 19.
150. Ibid., p. 16. See also Gendler, "Toward," pp. 233–234.
151. OTA, *Coastal-1*, p. 16.
152. See notes 133–152.
153. B. M. Gross, "The State of the Nation: Social System Accounting," in *Social Indicators*, edited by R. A. Bauer (Cambridge: MIT Press, 1966), p. 222. See also Kristin Shrader-Frechette, *Risk Analysis and Scientific Method* (Boston: Kluwer, 1985), chapter 6.
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155. EPA, *Offshore*, pp. 53–60.
156. OTA, *Coastal-2*, pp. I-1 and II-1; see also *Coastal-1*, p. 13.
157. See note 156.
158. OTA, *Coastal-1*, p. 12.
159. Ibid., p. 19.
160. Ibid., p. 16.
161. See, for example, ibid., p. 13.
162. See the sixth section, first and second subsections, of this chapter and notes 101–104.
163. OTA, *Coastal-1*, p. 19.
164. EPA, *Offshore*, p. 134.
165. OTA, *Coastal-1*, pp. 17, 60–62, 134.
166. Ibid., pp. 18, 47–50, 152–155.
167. Ibid., pp. 19, 57–59, 166–169.
168. Ibid., p. 13.
169. Ibid., p. 11.

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179. Langdon Winner, *Autonomous Technology: Technics-Out-of-Control As a Theme in Political Thought* (Cambridge: MIT Press, 1977), especially pp. 13–43; hereafter cited as: Winner, *AT*.
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181. Patterson, "Inequality," p. 35; see also p. 34.
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186. Quoted in C. H. Danhof, "Assessment Information Systems," in Kasper, *TA*, p. 26.
187. Quoted in Winner, *AT*, p. 148.
188. Muchnicki, "Role," p. 59.
189. See Muchnicki, "Role," p. 48.
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191. D. K. Price, *The Scientific Estate* (Cambridge: Harvard University Press, 1965), p. 10.
192. Stewart, "Paradoxes," in Strom, LU-1978, p. 479.

CHAPTER 3

1. *The History of the Peloponnesian War*, bk. I, sec. 141.
2. For the 17 environmental justice principles, see David E. Newton, *Environmental Justice* (Oxford, England: ABC-CLIO, 1996), pp. 135–140; hereafter cited as: Newton, *EJ*.
3. See note 27. See Kristin Shrader-Frechette, "Locke and Limits on Land Ownership," *Journal of the History of Ideas* 54, no. 2 (April 1993): 201–219.
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Printing Office, 1994), pp. 425, 414, 397, 399; hereafter cited as: Commerce, *1992 Agriculture.*

