

ELEVENTH EDITION

MORAL ISSUES IN BUSINESS

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tiny drops of acid that create the fine-particle pollution known to be so dangerous to human health.

Although precise figures are impossible to obtain, there is little doubt that air pollution is responsible for thousands of deaths and millions of sick days every year because of air-related ailments such as asthma, emphysema, and lung cancer.¹⁰ Air pollution is especially harmful to young people, whose lungs are still developing.¹¹ It also contributes to heart disease, and pregnant women residing in regions with significant air pollution are up to three times more likely to give birth to children with serious birth defects.¹² Unfortunately, one in six Americans lives in areas where particle pollution poses a year-round health risk, and even more live in areas where it is an occasional but significant danger. Furthermore, 92.5 million people, almost a third of the U.S. population, reside in areas with harmful levels of ozone.¹³

Thanks to the groundbreaking Clean Air Act of 1970, our air is better than it would otherwise have been, and by some measures it is better than it was forty years ago. In particular, by banning lead as a fuel additive in gasoline, the act has reduced its presence in the air by nearly 90 percent. And the Clean Air Act Amendments of 1990 require further measures be taken to fight smog, acid rain, and toxic emissions. But the fact remains: More than three and a half decades after Congress first set a strict deadline for reducing air pollution to safe levels, the air in more than twenty-one major metropolitan areas remains a health risk.¹⁴

Related to the problem of atmospheric pollution is the issue of global warming. After years of study and debate, there is now a firm scientific consensus that human activity is indeed heating up the planet.¹⁵ As we burn coal, oil, and gasoline for heat, electricity, and transportation, carbon dioxide (CO₂) is released into the atmosphere—now at higher rates than ever¹⁶—trapping excess energy from the sun and warming the globe—the so-called greenhouse effect. The evidence of global warming is all around us. The past decade has been the hottest on record; in the Northern Hemisphere, spring now comes, on average, a week earlier than it used to. Storms have become more intense and weather patterns more erratic. The Arctic ice sheet is melting, the world's glaciers are shrinking fast, and sea levels are rising.

Global warming also favors the spread of disease and threatens countless plant and animal species with extinction.¹⁷ Only by drastically reducing the consumption of fossil fuels can we hope to slow this trend and stabilize the climate at current levels of disruption.

Surprisingly, one of the largest sources of pollution is not at all exotic—namely, the animals we raise for food. In fact, the ecological costs of producing beef, poultry, and pork are second only to the manufacture and use of cars and light trucks. In addition to the electrical energy, fuel, fertilizer, and pesticides consumed by the meat industry is the manure problem. Megafarms with tens or hundreds of thousands of animals have replaced factories as the biggest polluters of America's waterways. The United States generates 1.4 billion tons of animal manure every year—130 times more than the annual production of human waste. This waste wasn't a problem when small farms crisscrossed the nation and farmers used the manure as fertilizer. But giant farms with 100,000 hogs or a million chickens all defecating in the same place seriously damage the environment.¹⁸ Heretofore, runoff and water pollution were the major concern, but now scientists are also worried about air pollution and the emission of noxious fumes from the disposal of animal waste.¹⁹

Nuclear wastes, of course, are in a class by themselves. Significant danger arises from even the small amounts that are released into the atmosphere during normal operation of a nuclear power plant or in mining, processing, or transporting nuclear fuels. A nuclear-plant accident would, of course, have frightening consequences, as the 1986 disaster at Chernobyl, Ukraine, brought vividly home to the world. Illnesses caused by the fallout from Chernobyl are still emerging, over twenty years later.²⁰ In addition, the disposal of nuclear wastes has to worry anyone who is sensitive to the legacy we leave future generations. Will the nuclear wastes we bury today return to haunt them tomorrow?

It is little wonder, then, that considerable attention has focused on business's and industry's responsibility for preserving the integrity of our natural environment. This chapter explores some of the moral dilemmas posed for business by our environmental relationships—not just the problem of pollution but also the ethical issues posed by the depletion of natural resources and by our

treatment of animals. The chapter's purpose is not to argue that the environmental problems facing us are serious and that industry has greatly contributed to them. Few people today doubt this. Rather, this chapter is largely concerned with a more practical question: Given the problems of environmental degradation, of resource depletion, and of the abuse of animals for commercial purposes, what are business's responsibilities? Specifically, this chapter examines the following topics:

1. The meaning and significance of *ecology*
2. The traditional business attitudes toward the environment that have encouraged environmental degradation and resource depletion

3. The moral problems underlying business's abuse of the environment—in particular, the question of externalities, the problem of free riders, and the right to a livable environment
4. The costs of environmental protection and the question of who should pay them
5. Three methods—regulations, incentives, and pricing mechanisms—for pursuing our environmental goals
6. Some of the deeper and not fully resolved questions of environmental ethics: What obligations do we have to future generations? Does nature have value in itself? Is our commercial exploitation of animals immoral?

BUSINESS AND ECOLOGY

To deal intelligently with the question of business's responsibilities for the environment, one must realize that as business uses energy and materials, discharges waste, and generates products and services, it is functioning within an ecological system. Ecology refers to the science of the interrelationships among organisms and their environments. The operative term is "interrelationships," implying that an interdependence exists among all entities in the environment. In particular, we must not forget that human beings are part of nature and thus intricately connected with and interrelated to the natural environment.

Ecosystems

In speaking about ecological matters, ecologists frequently use the term *ecosystem*, which refers to a total ecological community, both living and nonliving. Webs of interdependency structure ecosystems. Predators and prey, producers and consumers, hosts and parasites are linked together, creating interlocking mechanisms—checks and balances—that stabilize the system. A change in any one element can have ripple effects throughout the system.

For example, a decade after wolves were reintroduced into Yellowstone Park in the mid-1990s, their presence was discovered to have changed the behavior of elk.²¹ Skittish of wolves, the elk now spend more time than they used to in places that afford a 360-degree view, and they shy away from rises or bluffs that conceal wolves. In those places, aspen, cottonwoods, and willow thickets have bounced back as a result. The trees, in turn, have stabilized the banks of streams, and by lowering the water temperature, their shade has improved the habitat for trout, resulting in more and bigger fish. Beavers, which eat willow and aspen, have also returned to the streams. So have yellow warblers, Lincoln sparrows, and other songbirds. When wolves kill an elk, they don't eat the whole carcass, so scavengers like magpies and ravens prosper. Coyotes, in contrast, have declined. The creatures they used to prey on—voles, mice, and other rodents—are flourishing and their increased numbers have boosted the population of raptors and red foxes. The wolves themselves, however, are under threat from the dogs that visitors bring into the park. Dogs can carry parvovirus, which is now killing 60

Many commercial activities have unpredictable and often disruptive environmental consequences.

Summary 7.1

Ecology studies the interrelationships among organisms and their environments. Because of the interdependence of an ecosystem's elements and because intrusion into an ecosystem frequently creates unfavorable effects, business must be sensitive to its impacts on the physical environment.

to 70 percent of wolf pups and is largely responsible for the recent decline in the wolf population from 170 to 130.

Every living organism affects its environment, yet *Homo sapiens* possesses the power to upset dramatically the stability of natural ecosystems. In particular, many human commercial activities (for example, using pesticides and establishing oil fields) have unpredictable and disruptive consequences for ecosystems. For example, farmers in the Midwest use nitrogen fertilizer liberally. Excess nitrogen runs off their fields and finds its way into the Mississippi River and eventually into the Gulf of Mexico. There, in what has historically been the nation's best shrimping grounds, it has created what is known as the dead zone, where the water is devoid of life to about 10 feet below the surface. This dead zone has now grown to about 8,500 square miles, an area the size of New Jersey.²²

Nevertheless, tampering with ecosystems does not always have injurious effects. Sometimes unforeseen benefits result, as was true years ago when oil and gas drilling expanded into the Gulf. Much to everyone's surprise, the operational docks, pipes, and platforms provided a better place for lower forms of life to attach themselves than the silt-laden sea ever did. This in turn increased the fish catch in the area. But even in fortuitous instances like this, environmental intrusions affect the integrity of ecosystems. And that's the point. Because an ecosystem represents a delicate balance of interrelated entities, the introduction of any new element, whether biotic or abiotic, can disrupt it. And we are not usually so lucky in the results. Dr. Paul Ehrlich, one of the best-known exponents of ecological awareness, put the matter succinctly. "There are a number of ecological rules it would be wise for people to remember," Ehrlich said. "One of them is that there is no such thing as a free lunch. Another is that when we change something into something else, the new thing is usually more dangerous than what we had originally."²³

As it produces the goods and services we need or want, business inevitably intrudes into ecosystems, but not all intrusions or all kinds of intrusions are justifiable. In fact, precisely because of the interrelated nature of ecosystems and because intrusions generally produce serious unfavorable effects, business must scrupulously avoid actions, practices, and policies that have an undue impact on the environment. There's ample documentation to show that business traditionally has been remiss in both recognizing and adequately discharging its obligations in this regard. We needn't spend time retelling the sorry tale, but it does seem worthwhile to isolate some business attitudes that have been responsible for this indifference.

