14 Visions of the Environment and Rethinking the Way We Think

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I. Visions of the Environment

Many people see free markets and the environment as incompatible; for them, the very notion of free market environmentalism is an oxymoron. Even many “free marketeers” find themselves on opposite sides of the fence when it comes to governmental regulation of the environment. Some will hold fast to the conviction that markets work best to allocate most of the goods and services we enjoy, but they will also argue that the environment is different and is too precious to be allocated on the basis of profits.

The view that markets and the environment do not mix is buttressed by the perception that resource exploitation and environmental degradation are inextricably linked to economic growth. This view, which first emerged with industrialization, builds on fears that we are running out of resources because economic growth based on materialistic values is tempting us to squander our natural endowment. During the Industrial Revolution in England, the Reverend Thomas Malthus articulated this view by hypothesizing that exponential population growth would eventually result in famine and pestilence; productivity simply would not be able to keep up with population. The human propensity to reproduce, according to Malthus, would eventually surpass our ability to feed ourselves.

Modern-day Malthusians have given such dire predictions an aura of credibility by using complex computer models to predict precisely when Malthusian calamities will occur. In early 1974, a group of scientists from the Massachusetts Institute of Technology predicted:

If the present growth trends in world population, industrialization, pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years. The most probable result will be a rather sudden and uncontrollable decline in both population and industrial capacity.

In a graph generated by its computer model, the scientific team showed that the “uncontrollable decline” would begin shortly after the turn of the century—in 2005, to be exact—with a precipitous decline in industrial output, food supplies, and population.

The Global 2000 Report commissioned by President Jimmy Carter arrived at similar conclusions in its prediction of what the state of the world’s population and natural resources would be later that year.

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at the turn of the next century. “If present trends continue,” the report claimed, “the world in 2000 will be more crowded, more polluted, less stable ecologically, and more vulnerable to disruption than the world we live in now. Serious stresses involving population, resources, and environment are clearly visible ahead.” In every resource category, Global 2000 predicted overuse and declines in quantity and quality.

But there is no indication that these predictions will come to pass, and many of them have already been proven wrong. The problem rests in the acceptance of Malthus’s initial indication of scarcity—its failure to take account of the ability of humans to react to problems of scarcity by reducing consumption, finding substitutes, and improving productivity. As economist Julian Simon observed, the “ultimate resource” is the human mind, which has allowed us to avoid Malthusian cycles.

Neo-Malthusians might agree with Simon about the value of the human mind, but they generally see political controls of resource use as the only way to implement this human ingenuity. If markets that promote resource consumption are the cause of the problem, then government must be the solution. When nineteenth-century timber harvests denuded portions of the upper Midwest, there was a call to nationalize the forests to ensure against predicted timber famines. Although there has been no timber famine and private forests continue to be more productive than public forests, the political response has endured. From land to water to air, governmental control—which means political control—is seen as a necessary check on the environmental ravages of free markets.

Here we will challenge this common perception and offer an alternative way of thinking about environmental issues, markets, and political choice. This way of thinking does not always provide solutions; instead, it concentrates on how alternative processes link information about the environment and individual incentives to interact with it. Here, the environment and the market are inextricably connected in a positive rather than a negative way.

At the heart of free market environmentalism is a system of well-specified property rights to natural resources. Whether these rights are held by individuals, corporations, non-profit environmental groups, or communal groups, a discipline is imposed on resource users because the wealth of the owner of the property right is at stake if bad decisions are made. Of course, the further a decision maker is removed from this discipline—as he is when there is political control—the less likely it is that good resource stewardship will result. Moreover, if well-specified property rights are transferable, owners must not only consider their own values; they must also consider what others are willing to pay.

The Nature Conservancy’s private land management program offers an excellent example of how free market environmentalism works. When the Conservancy obtains title to a parcel of land, the group’s wealth, defined in terms of preserving habitat for a rare or endangered species, depends on good stewardship. When The Wisconsin Nature Conservancy was given title to forty acres of beachfront property on St. Croix, Virgin Islands, some may have thought that the group would protect that pristine beach at all costs. But the Conservancy traded the property (with covenants) for a larger parcel of rocky hillside in northern Wisconsin. The trade allowed the Conservancy to protect an entire watershed containing many endangered plant species. To be sure, trade-offs were made, but through the exchange of well-defined and enforced property rights—that is, markets—The Nature Conservancy’s wealth in the form of environmental amenities was enhanced.

Free market environmentalism emphasizes an important role for government in the enforcement of property rights. With clearly specified titles—obtained from land recording systems, strict liability rules, and adjudication of disputed property rights in courts—market processes can encourage good resource stewardship. It is when rights are unclear and not well enforced that over-exploitation occurs.

