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Terry L. Anderson

Donald R. Leal

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FREE MARKET ENVIRONMENTALISM: HINDSIGHT AND FORESIGHT

Terry L. Anderson and Donald R. Leal†

INTRODUCTION

John Maynard Keynes aptly described the impact of ideas, foretelling his own legacy.

Both when they are right and when they are wrong, the ideas of economists and political philosophers are more powerful than is commonly understood. Indeed the world is ruled by little else. Even practical men, who believe themselves exempt from intellectual influences, are usually the slaves of defunct economists. Madmen in authority, who hear voices in the air, are distilling their frenzy from academic scribblers of a few years back.¹

One consequence of Keynes' "scribbling" has been decades of larger and larger government.

In the area of environmental economics, it was A. C. Pigou's scribbling that left its mark on modern policy.² Pigou argued that the divergence between private and social costs and private and social benefits leads to market failure, which must be corrected by governmental intervention. According to this view, the failure of markets can be attributed to private decisionmakers who fail to account for all costs and benefits, to the unequal availability of information to all buyers and sellers, or to monopolies that distort prices and outputs.³ In essence, market failure is blamed on lack of information, inappropriate incentives, or both. To counter market failures and maximize the value derived from natural resources, centralized planners are supposed to aggregate information about social costs and social benefits. Ideally, decisions based on this

† Terry L. Anderson is Executive Director of the Political Economy Research Center ("PERC") in Bozeman, MT and Senior Fellow at the Hoover Institution, and Donald R. Leal is a Senior Associate at PERC. This article was adapted from a forthcoming revision of the authors' book, TERRY L. ANDERSON & DONALD R. LEAL, *FREE MARKET ENVIRONMENTALISM* (1991).

¹ JOHN MAYNARD KEYNES, *THE GENERAL THEORY OF EMPLOYMENT, INTEREST, AND MONEY* 383 (1964).

² A.C. PIGOU, *THE ECONOMICS OF WELFARE* (1920).

³ See generally TOM TIETENBERG, *ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS* (1988) (discussing the factors contributing to market failure).

aggregated information are made by disinterested resource managers whose goals are maximizing social welfare. One well-known analysis of welfare economics explains that this balancing of social benefits and costs can take society to what is termed the “bliss point.”⁴ At this “bliss point,” the bundle of goods and services is efficiently produced and therefore maximizes the aggregate for society.

Economic analysis in general, and natural resource economics in particular, have approached resource policy as though 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 most efficient solution.⁵ In this way, politicians and bureaucrats are supposed to achieve the “greatest good for the greatest number” (a mathematical impossibility). When management problems are recognized, they are usually attributed to government managers who are following their own or other special interests or are incorrectly informed about values. In this case, most often the proposed solution is to replace such managers with people concerned for the public interest or to ensure that they are better informed.

The purpose of this paper is to counter the traditional way of thinking about natural resource and environmental problems with an approach known as free market environmentalism (“FME”).⁶ This alternative recognizes and emphasizes the costs of coordinating human actions. It does not assume that the costs of obtaining information or coordinating activities are zero or that there is perfect competition. To the contrary, FME focuses on how the costs of coordinating human actions (transaction costs as economists have labeled them) limit our ability to attain human goals given our limited resources and technology. Because information is costly to obtain and individual human values (including those concerning the environment) are subjective, this approach asks how well different coordination processes—in particular markets or politics—reflect individual human values and account for the costs of achieving them.⁷ The paper proceeds by considering three categories of transaction costs: information costs, contracting costs, and third-party costs and benefits. It then compares these transaction costs in market and political processes and evaluates why we might expect transaction costs to be higher or

⁴ See Francis Bator, *The Simple Analytics of Welfare Maximization*, 98 AM. ECON. REV. 22 (1957).

⁵ THOMAS SOWELL, *A CONFLICT OF VISIONS* (1987).

