

CHAPTER 5: THE ENVIRONMENT

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Most people are aware that we face a long list of environmental problems: air and water quality, depletion of natural resources (especially oil), toxic waste disposal, endangered species, and increasingly the threat of global warming. There really is very little scientific debate any longer that these are real problems and that their solution requires some kind of collective, public response. Where people differ is in their beliefs about the underlying causes of these problems and the appropriate remedies. None of these problems, of course, is the result of some single master cause. They are all shaped by a complex array of economic, political and cultural processes. In this chapter we will then explore four important causal processes operating in contemporary American society which underlie these environmental problems: collective action failures, negative externalities, “NIMBY” movements, hyper-consumerism, and concentrations of corporate power.

1. Collective action failures

When economists study environmental problems they emphasize two themes: collective action failures and negative externalities. Both of these, as explained in the last chapter, are instances in which the actions of individuals and firms, pursuing their own interests in a strategic and rational way within markets, generate economic inefficiencies of various sorts.

With respect to environmental issues, collective action failures go under the name “the tragedy of the commons”. The term comes from the historic experience of farmers overgrazing the lands shared in common, ultimately depleting the fertility of the land and reducing its capacity to feed livestock, but the idea refers to any depletion of a renewable resource through over use.

In chapter 3 we discussed an example of environmental collective action problems for capitalist firms in the depletion of the North Atlantic fishing banks through over-fishing. These kinds of collective action failures also apply to the behavior of individuals. A good example for individuals is the problem of recycling. Many people approach the problem of recycling in the following way: “I agree that recycling is a good thing since it will help conserve resources, and I will benefit from that. But I won’t recycle because it is too much trouble and my own wasting of resources won’t really make that much difference. No one will be worse off because I don’t recycle.” If everyone thinks like this, then no one will recycle and everyone is worse off. This is exactly the collective action problem we examined in the last chapter in our discussion of the depletion of fishing stocks. Suppose it costs you in time, effort and money a total of \$50 a year to recycle, while if everyone recycles you save on average in the long run \$100 a year because of savings on landfills, slower depletion of resources, etc. If everyone else recycles and you don’t your payoff is \$100, since your failure to recycle is such a small part of the total. If you and

everyone else recycles, your pay-off is \$50. If only you recycle your payoff is negative, -\$50: you have paid for the recycling, but this will have no long term positive effect since no one else cooperates with you. If no one recycles your payoff is \$0. This is a classical free-rider problem, as illustrated in Figure 5.1.

-- Figure 5.1 about here --

If you are a rational self-interested actor, your favored alternative is B, your second best outcome is A, your third is D, and your least favorite is C. If everyone is just like you, then this would be their preference order as well, and so they would also choose B. But if everyone makes this choice, the world ends up in cell D.

This kind of behavior is certainly an element in many ecological problems: self-interested persons and firms want everyone else to be ecologically responsible and to get a free ride on their good behavior – they want to benefit without making any personal sacrifice. This doesn't mean that they don't value a clean and sustainable environment, or even that they are unaware of environmental problems, but simply that they do not want to personally bear the costs of doing anything about it.

The solutions to this kind of collective action problem around the environment are often relatively easy, since in a prisoners' dilemma type of situation, the individuals involved can easily recognize that the outcome is suboptimal in terms of their own self-interests. No one really has a vested interest in maintaining the collective action failure. In the above example if everyone has the preference ordering B-A-D-C, then each person prefers A to D – they prefer everyone, including themselves, to recycle over no one recycling. Programs which make it easier for people to recycle (so that the immediate time and expense they face are reduced), especially when participation is mandatory and enforced through some system of monitoring and fines, make the cooperation outcome -- A -- much more likely. Similarly, monitoring and enforcing fishing quotas can effectively solve the over-fishing problem, and since in the long run this is in the interests of everyone in the fishing industry, some system of regulation is broadly supported by fishing firms.

In the United States, many local communities have in fact adopted municipal recycling programs, supported by taxes and connected to city garbage pickup. These programs have helped stimulate a stronger market for the recycled materials, but they do not rely on market mechanisms to encourage recycling. They have resulted in a dramatic increase in recycling in the United States since the 1980s (see Figure 5.2).

--Figure 5.2 about here --

Of course, some people might still oppose mandatory recycling on various grounds. For example they might not believe it would work because evasion might be too easy, or they might be opposed to the government regulation on some ideological principle even though such regulations would benefit them. But still, if the only important cause of environmental problems was this kind of coordination problem among self-interested individuals and firms whose self-interest would be enhanced from the coordination, the remedies would be fairly straightforward

. The problem, however, is that much more is in play in solving environmental problems than simple collective action failures among rational, self-interested actors. The problem of negative externalities is also important, and since the beneficiaries of negative externalities are not themselves harmed by their own choices, they are more likely to resist regulation. And if they are also powerful, then this resistance is often effective.

2. Negative Externalities

A “negative externality,” as explained in chapter 3, is a negative effect on others of one’s choices and actions. Like collective action failures, the problem of negative externalities concerns both the consumption choices of individuals and the production choices of capitalist firms.