This way of thinking will be alien to some and acceptable to others largely because of the different “visions” each person brings to the issue. In A Conflict of Visions Thomas Sowell described a vision as

> what we sense or feel before we have constructed any systematic reasoning that could be called a theory, much less deduced any specific consequences as hypotheses to be tested against evidence. . . . Visions are the foundations on which theories are built."

The theory of free market environmentalism is founded on certain visions regarding human nature, knowledge, and processes. A consideration of these visions helps explain why some people accept this way of thinking as the only alternative to bureaucratic control and why others reject it as a contradiction in terms.

Human nature. Free market environmentalism views man as self-interested. This self-interest may be enlightened to the extent that people are capable of setting aside their own well-being for close relatives and friends or that they may be conditioned by moral principles. But beyond this, good intentions will not suffice to produce good results. Developing an environmental ethic may be desirable, but it is unlikely to change basic human nature. Instead of intentions, good resource stewardship depends on how well social institutions harness self-interest through individual incentives.

Knowledge. In addition to incentives, good resource stewardship depends on the information available to self-interested individuals. Free market environmentalism views this information or knowledge as diffuse rather than concentrated. Because ecosystems depend on the interaction of many different natural forces, they cannot be “managed” from afar. The information necessary for good management varies significantly from time to time and from place to place, and resource management requires knowledge that can only be obtained “on the ground.” Therefore, knowledge cannot be gathered into a single mind or group of minds that can then capably manage all of society’s natural resources.

The difference between perceptions of knowledge under centralized, political resource management and free market environmentalism centers on the distribution of knowledge among individuals. In visions of centralized, political control, the distribution has a low mean with a high variance. That is, the common man is not perceived as knowing much about the environment, and what he does know (including knowledge of his own values) is incorrect; the high
variance means that experts can manage for the good of the masses. Free market environmentalism sees a much smaller knowledge gap between the experts and the average individual. In this view, individual property owners, who are in a position and have an incentive to obtain time- and place-specific information about their resource endowments, are better suited than centralized bureaucracies to manage resources.

Processes or solutions. These visions of human nature and knowledge combine to make free market environmentalism a study of process rather than a prescription for solutions. If man can rise above self-interest and if knowledge can be concentrated, then the possibility for solutions through political control is more likely. But if there are self-interested individuals with diffuse knowledge, then processes must generate a multitude of solutions conditioned by the checks and balances implicit in the process. By linking wealth to good stewardship through private ownership, the market process generates many individual experiments, and those that are successful will be copied. The question is whether the right solution has been achieved but whether the relevant trade-offs are being considered in the process.

These three elements of free market environmentalism also characterize the interaction of organisms in ecosystems. Since Charles Darwin's revolutionary study of evolution, most scientific approaches have implicitly assumed that self-interest dominates behavior for higher as well as lower forms of life. Individual members of a species may act in "altruistic" ways and may cooperate with other species, but species survival depends on adjustments to changing parameters in ways that enhance the probability of survival. To assume that man is not self-interested or that he can rise above self-interest because he is part of a political process requires heroic assumptions about homo sapiens vis-à-vis other species.

Ecology also emphasizes the importance of time- and place-specific information in nature. Because the parameters to which species respond vary considerably within ecosystems, each member of a species must respond to time- and place-specific characteristics with the knowledge that each possesses. These parameters can vary widely, so it is imperative for survival that responses utilize the diffuse knowledge. Of course, the higher the level of communication among members of a species, the easier it is to accumulate and concentrate time- and place-specific knowledge. Again, however, it requires a giant leap of faith to assume that man's ability to accumulate and assimilate knowledge is so refined that he can centrally manage the economy or the environment for himself and for all other species. Recent evidence from Eastern Europe underscores the environmental problems that can arise with centralized management.

Ecology is also the study of processes and interaction among species; it is not a scientific prescription for solutions to environmental changes. Like free market environmentalism, ecology focuses on the information and incentives that reach the members of a species. When a niche in an ecosystem is left open, a species can "profit" from filling that niche and other species can benefit as well. If an elk herd grows, there is additional food for bears and wolves and the number of predators will expand as they take advantage of this "profit" opportunity. Individual elk will suffer at the expense of predators, but elk numbers will be controlled. In the process, plant species will survive and other vertebrates will retain their place in the ecosystem. No central planner knows the best solution for filling niches; it is the individualistic process that rewards the efficient use of time- and place-specific information.