⁶ See generally TERRY L. ANDERSON & DONALD R. LEAL, *FREE MARKET ENVIRONMENTALISM* (1991) (explaining the theory of FME); PAUL HEYNE, *THE ECONOMIC WAY OF THINKING* (1997) (laying a foundation for FME).

⁷ See Friedrich Hayek, *The Use of Knowledge in Society*, 90 AM. ECON. REV. 519 (1945). Hayek was the first economist to emphasize that markets are a way to economize information costs.

lower in each case. Finally, it addresses some specific arguments against FME.

We emphasize from the outset that this way of thinking assumes that the environment's only value derives from human perceptions. Under this anthropocentric conception, the environment itself has no intrinsic value. People cannot manage natural resources for the sake of animals, plants, or other organisms because there is no Dr. Doolittle to "talk to the animals" and find out what is best for them. As long as humans have the power to alter the environment, they will do so based on human values—the only values that are ascertainable.

I. TRANSACTION COSTS ARE EVERYWHERE

In contrast to the market failure emphasized by Pigou, Nobel laureate Ronald Coase opened the eyes of policy analysts to the importance of transaction costs.⁸ The important point of the Coase theorem, as it has become known, is that transaction costs explain why individuals bargaining for gains from trade may not always attain the expected or desired results. If transaction costs, including the costs of being well-informed and of bargaining were zero, market failure as described by Pigou would be a non-problem. In the extreme, if all people lived alone on remote islands, there would be no coordination costs because there would be no coordination. People would act alone, simply making trade-offs for themselves.

In a realistic scenario, however, humans interact to capture potential gains from trade—the knowledge for this interaction is bounded by transaction costs. The gains from trade (a positive-sum game) result because people place different values on goods and services and because people have different abilities to produce those goods and services. Because of these differences, trade has the potential to make the parties exchanging goods and services—of lower value to each respectively—better off.

But engaging in positive-sum exchanges requires that parties confront transaction costs in the form of information costs, bargain or contracting costs, and third-party costs, all of which are positive. To understand how these three transaction cost categories potentially limit our ability to achieve universally beneficial gains from trade, we will consider each type in greater detail.

A. INFORMATION COSTS

Information costs are the costs of articulating or measuring the values that humans place on the goods and services that they demand from

⁸ Ronald Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1, 1-44 (1960).

their limited resources. People can articulate their values in a variety of ways. In families and other small groups of people who care about one another, intimate knowledge of each other's values may suffice. Beyond such groups, we rely on communication processes requiring less personal knowledge of each other. In markets, for example, we offer money for goods and services, and suppliers decide whether these offers are sufficient to cover their costs of supplying. In the political arena, we communicate our values by voting, protesting, letter-writing, and contributing to campaigns, and politicians decide whether they want or can meet the competing demands for goods and services subject to political constraints.

B. CONTRACTING COSTS

When people interact or trade, whether in families, markets, or politics, there are costs associated with specifying and enforcing contracts.⁹ Consumers must ensure delivery of the goods and services for which they pay. Was the price paid commensurate with the expected quality? Were the goods or services delivered on time? Did suppliers charge more than consumers ultimately realized the product was worth? Likewise, suppliers must ensure that they are paid for services rendered. Was the payment on time? Did it cover the costs? All such contracting costs make it more difficult for consumers and suppliers—whether in markets or politics—to coordinate with each other for the purpose of enjoying gains from trade.

C. THIRD-PARTY COSTS AND BENEFITS

Finally, when individuals interact, they may impact third parties by imposing costs for which those third parties are not compensated or extending benefits for which the third parties do not pay.¹⁰ This is the problem Pigou referred to. In the environmental context, pollution is the classic case of a negative externality wherein costs are imposed on others without their consent.¹¹ A classic case of a positive externality is the enjoyment of an environmental amenity, such as a scenic view. It is difficult to exclude viewers who do not pay. Therefore, in the case of

⁹ See OLIVER WILLIAMSON, *THE ECONOMIC INSTITUTIONS OF CAPITALISM* (1985) (discussing principal agent costs). Economists categorize contracting under the heading of principal-agent problems. If the demander is the principal, the supplier is the agent who has been hired to provide the good or service. The agent contracts with input suppliers to deliver the product demanded. *Id.*

¹⁰ See generally JAMES GWARTNEY AND RICHARD STROUP, *ECONOMICS: PRIVATE AND PUBLIC CHOICES* (1987) (explaining how economists refer to these third party impacts and negative and positive externalities).