Business's Traditional Attitudes toward the Environment

Several related attitudes, prevalent in our society in general and in business in particular, have led to or increased our environmental problems. One of these is the tendency to view the natural world as a "free and unlimited good"—that is, as something we can exploit, even squander, without regard to the future. Writer John Steinbeck once reflected on this attitude:

I have often wondered at the savagery and thoughtlessness with which our early settlers approached this rich continent. They came at it as though it were an enemy, which of course it was. They burned the forests and changed the rainfall; they swept the buffalo from the plains, blasted the streams, set fire to the grass, and ran a reckless scythe through the virgin and noble timber. Perhaps they felt that it was limitless and could never be exhausted and that a man could move on to new wonders endlessly . . .

This tendency toward irresponsibility persists in very many of us today; our rivers are poisoned by reckless dumping of sewage and toxic industrial wastes, the air of our cities is filthy and dangerous to breathe from the belching of uncontrolled products from combustion of coal, coke, oil, and gasoline. Our towns are girdled with wreckage and debris of our toys—our automobiles and our packaged pleasures. Through uninhibited spraying against one enemy we have destroyed the natural balances our survival requires. All these evils can and must be overcome if America and Americans are to survive; but many of us conduct ourselves as our ancestors did, stealing from the future for our clear and present profit.²⁴

Traditionally, business has considered the environment to be a free, nearly limitless good. In other words, air, water, land, and other natural resources from coal to beavers (trapped almost to extinction for their pelts in the nineteenth century) were seen as available for business to use as it saw fit. In this context, pollution and the depletion of natural resources are two aspects of the same problem: Both involve using up natural resources that are limited. Pollution uses up clean air and water, just as extraction uses up the minerals or oil in the ground. The belief that both sorts of resources are unlimited and free promotes wasteful consumption of them.

Garrett Hardin describes the consequences of this attitude in his well-known parable, the *tragedy of the commons*. Hardin asks us to imagine villagers who allow their animals to graze in the commons, the collectively shared village pasture. Even though it is in the interest of each person to permit his or her animals to graze without limit on the public land, the result of doing so is that the commons is soon overgrazed, making it of no further grazing value to anyone.²⁵

Today the international fishing industry exemplifies Hardin's point: Overfishing by ships armed with advanced technology is dramatically reducing the world's stock of fish, threatening to undermine the whole industry.²⁶ But the moral of Hardin's story is perfectly general: When it comes to "the commons"—that is, to public or communal goods like air, water, and wilderness—problems arise as the result of individuals' and companies' following their own self-interest. Each believes that his or her own use of the commons has only a negligible effect, but the cumulative result can be the gradual destruction of the public domain, which makes everyone worse-off. In the tragedy of the commons we have the reverse of Adam Smith's invisible hand: Each person's pursuit of self-interest makes everyone worse-off.

The tragedy of the commons also illustrates the more general point that there can be a difference between the private costs and the social costs of a business activity. Chapter 5 discussed this issue when it described what economists call "externalities," but it is worth reviewing the point in the present context.

Suppose a paper mill only partially treats the chemical wastes it releases into a lake that's used for fishing and recreational activities, thus saving on production costs. If the amount of effluent is great enough to reduce the fishing productivity of the lake, then while the mill's customers pay a lower price for its paper than they otherwise would, other people end up paying a higher price for fish. Moreover, the pollution may make the lake unfit for recreational activities such as swimming or for use as a source of potable water. The result is that other people and the public generally pay the cost of the mill's inadequate water-treatment system. Economists term this disparity between private industrial costs and public social costs an *externality*, or *spillover*. In viewing things strictly in terms of private industrial costs, business overlooks spillover. This is an economic problem because the price of the paper does not reflect the true

Both pollution and the depletion of natural resources involve using up something that is in limited supply.

Summary 7.2

Traditionally, business has regarded the natural world as a free and unlimited good. Pollution and resource depletion are examples of situations in which each person's pursuit of self-interest can make everyone worse-off (the "tragedy of the commons"). Business must be sensitive to possible disparities between its private economic costs and the social costs of its activities (the problem of externalities, or spillovers).

cost of producing it. Paper is underpriced and overproduced, thus leading to a misallocation of resources. This is also a moral problem because the purchasers of paper are not paying its full cost. Instead, part of the cost of producing paper is being unfairly imposed on other people.

The same sort of disparity between the private costs and the social costs of business activity also arises in the context of resource depletion, rather than pollution. For example, it takes 100,000 gallons of water to make one automobile, but no manufacturer considers, let alone pays for, the damage done to the water table. Yet America is in the environmentally unsustainable position of sucking up 75 gallons of groundwater for every 60 that nature puts back in.²⁷

In sum, then, externalities or spillover effects, pursuit of private interest at the expense of the commons, and a view of the environment as a free good that can be consumed without limit have combined with an ignorance of ecology and of the often fragile interconnections and interdependencies of the natural world to create the serious environmental problems facing us today.

THE ETHICS OF ENVIRONMENTAL PROTECTION

Much of what we do to reduce, eliminate, or avoid pollution and the depletion of scarce natural resources is in our collective self-interest. Many measures that we take—for example, recycling our cans or installing catalytic converters in our cars—are steps that benefit all of us, collectively and individually: Our air is more breathable and our landscapes less cluttered with garbage. But even if such measures benefit each and every one of us, there is still a **free-rider problem** because of the temptation to shirk individual responsibilities. The individual person or company may rationalize that the little bit it adds to the total pollution problem doesn't make any difference. It benefits from the efforts of others to prevent pollution but "rides for free" by not making the same effort itself.

The unfairness here is obvious. Likewise, as explained in the previous section, the failure of companies to "internalize" their environmental "externalities" spells unfairness. Others are forced to pick up the tab when companies do not pay all the environmental costs involved in producing their own products. As mentioned in Chapter 5, those who adopt the broader view of corporate responsibility emphasize that business and the rest of society have an implicit social contract. This contract reflects what society hopes to achieve by allowing business to operate; it sets the "rules of the game" governing business activity. Companies that try to be free riders in environmental matters or that refuse to address the spillover or external costs of their business activity violate this contract.

So far this chapter has emphasized that we need to view the environment differently if we are to improve our quality of life and even to continue to exist. And it has just stressed how the failure of an individual or business to play its part is unfair. Some moral theorists, like William T. Blackstone, have gone further to argue that each of us has a **right to a livable environment**. In Blackstone's view, this is a human right. "Each person," he argues, "has this right *qua* being human and because a livable environment is essential for one to fulfill his human capacities."²⁸ This right has emerged, he contends, as a result of changing environmental conditions, which affect the very possibility of human life as well as the possibility of realizing other human rights.

Recognition of a right to a livable environment would strengthen further the ethical reasons for business to respect the integrity of the natural world.

Several factors have combined to create the serious environmental problems facing us today.

In addition, recognition of this moral right could, Blackstone suggests, form a sound basis for establishing a legal right to a livable environment through legislation and even, perhaps, through a constitutional amendment or an environmental bill of rights. An official recognition of such rights would enhance our ability to go after polluters and other abusers of the natural environment.

Acknowledging a human right to a livable environment, however, does not solve many of the difficult problems facing us. In the effort to conserve irreplaceable resources, to protect the environment from further degradation, and to restore it to its former quality, we are still faced with difficult choices, each with its economic and moral costs. The next section focuses on pollution-control, but most of the points apply equally to other problems of environmental protection, as well as to the conservation of scarce resources.