Comparing free market environmentalism with ecosystems serves to emphasize how market processes can be compatible with good resource stewardship and environmental quality. As survival rewards species that successfully fill a niche, increased wealth rewards owners who efficiently manage their resources. Profits link self-interest with good resource management by attracting entrepreneurs to open niches. If bad decisions are being made, then a niche will be open. Whether an entrepreneur sees the opportunity and acts on it will depend on his ability to assess time- and place-specific information and act on his assessment. As with an ecosystem, however, the diffuse nature of this information makes it impossible for a central planner to determine which niches are open and how they should be filled. If the link between self-interest and good resource stewardship is broken because good stewards cannot reap the benefits, do not bear the costs of their decisions, or receive distorted information through political intervention, then the efficacy of free market environmentalism will be impaired in the same way that the efficacy of an ecosystem would be impaired by centralized planning.

Visions of what makes good environmental policy are not easily changed; if they are to change, it will be because we recognize that our visions are not consistent with reality. We must ask ourselves whether well intentioned individuals armed with sufficient information dominate the political decisions that affect natural resources and the environment. Environmentalist Randal O'Toole answered this question in the context of the US Forest Service:

While the environmental movement has changed more than the Forest Service, I would modestly guess that I have changed more than most environmental leaders. . . . In 1980, I blamed all the deficiencies in the markets on greed and big business and thought that government should correct these deficiencies with new laws, regulatory agencies, rational planning, and trade and production restrictions. When that didn't work, I continued to blame the failure on greed and big business.

About 1980, someone suggested to me that maybe government didn't solve environmental or other social problems any better than markets. That idea seemed absurd. After all, this is a democracy, a government of the people, and what the people want they should be able to get. Any suggestion that government doesn't work was incomprehensible.

But then I was immersed in the planning processes of one government agency for ten years (sort of like taking a Berlitz course in bureau-speaking). I learned that the decisions made by government officials often ignored the economic and other analyses done by planners. So much for rational planning. Their decisions also often went counter to important laws and regulations. So much for a democratic government.

Yet I came to realize that the decisions were all predictable, based mainly on their effects on forest budgets . . .

I gradually developed a new view of the world that recognized the flaws of government as well as the flaws in markets. Reforms should solve problems by creating a system of checks and balances on both processes. . . . The key is to give decision makers the incentives to manage resources properly.

We seek to provide a "Berlitz course in free market environmentalism." We challenge entrenched visions. The development of free market environmentalism has progressed from an
examination of the relatively easy problems of land and energy development to the tougher problems of water quality and quantity. The evolution of land and water rights on America's frontier illustrates how the creation of property rights responds to scarcity. Massive reservations of land as public domain halted this privatization movement and often subsidized environmental destruction. There is good evidence that political land management has ignored important recreational and amenity values and that there is a potential for providing them through markets in ways that promote harmony between development and ecology. Free market environmentalism has caught on in the area of water policy, and it holds the promise of a more efficient and environmentally acceptable allocation of that scarce resource. If land use constitutes an "easy" problem for free market environmentalism, pollution problems challenge the paradigm. But there is a clear advantage to using the paradigm of free market environmentalism to examine air pollution problems ranging from acid rain to global warming.

By confronting our entrenched visions, we can move beyond the status quo of political control of the environment and unleash environmental entrepreneurs on the tougher problems we face. The popularity of Earth Day 1990 illustrated the heightened environmental consciousness of people around the world. Most of the proposed solutions to perceived environmental problems, however, call for centralized approaches that are not consistent with the science of ecology. Moreover, these solutions pit winners against losers in a zero-sum game that tears at the social fabric. Free market environmentalism depends on a voluntary exchange of property rights between consenting owners and promotes cooperation and compromise. In short, it offers an alternative that channels the heightened environmental consciousness into win-win solutions that can sustain economic growth, enhance environmental quality, and promote harmony.

II. Rethinking the Way We Think

Most natural resource and environmental policy has been premised on the assumption that markets are responsible for resource misallocation and environmental degradation and that centralized, political processes can correct these problems. In general, the failure of markets is attributed to private decision makers who do not take into account all costs and benefits, to the unequal availability of information to all buyers and sellers, or to monopolies distorting prices and outputs. In essence, market failure is blamed on the lack of information, inappropriate incentives, or both. To counter market failures, centralized planning is seen as a way of aggregating information about social costs and social benefits in order to maximize the value of natural resources. Decisions based on this aggregated information are to be made by disinterested resource managers whose goal is to maximize social welfare.

Economic analysis in general and natural resource economics in particular have approached resource policy as if there is a "socially efficient" allocation of resources that will be reached when scientific managers understand the relevant trade-offs and act to achieve the efficient solution. For example, forest resources are supposed to be managed to achieve the "greatest good for the greatest number" through "multiple use management" undertaken by an "elite corps of professionals." When problems with management are recognized, they are attributed to "bad people in government" and the solution is to replace them with better trained, better financed managers.