An important example of environmental negative externalities of individual choices and actions concerns the problem of energy use. The United States contains about 5% of the world’s population, but Americans consume about 20% of world’s energy (see Figure 5.3). Much of this energy consumption is of fossil fuels, and one thing we know for certain is that this resource is finite and if we continue to burn it up to generate energy, eventually we will run out of this resource. The United States is a very rich country, and many people have sufficient income that at the existing price of fossil fuels they can afford to consume a great deal of this resource and so don’t give this much thought. They drive large inefficient cars, leave their lights on, prefer private to public transportation and in other ways consume more energy per capita than in any other country in the world.

-- Figure 5.3 about here --

How is this pattern of energy consumption an example of a negative externality? The depletion of a nonrenewable resource through current consumption can be thought of as a *negative externality for future generations*. Future generations will have to pay more for fossil fuels because of the rate at which we using up this resource today. As noted in chapter 4, future generations do not participate in present choices about how to distribute the use of this resource over time. Imagine if people 100 years from now could bid on the present price of oil: the price would surely be much higher than we see in existing markets for it would reflect the future costs to them of extracting and processing a much scarcer resource. Of course, the problem of negative effects of our actions today on future generations is by no means a unique problem for American society. It is inherent in the fact that human actions have long term consequences. But this problem is especially acute in the United States because of the heavy reliance on market mechanisms for making long-term choices about patterns of consumption and production. Markets are simply incapable of factoring in such future consequences into present choices.

In a capitalist market economy such as the United States, environmental negative externalities are not just the result of the selfishness and short-sightedness of consumers; they are also, crucially, the result of the strategic action of firms. As explained in the last chapter investment decisions are made largely on the basis of profitability; effects on the environmental only enter investment decisions when they are experienced as direct costs by the investor. Thus in general *internal* pollution in a factory is controlled by the owner since it is costly to the owner

not to clean up oil spills on the shop floor; but external pollution is another matter. In a competitive, profit-maximizing economic system pollution is not just a random accident. There will, in general, be a tendency for the most profitable investments to be relatively polluting because they represent successful displacement of costs on others. Getting other people to shoulder some of their costs of production gives capitalist firms a competitive advantage, and thus unless they are prevented from doing so, they are likely to disregard environmental negative externalities.

A few examples will illustrate this dynamic:

Nitrogen fertilizer and farming. Farmers who use nitrogen fertilizers, produce more at lower cost. This increases their rate of profits. Heavy use of nitrogen, however, often results in nitrogen run-off into rivers and lakes. The price of the fertilizer used by farmers does not reflect costs of the declining water quality of rivers and lakes or the costs of cleaning them up. If the price of such fertilizer to farmers fully incorporated these additional costs, then in many instances it would not longer be profit-maximizing to use the fertilizer.¹

Acid Rain. Coal burning power plants in the Midwest emit variety of pollutants into the atmosphere, which, because of the prevailing winds, tend to drift eastward. Among these pollutants is sulfur dioxide and nitrogen oxides which eventually mix with moisture and increase the acidity of rain in the Eastern regions of the United States. In the United States, according to the Environmental Protection Agency, “roughly 2/3 of all sulfur dioxide and 1/4 of all nitrogen oxides come from electric power generation that relies on burning fossil fuels like coal.”² The costs of this acid rain in the form of such things as degradation of forests and reduced longevity of exterior paints do not enter into the profit calculations of power companies.

Love Canal in New York. One of the most notorious cases of environmental negative externalities generated by profit-maximizing strategies concerns the toxic waste dumping into Love Canal near Buffalo New York. For a period in the 1940s and 1950s the Hooker Chemical and Plastics Corporation disposed of a variety of toxic wastes in a landfill adjoining the Love Canal. The initial dumping was motivated simply by the desire to minimize the immediate costs of disposal of toxic waste. It is unclear whether or not the decision makers actually knew the risks of this behavior, but in any event they had no incentive to figure this out. Over time these toxic wastes leached into the surrounding area, eventually polluting the adjoining Canal. In the long term this imposed extraordinary private costs on people living in the area in the form of sickness, birth defects, and eventually the collapse of property values. The problems were compounded by later inaction by government unwilling to publicly shoulder the costs for dealing with this problem.

Global warming. Global warming is a complex example of a negative externality. If the negative

¹ According to the website *Scorecard: the pollution information site* (<http://www.scorecard.org/>), based on data reported by states, agricultural runoff is principle source of impairment of water quality in rivers and streams in the United States, and the second most important source of impaired quality of Lakes, reservoirs and ponds, and fresh water wetlands.