The Costs of Pollution Control

It is easy to say that we should do whatever it takes to improve the environment. Before this answer has any operational worth, however, we must consider a number of things. One is the quality of environment that we want. This can vary from an environment restored to its pristine state to one minimally improved over its current condition. Then there's the question of precisely what is necessary to bring about the kind of environment we want. In some cases we may lack the technological capacity to restore the environment. Finally, an important concern in any determination of what should be done to improve the environment is a calculation of what it will cost.

To draw out this point, we must consider a major technique for determining the total costs of environmental improvement. **Cost-benefit analysis** is a device used to determine whether it's worthwhile to incur a particular cost—for instance, the cost of employing a particular pollution-control device. The general approach is to evaluate a project's direct and indirect costs and benefits, the difference being the net result for society. Suppose that the estimated environmental damage of operating a particular plant is \$1 million per year, that closing the plant would have dire economic consequences for the community, and that the only technique that would permit the plant to operate in an environmentally nondamaging way would cost \$6 million per year. In this case, cost-benefit analysis would rule against requiring the plant to introduce the new technique.* If the cost of the technique had been only \$800,000, however, cost-benefit analysis would have favored it.

Cost-benefit analysis can quickly get complicated. For example, to determine whether it would be worthwhile to initiate more stringent air-pollution standards for a particular industry, a multitude of factors must be considered. Possible costs might include lower corporate profits, higher prices for consumers, unfavorable effects on employment, and adverse consequences for the nation's balance of payments. On the side of anticipated benefits, a reduction in airborne particulates over urban areas would reduce illness and premature death from bronchitis, lung cancer, and other respiratory diseases by some determinate percentage. The increase in life expectancy would have to be estimated along with projected savings in medical costs and increases in productivity. In addition, diminished industrial discharges would mean reduced property and crop damage from air pollution, and that would save more money.

*Cost-benefit analysis would not, however, prevent other strategies for getting the plant to internalize this externality. It could be taxed \$1 million or be required to reimburse those who suffer the \$1 million loss.

Summary 7.3

Companies that attempt to be free riders in environmental matters or that refuse to address the external costs of their business activities behave unfairly. Some philosophers maintain, further, that every human being has a right to a livable environment.

This example suggests the extreme difficulty of making reliable estimates of actual costs and benefits, of putting price tags on the different effects of the policy being considered. Any empirical prediction in a case like this is bound to be controversial. This problem is compounded by the fact that decision makers are unlikely to know for certain all future results of the policy being studied. Not only is estimating the likelihood of its various possible effects difficult, but also some future effects may be entirely unanticipated.

The new discipline of ecological economics is attempting to expand further the boundaries of environmental cost-benefit analysis by calculating the value of an ecosystem in terms of what it would cost to provide the benefits and services it now furnishes us—for example, the worth of a wetland in terms of the cost of constructing structures that provide the same flood control and storm protection that natural wetlands do.²⁹ Although conventional economists dismiss the idea of equating the value of something with its replacement cost rather than with what people are willing to pay for it, ecological economists respond that traditional market pricing fails to capture the nonmarketed externalities that nature provides, such as the nutrients that a forest recycles. In one study, for example, ecological economists established that a mangrove swamp in Thailand was worth 72 percent more when left intact to provide timber, charcoal, fish, and storm protection than when converted to a fish farm. “In every case we looked at,” states Cambridge University biologist Andrew Balmford, “the loss of nature’s services outweighed the benefits of development, often by large amounts.”³⁰

Summary 7.4

Pollution control has a price, and trade-offs must be made. Weighing environmental costs and benefits is often difficult, though. The new discipline of ecological economics and recent attempts to measure “non-use value” try to offer a wider perspective on environmental issues, but any kind of cost-benefit analysis inevitably involves controversial factual assessments and value judgments.

An assessment of costs and benefits inevitably involves value judgments and factual uncertainties.

Even putting aside the debate over ecological economics, cost-benefit analyses of rival environmental policies will frequently prove controversial because they inevitably involve making value judgments about nonmonetary costs and benefits. Costs relative to time, effort, and discomfort can and must be introduced. Benefits can take even more numerous forms: health, convenience, comfort, enjoyment, leisure, self-fulfillment, freedom from odor, enhanced beauty, and so on. Benefits are especially difficult to calculate in environmental matters because they often take an aesthetic form. Some environmentalists, for example, may campaign for the preservation of a remote forest visited annually by only a handful of stalwart backpackers, whereas developers wish to convert it into a more accessible and frequented ski resort. Should the forest be preserved or should it be converted into a ski resort? Conflicting value judgments are at stake.

With the assistance of an economics consulting firm, the U.S. Department of the Interior asked Americans how much they are willing to shell out for environmental restoration. For instance, what would each consent to pay to restore the ecological balance of the Grand Canyon, even if few of them will actually see or truly understand the improvements: ten cents a month? a dollar a month? ten dollars a month? The Interior Department used this technique to justify reintroducing wolves into parts of Montana, Wyoming, and Idaho—a controversial move opposed by some taxpayers, ranchers, and consumers of beef. Some environmentalists applaud this attempt to calculate what economists call “non-use value,” but others fear that the attempt to put a monetary price tag on ecosystems belittles the values they champion.³¹

An evaluation of costs and benefits is unavoidably wed to value judgments—to assessments of worth and the ranking of values. Although a cost-effectiveness analysis may be necessary for determining the soundness of an environmental-preservation measure or a pollution-control project, it seems inevitable that any assessment of costs and benefits will be subject to various factual uncertainties and significantly influenced by the values one holds. This is especially

true in situations where environmental concerns clash. Windmills, for example, offer a clean, endlessly renewable source of energy, but they blemish the natural landscape and can chop up migratory birds.³² Technology that replaces wood fiber with calcium carbonate in the production of paper saves trees, but mining it sometimes despoils bucolic areas.³³ Natural gas burns more cleanly than other fossil fuels, but the new offshore terminals that process it kill sea life and put pressure on an already fragile marine ecosystem.³⁴

Who Should Pay the Costs?

The most comprehensive federal study of air-pollution rules shows the cost of compliance to be outweighed five to seven times by the economic benefits from reductions in hospitalization, emergency room visits, premature deaths, and lost workdays.³⁵ In addition, of course, money spent to minimize pollution benefits those paid to clean up or prevent the pollution. Indeed, restoring the environment could become the biggest economic enterprise of our times, a huge source of jobs, profits, and poverty alleviation.³⁶ Still, environmental protection and restoration do not come cheap, and determining who should pay the necessary costs raises a tough question of social justice. Two popular answers to this question currently circulate: (1) Those responsible for causing the pollution ought to pay. (2) Those who stand to benefit from protection and restoration should pick up the tab.

Those Responsible The claim that those responsible for causing the pollution ought to pay the costs of pollution control and environmental restoration seems eminently fair until one asks a simple question: Who, exactly, is responsible for the pollution? Who are the polluters?

Many people argue that big business is the chief polluter and therefore ought to bear the lion’s share of the costs of environmental protection and restoration. Business probably has profited more than any other group from treating the environment as a free good, but consumers themselves have benefited enormously by not having to pay higher costs for products. In fact, some would argue that consumers are primarily to blame for pollution because they create the demand for the products whose production impairs the environment. As Milton Friedman put it, “the people who use electricity are responsible for the smoke that comes out of the stacks of generating plants.”³⁷ Therefore, the argument goes, it is consumers, not business, who should pay to protect and restore the environment. This argument can be extended globally. International agreements like the Kyoto Protocol, which became effective in 2005, look at greenhouse emissions on a country-by-country basis, requiring every participating nation to reduce the carbon dioxide produced within its borders. As the main producer of MP3 players, China contributes significantly to global warming because manufacturing a single player releases about 17 pounds of CO₂ into the atmosphere. But if a Chinese factory makes something only so that it can be exported to consumers in America, don’t they bear the ultimate responsibility for the pollution that results?³⁸

Actually, both versions of the polluter-should-pay-the-bill thesis—one attributing primary responsibility for pollution to big business, the other to consumers—largely ignore the manifold, deep-rooted causes of environmental degradation. Two important causes of pollution have been population growth and the increasing concentration of population in urban areas. In 1900, Americans numbered 76.2 million; by the beginning of the twenty-first century the U.S. population had quadrupled, to more than 300 million. An increasingly urbanized nation,

the United States is a long way from the rural, agriculturally oriented society it once was. Today, for example, the number of college students is more than three times the entire U.S. farm population, which has fallen from over 40 percent in 1900 to less than 2 percent today. More than 70 million Americans live in our ten largest metropolitan areas, and nearly half the population resides in metropolitan areas with populations of a million or more. Accompanying this tremendous growth and equally staggering level of urbanization is an ever-increasing demand for goods and services, natural resources, energy, and industrial production. Viewing the matter globally only underscores the point. The world's population has more than doubled since 1960 and is increasingly urbanized. Half the world's population lives in cities, and sixteen of the world's twenty largest cities are in developing countries.