But there is a more realistic way of thinking about natural resource and environmental policy. This alternative recognizes and emphasizes the costs of coordinating human actions. There is no assumption that costs of engaging in a transaction are zero or that there is perfect competition. To the contrary, understanding alternative policies requires that we specify coordination costs and discover why and where competitive forces may not be working.

This analytical framework applies equally to markets and politics. If all people lived alone on remote islands, there would be no costs of coordination, but in a complex society like ours, the gains from trade, interacting individuals must measure and monitor the actions of one another. In the marketplace, consumers must signal to suppliers what quantity and quality of products they demand at what prices; suppliers must determine which products to produce and which input combinations to use. Both demanders and suppliers must monitor one another to ensure that products are delivered and paid for. To the extent that actions can be effectively measured and monitored, demanders and suppliers will internalize costs and benefits, profits will be made, and efficient resource allocation will be a by-product.

Similarly, citizens who demand goods and services from government must monitor the politicians and bureaucrats who supply them. Like a consumer dissatisfied with goods purchased from the supermarket, a citizen who is unhappy with the actions of his political representative has experienced the cost of measuring and monitoring supplier performance. Outcomes do not always reflect citizens' desires; the political process may supply too many goods like nuclear arms or too little of goods like quality education. As with market analysis, policy analysis must focus on how well the political process internalizes costs and benefits to citizens and their political agents so that resources will not be squandered.

In rethinking natural resource and environmental policy, two facts must be recognized. First, incentives matter to all human behavior. No matter how well intended professional resource managers are, incentives affect their behavior. Like it or not, individuals will undertake more of an activity if the costs of that activity are reduced; this holds as much for bureaucrats as it does for profit-maximizing owners of firms. Everyone accepts that managers in the private sector would dump production wastes into a nearby stream if they did not have to pay for the cost of their action. Too often, however, we fail to recognize the same elements at work in the political arena. If a politician is not personally accountable for allowing oil development on federal lands or for permitting an agency to dump hazardous wastes into the environment, then we can expect too much development or too much dumping. Moreover, when the beneficiaries of these policies do not have to pay the full cost, they will demand more of each from political representatives.

Second, information costs are positive in both the private and political sectors. In a world of scarcity, both private and political resource managers must obtain information about the relative values of alternative uses. When one resource use rivals another, trade-offs must be made. Resource managers can only make these trade-offs based on the information coming to them or on their own values. If they believe lumber is more valuable than wildlife habitat, trees will be cut. Timber managers may know how fast trees grow under certain conditions, but they cannot
know what the value of the growth is without incurring some cost in obtaining that information. The lumber market provides information on timber value as a commodity, but information about the value of wildlife habitat and environmental amenities is more costly because those markets are less developed. Private timber managers for International Paper, for example, are being forced to consider wildlife habitat in their timber production decisions because prices tell them that consumers are willing to pay increasingly more for hunting, camping, and recreation. Political managers who "give away" recreational services from public lands lack this price information and have less incentive to react to changing values.

When incentives matter and information is costly, resource management is complicated so that it is not sufficient to rely on good intentions. Even if the superintendent of national parks believes that grizzly bear habitat is more valuable than more campsites, his good intentions will not necessarily yield more grizzly bear habitat. In a political setting where camping interests have more influence over a bureaucrat's budget, his peace and quiet, or his future promotion, intentions will have to override incentives if grizzly bear habitat is to prevail. But if a private resource owner believes that grizzly bear habitat is more valuable and can capitalize on that value, then politics will not matter. Moreover, if those who demand grizzly habitat are willing to pay more than those who demand campsites, then incentives and information reinforce one another. Management simply cannot be adequately analyzed without careful attention to the information and incentives that actors face under alternative institutional arrangements.

SCIENTIFIC MANAGEMENT OR ECONOMICS WITHOUT PRICES

For years economists have tried to use computer modeling techniques to simulate the market allocation of natural resources. The US Forest Service, for example, developed FORPLAN, a forest simulation model, to specify the necessary conditions for efficient national forest use. The rationale of such models is simply that if the additional or marginal value of one resource use is greater than another, then allocation will be improved if the resource is reallocated from the latter to the former. This form of analysis teaches us that there are many margins for adjustment and that few decisions have all-or-nothing consequences. When water is allocated for fish or irrigation, trade-offs must be made; it is not an either or decision. Put simply, neither demand nor supply is unresponsive to price changes. If prices rise, then demanders will make marginal adjustments by shifting consumption to the nearest substitutes; suppliers will adjust by substituting among resources and technologies.