² <http://www.epa.gov/acidrain/what/>

consequences of the emission of CO₂ and other greenhouse gasses were rapid, then global warming would be an example of a collective action problem rather like the depletion of fisheries, for the negative effects of production choices would impact on the producers themselves. The dynamics of global warming, however, is quite slow: emissions today gradually accumulate over time and will change the climate significantly only in the future, affecting the lives mainly of future generations. As a result, investors in power plants, industrial producers, and consumers today don't worry about these effects, and adopt ways of generating energy that displace costs – in the form of global warming – on others. On a per capita basis, the United States is by far the biggest generator of carbon dioxide emissions in the world (see Figure 5.4)

-- Figure 5.4 about here --

The solutions to these and other examples of negative externalities always require some form of public regulation that makes it more difficult for firms and individuals to displace costs on others. Where such regulations have been in place and enforced, then they have generally had a significant impact on the problems they address. In the United States the Environmental Protection Agency is the principle government agency charged with the task of regulating various forms of pollution. In spite of the continual resistance by capitalist firms to such regulation, and the significant decline in enforcement budgets during the decades after 1980, the regulation of air and water pollution has had a positive effect on the air and water quality in the United States. Figure 5.4 presents data on the levels of the most common forms of air pollution from 1980 to 2007. The chart indicates about a 50% reduction in these pollutants. This does not mean that air quality has ceased to be a problem. The EPA reports that in 2007 that 158 million people in the United States – over half of the population – still lived in counties with air pollution above the level of the quality standards established by the Clean Air Act.³ Still regulations enforced against the spontaneous behavior of firms in the market have made a significant difference.

-- Figure 5.4 about here --

Historically government regulation has mainly taken the form of laws and bureaucratic regulations directly enforced by the state. This does work pretty well for certain kinds of environmental problems, but not for all. More recently a variety of new mechanisms for dealing with environmental negative externalities have developed. For example, a strategy known as “information-based monitoring” has been introduced in some places in which the pollution levels of firms are made public and a list of “bad actors” is given wide publicity. Since firms don't want their reputations tainted by being so labeled, they try to reduce their pollution to avoid being on the list.⁴ Over time, this means that firms ratchet up their pollution standards. Or, to take another example, to reduce the emission of greenhouse gasses, “markets” in carbon emissions are being created. The idea is that firms are allowed to emit a certain level of such gasses, the level being determined by public policy goals about the aggregate level of emissions. Firms that emit less than this amount have “carbon emission credits” which they can sell to firms

³ <http://www.epa.gov/airtrends/sixpoll.html>

⁴ Citation – Archon fung research on Massachusetts example.

that emit more than the limit. If these credits are sufficiently expensive then this has the effect of “internalizing” the costs of the negative externality and thus creating an incentive for the firm to reduce their emissions.

Both of these kinds of reforms have been touted as relying on market to solve environmental problems, avoiding bureaucratic meddling by the state. This is an inaccurate way of understanding them. Both information-based monitoring and carbon-trading still depend strongly on the capacity of the state to gather and disseminate accurate information, create standards, and prevent cheating. While they do use some market-like mechanisms to facilitate implementation of standards, these would be ineffectual without coherent state involvement. Counteracting environmental negative externalities always involves some kind of explicit intervention into the spontaneous behavior of people in markets.

3. A special kind of negative externality: NIMBY

There is a special kind of negative externality that occurs in the context of environmental problems that concerns the ways in which political and economic power can be used to displace the costs of environmental problems onto vulnerable groups. This is sometimes referred to as the NIMBY – not in my backyard – problem. NIMBY problems refer to situations in which there is a necessity of locating something geographically which people don’t want near them – radioactive waste dumps, half-way houses for the mentally ill, fertilizer plants that process manure, etc. Everyone agrees that we need a way of disposing of toxic wastes, but no one wants a hazardous waste disposal facility in their backyard. In such a situation, when public authorities make decisions about where to locate such facilities, they are often very responsive to pressure from powerful groups and individuals. The pressure is often backed up by rational economic arguments: a toxic waste disposal facility will adversely affect property values so it makes economic sense to locate the facility in places away from rich neighborhoods and closer to poor neighborhoods. This is “cost effective” from a certain kind of narrow economic point of view. Furthermore, it is easier to locate the facility closer to groups which are relatively marginalized politically and are less likely to have effective political connections, and in many cities this means neighborhoods with high concentrations of blacks and Latinos.

In the United States many decisions of this sort are made locally. On the one hand this is a good thing, for it means that basic choices about land use are often subjected to democratic processes involving the people affected by the decision. This is consistent with democratic values. On the other hand, because of the significant inequalities in power within such local democratic processes, this kind of decentralized, local decision-making encourages NIMBY movements against things like hazardous waste facilities. As Figure 5.5 indicates, the outcome of these processes is a concentration of hazardous waste facilities in neighborhoods with disproportionate minority population. In the year 2000, neighborhoods that were located within a 3 km radius of a hazardous waste facility, had a racial composition of 56% nonwhite and 44% white residents. Neighborhoods that were further than 3 km from such facilities were 70% white and only 30% nonwhite. There is also research that indicates that these kinds of racial inequalities in environmental conditions is also likely to affect health. A study of the racial

composition of census tracts in California with high and low risks of cancer from toxins in the air showed that over 60% of the residents in the high risk tracts but only 40% in the low risk tracts were nonwhite (Figure 5.6).