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6. Commerce, *1992 Agriculture*, pp. 86–87. See also Fellmeth, *POL*, p. 12, and J. Hightower, "The Industrialization of Food," in *The People's Land*, edited by Peter Barnes (Emmaus, PA.: Rodale Press, 1975), pp. 81–85; hereafter cited as: Barnes, *PL.* Similar patterns hold nationwide. See Gene Wunderlich, "Agricultural Landownership and the Real Property Tax," in *Land Ownership and Taxation*, edited by Gene Wunderlich (Boulder, CO: Westview Press, 1993), pp. 4–5.
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10. See note 27 for a definition of procedural justice. For the 84 percent figure, see Roodman, RS-1997, p. 139.
11. See M. Friedberger, *Farm Families and Change* (Lexington: University Press of Kentucky, 1988), pp. 73, 223–239, and B. Galeski and E. Wilkening, eds., *Family Farming in Europe and America* (Boulder, CO: Westview, 1987). See also Peggy F. Barlett, *American Dreams, Rural Realities: Family Farms in Crisis* (Chapel Hill: University of North Carolina Press, 1993); and G. Tyler Miller, *Living in the Environment* (New York: Brooks/Cole, 2000), pp. 282, 303; hereafter cited as: Miller, *LE.*
12. See Fellmeth, *POL*, p. 74; Edward Lotterman, "Farm Bills and Farmers: The Effects of Subsidies over Time," *The Region* (Minneapolis), December 1996, pp. 4–7.
13. Quoted by Fellmeth, *POL*, pp. 75–76. See J. Dangerfield, "Sowing the Till," in Barnes, *PL.* See L. Tweeten, *Causes and Consequences of Structural Change in the Farming Industry* (Washington, DC: National Planning Association, 1984); Roodman, RS-1997, p. 139; and Miller, *LE*, pp. 282, 303.
14. Fellmeth, *POL*, p. 78. See A. W. Griswold, *Farming and Democracy* (New Haven: Yale University Press, 1952), pp. 5–6; hereafter cited as: Griswold, *FD.* A. J. Fritsch, *Green Space* (Lexington, KY: Appalachia Science in the Public Interest, 1982), pp. 15–19; hereafter cited as: Fritsch, *GS.* The national statistics are from Roodman, RS-1997, p. 139.
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19. See, for example, L. Brown, "The Illusion of Progress," pp. 1–16, S. Postel, "Saving Water for Agriculture," pp. 39–58, L. Brown and J. Young, "Feeding the World in the Nineties," pp. 59–78, and A. Durning, "Ending Poverty," pp. 135–153, all in *State of the World 1990*, edited by L. Brown et al. (New York: Norton, 1990).
20. See K. Griffin, *The Political Economy of Agrarian Change* (London: Macmillan, 1979), p. 40; hereafter cited as: Griffin, *PEAC*. See also Griswold, *FD*, p. 131. Samantha Friedman and Daniel T. Lichter, "Spatial Inequality and Poverty among American Children," *Population Research and Policy Review* 17 (April 1998): 91–109, and Miller, *LE*, pp. 282, 303.
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22. See notes 11 and 23.
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24. Task Force, ALOS, especially pp. 210–212. See R. Nader, "Property Tax Evasion," in Barnes, *PL*, pp. 144–147; Peter T. Kilborn, "Illiteracy Pulls Appalachia Back," *New York Times*, July 27, 2000, pp. A1, A16.
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26. Task Force, ALOS, p. 212; Clark quoted by Egerton, "Landlords," p. 44. See also Blaine Moss, Natural Resources Defense Center, *Land Use Controls in the United States* (New York: Dial Press, 1977), pp. 235–236. Finally, see Fellmeth, *POL*, p. 85; G. Faux, "The Future of Rural Policy,"

in Barnes, *PL*, pp. 187–191, and K. Griffin, *Land Concentration and Rural Poverty* (New York: Holmes and Meier, 1976), pp. 1–11; hereafter cited as: LCRP. See also D. E. Albrecht and S. H. Murdoc, *The Sociology of U.S. Agriculture* (Ames: Iowa State University Press, 1990); and L. M. Lobao, *Locality and Inequality* (Albany: State University of New York Press, 1990).