Another root cause of environmental problems is rising affluence. As people get more money to spend, they buy and consume more tangible goods, discard them more quickly, and produce more waste, all of which hasten degradation of the environment. Americans today produce 60 percent more garbage per person than Americans thirty years ago, almost 1,600 pounds per person per year.³⁹ We own more than 241 million motor vehicles—that's about a quarter of the world total—and are only making matters worse by our preference for big, gas-guzzling pickups, minivans, and sport-utility vehicles, which emit significantly more carbon dioxide (a principle cause of global warming) and nitrogen oxides (the main source of smog) than ordinary passenger cars do.* Naturally enough, people in less-developed countries aspire to the material lifestyle that Americans enjoy, and their rapidly growing economies are beginning to make this possible. But the environmental consequences of even a third of the world's population consuming as much and as wastefully as Americans do would be catastrophic.

Thus, the enemy in the war against environmental abuse turns out, in a sense, to be all of us. No solution to the question of who should pay the costs of pollution control can ignore this fact.

Those Who Would Benefit The other popular reply to the payment question is that those who will benefit from environmental improvement should pay the costs.

Workers in certain industries and people living in certain neighborhoods or regions benefit more than other people from environmental controls. The residents of the Los Angeles basin, for instance, gain more from stringently enforced auto-emission standards than do people living in a remote corner of Wyoming. The trouble with this argument, though, is that every individual, rich or poor, and every institution, large or small, stands to benefit in some way from environmental protection and restoration, albeit not necessarily to the same degree. As a result, the claim that those who will benefit should pay the costs is problematic because pollution touches everyone. This point holds true internationally. Improved environmental controls in China would undoubtedly benefit the Chinese people first and foremost; but the global warming to which this pollution contributes is a worldwide problem, and addressing it will benefit us all.

If, however, this position means that individuals and groups should pay to the degree that they will benefit, then one must wonder how this could possibly be determined. For example, changing the operation of the Glen Canyon Dam

*The average passenger vehicle now weighs more and has greater horsepower than ever before. It also gets fewer miles per gallon than in 1987.⁴⁰

has raised electricity bills in the West, but it has reduced ecological damage to the Grand Canyon. Who benefits the most—local residents, visitors to the Grand Canyon, everyone who values this national resource—and how much should they pay?⁴¹ But perhaps the most serious objection to this thesis is that it seems to leave out responsibility as a legitimate criterion. Pollution restrictions on American power plants in the Midwest benefit Canadians by reducing acid rain, but to make them pay the costs wouldn't seem fair.

Any equitable solution to the problem of who should pay the bill for environmental cleanup should take into account responsibility as well as benefit. The preceding analysis suggests that, to a certain extent, we all share the blame for pollution and all stand to benefit from environmental improvement. This doesn't mean, however, that we can't pinpoint certain areas of industry as chronic polluters. Electric-power plants, for example, are one of the major sources of greenhouse gases, but not all plants are equally dirty. Old coal-burning plants that have resisted modernization produce a disproportionate share of the pollution. Likewise, some companies can be singled out as having particularly distressing environmental records. One business magazine recently named ten of them.⁴² They include Alcoa, whose aluminum smelters release 6.1 million pounds of air pollution annually; American Electric Power, one of the biggest mercury polluters in the United States; Chevron, which has contributed to more than 90 Superfund toxic waste sites; and Cargill, whose various facilities are responsible for inordinate air pollution, groundwater contamination, and toxic discharges into Virginia's North Folk Shenandoah River. Or consider Massey Energy Company, the nation's fourth-largest coal producer. A repeat violator of the Clean Water Act, it has clogged and polluted hundreds of streams and rivers in Kentucky and West Virginia.⁴³

Still, the point is that a fair and just program for assigning costs begins with a recognition that we all bear responsibility for environmental problems and that we all stand to benefit from correcting them. But even if we agree that it is only fair that everyone share the cost of environmental improvement, we can still wonder about how the bill ought to be paid. What would be the fairest and most effective way of handling those costs?

ACHIEVING OUR ENVIRONMENTAL GOALS

Without an environmentally informed citizenry making conscientious political, business, and consumer choices, it will prove impossible to reverse the degradation of our environment by halting pollution, stemming global warming, and reducing the utilization of natural resources to sustainable levels. Just as obviously, business and government must work together if we are to achieve our shared environmental goals. Government, in particular, has a crucial role to play by initiating programs that prod business into behaving in more environmentally responsible ways. That's easy to see. The more challenging moral and economic task is to determine fair and effective methods for doing so.

Three distinct approaches to environmental protection are the use of regulations, the use of incentives, and the use of pricing mechanisms and pollution permits. Though similar in some respects, they carry different assumptions about the roles of government and business, as well as about what's fair and just. Each approach has distinct advantages and weaknesses; each raises some questions of social justice.

Although we all share some responsibility for pollution, certain companies and industries stand out as excessive polluters.

Summary 7.5

Any equitable solution to the problem of who should bear the costs of environmental protection and restoration must recognize that all of us in some way contribute to the problem and benefit from environmental safeguards and improvements. Among the deep-rooted causes of environmental degradation are population growth, increasing urbanization, and rising affluence.

Regulations

The **regulatory approach** makes use of direct public regulation and control in determining how the pollution bill is paid. State and federal legislation and regulations formulated by agencies such as the EPA set environmental standards, which are then applied and enforced by those agencies, other regulatory bodies, and the courts. An emissions standard that, for example, prohibits industrial smokestacks from releasing more than a certain percentage of particulate matter would require plants exceeding that standard to comply with it by installing an appropriate pollution-control device.

A clear advantage to such a regulatory approach is that standards would be legally enforceable. Firms not meeting them could be fined or even shut down. Also, from the view of morality, such standards are fair in that they apply to all industries in the same way. There are, however, distinct disadvantages in this approach.

First, pollution statutes and regulations generally require polluters to use the strongest feasible means of pollution control. But that requires the EPA or some other regulatory body to investigate pollution-control technologies and economic conditions in each industry to find the best technology that companies can afford. Such studies may require tens of thousands of pages of documentation, and legal proceedings may be necessary before the courts give final approval to the regulation. Moreover, expecting the EPA to master the economics and technology of dozens of industries, from petrochemicals to steel to electric utilities, may be unreasonable. It is bound to make mistakes, asking more from some companies than they can ultimately achieve while letting others off too lightly.⁴⁴

Second, although universal environmental standards are fair in the sense that they apply to all equally, this very fact raises questions about their effectiveness. In attempting to legislate realistic and reliable standards for all, will government so dilute the standards that they become ineffectual? Or consider areas where the environment is cleaner than government standards. In such cases, should an industry be allowed to pollute up to the maximum of the standard? The Supreme Court thinks not. In a case brought before it by the Sierra Club, the Court ruled that states with relatively clean air must prohibit industries from producing significant air pollution even when EPA standards are not violated. In this case a firm is being forced to pay the costs of meeting an environmental standard that, in one sense, is sterner than what competitors must meet elsewhere. One can also question both the equity and the economic sense of requiring compliance with universal standards, without regard for the idiosyncratic nature of each industry or the particular circumstances of individual firms. Is it reasonable to force companies that cause different amounts of environmental damage to spend the same amount on pollution abatement? In one case, the courts required two paper mills on the West Coast to install expensive pollution-control equipment, even though their emissions were diluted effectively by the Pacific Ocean. It took a special act of Congress to rescue the mills.⁴⁵

Third, regulation can also take away an industry's incentive to do more than the minimum required by law. No polluter has an incentive to discharge less muck than regulations allow. No entrepreneur has an incentive to devise technology that will bring pollution levels below the registered maximum. Moreover, firms have an incentive not to let the EPA know they can pollute less. Under the regulatory approach, a government agency may have the desire to regulate pollution but lack the information to do it efficiently. The position

of industry is reversed: It may have the information and the technology but no desire to use it.⁴⁶

Finally, there's the problem of displacement costs resulting from industrial relocation or shutdown due to environmental regulations. For example, Youngstown Sheet and Tube Company moved its corporate headquarters and some production lines to the Chicago area, thus eliminating five hundred jobs in Youngstown, Ohio, and causing serious economic problems in nearby communities. One of the reasons for the transfer was the need to implement water-pollution controls, which depleted vital capital. Consider also the marginal firms that would fail while attempting to meet the costs of such standards. When air-pollution regulations were applied to a sixty-year-old cement plant in San Juan Bautista, California, the plant had to close because it was too obsolete to meet the standard economically. The shutdown seriously injured the economy of the little town, which had been supported primarily by the cement plant.

