

Chapter 1



Introduction: More than You Know

The enterprise within the social sciences best poised to bridge the gap to the natural sciences, the one that most resembles them in style and self-confidence, is economics.

—E. O. Wilson¹

Imagine a cavernous warehouse with shelves filled with art of all types—paintings, photographs, sculptures, and etchings. Now imagine government agents scuttling down the aisles slashing canvases, smashing sculptures, and shredding graphic works. Sounds like a scene from a futuristic story of society gone mad. But instead it's Holland—birthplace to Rembrandt, van Gogh, and Vermeer—circa 1998. Can we blame such events on the legalization of marijuana in Holland? Hardly.

With the best of intentions, the Dutch government began an arts subsidy program in 1949. To assist struggling artists, the Dutch government agreed to pay a modest stipend to talented artists in exchange for two or three works of art a year. The Beeldende Kunstenaars Rageling (BKR), the agency in charge, purchased the art based on the “needs” of the artist rather than the merit of the work, and guaranteed payment regardless of whether the art was valuable or not. With a strong economy (thanks mostly to North Sea oil revenues) and strong support from a society that appreciates the arts, little public criticism surfaced. By 1982, the popular program

had expanded to include more than 3,000 artists who were receiving \$70 million in annual subsidies.

By 1987, the Dutch government owned 220,000 works of art, most of it sitting in warehouses, and most of it never shown in public or private. Everyone agreed that much of the art was inferior or worse. Good artists didn't want to hand over their "good" art to the government, only to have it sit around in warehouses, and bad artists gladly "sold" their art to the government, the only purchaser willing to buy. A crushed dish rack and a smashed shopping cart are representative of some of the "art." Stories of artists turning in their children's finger paintings or a table top hastily separated from the base and splattered with paint were common.

Beginning in the 1980s, the government began budget-cutting, and the art subsidy was one victim. Although 1,000 artists still receive stipends, the government slashed the program drastically. Despite the cuts in the art subsidy budget, a problem still remained—what to do with warehouses full of art that nobody wanted? Selling the art—even those works that might be marketable—was challenged by the Artists Union, who reasoned correctly that increasing the supply of art would decrease the price of all works of art. In 1994, the BKR permitted artists to retrieve their art free of charge, but predictably less than one-third responded.

A compromise solution is currently being implemented. The government absorbed much of the work in Amsterdam's Artoteek—an art lending library, and slashed, smashed, and shredded the remaining works, to make certain that the works didn't reappear on the market. The director of the collection, Sya van't Vlie plans to use paper shredders on the graphic art, so, "That way we can recycle the paper."²

Now, the moral of the story is not that we should recycle, although recycling can be a good thing. The moral is that when you offer someone money and you don't care what they give you in return, you'll get something like graphic "art" suitable only for recycling. Pay more for a certain behavior and you'll get more of it. Also true is that a misunderstanding or lack of understanding of important economic principles can result in poor policy and inferior outcomes.

What is true for the arts is also true for the environment. Subsidize the delivery of “junk” mail as the U.S. Postal Service does, and you’ll get trashcans filled with paper heading for recycling centers or trash dumps. Either way, however, resources are being misdirected. We must consider such economic realities to successfully deal with the environmental problems we face. An understanding of simple economic principles would have allowed one to predict the Dutch dilemma and assist in avoiding similar mistakes in other important areas, some environmental.

The Environment and Economics

Few would deny the importance of maintaining some level of environmental quality. The environmental problems society faces are substantial and are of growing concern to Americans and people around the globe. Consider a brief litany of some pressing environmental concerns offered by well-known environmentalist E. O. Wilson: approaching limits of food and water supplies, loss of species diversity, ozone layer depletion, overfished oceans, polluted air and water, global warming, shrinking forests, and spreading deserts.³ The question is not whether the earth has environmental problems; rather, it is a question of how severe the problems are, what level of environmental quality is desired, and what courses of action should be taken.

Although environmental problems are not new, the environmental movement is a relatively recent development. Numerous voices such as those of Thoreau, Muir, and Leopold expressed important conservationist concerns before the 1960s, but the modern environmental movement coincided with the appearance of books by Rachel Carson (*Silent Spring*, 1962), Paul Ehrlich (*Population Bomb*, 1968), Barry Commoner (*The Closing Circle*, 1971), and the Club of Rome (*Limits to Growth*, 1972). Even the first Earth Day didn’t occur until 1970.