¹¹ See HEYNE, *supra* note 7 (providing an excellent discussion of the importance of emphasizing the lack of consent as a necessary condition for an externality).

third-party costs, too much pollution will result, and in the case of third-party benefits, too few good views will be produced or maintained.

The existence of third-party costs or third-party benefits immediately raises two questions: who has what rights and what are the costs associated with defining and enforcing those rights? Where rights are clearly defined and easily enforced as in the case of surface land, third-party effects are likely to be minimal. If party A dumps his garbage on party B's land, party B can enforce his right against trespass. On the other hand, where rights are not well-defined or easily enforced as with the right to clean air, third-party costs and benefits can be significant. The difficulty in identifying who owns the air and who is polluting it makes enforcing a right against trespass nearly impossible.¹²

D. TRANSACTION COSTS IN MARKETS AND POLITICS

Though there is a myriad of processes for coordinating human interaction in order to benefit from potential trade gains (for example, families, clubs, or totalitarian states), we will compare and contrast transaction costs in the context of two—market processes and political processes. The important point is that, although the three transaction costs outlined above are endemic to all coordination processes, the costs may be higher or lower depending on the governing institutions.

First, consider information costs. In a world of scarce resources, private managers or political resource managers must obtain information about the relative values of alternative uses of these resources.¹³ When one use rivals another, trade-offs must be made. Resource managers can only make these trade-offs based upon the information they receive, or upon their own values. For example, if timber managers believe lumber is more valuable than wildlife habitat, they will cut trees. Timber managers may know how fast trees grow under different soil and climate conditions, but they cannot know the value of that growth without incurring some cost to obtain the information.

In well-developed markets, prices provide an objective measure of subjective values and are therefore an inexpensive source of such information. In the case of timber, private and public timber managers can obtain relatively comprehensive information on the value of timber from a well-developed lumber market. However, in the absence of markets for wildlife habitat and environmental amenities, determining their respective values is much more difficult. Nonetheless, private timber managers in a company such as, for example, International Paper obtain

¹² See ROGER E. MEINERS AND BRUCE YANDLE, PERC POL'Y SERIES, No. 13, THE COMMON LAW: HOW IT PROTECTS THE ENVIRONMENT. (1998); see Heyne, *supra* note 7.

¹³ See Hayek, *supra* note 8; SOWELL, *supra* note 6 (discussing the difficulties of discovering values in political systems).

information on the value of wildlife amenities through an active market for hunting, camping, and other recreation. When leasing their land for these activities, they face a trade-off between timber harvesting that produces revenue from cutting trees and recreational land uses that produce revenue from *not* cutting trees. Decisions about land use are driven by the differences in potential profit between the two activities.¹⁴

In the public sector, on the other hand, there are few markets for these amenities and no profits to motivate decisions. Recreational users of public land generally pay little or nothing for the services they receive. Therefore, information must be revealed through the political process. Special interest groups may articulate their demands through voting, campaign contributions, and letter-writing campaigns, to mention a few ways. For example, lumber companies will argue that timber harvesting is the most important use of public land while environmental groups will argue that wilderness values should trump all other values including logging. The existence of prices in the marketplace, and their absence in the political arena, lowers information costs in the former relative to the latter.

Contracting costs also exist in both the market and political processes. If the Nature Conservancy purchases conservation easements to prevent land development, it must negotiate what land is involved, what uses are acceptable, and what price will be paid. At the same time, the landowner must consider the opportunity cost of not developing the land and be sure that the Nature Conservancy is not restricting development beyond an agreed upon level.