But if regulations are tougher for new entrants to an industry than for existing firms, as they often are, then new investment may be discouraged—even if newer plants would be cleaner than older ones. For example, a clause in the Clean Air Act exempts old coal-fired plants from complying with current emissions rules. As a result, much of America's electricity is produced by plants that are over forty years old and far dirtier than newer plants would be.⁴⁷ Perhaps in 1970 it was fair not to force existing plants into compliance with new rules. But is it still fair? Clearly, a regulatory approach to environmental improvement, though having advantages, raises serious questions.

Incentives

A widely supported approach to the problem of cost allocation for environmental improvement is government investment, subsidy, and general economic incentive. For instance, government might give firms a tax break for purchasing (and using) pollution-control equipment, or it might offer matching grants to companies that install such devices. A different example is the "Future-Gen" project, launched in 2003. It commits the federal government to underwriting 80 percent of the \$1 billion or so cost of industry's developing a cost-effective new generation of coal-fired plants that emit no greenhouse gases into the atmosphere.

In its "33/50 Program," the EPA tried a new approach. It asked six hundred industrial facilities to reduce voluntarily their discharges of seventeen toxic contaminants, first by 33 percent, then by 50 percent. The incentive for firms to commit to the reductions was simply the public relations opportunities afforded by EPA press releases and outstanding performance awards—along with, perhaps, the firms' desire to stave off future regulatory action.⁴⁸

The advantage of an **incentive approach** is that it minimizes government interference in business and encourages voluntary action rather than coercing compliance, as in the case of regulation. By allowing firms to move at their own pace, it avoids the evident unfairness to firms that cannot meet regulatory standards and must either relocate or fail. In addition, whereas regulated standards can encourage minimum legal compliance, an incentive approach provides an economic reason for going beyond minimal compliance. Firms have a financial inducement to do more than just meet EPA standards.

But incentives are not without disadvantages that bear moral overtones. *First* as an essentially voluntary device, an incentive program is likely to be slow. Environmental problems that cry out for a solution may continue to

Summary 7.6

Regulation is the most familiar way of pursuing environmental goals, but requiring firms to use the strongest feasible means of pollution control is problematic. Although regulations treat all parties equally, this often comes at the cost of ignoring the special circumstances of particular industries and individual firms. Regulations also remove a company's incentive to do more than the law requires and can cause plants to shut down or relocate.

Although a regulatory approach is fair in the sense of setting legally enforced standards that apply equally to all, it has four drawbacks.

An incentives-based approach is likely to be slow and sometimes amounts to paying polluters not to pollute.

fester. Incentive programs may allow urgently needed action to be postponed. *Second*, government incentive programs often amount to a subsidy for polluters, with polluting firms being paid not to pollute. Although this approach may sometimes address the economics of pollution more effectively than the regulatory approach, it nonetheless raises questions about the justice of benefiting not the victims of pollution but some of the egregious polluters. *Third*, incentive programs can be abused, and determining their cost-effectiveness can be problematic. Indeed, when promoted by business lobbyists and sectional political interests, the environmental gain they bring may not be worth the cost. For example, the United States spends billions upon billions to subsidize the conversion of corn to ethanol. The subsidy benefits agribusiness and other corporate interests, but its positive environmental impact is slight. Worse, by reducing the amount of food produced, the subsidy has helped drive up world food prices, with painful consequences for the poor.

Pricing Mechanisms and Pollution Permits

A third approach to the cost-allocation problem involves programs designed to charge firms for the amount of pollution they produce. **Pricing mechanisms**, or effluent charges, spell out the cost for a specific kind of pollution in a specific area at a specific time. Prices are tied to the amount of damage caused and thus vary from place to place and from time to time. For example, during the summer months in the Los Angeles basin, a firm might pay much higher charges for fly ash emitted into the environment than it would pay during the winter months. Whatever the set of prices, they would apply equally to every producer of a given type of pollution at the same time and place. The more a firm pollutes, the more it pays.

One advantage of this approach is that it places the cost of pollution control squarely on the polluters. Pricing mechanisms penalize, rather than compensate, industrial polluters. For many persons this is inherently fairer than incentive programs that subsidize companies that pollute. Also, because costs are internalized, firms are encouraged to do more than meet the minimal requirements established under a strict regulatory policy. Under this approach a firm, in theory, could be charged for any amount of pollution and not just incur legal penalties whenever it exceeded an EPA standard. In effect, pollution costs would become production costs.

Instead of imposing a tax or a fee on the pollutants released into the environment, the government could charge companies for **pollution permits**, or it could auction off a limited number of permits. An even more market-oriented strategy is to give companies permits to discharge a limited amount of pollution and then to allow them to buy and sell the right to emit pollutants. With pollution permits, companies with low pollution levels can make money by selling their pollution rights to companies with poorer controls. Thus, each firm can estimate the relative costs of continuing to pollute as opposed to investing in cleaner procedures. The government can also set the precise amount of pollution it is prepared to allow and, by lowering the amount permitted over time, can reduce or even eliminate it.

The EPA successfully experimented with this strategy in the 1970s when it gave oil refineries two years to reduce the allowable lead content in gasoline. Refineries received quotas on lead, which they could trade with one another. Later, the 1990 Clean Air Act Amendments adopted this approach with respect to the sulfur dioxide (SO₂) emissions of electric utilities. Though controversial at the time—the power industry insisted the SO₂ cuts were prohibitively costly

and environmental groups derided the measure as a sham—the scheme has surpassed its initial objectives and at a far lower cost than expected.⁴⁹

Spurred by the Kyoto Protocol on greenhouse gases, a global market has emerged for trading carbon-emissions credits.⁵⁰ For both economic and scientific reasons, however, pricing mechanisms and pollution permits do not work well in all situations and for all environmental problems; dealing with mercury pollution is one example.⁵¹ Still, economists generally favor using them whenever possible. However, they trouble many environmentalists. For one thing, the price tag for polluting seems arbitrary. How will effluent charges or permit prices be set? What is a fair price? Any decision seems bound to reflect debatable economic and value judgments. Moreover, environmentalists dislike the underlying principle of pricing mechanisms and pollution permits and view with suspicion anything that sounds like a license to pollute. They resent the implication that companies have a right to pollute, and they reject the notion that companies should be able to make money by selling that right to other firms. In fact, Michael J. Sandel, professor of government at Harvard, argues that it's immoral to buy the right to pollute. "Turning pollution into a commodity to be bought and sold removes the moral stigma that is properly associated with it," he says.⁵²

In sum, although each of these approaches—regulations, incentives, pricing mechanisms, pollution permits—has its advantages, none is without its weak points. Because there appears to be no single, ideal approach to all our environmental problems, a combination of regulations, incentives, effluent charges, and permits is probably called for. Any such combination must take into account not only effectiveness but also fairness to those who will have to foot the bill. Fairness in turn calls for input from all sectors of society, a deliberate commitment by all parties to work in concert, a sizable measure of good faith, and perhaps above all else a heightened sense of social justice. This is no mean challenge.

Still, environmental protection is not always a static or zero-sum trade-off, with a fixed economic price to be paid for the gains we want. One reason is that higher environmental standards and properly designed regulatory programs can pressure corporations to invest capital in newer, state-of-the-art manufacturing technology; this both reduces pollution and enhances productive efficiency. In addition, international data in a range of industrial sectors show that innovation can minimize or even eliminate the costs of conforming to tougher environmental standards by increasing productivity, lowering total costs, and improving product quality.⁵³ The reason is that pollution is evidence of economic waste. The discharge of scrap, chemical wastes, toxic substances, or energy in the form of pollution is a sign that resources have been used inefficiently.