The field of environmental economics has evolved along with environmental worries, although many of the economic

principles that help us understand environmental choices are not recent. Boulding (1966), Ayre and Kneese (1969), and Daly (1971) were some of the first economists to recognize the interrelationship between economics and the environment. Perhaps the first economist to examine environmental issues was Thomas Malthus, who worried in 1798 that we were running out of cropland to feed the rapidly increasing world population. In his *An Essay on the Principle of Population*, Malthus observed that because population grows at a faster rate than labor productivity, population growth would outstrip food production. Populations would increase until food limits were reached, standards of living would fall, and pestilence and famine would follow. No wonder Carlyle labeled economics the “dismal science.” Although right sometimes in the short run, Malthus was wrong over the long haul because he miscalculated the benefits of technological innovation. Neo-Malthusians continue to warn us about population growth and caution that Malthus may yet be correct.

Natural scientists have raised public awareness about the seriousness of environmental problems through numerous well-publicized books and articles. However, environmental issues pose special challenges for scientists because understanding environmental problems and formulating policies to deal with them require an interdisciplinary approach. The hard sciences such as ecology, biology, geology, chemistry, and physics are primarily focused on the laws controlling the natural environment but provide little ground for an analysis of human behavior. On the other hand, social scientists such as economists, sociologists, political scientists, and psychologists study human behavior, but often demonstrate little understanding of the functions of ecological systems. Cooperation between natural scientists and social scientists is necessary if we expect to make the best environmental decisions. Environmental economists are attempting to bridge this gap by examining how economic decisions interact with the environment.

Most scientists in their graduate education programs specialize in a single field or discipline, thereby failing to ac-

quire knowledge in other important fields that may bear on the problem. Psychologists, biologists, geologists, chemists, physicists, sociologists, political scientists, ecologists, economists, and others can legitimately claim a stake in the environmental debate, yet each expert comes to the table with myopic eyes. It is not surprising that so many participants in the debate speak half-truths, are biased in their analysis, and demonstrate unnecessary levels of hostility and rancor in debating the issues. One environmentalist revealed such hostility when he said “economics, and economists are traditional enemies of the environment.”⁴ This brings us to the purpose of this book.

The authors of this book are economists by training, who are drawn to environmental issues because of personal appreciation for the environment. We have a personal stake, as does most everyone else, in the loss of trees, wetlands, species, wildlife habitat, and in the pollution of land, water, and air. But as we have followed the national discourse over the past three decades, it has become crystal clear to us that first, the debate has been largely devoid of the most rudimentary understanding of simple economic principles, especially in the public arena at the layperson’s level; and second, economics has an important role to play in clarifying the issues and in formulating solutions.

We’ve written this book because we believe that Americans want some level of environmental protection, and want to better understand the nature of the economic forces that affect the environment. We hope to make a positive contribution to the debate by explaining in layperson terms what economics has to offer.

As far as we can tell, the average, well-educated citizen has little comprehension or appreciation of where economics fits into the environmental debate. Yet, we ask these same individuals to vote for congressmen, senators, governors, mayors, local and state legislators, vice presidents, and presidents who craft clean air and water bills, wetland legislation, and multitudes of other environmental measures too numerous to list here. We believe this book will fill some of this void.

In the early 1800s, English economist David Ricardo, in several articles in the public press, changed the way the British viewed the corn laws and changed the way the world looked at international trade. Free trade followed and for at least one hundred years, the British dominated world trade and expanded the Commonwealth to the far corners of the world. As demonstrated by the Ricardo example, understanding basic economics can have powerful, positive effects on the welfare of mankind. We believe a grasp of basic economic concepts can raise the level of discourse regarding environmental issues and thereby improve the effectiveness of environmental policy and the welfare of us all.

Misunderstandings between economists and noneconomists are sometimes the result of the two groups approaching issues from different perspectives. Environmentalists often view actions in strictly moral terms, following imperative standards, which hold that certain acts are right or wrong in and of themselves, regardless of the costs. Barry Commoner contends that “Nature knows best.” Carl Pope, associate executive director of the Sierra Club, is quoted as saying “the environment is an ethical issue.”⁵ Economists on the other hand are more likely to be concerned about end results, comparing options and looking for the best outcome, often from many alternatives. “Society should construct a dam if the benefits are greater than the costs,” an economist might reason. Society makes the ultimate decision through elected government officials about how to use resources and may follow either the moral or practical guideline, or take an approach that combines the two. For instance, a compromise approach could be, “We will construct a dam if the benefits are greater than the costs, as long as we do not destroy a species.”