The logic of this analysis combined with models and computers that can simulate resource use can lure policy analysts into believing that the maximization of resource value is a simple matter. Unfortunately, in this case logic and simplicity are not good guides because they mask the information costs and incentives. Consider the case of multiple use management of the national forests, where the scientific manager is supposed to trade off timber production, wildlife habitat, aesthetic values, water quality, recreation, and other uses to maximize the value of the forest. Because the managers are not supposed to be motivated by profit or self-interest, it is assumed that they will impartially apply economic theory and quantitative methods to accomplish efficient resource allocation. The scientific manager, armed with the economic concepts of marginal analysis, is supposed to be "always analytical... Always, the economist's reasoning, his analytical framework... and his conclusions are exposed forthrightly to the examination and criticism of others. In these ways, scientific objectivity is actively sought."

To apply marginal analysis to multiple use, decision makers must attach values to the relevant margins. Scientific management assumes that these values are known and, therefore, that there is an efficient solution. The decision maker must only acquire the "correct" information about resource values in alternative uses and reallocate those resources until marginal equalities hold. Management is simply the process of finding the socially optimal allocation. Thomas Sowell has captured the traditional resource economics perspective on information:

Given that explicitly articulated knowledge is special and concentrated... the best conduct of social activities depends upon the special knowledge of the few being used to guide the actions of the many... Along with this has often gone a vision of intellectuals as disinterested advisors..."11

If knowledge of values that must be traded off against one another were "special and concentrated," then scientific management might be possible. But as F. A. Hayek has pointed out, the economic problem of society is... not merely a problem of how to allocate "given resources"... if "given" is taken to mean given to a single mind which deliberately solves the problem set by these data... It is rather a problem of how to secure the best use of resources known to any of the members of society, for ends whose relative importance only these individuals know. Or, to put it briefly, it is a problem of utilization of knowledge not given to anyone in its totality.12

The very information and knowledge necessary for trade-offs made using scientific management are subjective and are only revealed through human action.

As analytical tools, economic models focus on the importance of marginal adjustments, but they cannot instruct managers in which trade-offs to make or which values to place on a resource. In the absence of subjective individual evaluations, the marginal solutions derived by sophisticated efficiency maximization models are unachievable ideals. Unfortunately, these models have been used as guides to tell resource managers how to achieve efficient allocation; in fact, they can only provide a way of thinking about trade-offs. Managers argue that these models have added sophistication and authority to political management efforts, allowing shadow prices (that is, prices that are not real but images of what would exist if there was a market) to be derived and used in lieu of actual market processes. The Forest Service and the Bureau of Land Management, enamored with these models, assume that with sufficient data and large enough computers it is possible to produce wise and efficient management plans. Forest economist Richard Behan stated that the planning acts that guide the Forest Service mandate "with the force of law that forest plans can be rational, comprehensive, and essentially perfect." But no matter how rational or comprehensive they may be, models built on marginal analysis will always be constrained by information requirements.

The market process generates information on the subjective values that humans place on alternative resource use as individuals engage in voluntary trades. The decentralized decisions
made in markets are crucial, because "practically every individual has some advantage over all others in that he possesses unique information of which beneficial use might be made, but of which use can be made only if the decisions depending on it are left to him or are made with his active cooperation." Once we understand that most knowledge is fragmented and dispersed, then "systemic coordination among the many surpasses the special wisdom of the few." Traditional economic analysis has failed to recognize this fundamental point. The information necessary for "efficient" resource allocation depends on the knowledge of the special circumstance of time and place. 

The idea of scientific management has also misguided public policy because it ignores the incentives of decision makers in the political sector. The economic analysis of markets focuses on incentives in the form of prices that determine the benefits and costs that decision makers face. Market failure is said to result when any benefits are not captured or costs are not borne by decision makers. The existence of these externalities or third-party effects means that either too little of a good is produced in the case of ununcaptured benefits or too much in the case of unborne costs. A system of private water allocation, for example, may not provide a sufficient supply of instream flows for wildlife habitat and environmental quality because owners of water cannot easily charge recreationalists and environmentalists who benefit from free-flowing water. And too much pollution exists because firms do not have to pay the full cost of waste disposal, so they "overuse" the air or water as a garbage dump. Such under- or over-production is often taken as a sufficient condition for taking political control of resource allocation.

There is, however, an asymmetry in the analysis of market and political processes because of a failure to recognize that the political sector operates by externalizing costs. Consider the reasoning that political agents apply to scientific management. When land is diverted from timber production to wilderness, there is an opportunity cost associated with the reallocation. Private landowners interested in maximizing the value of the resource must take this cost into account in the "price" of wilderness. The bureaucratic manager or politician who does not own the land, however, does not face all the opportunity costs of his decisions. He will take the values foregone into account only if the political process makes him do so. If we assume that the political process worked perfectly (which is the equivalent of assuming that markets work perfectly), then the countervailing powers of the opposing sides would internalize the benefits and costs for the decision maker.