Consider some examples.⁵⁴ Environmental regulations forced Dow Chemical to redesign the production process at its complex in California to avoid storing chemical waste in evaporation ponds. Not only did the new process reduce waste, but the company also found that it could reuse part of it as raw material in other parts of the plant. For a cost of \$250,000 Dow is now saving \$2.4 million each year. Likewise, when new environmental standards forced 3M to reduce the volume of solvents to be disposed of, the company found a way to avoid the use of solvents altogether, which yielded it an annual savings of more than \$200,000. Most distillers of coal tar opposed regulations requiring them to reduce benzene emissions; they thought the only solution was to cover tar storage tanks with costly gas blankets. But Aristech Chemical Corporation

Summary 7.7

Two other methods for protecting the environment are incentives and charges or permits for pollution. Each has advantages and disadvantages. Incentives can be slow to work and may amount to subsidizing polluters. Economists favor pricing mechanisms and pollution permits, but critics dislike the idea of turning pollution into a commodity to be bought and sold.

Measures to protect the environment often force firms to become more efficient.

Summary 7.8

Environmental protection isn't a static or zero-sum trade-off. Higher environmental standards can pressure companies to invest in new technology, thus enhancing efficiency as well as reducing pollution. Many economists believe that measures to reduce greenhouse gas emissions may improve U.S. productivity in the long run.

found a way to remove benzene from tar in the first processing step. Instead of a cost increase, the company saved itself \$3.3 million.

Many other companies are finding that going green not only is environmentally responsible but also improves efficiency and saves them money, thus benefiting the bottom line.⁵⁵ And a broad array of economists, led by Nobel laureates Kenneth J. Arrow and Robert M. Solow, have urged that with regard to global warming, measures to reduce greenhouse gas emissions need not harm the economy and "may in fact improve U.S. productivity in the long run." This is because many innovative, energy-efficient technologies are just waiting for the right financial incentives to enter the market. And in many of these fields, U.S. industry is the leader.⁵⁶

DELVING DEEPER INTO ENVIRONMENTAL ETHICS

So far, our discussion of environmental ethics has focused on business's obligation to understand its environmental responsibilities, to acknowledge and internalize its externalities (or spillovers), and to avoid free riding. It has stressed the extent to which environmental protection is in our collective self-interest, and it has looked at the operational and moral dilemmas involved in dealing with the costs of pollution.

The subject of environmental ethics can be pursued more deeply than this, and many moral theorists would advocate doing so. In particular, they would insist that we also consider our obligations to those who live outside our society. For example, the United States represents only 4.6 percent of the world's population but uses 30 percent of the world's refined oil. And every day our demand for oil increases, leaving us more and more dependent on foreign nations to supply our needs.⁵⁷ In fact, if the United States were forced to rely entirely on its own resources, it would run out of oil in four years and three months.⁵⁸ The situation is similar, although less dramatic, for many other non-renewable resources.

The average amount of energy consumed per year by a person in the United States is 3.4 times that of the average Hungarian, 5 times that of a Chilean, 7.4 times that of a Chinese, and 23.5 times that of someone in India.⁵⁹ Americans also contribute far more than their proportional share to global warming, emitting close to 25 percent of all greenhouse gasses. Wyoming, with a population of only half a million people, emits more carbon dioxide than do seventy-four developing countries with a combined population of nearly 400 million. The 22 million residents of Texas are responsible for emissions exceeding those of 120 developing nations combined, with over 1.1 billion people.⁶⁰ It's not surprising, then, that the birth of a baby in the United States imposes a hundred times more stress on the world's resources than does a birth in, say, Bangladesh. Babies from Bangladesh do not grow up to own automobiles and air conditioners or to eat huge quantities of grain-fed beef. Their lifestyles do not require large inputs of minerals and energy, and they do not undermine the planet's life-support capacity. To add insult to unfairness, the United States exports much of its garbage (which it produces more of than any other nation) overseas, including the old, "recycled" computers and other electronic equipment that now litter many poor nations.⁶¹

Tropical rain forests are of special concern. They are the earth's richest, oldest, and most complex ecosystems. Tropical forests are major reservoirs of biodiversity, home to 40 to 50 percent of all types of living things—as many as 5 million species of plants, animals, and insects. An estimated 49 million acres

of tropical rain forest are destroyed each year, or 100 acres every minute. And already half the globe's original rain forest has disappeared. Tropical forests are often cleared in an attempt to provide farms for growing third-world populations, but the affluence of people in rich nations like the United States is responsible for much forest destruction. Central American forests are cleared in part for pasture land to make pet food and convenience food slightly cheaper in the United States. In Papua New Guinea, forests are destroyed to supply cardboard packaging for Japanese electronic products. Thus, an affluent American living thousands of miles away can cause more tropical forest destruction than a poor person living within the forest itself.

Our bloated levels of consumption, our dependence on foreign resources to satisfy our needs, and the impact of both on the economies and environments of other nations raise a variety of moral and political issues. This section mentions briefly just two of those problems.

First is the question of how the continued availability of foreign resources is to be secured. Will our need for resources outside our territory lead us to dominate other lands, politically and economically, particularly in the Middle East, Asia, and Latin America? To do so is morally risky, because political and economic domination almost always involves violations of the rights and interests of the dominated population, as well as of our own moral ideals and values.

Second is the question of whether any nation has a right to consume the world's irreplaceable resources at a rate so grossly out of proportion to the size of its population. Of course, we pay to consume oil and other resources that other nations own, but in the view of many the fact that these nations acquiesce in our disproportionate consumption of resources does not resolve the moral problem of our doing so. Are we respecting the needs and interests of both our present co-inhabitants on this planet and the future generations who will live on Earth? This question is particularly burning now that scientists believe that human demand for natural resources has outstripped the biosphere's regenerative capacity.⁶²

Obligations to Future Generations

Almost everybody feels intuitively that it would be wrong to empty the globe of resources and to irreparably contaminate the environment that we pass on to future generations. Certainly there is a danger that we will do both of these things. But the question of what moral obligations we have to future generations is surprisingly difficult, and discussion among philosophers has not resolved all the important theoretical issues.

Even though most of us agree that it would be immoral to make the world uninhabitable for future people, can we talk meaningfully of those **future generations** having a right that we not do this? After all, our remote descendants are not yet alive and thus cannot claim a right to a livable environment. In fact, since these generations do not yet exist, they cannot at present, it seems, be said to have any interests at all. How can they then have rights?

Professor of philosophy Joel Feinberg argues, however, that whatever future human beings turn out to be like, they will have interests that we can affect, for better or worse, right now. Even though we do not know who the future people will be, we do know that they will have interests and what the general nature of those interests will be. This is enough, he contends, both to talk coherently about their having rights and to impose a duty on us not to leave ecological time bombs for them.

To satisfy its disproportionate consumption of nonrenewable resources, America turns to foreign lands. This raises two moral questions.

Can we talk meaningfully of future generations having a right that we not despoil the world they inherit?

Feinberg concedes that it doesn't make sense to talk about future people having a right to be born. The child that you could conceive tonight, if you felt like it, cannot intelligibly be said to have a right to be born. Thus, the rights of future generations are "contingent," says Feinberg, on those future people coming into existence. But this qualification does not affect his main contention: "The interests that [future people] are sure to have when they come into being . . . cry out for protection from invasions that can take place now."⁶³

Even if we are persuaded that future generations have rights, we still do not know exactly what those rights are or how they are to be balanced against the interests and rights of present people. If we substantially injure future generations to gain some small benefit for ourselves, we are being as selfish and short-sighted as we would be by hurting other people today for some slight advantage for ourselves. Normally, however, if the benefits of some environmental policy outweigh the costs, then a strong case can be made for adopting the policy. But what if it is the present generation that receives the benefits and future generations that pay the costs? Would it be unfair of us to adopt such a policy? Would doing so violate the rights of future people?