While recognizing that we have serious environmental problems, the authors try to consider the issues from a dispassionate and constructive standpoint. In this book, rather than suggest what environmental choices society *should* make, we present some irrefutable economic principles that must be considered in any reasoned approach to solving environmental problems. We examine how and why people

make choices, rather than discuss values that society should follow when making choices. We analyze human behavior when confronted with choice, and how humans respond to change. We show how economics can be used to help solve environmental problems, although we also note environmental problems to which economics may not provide adequate solutions.

In order for environmental policy to work, we must understand the economic forces that explain why people damage the environment in the first place. In the final analysis, environmental degradation is essentially an economic problem. Companies choose to dump sulfur dioxide in the atmosphere rather than control it because they make more profit. Developers fill in a wetland because people pay more for a lot to be used as a construction site than for wildlife habitat. Fishers choose to hunt tuna towards extinction because buyers pay high prices and the individual fisher gains nothing by leaving the tuna for someone else to catch.

The Importance of Economics

When human beings must choose between basic items such as food, clothing, and housing on the one hand or protecting the environment on the other, the environment loses almost every time. That is a fact. Some of the most serious environmental problems the world faces are in the poorer nations. The two countries with the most plant and animal species are Brazil and Indonesia. Yet, Brazilians sacrifice rain forest for food production, and Indonesians, reacting to the recent economic crisis, are hunting to extinction species that are found nowhere else in the world.⁶ Although the issues are much more complex than this simple presentation, if we had limitless resources, we wouldn't need to make such tough choices.

Even when choices are between less important things, we still incur costs with every choice we make. Trade-offs do exist between environmental products and other products that we need or want. For instance, if we protect an old

growth forest, we lose jobs for lumberers. If we fill a wetland for a housing development, we lose valuable wildlife habitat. If we stop the incidental catch of endangered sea turtles by requiring turtle exclusion devices on fishing nets, shrimpers suffer decreased profits and consumers pay higher prices for shrimp. If we impose restrictions on the pollutants that a power plant can emit, we raise the cost of electricity. As a practical matter, we have no alternative but to consider the materialistic side of the environmental issue.

Technology can solve some problems, but we can't expect an engineer to invent a new filter that will eliminate all air pollutants. Biologists can explain why an insect is important to an ecosystem, but can't show society why the insect is more important than a golf course. Lawyers can sue for damages from an oil spill, but they can't stop countless automobiles from spewing noxious fumes. And politicians pass new laws that, even when well-meaning, produce disappointing results because of the machinations of special interest groups. Economics holds the key to resolving many environmental problems because economics focuses primarily on the consequences of choices. To solve environmental problems we must alter the choices we make.

All too often we select easy targets to blame. Business firms are often condemned for the environmental harm they cause. This may be understandable when we see smokestacks belching pollutants into the atmosphere, scarce water being used on golf courses, and tropical forests being cut and burned. As Mark Twain said, "Nothing so needs reforming as other people's habits." However, the problems are more complex and interesting than they first appear, since in addition to businesses, consumers and governments also play major roles.

The Environmental Protection Agency estimates that in 1997 adhering to federal environmental regulation cost the United States \$170 billion.⁷ If this estimate is correct, the cost of environmental compliance is 2.2% of Gross Domestic Product (GDP).⁸ No other country spends as much on environmental protection. As a consequence, we face growing acrimony over the size of the bill and who should pay. Perhaps

this is best illustrated by the increasing litigation over the “takings” issue. Law suits are popping up all over the country brought by landowners in attempts to prevent local, state, and federal governments from restricting the use of their lands, thereby reducing value. We believe that unless the various players in the environmental effort arrive at some common understanding of the issues, further efforts to maintain environmental standards will be placed in jeopardy.

There are some positive signs that compromise and cooperation are on the rise. Some ecologists and environmentalists recognize the importance of economics, and some economists agree that we can no longer ignore the ecosystem when making economic decisions. Recent journals such as *Ecological Economics*, *Environmental Ethics*, and *Wild Earth* offer discussions between economists and ecologists on many environmental topics. Communication between economists and ecologists appears to be on the rise, although many still view economists with suspicion.