--Figure 5.5 and 5.6 about here --

Negative externalities are thus not simply a problem of harm to the environment caused by individuals and firms acting in their own interests and displacing costs on others. It is also the result of political processes which direct those costs towards specific groups of vulnerable people. A full social agenda for dealing with environmental issues, therefore, must concern itself with environmental injustice and environmental racism, not simply environmental sustainability.

4. Hyper-Consumerism

There is an underlying engine of environmental problems that is very deep in our society and very difficult to counteract: consumerism. We will discuss this in chapter 7 when we examine shopping and consumer society, so here we will just introduce the issue briefly.

Consumerism is a broad term that covers a variety of senses in which an economy and a culture become oriented to consumption. Market economies have a tendency to foster consumerism, since when people produce for a market they need to find buyers of their products. Capitalism intensifies this general tendency, since capitalist firms compete with each other and their profits depend in significant ways on their ability to increase their sales. Capitalist firms, therefore, engage in all sorts of strategies to encourage people to increase their consumption, not merely buy their specific products.

Consumerism is a property of all capitalist countries, but in many countries there are processes in place which somewhat dampen its intensity, such as high taxes to support public goods and rules which create shorter work weeks and longer vacations. American capitalism, in these terms, is what might be called hyper-consumerist. For a host of reasons we will examine in chapter 7, in contemporary United States, ever-increasing personal consumption is seen as a cultural ideal. This ecologically disastrous: a permanent growth in consumption is a recipe for environmental devastation; this is not sustainable forever.

5. Concentrations of power and the environment

In the analysis of any social problem – in this case environmental problems – it is important to distinguish between the generative causes of the problem on the one hand and the obstacles to implementing an effective solution on the other. Problems and solutions need not be symmetrical: If you observe a person with a missing leg you need to explain both how the leg was lost and why a replacement in the form of a prosthesis has not been acquired. The leg may have been lost because of an accident, but the absence of a substitute could be because of a lack of medical insurance. You might have a headache because of stresses at school, but the explanation for why you can't get rid of it might be that you lack an aspirin. The solution to a problem does not necessarily mean eliminating the cause: the cure can neutralize the effects of

the cause rather than eliminate the cause itself. In the case of environmental problems, it may be the case that the mechanisms generating the problems in the first place are various kinds of collective action failures and negative externalities, but the principle obstacles to solving the problem may be strategies of powerful actors, especially business corporations, in which they effectively *use their power to block solutions*. Consider two examples around issues of energy use and development: the regulations on automobile energy efficiency, and the development of alternative energy sources.

Automobiles are one of the central sources of depletion of fossil fuels as well as carbon emissions influencing global warming. The energy efficiency of automobiles is thus of considerable environmental importance. The distribution of efficiency levels among automobiles is the result of three main factors: the preferences and choices of individual consumers as they weigh the trade-offs among alternative properties of automobiles; the designs engineered by automakers which they make available to consumers; and the regulations imposed on automakers which force them to seek appropriate innovations to meet these standards. In the United States, large automobile corporations have used their power to block higher standards because, in general, the most profitable cars to produce are not the most energy efficient. Most of the time this has had the effect of keeping the issue of government-enforced efficiency standards completely off the political agenda. But occasionally automotive efficiency standards do become an issue, as they did in 2007, and then the automobile corporations actively mobilize to block the standards, or at least to minimize the changes.

The role of powerful actors in obstructing certain solutions to environmental issues is particularly blatant in the question of the development of alternative energy sources. Many environmentalists believe that renewable energy sources – especially wind and solar energy – should be the highest priority to energy development. Defenders of existing energy sources – especially coal, oil, and nuclear power – counter that these renewable sources are too expensive and that if they were profitable then the market would direct investments in their direction. The mantra is “Let the market decide”. But what the critics ignore is the enormous level of direct and indirect government subsidy to other energy sources, especially oil and nuclear energy, that has been the result of the exercise of power by corporations in these sectors. It is a myth that the choice of energy alternatives has actually been the result of free market mechanisms; energy development has been heavily subsidized by government programs, and the distribution and magnitudes of these subsidies the result of the exercise of power:

- The oil industry was directly encouraged by government policy, particularly through a wide range of generous tax breaks, especially for oil exploration. Every time an effort is made to close these “loop-holes” the oil industry mobilizes its opposition, claiming that these subsidies are essential for national security and a stable supply of oil.
- The nuclear industry would not exist without systematic government sponsorship. The key issue here is the rules established by the state for *limited liability for claims in nuclear accident*. In the absence of such rules, the industry would not have been able to afford market-based insurance for accidents.

- During the 20th century the total amount of government subsidies around energy in the United States amounted to over \$250 billion. Roughly half of this went to oil, a quarter to electrification, a little under 10% to nuclear, and only .15% for solar.⁵ This allocation of government subsidies in part reflected the power of the economic interests tied to each form of energy, not market forces.

The profile of energy use in the American economy today is not the result of the spontaneous, impersonal operation of the market and consumer preferences; it has been heavily shaped by the strategies of powerful corporations using the state to further its ends.