An additional puzzle is raised by the fact that policies we adopt will affect who is born in the future. Imagine that we must choose between two environmental policies, one of which would cause a slightly higher standard of living over the next century. Given the effects of those policies on the details of our lives, over time it would increasingly be true that people would marry different people under one policy than they would under the other. And even within the same marriages, children would increasingly be conceived at different times:

Some of the people who are later born would owe their existence to our choice of one of the two policies. If we had chosen the other policy, these particular people would never have existed. And the proportion of those later born who owe their existence to our choice would, like ripples in a pool, steadily grow. We can plausibly assume that, after three centuries, there would be no one living in our community who would have been born whichever policy we chose.*

This reasoning suggests that subsequent generations cannot complain about an environmental policy choice we make today that causes them to have fewer opportunities and a lower standard of living. If we had made a different choice, then those people would not have existed at all. It might be claimed, however, that we act immorally in causing people to exist whose rights to equal opportunity and to a standard of living at least on a par with ours cannot be fulfilled. But if those future people knew the facts, would they regret that we acted as we did?⁶⁴

Perhaps it is mistaken to focus on the rights and interests of future people as individuals. Annette Baier argues that the important thing is to "recognize our obligations to consider the good of the continuing human community."⁶⁵ This stance suggests adopting a utilitarian perspective and seeking to maximize total human happiness through time. But a utilitarian approach is also not without problems. If our concern is with total happiness, we may be required to increase greatly the earth's population. Even if individuals on an overcrowded earth do not have much happiness, there may still be more total happiness than there would be if we followed a population-control policy

*Derek Parfit, *Reasons and Persons* (New York: Oxford University Press, 1986), 361. Parfit adds: "It may help to think about this question: How many of us could truly claim, 'Even if railways and motor cars had never been invented, I would still have been born?'"

that resulted in fewer but better-off people. This distasteful conclusion has led some utilitarians to modify their theory and maintain that with regard to population policy we should aim for the highest average happiness rather than the highest total happiness. But this, too, is problematic because in theory one could, it seems, increase average happiness by eliminating unhappy people.

John Rawls has suggested another approach to the question of our obligations to future generations, an approach that reflects his general theory of justice (discussed in Chapter 3). He suggests that the members of each generation put themselves in the "original position." Then, without knowing what generation they belong to, they could decide what would be a just way of distributing resources between consecutive generations. They would have to balance how much they are willing to sacrifice for their descendants against how much they wish to inherit from their predecessors. In other words, the original position and the veil of ignorance might be used to determine our obligations to future generations—in particular, how much each generation should save for use by those who inherit the earth from it.⁶⁶

The Value of Nature

A more radical approach to environmental ethics goes beyond the question of our obligations to future generations. It challenges the human-centered approach adopted so far. Implicit in the discussion has been the assumption that preservation of the environment is good solely because it is good for human beings. This reflects a characteristic human attitude that nature has no intrinsic value, that it has value only because people value it. If human nature were different and none of us cared about the beauty of, say, the Grand Canyon, then the Grand Canyon would be without value.

Many writers on environmental issues do not recognize their anthropocentric, or human-oriented, bias. One who does is William F. Baxter. In discussing his approach to the pollution problem, Baxter mentions the fact that the use of DDT in food production is causing damage to the penguin population. He writes:

My criteria are oriented to people, not penguins. Damage to penguins, or sugar pines, or geological marvels is, without more, simply irrelevant. . . . Penguins are important because people enjoy seeing them walk about rocks. . . . In short, my observations about environmental problems will be people-oriented. . . . I have no interest in preserving penguins for their own sake. . . .

I reject the proposition that we *ought* to respect the "balance of nature" or to "preserve the environment" unless the reason for doing so, express or implied, is the benefit of man.⁶⁷

Contrast Baxter's position with what Holmes Rolston III calls the **naturalistic ethic**. Advocates of a naturalistic ethic contend, contrary to Baxter's view, "that some natural objects, such as whooping cranes, are morally considerable in their own right, apart from human interests, or that some ecosystems, perhaps the Great Smokies, have intrinsic values, such as aesthetic beauty, from which we derive a duty to respect these landscapes."⁶⁸ Human beings may value a mountain for a variety of reasons—because they can hike it, build ski lifts on it, mine the ore deep inside it, or simply because they like looking at it. According to a naturalistic ethic, however, the value of the mountain is more than a simple function of these human interests: Nature can have value in and of itself, apart from human beings.

A radical approach to environmental ethics challenges the human-centered assumption that preserving the environment is good only because it is good for us.

Summary 7.9

America's bloated level of consumption puts a disproportionate strain on the world's resources. A broader view of environmental ethics considers our obligations to those in other societies as well as to future generations. Some philosophers argue that we must respect the right of future generations to inherit an environment that is not seriously damaged, but talk of the rights of future people raises puzzles. Other ways of thinking about this issue are suggested by utilitarianism and the social contract theory of John Rawls.

Proponents of a naturalistic ethic contend that we have a particularly strong obligation to preserve species from extinction. Many environmentalists share this moral conviction, and it's easy to see why. Every year three thousand animal and plant species disappear, and the rate of extinction is accelerating so rapidly that over the next hundred years or so the earth could lose half its species.⁶⁹ But do species really have value above and beyond the individuals that make them up? Scientists have formally identified 1.8 million species (including, for example, 6,700 kinds of starfish, 12,000 species of earthworm, and 400,000 types of beetle), and recent studies suggest that the number of species inhabiting the planet may be much, much higher—perhaps as many as 30 million kinds of insects alone. Species are always coming into and going out of existence.⁷⁰ How valuable is this diversity of species, and how far are we morally required to go in maintaining it?

Adopting a naturalistic ethic would definitely alter our way of looking at nature and our understanding of our moral obligations to preserve and respect the natural environment. Many philosophers, however, doubt that nature has intrinsic value or that we can be said to have moral duties to nature. Having interests is a precondition, they contend, of something's having rights or of our having moral duties to that thing. Natural objects, however, have no interests. Can a rock meaningfully be said to have an interest in not being eroded or in not being smashed into smaller pieces?

Of course, plants and trees are different from rocks and streams: They are alive; we can talk intelligibly about what is good or bad for a tree, plant, or vegetable; and they can flourish or do poorly. Even so, philosophers who discuss moral rights generally hold that this is not enough for plants to be said to have rights. To have rights, a thing must have genuine interests, and to have interests, most theorists contend, a thing must have beliefs and desires. Vegetative life, however, lacks any cognitive awareness. Claims to the contrary are biologically unsupportable.

Even if the plant world lacks rights, can it still have intrinsic value? Can we still have a moral obligation to respect that world and not abuse it? Or are the only morally relevant values the various interests of human beings and other sentient creatures? These are difficult questions. Among philosophers there is no consensus on how to answer them.

Our Treatment of Animals

Above a certain level of complexity, animals do have at least rudimentary cognitive awareness. No owner of a cat or dog doubts that his or her pet has beliefs and desires. Accordingly, a number of philosophers have recently defended the claim that animals can have rights. Because they have genuine interests, animals can have genuine moral rights—despite the fact that they cannot claim their rights, that they cannot speak, that we cannot reason with them, and that they themselves lack a moral sense. Animals, it is more and more widely contended, do not have to be equal to human beings to have certain moral rights that we must respect.

Rather than talking about animals' rights, utilitarians would stress that higher animals are sentient—that is, that they are capable of feeling pain. Accordingly, there can be no justifiable reason for excluding their pleasures and pains from the overall utilitarian calculus. As Jeremy Bentham, one of the founders of utilitarianism, put it: "The question is not, Can they *reason*? nor, Can they *talk*? but, Can they *suffer*?"⁷¹ Our actions have effects on animals, and these consequences cannot be ignored. When one is deciding, then, what

Adopting a naturalistic ethic would change our way of looking at nature, but many philosophers are skeptical of the idea that nature has intrinsic value.

Summary 7.10

Philosophers disagree about whether nature has intrinsic value. Adopting a human-oriented point of view, some theorists contend that the environment is valuable only because human beings value it. However, those adopting a naturalistic ethic believe that the value of nature is not simply a function of human interests.

Many philosophers urge that animals have moral rights. Utilitarians, for their part, stress the moral necessity of taking into account animal pain and suffering.

the morally right course of action is, the pleasures and pains of animals must be taken into account too.