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    John Rawls, *A Theory of Justice* (Cambridge: Harvard University Press, 1971), p. 86; hereafter cited as: *TJ*; says that "pure procedural justice obtains when there is no independent criterion for the right result. Instead there is a correct or fair procedure such that the outcome is likewise correct or fair, whatever it is, provided that the procedure has been properly followed." See Alicia Juarrero, "Teleology or Perfect Procedural Justice," *Journal of Social Philosophy* 26, no. 2 (fall 1995): 127–138; Michel Rosenfeld, "A Pluralist Critique of Contractarian Proceduralism," *Ratio-Juris* 11, no. 4 (1998): 291–319.
28. See notes 23–25 of this chapter, as well as supporting text.
29. See notes 18–24, 33–36 of this chapter, as well as supporting text.
30. See the discussion in this section for an account of "background conditions." See also note 41 and David N. Pellow, "Environmental Inequality Formation," *American Behavioral Scientist* 43, no. 4 (January 2000): 581–602.
31. See note 27.
32. See, for example, Griffin, *PEAC*, pp. 223–225; Griffin, *LCRP*; W. Samuels, "Welfare Economics, Power, and Property," in *Perspectives on Property*, edited by G. Wunderlich and W. Gibson (State College, PA: Pennsylvania State University Institute for Land and Water Resources, 1972), pp. 140–141. See notes 10, 13, 23, 27, and Roy May, *The Poor of the Land* (Maryknoll, NY: Orbis Books, 1991). Jamie L. Bronstein, *Land Reform and Working-Class Experience* (Stanford: Stanford University Press, 1999). Charles Brockett, *Land, Power, and Poverty* (Boulder, CO: Westview Press, 1998). Harvey M. Jacobs, ed., *Who Owns America? Social Conflict over Property Rights* (Madison: University of Wisconsin Press, 1998).
33. J. R. Pennock, "Thoughts on the Right to Private Property," in *Property*, edited by J. R. Pennock and J. W. Chapman, Nomos 22 (New York: New York University Press, 1980), p. 269. As the authors of the California study of land ownership put it (quoted in Task Force, ALOS, p. 28), "almost by definition, highly concentrated ownership and control of land means more political and economic power and greater ability to oppose contrary interests." See also Timothy Beatley, "The Ethics of Land-Use Politics," in *Ethical Land Use* (Baltimore: Johns Hopkins University Press, 1994).
34. See Rawls, *TJ*, pp. 111–113, 342–347 (sections 18, 52), and Nozick, *Anarchy*, pp. 90–93. See note 44.

35. See Thomas Aquinas, *The Summa Theologica*, First Part of the Second Part, vol. 2 (New York: Benzinger Brothers, 1947); David Hume, *Concerning Human Understanding*, Sections 51–53 (Oxford: Clarendon Press, 1966); A. I. Melden, *Free Action* (London: Routledge and Kegan Paul, 1961), pp. 2, 213–222.; G. E. Moore, *Ethics* (London: Oxford University Press, 1963), p. 126; D. F. Gustafson, "Voluntary and Involuntary," *Philosophy and Phenomenological Research* 24, no. 4 (June 1964): 493–501, especially p. 498. See also Christian Stein, "Walker on the Voluntariness of Judgment," *Inquiry* 40, no. 2 (1997): 175–186.
36. See K. W. Rankin, "Doer and Doing," *Mind* 69, no. 275 (July 1960): 361–371, especially p. 371. See also Moore, *Ethics*, pp. 131–132. Melden, "Actions," *Philosophical Review* 65, no. 4 (1956): 523–541. See note 32.
37. P. H. Nowell-Smith, "Comments and Criticism: On Sanctioning Excuses," *Journal of Philosophy* 67, no. 18 (September 1970): 609–619, especially p. 609.
38. G. Ryle, *The Concept of Mind* (New York: Barnes and Noble, 1949), p. 75. P. Foot, "Hart and Honore: Causation in the Law," *Philosophical Review* 72, no. 4 (October 1963): 505–515, especially p. 514. H. L. A. Hart and A. M. Honore, *Causation in the Law* (Oxford: Clarendon Press, 1959), pp. 254–255.
39. See H. L. A. Hart, "Prolegomenon to the Principles of Punishment," *Proceedings of the Aristotelian Society* 60 (1959–60); H. L. A. Hart, "Ascription of Responsibility," in *Freedom and Responsibility*, edited by H. Morris (Stanford: Stanford University Press, 1961), especially p. 145; hereafter cited as: Morris, *FR*. See also J. L. Austin, "A Plea for Excuses," in Morris, *FR*, p. 8; John Austin, *Philosophical Papers* (Oxford: Clarendon Press, 1961), especially p. 128. See also V. Haksar, "Responsibility," *The Aristotelian Society* 60 (1966): 187–122, and C. Whiteley, "Responsibility," *The Aristotelian Society* 60 (1966): 223–226.
40. Haksar, "Responsibility," p. 205, and Whiteley, "Responsibility," p. 231, also make this point. See also Margaret Moore, "On Reasonableness," *Journal of Applied Philosophy* 13, no. 2 (1996):167–178.
41. Haksar, "Responsibility," p. 205, also makes this point. See Whiteley, "Responsibility," p. 232.
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47. Rawls, *TJ*, p. 87. See note 27. For an application of Rawls's reflective-equilibrium method to environmental and resource problems in a democracy, see Avner De-Shalit, *The Environment: Between Theory and Practice* (Oxford: Oxford University Press, 2000).
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49. See note 2.