But there is little reason to believe that the political process works perfectly or even tolerably well. Because politicians and bureaucrats are rewarded for responding to political pressure groups, there is no guarantee that the values of unorganized interests will be taken into account even if they constitute a majority of the population. For example, most Americans will pay marginally higher prices for petroleum products if oil production is not allowed in the Arctic National Wildlife Refuge. Because this cost to each individual is low and the costs of information and action are high relative to the benefits, each person will remain rationally ignorant; that is, he will not become informed on the issue. But organized groups that favor preserving wildlife habitat in the pristine tundra can gain by stopping drilling in the refuge. To the extent that those who benefit from wildlife preservation do not have to pay the opportunity costs of forgone energy production, they will demand "too much" wildlife habitat. In the absence of a perfect political process, we must depend on good intentions to overpower the special interest incentives built into the imperfect system. This takes a giant leap of faith.

Traditional thinking about natural resource and environmental policy ignores the most basic economic tenet: incentives matter. Markets with positive costs of eliminating third party effects have been compared with a political process where those costs are ignored or assumed to be zero. Consider the approach taken in a leading resource economics textbook:

... the government is a separate agent acting in the social interest when activity by individuals fails to bring about the social optimum... we discuss some limits of this approach, but it permits us to abstract from the details of the political process.

When we abstract from the details of the political process, we ignore incentives inherent in that process. Daniel Bromley claimed that government agencies are politically responsible to the citizenry through the system of... elections and ministerial direction. However imperfect this may work, the presumption must be that the wishes of the full citizenry are more properly catered to than would be the case if all environmental protection were left to the ability to pay by a few members of society given to philanthropy.

But why must we "assume" that the "wishes of the full citizenry are more properly catered to"? And what does "full citizenry" mean? Is there unanimous consent? Does a majority constitute the "full citizenry" when voting turnout is traditionally low? Bromley also charged that "claims for political exchange are supported by appeal to a body of economic theory that is not made explicit," but there is little made explicit when we "abstract from the details of the political process" by presuming "that the wishes of the full citizenry are more properly catered to" in the political process.

Because traditional thinking about resource and environmental policy pays little attention to the institutions that structure and provide information and incentives in the political sector, practitioners often seem surprised and puzzled that efficiency implications from their models are ignored in the policy arena. In the private sector, efficiency matters because it influences profits; in the political sector, prices and incentives are often very different. Political resource managers make trade-offs in terms of political currencies measured in terms of special interest support; at best, this unit of account provides imprecise measures of the subjective values of citizens.

The incentive structure in the political sector is complicated because the bottom line depends on the electoral process where votes matter, not efficiency. Because voters are rationally ignorant, because benefits can be concentrated and costs diffused, and because individual votes seldom (and probably never) influence the outcome of elections, there is little reason to expect that elections will link political decisions to efficiency in the same way that private ownership does in the market process.

Under private ownership, profits and losses are the measure of how well decision makers are managing. Even where shareholders in a large company have little effect on actual decisions, they can observe stock prices and annual reports as a measure of management's performance. In other words, private ownership gives owners both the information and the incentive to measure
performance. In the political sector, however, both information and incentives are lacking. Annual budget figures offer information about overall expenditures and outlays, but it is not clear who is responsible and whether larger budgets are good or bad. Even when responsibility can be determined, there is no easy way for a citizen to "buy and sell shares" in the government. Therefore, citizens remain rationally ignorant about most aspects of political resource allocation and rationally informed about issues that directly affect them. The rewards for political resource managers depend not on maximizing net resource values but on providing politically active constituents with what they want with little regard for cost. Although it may not be possible to state precisely what is maximized by politicians and bureaucrats, it is clear that efficiency is not the main goal. If political resource managers were to follow the tenets of traditional natural resource economics, it would have to be because there were honest, sincere people (professional managers) pursuing the public interest.

Anthony Fisher has provided perhaps the best summary of the problem:

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"We have already abandoned the assumption of a complete set of competitive markets. . . . But if we now similarly abandon the notion of a perfect planner, it is not clear, in my judgment, that the government will do any better. Apart from the question of the planner's motivation to behave in the way assumed in our models, to allocate resources efficiently, there is the question of his ability to do so."

Without information and incentives, scientific management becomes economics without prices.

**GETTING THE INCENTIVES RIGHT**

The content on the gains from trade in market processes is that each party to a transaction must measure and monitor the activities of the other. If individuals were self-sufficient, these costs disappear, but they would also forgo the gains from specialization and trade. Hence, the problem we all face is to trade off the gains from specialization against the costs of measuring and monitoring the performance of those with whom we interact.