The influential conservationist Aldo Leopold cast numerous epithets at economists, dismissing them finally by observing that he “never met an economist who knows Draba.” (For you economists—draba is “the smallest flower that blows” and one “that does a small job quickly and well.”⁹) Such complaints are not new, however. Edmund Burke lamented centuries ago, “The age of chivalry is dead; that of sophisters, economists, and calculators has succeeded.” On the other hand, Samuel Pepys concluded that the three finest human beings he knew were Adam Smith, David Ricardo, and Thomas Malthus—all economists. Of course, that was about two centuries ago.

Telling an environmentalist that you’re an economist can sometimes create the same response that starting a chainsaw in a stand of ancient redwoods does. Hazel Henderson was once quoted as saying that “economics is a form of brain damage” and according to biologist, Mitch Friedman, “This view has held sway among environmentalists for decades.” Friedman goes on to say that biocentrists view “with fear and loathing” pollution credits and other market-based reforms. To an economist, market incentives are as

much a no-brainer as preserving virgin forest is to an environmentalist. To Friedman's credit, however, he thinks that biocentrists should "pay more attention to economics." While admitting that he didn't take a single economics course in college he says, "But just as my failure to study political science hasn't prevented me from engaging in policy activism, I've been too pragmatic to avoid poking around the edges of what economics has to offer."¹⁰

Economists and many noneconomists for that matter sometimes view environmentalists as misanthropic hypocrites, driving along in gas-guzzling, exhaust-spewing sport utility vehicles and sipping espresso made from coffee beans grown by Brazilian farmers, who in the process of growing coffee beans destroy ecosystems. Wallace Kaufman, who has lobbied for environmental groups, notes, "The fact that most environmentalists quickly return to the comforts of capitalism after a brief fling with rural life or volunteer work among the poor does not deter them from continuing to endorse poverty and the simple life for others and proclaiming the joys."¹¹

We hope to avoid being either the accuser or accused, but instead contribute to a bridging across disciplines. We address contentious issues between environmentalists and economists, but make special efforts to avoid a battle between "us and them." Many recent books and articles have taken the confrontational approach. Julian Simon, Dixie Ray Lee, Ronald Bailey, Paul Ehrlich, David Orr, and Jeremy Rifkin are a few who have contributed to an adversarial approach. We avoid antagonistic posturing and instead provide a book that contributes to more rational and informed choices.

We believe a synthesis of ideas is essential for progress on environmental issues. We wish to aid the Mitch Friedmans and the E. O. Wilsons of this world in their attempt to glean the economic principles that are essential to an understanding and formulation of solutions to our environmental concerns. We do not believe environmentalists have a monopoly on caring about the environment. Economists, too, must live in this world. Economists, too, enjoy uncrowded beaches, wild places, and virgin forests. Econo-

mists have no fight with the biologists, chemists, and physicists about the seriousness of global warming, species extinction, DDT, acid rain, and lost wetlands. Natural scientists must provide the basic data and analysis on the extent of such problems, not economists, but economists have much to offer in formulating policy solutions.

Environmentalists and economists, however, may have their differences. Traditional environmentalists seem to want zero tolerance for altering the environment, while economists ask how clean should the air and water be? Additionally, economists have policy tools in their bag that are often superior to those of environmentalists in dealing with environmental problems.

Just as there are biological systems, geological systems, political systems, and sociological systems, there are economic systems. The environmental practitioner must link these systems in order to understand causes and formulate workable solutions, and the way to do that is through honest and respectful discourse. Just as there are laws in the natural sciences, there are laws in the social sciences. Just as we must weigh the effect of physical laws when considering the severity of an environmental problem and the solutions, we must understand basic economic laws and principles. If beach erosion threatens homes along the shore in the Hamptons, we must consult coastal engineers and geologists to examine the effect of ocean waves and currents on the movement of sand. We must also understand the economic forces that encourage people to build in such dangerous places in the first place, and how incentives may be used to change their behavior.

Walter Williams stressed the importance of recognizing economic laws in a 1985 syndicated column. Williams explained that Congress would be “laughed out of existence” if it passed a law that defied the law of gravity. Say Congress mandated that all aircraft taking off from New Jersey shut off their engines and henceforth proceed to California. Following such a policy, how far would aircraft get toward their destination? Yet, as Williams points out, the government often enacts laws that require the repeal of economic laws

such as the laws of supply and demand. From minimum wage laws to price controls on gasoline and apartments, the government assumes that buyers and sellers will not alter how much they are willing to buy and sell when the government regulates price. When they do we usually express shock at the negative consequences; yet, we rarely link the price control with the bad effects, a sure sign that the economic principles involved are not understood.¹²

A perfect illustration is the gas crisis in the 1970s. In 1979, we had long lines of automobiles at gas stations waiting to fill up. Most people thought the gas shortage was due to some sort of conspiracy on the part of gasoline suppliers: most never realized the shortage was the direct effect of government price controls on gasoline. In Western Europe where there were no price controls on gasoline, waiting lines at gas pumps never materialized even though their gasoline suppliers were the same as American suppliers.