Occasionally, of course, the government does step in and impose new environmental regulations over the objections of powerful corporations, regulations which help define new “rules of the game” within which markets and corporations must operate. The creation of the Environmental Protection Agency in 1970 was one such example. In the late 1960s there was growing awareness in the United States of the need to protect the environment and a realization that the market by itself would not do this. So the Environmental Protection Agency was created during the Nixon administration. By 1980 its activities had expanded considerably and spending on environmental regulation amounted to just under 1% of the total Federal budget. Businesses objected, and in the following decades mobilized their power to undermine the agency and block its regulations. The issue here was not so much that laws have been removed – although this has sometimes happened – but that their enforcement has eroded. By the early 21st century the EPA accounted for only .35% of the federal budget, although towards the end of the decade as political alignments shifted and a sense of urgency around environmental issues increased, it had begun to rise again (Figure 5.7). It is not enough to get effective environmental protections on the books, it is also essential that adequate resources be allocated to the responsible agencies to actually implement the regulations and effectively monitor compliance. One of the central strategies of powerful business interests in blocking effective government action is to starve the regulatory machinery of such resources.

-- Figure 5.7 about here --

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The explanations for environmental problems we have examined – the free-rider problem, negative environmental externalities, NIMBY movements, hyper-consumerism and concentrations of corporate power – all imply the need for an active, interventionist democratic state if we are to seriously address the environmental challenges we face in the 21st century. Environmental free rider problems can only be durably overcome when individuals and firms face different pay-offs for the private choices, and generally this requires government regulation. Environmental negative externalities are an inevitable consequence of profit-maximizing strategies unless government regulations have the effect of forcing firms to pay the costs of these externalities. Hyper-consumerism can be countered by public policies that encourage a different balance between work and leisure and between public and private consumption. And only an

⁵ sources

invigorated affirmative state would potentially have the capacity to counter the power of corporations in obstructing environmental regulation.

One might expect that in a democracy, given the seriousness of the environmental challenges we face, the citizens would demand a strengthening of democratic authority over these issues. So long as American politics is dominated by a free market ideology which proclaims that government is the problem, not the solution, this will not happen.

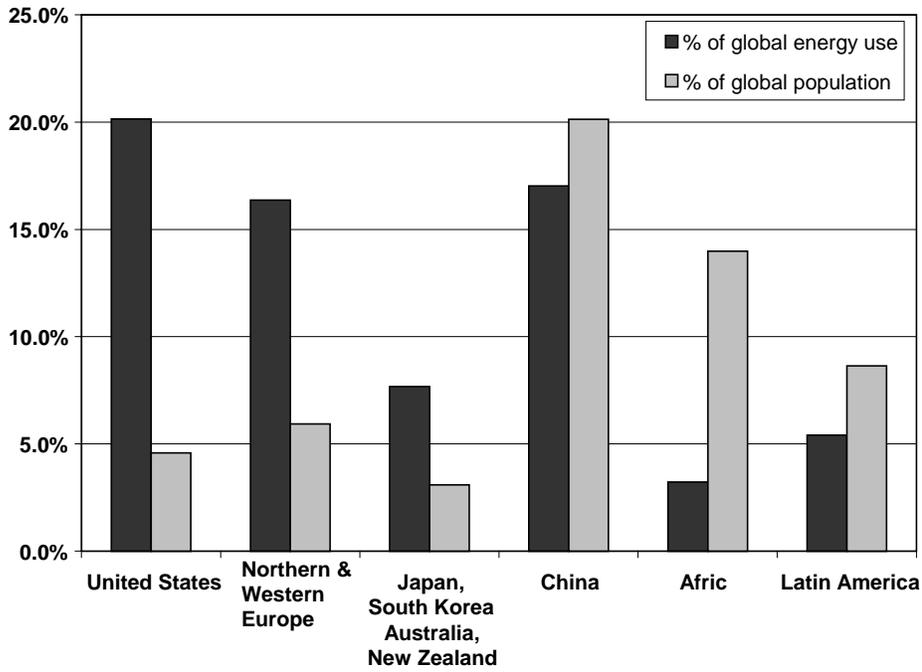
Figures for Chapter 5

FIGURE 5.1 HYPOTHETICAL RECYCLING FREE RIDING PROBLEM

The numbers in the matrix are your long-term personal financial pay-offs for recycling for different patterns of choices to recycle