This framework is useful for examining relationships in the political sector where citizens "hire" politicians or bureaucrats to produce certain goods and services. At a minimum, this relationship grants to the government a monopoly on the use of coercion, which enables it to enforce voluntary contracts between individuals. In addition, citizens may assign to the state the role of producing goods for which coercion is necessary because the costs of measuring and monitoring voluntary transactions are prohibitive. For example, if the costs of excluding fishermen from a free-flowing stream are high, then there will be little incentive for the private sector to provide this amenity; market failure is said to result in the underproduction of these "public goods." By using the coercive power of government to charge all citizens (or at least all fishermen), this problem can be overcome. Unfortunately, this solution raises another problem: How can the citizens be certain that the state is producing the desired bundle of public goods? Indeed, the fundamental dilemma of political economy is: Once the state has the coercive power to do what voluntary (market) action cannot do, how can that power be constrained from being usurped by special interests?

At least two variables are important in determining the resolution of this dilemma. First, the complexity of the good in question will have a direct bearing on the ability of a consumer or citizen to measure the performance of suppliers. If a good or service can be produced by the political sector (i.e., regulated industry), measuring the board feet of production may be simple; but if those same lands are for "multiple use," then it is much more costly to determine how closely actual results approximate the results desired. Goods such as environmental quality, risk management, soil conservation, national heritage, and wilderness values are all costly to measure.

The second determinant will be the costs of monitoring political agents who provide public goods, and these costs will be directly related to the proximity, both in time and space, of the agent to the citizen. Monitoring the behavior of a local zoning board is less costly than monitoring the behavior of the director of the National Park Service. Furthermore, before we had telephones and computers, monitoring agent behavior was more costly because of the time required for communication. A free press and free access to governmental information reduced these costs. At the same time however, the multitude of decisions made at various levels of government and the large number of constituents represented by each political agent raised the cost of monitoring.

Because the same kinds of costs exist with market transactions, we must complete the analysis by comparing the measurement and monitoring costs of the political sector with those of the private sector. For all market transactions, both buyers and sellers must incur measurement and monitoring costs. The buyer must consider a product's value in quantity and quality terms and weigh that value against alternative goods. The seller must monitor production and discover mechanisms for making sure buyers cannot enjoy the benefits of the good without paying. For example, a hunter purchasing hunting rights must consider the value of the hunting experience relative to other opportunities. The seller must determine whether it is worth enhancing hunting opportunities and whether nonpaying hunters can avoid paying the fee (that is, trespassing) while still reaping the benefits. If the costs for either buyer or seller are sufficiently high, the potential net gains from trade will be reduced and trades may not take place.

There are three important characteristics of private sector transactions, however, that tend to mitigate these costs. First, measurement costs are greatly reduced in market transactions by prices. Prices convey valuable, condensed information that allows consumers to compare and aggregate inputs and outputs. In the absence of price information that transforms subjective values into an objective measure, comparing values of alternative resource uses is difficult. Because many governmental goods and services are not priced, transaction costs are higher in the political sector.

Prices also allow a measure of efficiency through profits and losses. If a shareholder wants to know how well the management of his firm is performing, he can at least consult the profit-and-loss statement. This is not a perfect measure of performance, but continual losses suggest that actual results differ from those that are desired. This can tell the shareholder that he should consider alternative managers who can produce the product at a lower cost or he should reconsider the market for the product. Compared to the political sector where the output of government is not priced and where agency performance is not measured by the bottom line, profits and losses
property rights are well defined, enforced, and transferable. The physical attributes of the
resources must be specified in a clear and concise manner; they must be measurable. For ex-
ample, the rectangular survey system allows us to define ownership rights over land and
clarifies disputes over ownership. The system may also help us define ownership to the airspace
over land, but more questions arise here because of the fluidity of air and the infinite vertical
dimension above the ground. If property rights to resources cannot be defined, then they obvi-
ously cannot be exchanged for other property rights.

Property rights also must be defendable. A rectangular survey may define surface rights to
land, but conflicts are inevitable if there is no way to defend the boundaries and prevent other
incompatible uses. Barbed wire provided an inexpensive way to defend property rights on the
western frontier; locks and chains do the same for parked bicycles. But enforcing one's rights
to peace and quiet by "fencing out" sound waves may be much more difficult, as will keeping other
people's hazardous wastes out of a groundwater supply. Whenever the use of property cannot be
monitored or enforced, conflicts are inevitable and trades are impossible.

Finally, property rights must be transferable. In contrast to the costs of measuring and moni-
toring resource uses, which are mainly determined by the physical nature of the property and
technology, the ability to exchange is determined largely by the legal environment. Although
well-defined and enforced rights allow the owner to enjoy the benefits of using his property,
legal restrictions on the sale of that property preclude the potential for gains from trade. Sup-
pose that a group of fishermen values water for fish habitat more highly than farmers value
the same water for irrigation. If the fishermen are prohibited from renting or purchasing the water
from the farmers, then gains from trade will not be realized and potential wealth will not be
created. Moreover, the farmer will have less incentive to leave the water in the stream.