Business affects the welfare of animals very substantially. One way is through experimentation and the testing of products on animals. Critics such as Peter Singer contend that the vast majority of experiments and tests cannot be justified on moral grounds. Consider the "LD 50" test, which used to be the standard method of testing new foodstuffs. The object of the test was to find the dosage level at which 50 percent of the test animals would die. Nearly all test animals became very sick before finally succumbing or surviving. When the substance was harmless, huge doses had to be forced into the animals, until in some cases the sheer volume killed them.⁷²

In principle, utilitarians are willing to permit testing and experimentation on animals, provided the overall results justify their pain and suffering. Not only is this proviso frequently ignored, but human beings typically disregard altogether the price the animals must pay. Consider the actions of the pharmaceutical firm Merck Sharp and Dohme, which sought to import chimpanzees to test a vaccine for hepatitis B. Chimps are an endangered species and highly intelligent. Capturing juvenile chimps requires shooting the mother. One analyst assessed the situation this way:

The world has a growing population of 4 billion people and a dwindling population of some 50,000 chimpanzees. Since the vaccine seems unusually innocuous, and since the disease is only rarely fatal, it would perhaps be more just if the larger population could find some way of solving its problem that was not to the detriment of the smaller.⁷³

Factory Farming Business's largest and most devastating impact on animals, however, is through the production of animal-related products—in particular, meat. Many of us still think of our chicken and beef as coming from something like the idyllic farms pictured in storybooks, where the animals roam contentedly and play with the farmer's children. But meat and egg production is big business: Every year in the United States 10 billion birds and mammals are raised and killed for food.⁷⁴ Today most of the animal products we eat are from factory farms. In 1921 the largest commercial egg farm had a flock of 2,000 hens that ran loose in a large pasture; today the largest commercial flock contains 2.5 million birds, and 80 percent of the 440 million laying hens are housed in 3 percent of the known chicken farms. These birds live in small multi-tier wire cages.⁷⁵

Laying hens that are stuffed into tiny cages with several other chickens now produce over 95 percent of our eggs. In these cages, hens are unable to satisfy such fundamental behavioral needs as stretching their wings, perching, walking, scratching, and nest building. Unsited for wire cages, they suffer foot damage, feather loss, and other injuries. Birds are "debeaked" to prevent pecking injuries and cannibalism from overcrowding.⁷⁶

Of the 95 million hogs born each year in the United States, 80 percent spend their lives in intensive confinement. Piglets are weaned after only three weeks and placed in wire cages or tiny cement pens. Once they reach 50 pounds, they are moved into bare 6-foot stalls with concrete-slatted floors. Veal calves have even worse lives. To produce gourmet "milk-fed" veal, newborn calves are taken from their mothers and chained in crates measuring only 22 inches by 54 inches. Here they spend their entire lives. To prevent muscle development and speed weight gain, the calves are allowed absolutely no exercise; they are unable even to turn around or lie down. Their special diet of growth

The desire of the meat and animal-products industries to economize leads to their treating animals in ways that many reject as cruel and immoral.

stimulators and antibiotics causes chronic diarrhea, and the withholding of iron to make their meat light-colored makes them anemic. The calves are kept in total darkness to reduce restlessness.⁷⁷

The individuals involved in the meat and animal-products industries are not brutal, but the desire to cut business costs and to economize routinely leads to treatment of animals that can only be described as cruel. Philosopher and animal rights advocate Tom Regan describes their treatment this way:

In increasing numbers, animals are being brought in off the land and raised indoors, in unnatural, crowded conditions—raised “intensively,” to use the jargon of the animal industry. . . . The inhabitants of these “farms” are kept in cages, or stalls, or pens . . . living out their abbreviated lives in a technologically created and sustained environment: automated feeding, automated watering, automated light cycles, automated waste removal, automated what-not. And the crowding: as many as 9 hens in cages that measure 18 by 24 inches; veal calves confined to 22 inch wide stalls; hogs similarly confined, sometimes in tiers of cages, two, three, four rows high. Could any impartial, morally sensitive person view what goes on in a factory farm with benign approval?⁷⁸

Is It Wrong to Eat Meat? Moral vegetarians are people who reject the eating of meat on moral grounds. Their argument is simple and powerful: The raising of animals for meat, especially with modern factory farming, sacrifices the most important and basic interests of animals simply to satisfy human tastes. Americans eat, per capita, a phenomenal amount of meat, by some estimates more than twice as much as we ate in the 1950s. Chicken production alone is now five times what it was in 1960. Many people eat meat three times a day. Our preference for a Big Mac over a soybean burger is only a matter of taste and culture, but it accounts for many of the 100,000 cows we slaughter every day.⁷⁹ The extra pleasure we believe we get from eating the hamburger cannot justify the price the animals must pay, insist the moral vegetarians.

Would it be wrong to eat animals that were raised humanely, like those that run around freely and happily in children's picture books of farms? Unlike the lives of animals that we do in fact eat, the lives of such humanely raised animals, before being abruptly terminated, are not painful ones. Some philosophers would contend that it is permissible to raise animals for food if their lives are, on balance, positive. Other moral theorists challenge this view, contending that at least higher animals have a right to life and should not be killed.

This debate raises important philosophical issues, but it is also rather hypothetical. Given economic reality, mass production of meat at affordable prices currently dictates factory farming, although increased consumer concern for animal welfare could conceivably change this economic logic. The important moral issue, in any case, is the real suffering and unhappy lives that billions of creatures experience on the way to our dinner tables. This often overlooked aspect of environmental ethics raises profound and challenging questions for business and consumers alike.

There are hopeful signs that human attitudes toward animal suffering, in general, and factory farming, in particular, are changing. In Florida voters recently amended their state constitution so as to ban the confining of sows to cages so narrow that they cannot turn around. And McDonald's now requires its egg suppliers to provide each hen with a minimum of 72 square inches of living space.⁸⁰ Other fast-food chains are following suit. For most American hens this is a 50 percent increase, but it falls well short of the European requirement that by 2012 all hens have at least 120 square inches as well as access to

a perch and a nesting box to lay their eggs. Some companies such as Google have gone a step further. Their cafeterias now serve eggs only from “cage-free” hens. And in 2005 Whole Foods Markets (180 stores) and Wild Oaks Markets (80 stores) became the first national grocery chains to sell only cage-free eggs and egg products.

In general, however, other countries are ahead of the United States with respect to their treatment of animals. In Europe it is illegal to treat pregnant sows or veal calves the way American companies do.⁸¹ In New Zealand, one cannot experiment on great apes unless the research actually benefits the apes and this benefit outweighs their discomfort or suffering. And in 2002 the German constitution was changed to include the right of animals to be treated decently.⁸²

STUDY CORNER

Key Terms and Concepts

Clean Air Act (1970)
Clean Air Act
Amendments of 1990
Clean Water Act (1972)
cost-benefit analysis
ecological economics
ecology
ecosystem

Environmental Protection
Agency
externalities (spillovers)
free-rider problem
future generations
incentive approach
moral vegetarianism
naturalistic ethic

pollution permits
pricing mechanisms
regulatory approach
right to a livable
environment
tragedy of the commons

Points to Review

- progress against pollution since the Clean Air and Clean Water Acts
- ecological costs of producing beef, poultry, and pork
- what the reintroduction of wolves into Yellowstone illustrates about ecosystems
- Ehrlich's two ecological rules
- pollution and resource depletion as two aspects of the same problem
- meaning and implications of the tragedy of the commons
- pollution as an externality
- why free riding and failing to internalize externalities are unfair
- difficulties of cost-benefit analysis
- what's new and different about ecological economics and estimates of “non-use value”
- deep-rooted causes of environmental degradation
- problems with the idea that those who benefit from environmental improvements should pay for them
- four problems with regulations

- the pros and cons of requiring old plants to meet new standards
- disadvantages of an incentive approach
- what many environmentalists find troubling about pollution permits
- why higher environmental standards may increase efficiency and productivity
- disproportionate environmental impact of the United States
- puzzles raised by the idea that future people have rights
- implications of the fact that our policies affect who is born in the future
- utilitarian and Rawlsian approaches to future generations
- contrasting environmental ethics of William Baxter and Holmes Rolston
- Bentham on animal suffering
- why many consider factory farming cruel
- moral vegetarianism and the question of the morality of killing animals
- signs that attitudes toward animal suffering and factory farming are changing

Summary 7.11

Through experimentation, testing, and the production of animal products, business has an enormous impact on the welfare of animals. The meat and animal-products industries rely on factory-farming techniques, which many describe as cruel and horrible. Because of these conditions, moral vegetarians argue that eating meat is wrong. There are signs that human indifference toward animal suffering and factory farming is changing.