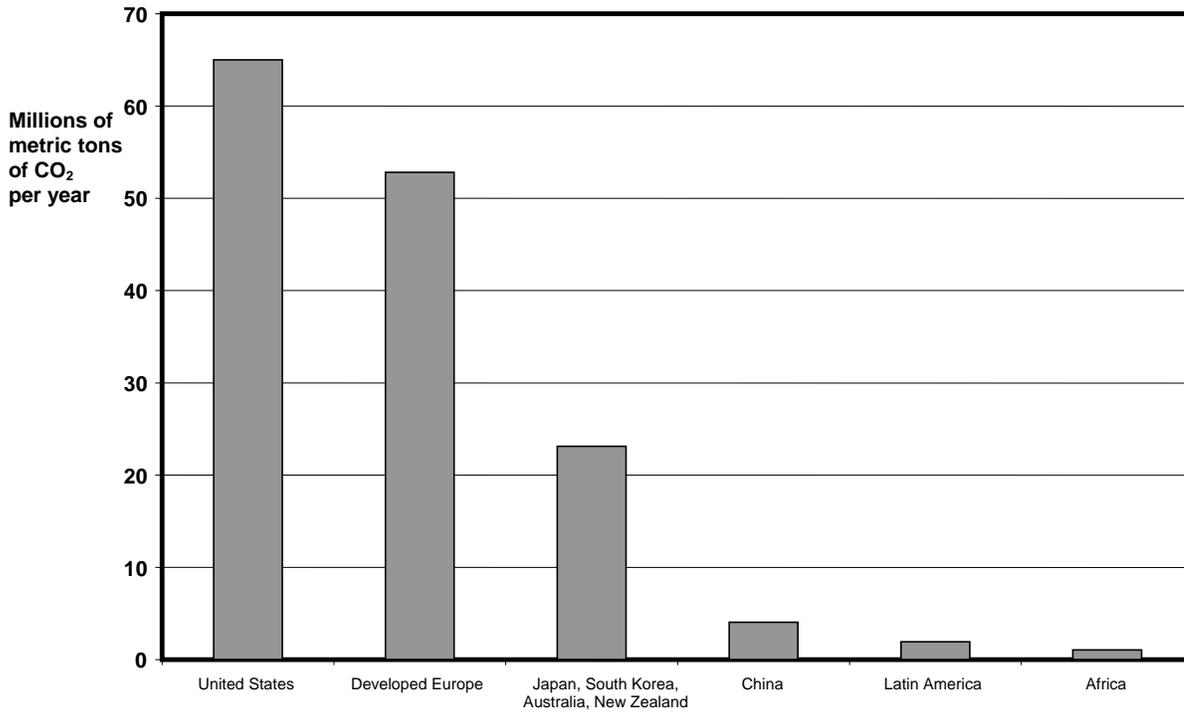
		YOUR CHOICE	
		Recycle	Don't Recycle
EVERYONE ELSE'S CHOICE	Recycle	A \$50/year	B \$100/year
	Don't recycle	C -\$50/year	D \$0/year

Needed: Figure 5.2. The growth of city-sponsored recycling



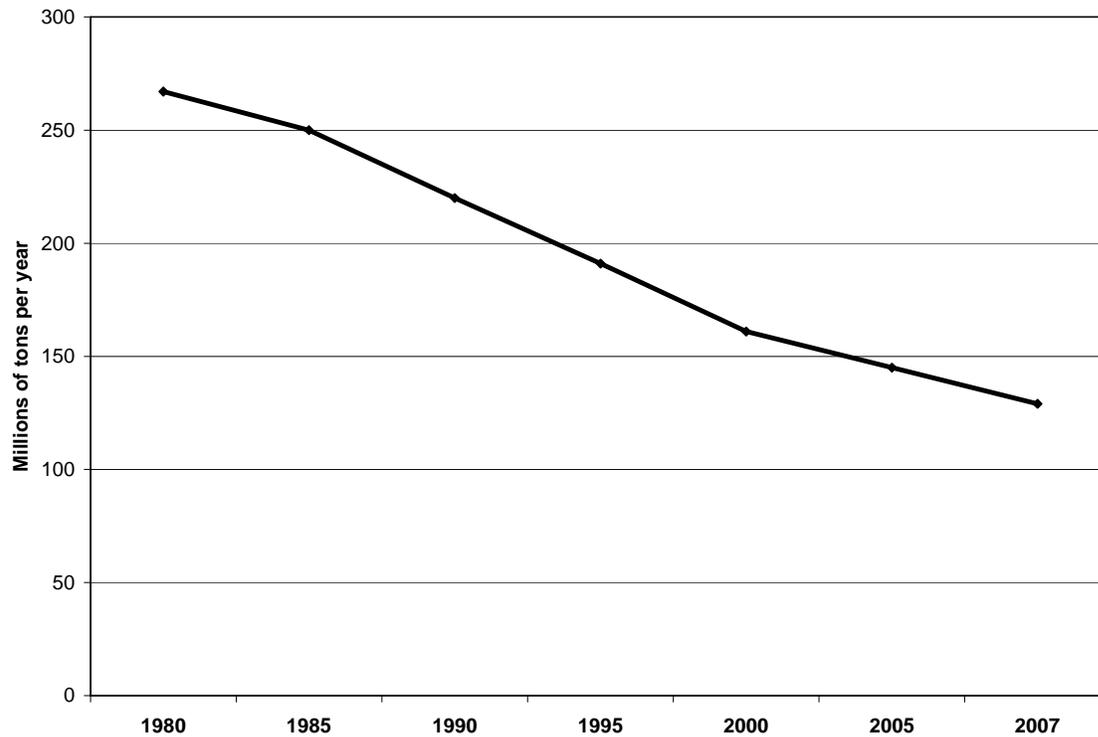
Source: *International Energy Outlook 2008*
 Report #: DOE/EIA-0484(2008) Table A1

Figure 5.3
 Comparison of energy use in the United States and other parts of the world, 2005