In sum, free market environmentalism presumes well-specified rights to take actions with
respect to specific resources. If those rights cannot be measured, monitored, and marketed, then
there is little possibility for exchange. Garbage disposal through the air, for example, is more of a
problem than solid waste disposal in the ground because property rights to the Earth's surface
are better defined than property rights to the atmosphere. Private ownership of land works quite
well for producing timber, but measuring, monitoring, and marketing the land for endangered
species habitat requires entrepreneurial imagination.

Imagination is crucial to free market environmentalism, because it is in the areas where prop-
erty rights are evolving that resource allocation problems occur. Where environmental entrepre-
neurs can devise ways of marketing environmental values, market incentives can have dramatic
results. It is important to recognize that any case of external benefits or costs provides fertile
ground for an entrepreneur who can define and enforce property rights. A stream owner who
can devise ways of charging fishermen can internalize the benefits and costs and gain an incen-
tive to maintain or improve the quality of his resource. The subdivider who puts covenants on
deeds that preserve open space, improve views, and generally harmonize development with the
environment establishes property rights to these values and captures the value in higher asset
prices.

The property rights approach to natural resources recognizes that property rights evolve
depend on the benefits and costs associated with defining and enforcing rights. This calculu
will depend on such variables as the expected value of the resource in question, the technology for measuring and monitoring property rights, and the legal and moral rules that condition the behavior of the interacting parties. At any given time, property rights will reflect the perceived benefits and costs of definition and enforcement. To observe actions that are not accounted for in market transactions—that is, for which property rights have not been specified—and call them externalities or market failure ignores the evolutionary nature of property rights. As the perceived costs and benefits of defining and enforcing property rights change, property rights will evolve.

This does not mean that there is no role for government in the definition and enforcement process or that property rights will always take all costs and benefits into account. The costs of establishing property rights are positive and potentially can be reduced through governmental institutions, such as courts. Furthermore, because transaction costs are positive, contracts that take costs into account will not always be forthcoming. In the case of water pollution from sources that cannot be identified (with current technology) at low costs, for example, the definition and enforcement of property rights governing water use may be impossible. And excluding non-payers from enjoying a scenic view may be costly enough that a market cannot evolve under current technologies and institutions. In these cases, there is a utilitarian argument for considering government intervention. But there is still no guarantee that the results from political allocation will work very well. If markets produce "too little" clean water because dischargers do not have to pay for its use, then political solutions are equally likely to produce "too much" clean water because those who enjoy the benefits do not pay the cost.

CONCLUSION

Traditional economic analysis stresses the potential for market failure in the natural resource and environmental arena on the grounds that externalities are pervasive. Free market environmentalism explicitly recognizes that this problem arises because it is costly to define and enforce rights in both the private and political sectors. In fact, the symmetry of the externality argument requires that specific attention be paid to policies as the art of diffusing costs and concentrating benefits. Assuming that externality problems in the environment can be solved by turning to the political sector ignores the likelihood that government will externalize costs. Just as pollution externalities can generate too much dirty air, political externalities can generate too much water storage, clear-cutting, wilderness, or water quality.

Free market environmentalism emphasizes the importance of market processes in determining optimal amounts of resource use. Only when rights are well-defined, enforced, and transferable will self-interested individuals confront the trade-offs inherent in a world of scarcity. As entrepreneurs move to fill profit niches, prices will reflect the values we place on resources and the environment. Mistakes will be made, but in the process a niche will be opened and profit opportunities will attract resource managers with a better idea. Remember that even externalities offer profit niches to the environmental entrepreneur who can define and enforce property rights to the unowned resource and charge the free-riding user. In cases where definition and enforcement costs are insurmountable, political solutions may be called for. Unfortunately, however, these kinds of solutions often become entrenched and stand in the way of innovative market processes that promote fiscal responsibility, efficient resource use, and individual freedom.

**Notes**

2. For a discussion of additional apocalyptic predictions, see Edith Efron, _The Apocalypses_ (New York: Simon and Schuster, 1984), chap. 3.
5. The Nature Conservancy controls thousands of acres of private land that fit the free-market environmentalism model. But the Conservancy also turns many of its lands over to public agencies, thereby perpetuating political control of resources.
9. This framework for thinking about the environment has been called the New Resource Economics and was first formally discussed in Terry L. Anderson, "New Resource Economics: Old Ideas and New Applications," _American Journal of Agricultural Economics_, 64 (December 1982), 928–34.
17. Ibid., 54.