Although traditionally economists have not always explicitly acknowledged that society's choices are dependent on the biosphere (all living plants and animals and their interrelationships), most economists today recognize that economic decisions are dependent on and limited by ecological systems. The natural environment provides the raw materials such as trees, ore, oil, and water used to make the products we need and desire. The production process uses the raw materials and returns the residual (pollution) to the environment. Not only are resources limited, but the environment is also often damaged by the residual created by the production process. Too much waste devalues the air, land, and water required for food, clothing, housing, and health. Too much waste damages air, land, and water that provide us amenities such as whitewater rafting and wilderness camping that contribute to a better quality of life. For the highest level of well-being, our economic system must operate in harmony with the environmental system.

Environmental protection is important, if for no other reason than that we depend on the environment for our habitat. No one wants to spend life in a protective rubber

suit because of environmental pollution or develop cancer from carcinogens in the water we drink and the air we breath. Economists want to protect the environment but also want to ensure that the flow of useful goods and services is maintained at a high level.

Alas, identifying yourself as an economist to a noneconomist often elicits a groan and the complaint that he or she would have preferred a trip to the dentist for root canal work to the only economics class he or she ever took. Oftentimes, an economics lecturer traumatizes the noneconomist by droning on in “economic speak.” No doubt, many feel like Alice who, when confronted with the poem *Jabberwocky* said, “Somehow it seems to fill my head with ideas, only I don’t know exactly what they are.” Later, on the other side of the looking-glass, Humpty Dumpty provides an interpretation of the seemingly incomprehensible poem. The ideas became much clearer to Alice. Perhaps we can fill the same role as Humpty, for those interested in environmental matters, although we would never play so loose with the rules. Humpty boasts, “When I use a word, it means just what I choose it to mean, neither more nor less.”

We promise to avoid economic jargon (not once do we mention technological external diseconomies), graphs (we draw no dreaded cost curve), and charts, that so quickly put noneconomists to sleep. We present economic principles in a simple enough fashion so that they are accessible to the interested individual. We try to demystify economics. After all, much of economics is common sense. Understanding some basic economic principles can be an enlightening experience. We hope you will find our approach stimulating.

E. O. Wilson has commented that if human beings vanished overnight, other species would hardly register the loss, except for the species that would be better off.¹³ But six billion *Homo sapiens* now inhabit the planet earth, one billion more than lived here in 1987, and more are on the way. We may not be vanishing for a while. And, for the near term at least, for better or worse, we humans are in charge.

No ecosystem has escaped human impact—from Mt. Everest to Antarctica to the South Pacific Islands. Along

with our numbers and our reach, we have a hunger for products that require vast amounts of natural resources and sophisticated technology that causes worldwide changes on an unprecedented scale. Therefore, protecting the environment requires that we understand what motivates humans to destroy it, how choices are made, what the consequences of these choices are, and how choices may be altered to improve the outcomes.

We live in interesting times, but times when we are increasingly concerned about the environment. Joseph Campbell said that Gods are not discovered, they are created. This is also true of economic systems. However, economic systems are not created in a vacuum, but shaped by the events of each generation. For example, a coalition of events created the evolution of European feudalism to an emerging market society.¹⁴ John Maynard Keynes' theory of government action to counteract business cycles evolved from our experience in the 1930s with the Great Depression, and its recent decline in popularity is owed to the negative results produced by the inherent weaknesses in using the government in a more active way. Recent theories advanced by public choice economists such as James Buchanan and Ronald Coase permit us to understand the limits of government policy in dealing with societal problems. Today's economic choices and systems are products of our time. While many countries are experiencing increasing prosperity, they are also dealing with growing environmental concerns.

The "Queen of the Social Sciences" (a more appropriate moniker for economics, we feel) has something to offer to the environmental debate. We must understand some of what economics is about in order to make a difference in the environmental debate. With or without economics, people are interested, are debating, and are acting on important environmental issues. We contend that with a better understanding of economics, we can improve environmental policy.