Source: *International Energy Outlook 2008*
Report #: DOE/EIA-0484(2008) Table A10

Figure 5.4
CO₂ Emissions per capita, 2005

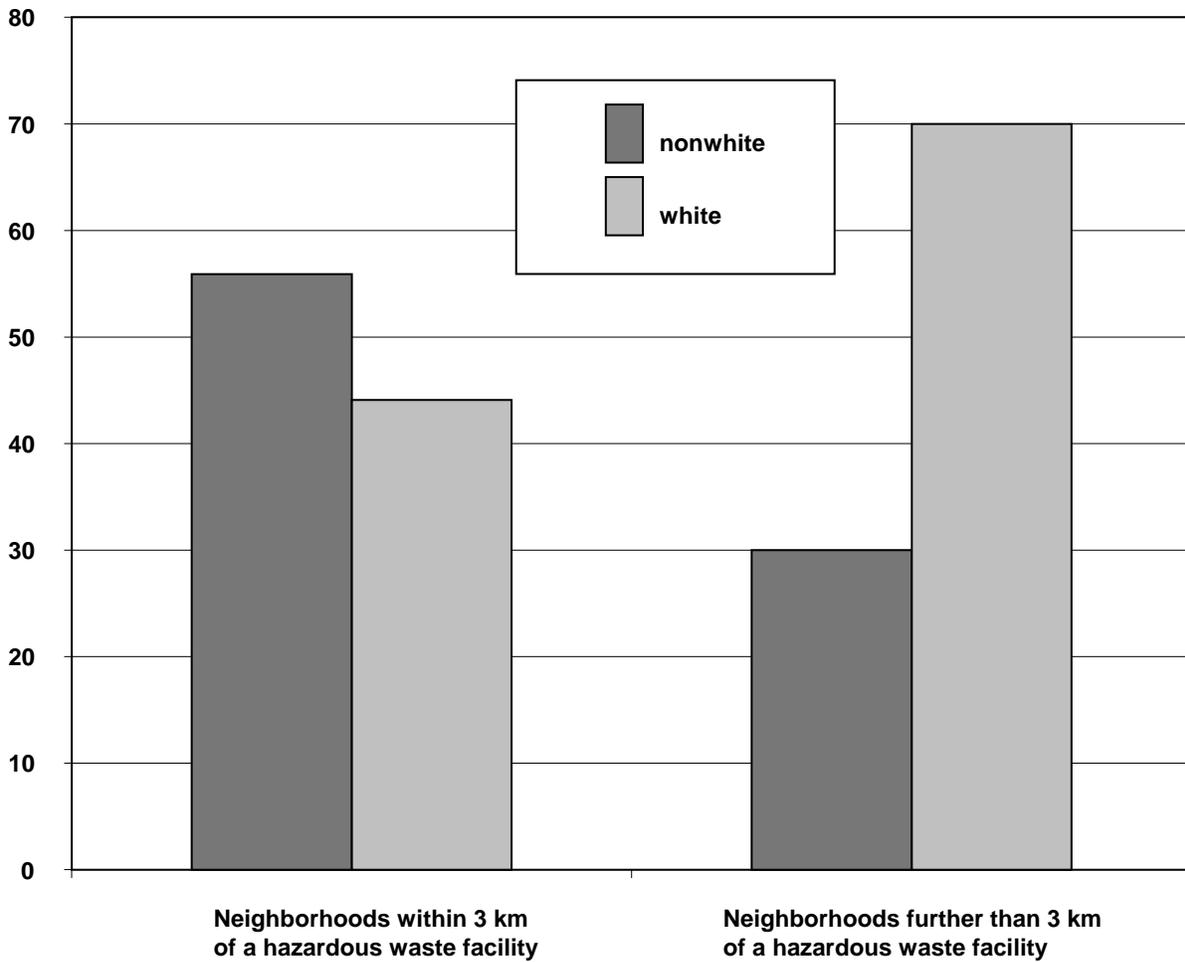


Environmental Protection Agency national emissions estimates for common pollutants and their precursors. Pollutants included in this estimate are: Carbon Monoxide, Lead, nitrogen oxide, volatile organic compounds, particulate matter, and sulfur dioxide. There was a decline of between 39% and 97% for each of these pollutants over this period.

Source: *United States Environmental Protection Agency Air Trends*, <http://www.epa.gov/airtrends/sixpoll.html>

Figure 5.4
Decline in Air Pollution, 1980-2007

% of residents in a neighborhood



Source: *Toxic Wastes and Race at Twenty: 1987-2007*. by Robert D. Bullard, Paul Mohai, Robin Saha, and Beverly Wright (Cleveland: United Church of Christ, 2007)

Figure 5.5
Racial Composition of neighborhoods with hazardous waste facilities, 2000