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52. See Fellmeth, *POL*, p. 85; P. S. Taylor, "The Battle for Acreage Limitations," in Barnes, *PL*, pp. 113–117; and O. Staley, "The Family Farm Anti-Trust Act," in Barnes, *PL*, pp. 222–224.
53. See P. Kaufman, "The Severance Tax," in Barnes, *PL*, pp. 152–153; John McClaughry, "Taxes for Land Acquisitions," in Barnes, *PL*, pp. 154–159; and J. I. de Neufville, "Land Use," in de Neufville, *LPD*, pp. 31–49. See also Mason Gaffney, "Rising Inequality and Falling Property Tax Rates," in Wunderlich, *Land Ownership*.
54. See Peter Dorner, *Land Reform and Economic Development* (Baltimore: Penguin, 1972), D. W. Bromley, *Environment and Economy* (Cambridge, U.K.: Blackwell, 1991), and Beatley, *Ethical Land Use*, pp. 261–274.
55. See note 18.
56. I am grateful to E. Partridge and D. Den Uyl for spelling out this objection.
57. Thomas Scanlon, "Nozick on Rights, Liberty, and Property," *Philosophy and Public Affairs* 6, no. 1 (fall 1976): 8.
58. In other words, the argument assigns to pattern a purely instrumental role. The control that concentrated property holdings give one over others is the problem.
59. The argument is neither for nor against a particular level of concentration in land holdings, but that whenever (e.g., in Appalachia) and whatever structures limit the voluntariness of transactions, there are procedural grounds for removing those limits.
60. Nozick, *Anarchy*, p. 181.
61. Ibid., p. 238.
62. Ibid., p. 262. The *psychological/physical quality* of B's act (its voluntariness) is not causally affected by the *moral quality* of B's act, but only by whether B exercises overt or covert power over A.
63. See Pierre-Joseph Proudhon, *What Is Property?* edited and translated by Donald R. Kelley and Bonnie G. Smith (New York: Cambridge University Press, 1993). Locke, *ST*, ch. 5; Nozick, *Anarchy*, pp. 174–178, and Nozick, LT, pp. 146–149. See also Becker, *PR*, pp. 43–45.
64. For a full argument for this position, see Shrader-Frechette, "Locke." See Locke, *ST*, and Locke, *P*. See also Becker, *PR*, pp. 43–45; Clark Wolf, "Contemporary Property Rights, Lockean Provisos, and the Interests of Future Generations," *Ethics* 105, no. 4 (July 1995): 791–818; Leif

Wenar, "Original Acquisition of Private Property," *Mind* 107, no. 428 (1998): 799–819.

65. Becker, *PR*, pp. 109–110. Nolette and Fitsch, *LT*.
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CHAPTER 4

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4. "Corrections and Clarifications," *Chicago Tribune*, June 2, 1995, sect. 1, p. 3.
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7. Ken O'Brien, "Robbins Burner Gets Boost," *Chicago Tribune*, August 31, 1994, sect. 2W, p. 1.
8. Schwab, *Deeper*, pp. 3–8. See Care, "Robbins Incinerator Clears Finance Hurdle."
9. Schwab, *Deeper*, p. 9.
10. O'Brien, "Robbins Burner Gets Boost"; "Robbins Incinerator Foes Are Rejected by High Court." Schwab, *Deeper*, pp. 2–43; Rubin, "Robbins Has Many Uses for Windfall"; see "Robbins Incinerator Wins Board Support."
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12. See Laura Westra and Peter Wenz, eds., *Faces of Environmental Racism* (Lanham, MD: Rowman and Littlefield, 1995); Robert Bullard, *Dump-*