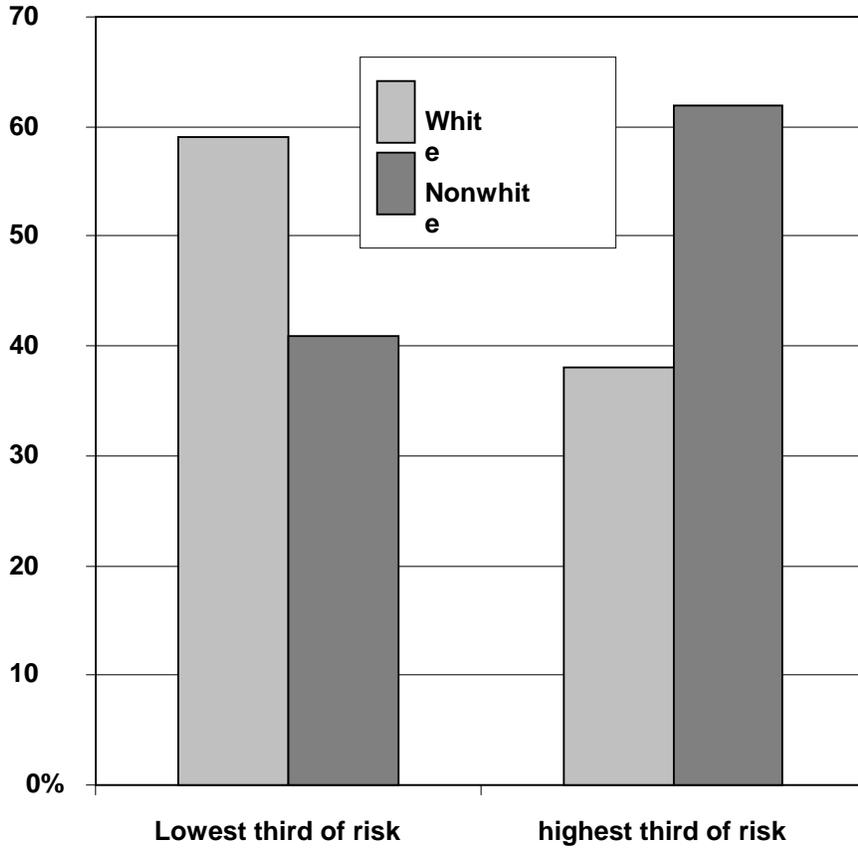


Figure 5.6
Racial composition of census tracts in California by cancer risk from toxins in the air (2000)

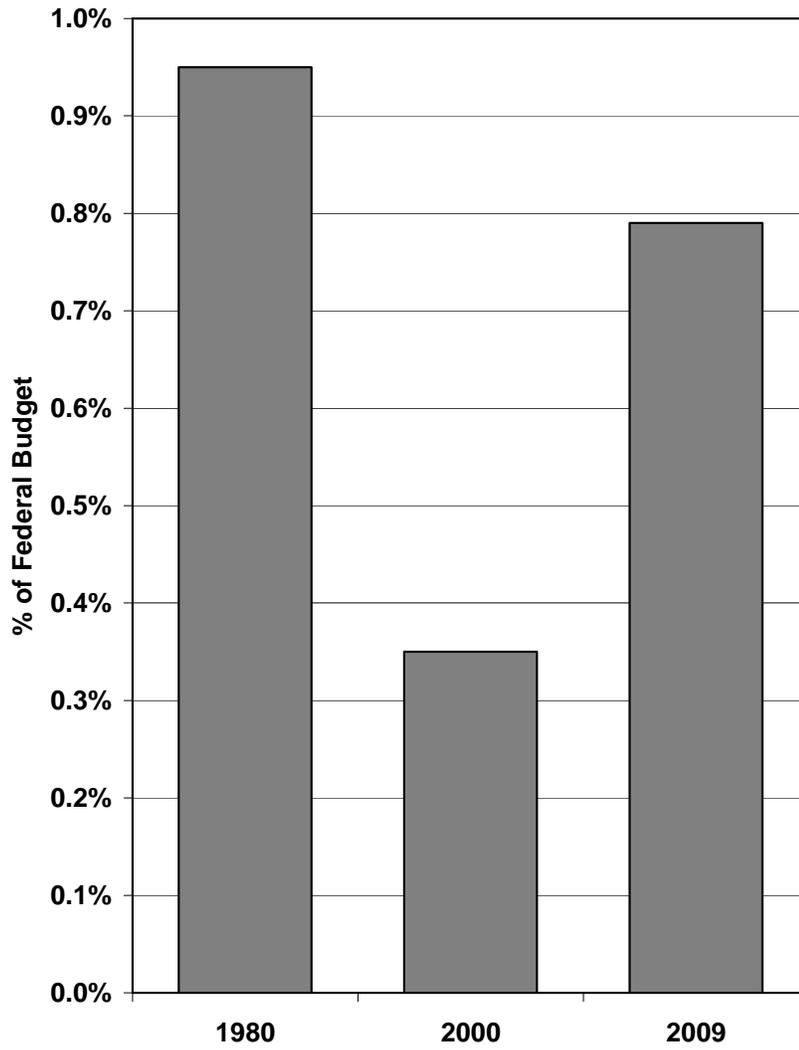


Figure 5.7
The Environmental Protection Agency Budget as a % of the total
U.S. Federal Budget