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24. EIS, pp. 2-3 through 2-8.
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45. EIS, p. 2-14.
46. EIS, p. 2-11.
47. EIS, pp. 4-46, 4-77 through 4-86.
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49. See R. D. Bullard, "Commentator No. 5," in EIS, vol. 2, p. 1-20.
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CHAPTER 6

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CHAPTER 7

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CHAPTER 8

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CHAPTER 9

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79. Gardner, ASS-2001, pp. 194–196. For a list of NGOs, admittedly partial, see G. Tyler Miller, *Living in the Environment* (New York: Brooks/Cole, 2000), pp. A1–A6.
80. See K. Goldberg, "Efforts to Prevent Misuse of Pesticides Exported to Developing Countries," *Ecology Law Quarterly* 12, no. 4 (1985): 1025–1051, and Organization for Economic Cooperation and Development (OECD), *Guidance Document for 111 Pesticides* (Paris: OECD, 1997). For 1992–96 data, see Anne Platt McGinn, "Phasing Out Persistent Organic Pollutants," in *State of the World 2000*, edited by Lester Brown, Chrstopher Flavin, and Hilary French (New York: Norton, 2000), p. 87; hereafter cited as: POPOP. For the Brent Spar and BP cases, see Gardner, ASS-2001, p. 200.
81. See Henry Shue, *Basic Rights* (Princeton: Princeton University Press, 1980), part 3; see also Peter H. Koehn and Olatunde J. B. Ojo, eds., *Making Aid Work* (Lanham, MD: University Press of America, 1999).
82. See chapter 8, note 3. See also Henry Shue, "Exporting Hazards," in *Boundaries*, edited by P. Brown and H. Shue (Totowa, NJ: Rowman and Littlefield, 1981), pp. 137–138, 144; Overseas Private Investment Corporation, *OPIC Highlights* (Washington, DC: OPIC, 1997) and US Congress, House of Representatives, Committee on International Relations, *The Future of the Overseas Private Investment Corporation*, 105th Cong., 1st sess., February 12, 1997 (Washington, DC: U.S. Government Printing Office, 1998).
83. J. Seiberling and C. Schneider, "How Congress Can Help Developing Countries Help Themselves," in *Journal '86: Annual Report of the World Resources Institute* (Washington, DC: World Resources Institute, 1986), pp. 57, 59. See US Congress, House of Representatives, Committee on Education and Labor, *Hearing on H.R. 4376, the OPIC Abolition*,

102nd Cong., 2nd sess., May 27, 1992 (Washington, DC: U.S. Government Printing Office, 1992).

84. See G. Webb, "Global Effort Kills World Bank Loan to Brazil," *Not Man Apart* 19, no. 1 (February–May 1989): 16. See also L. Brown and E. Wolf, "Reversing Africa's Decline," in *State of the World 1986*, edited by L. Brown (New York: Norton, 1986), p. 182. For criticisms of the World Bank and suggestions for reform, see Devesh Kapur, *The State in a Changing World: A Critique* (Cambridge: Weatherhead Center of Harvard University, 1998); Jonathan A. Fox and L. David Brown, eds., *The Struggle for Accountability* (Cambridge, MA: MIT Press, 1998); Joan M. Nelson, *Reforming Health and Education* (Washington, DC: Overseas Development Council, 1999); and Shahrukh Rafi Khan, *Do World Bank and IMF Policies Work?* (New York: St. Martin's Press, 1999); for the incinerator statistic, see McGinn, POPOP, p. 84.
85. For discussion of the public participation and advocacy necessary to achieve democracy and environmental justice, see Amy Gutmann, *Democratic Education* (Princeton: Princeton University Press, 1999); Amy Gutmann, ed., *Freedom of Association* (Princeton: Princeton University Press, 1998); and Avner De-Shalit, *The Environment in Theory and in Practice* (Oxford: Oxford University Press, 2000).
86. Rosa Jordan, "Kris Kristofferson," *Progressive* 55 (September 1991): 36–38.

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