Citizens who demand goods and services from government must monitor the politicians and bureaucrats who supply them. Like a consumer displeased with food 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. Political outcomes do not always reflect citizens' desires; the political process may, therefore, supply too many goods such as nuclear arms or too few goods such as quality education.

There are several reasons that contracting costs are likely to be systematically lower in market processes. While it may seem that self-interested individuals will always cheat if they believe they can avoid detection, there are incentives for people to resist cheating. For instance, people with a reputation for honesty are better trading partners because the costs of enforcing contracts are lower. Furthermore, competition among both consumers and suppliers gives each side of the bargain alter-

¹⁴ See TERRY L. ANDERSON & DONALD R. LEAL, *ENVIRO-CAPITALISTS: DOING GOOD WHILE DOING WELL* (1997) (discussing International Paper's activities and the related environmental issues).

native trading partners and therefore discourages cheating on contracts. This will not completely eliminate contracting costs, but greater competition among buyers and sellers will facilitate the lowering of those costs.

As with markets, measurement and monitoring costs in politics can lead to under- or overproduction of public goods; however, in the political there process is generally less competition, especially at the national level.¹⁵ At lower levels of government, the possibility of voting with one's feet creates some competition among political regimes. But at the national level, the costs of moving to another sovereign jurisdiction are much higher and as a result competition among political entities will be lower.¹⁶ Just as competition among firms encourages more attention to consumers and to production costs, competition among political units is more likely to give citizens what they want. The former Soviet Union with its restrictions on emigration best illustrates what can happen in the absence of such competition.

The costs of measuring and monitoring politicians are also greater than those found in market processes to the extent that voters are rationally ignorant—that is, they will not become informed on an issue—because the costs of being informed are high relative to the benefits. In political processes, there will be a tendency for uninformed voters to free ride, and to rely on voters who do monitor politicians. This problem is exacerbated by the fact that the most likely monitors are special interest groups for whom the benefits from public goods are concentrated and the costs are diffused. Thus, the nature of contracting costs in political processes produces one-sided monitoring and an accompanying overproduction of goods demanded by special interests.

Finally, third-party costs are not limited to the private sector. Just as air and water pollution emanate from private companies, they are also created by governmental agencies. The military, for example, is a big producer of hazardous waste.¹⁷ Government dams have contributed to

¹⁵ See GWARTNEY AND STROUP, *supra* note 11 (discussing the forces that lead to higher transaction costs in government).

¹⁶ See Charles M. Tiebout, *A Pure Theory of Local Expenditures*, 64 J. POL. ECON. 416, 416-24 (1956).

¹⁷ Colorado taxpayers have paid \$4.3 billion to clean up contaminated Superfund and military sites in Colorado, with the final bill expected to top \$12 billion. That is equivalent to \$46 for every person in the United States, and it's the legacy of decades of pollution at 10 Colorado sites tainted with everything from toxic metals to radiation. All the sites are owned or controlled by the government. . . . Rocky Flats and the Rocky Mountain Arsenal, with its combination of plutonium and chemical waste, make up the majority of the list with a combined \$11.8 billion cost. That money, more than twice as much as it cost to build Denver's New International Airport. . . .

Now that the departments of Defense and Energy have begun to admit the extent of environmental cleanups needed at nuclear facilities, cost numbers that have begun to emerge are breathtaking. The fiscal 1992 federal budget alone contained

the demise of salmon and the loss of wild rivers, and logging on national forests has reduced water quality. These government activities often do not even pass simple cost-benefit analyses.¹⁸

The nature of government funding generates another type of third-party effect. Governmental programs, ranging from wilderness and park-land maintenance to the cleanup of toxic waste sites, tend to concentrate the benefits of such programs for special interest groups and diffuse the costs over a large segment of the population. In other words, the political process operates by externalizing costs; private costs to those who enjoy politically-provided goods are generally lower than the social costs. For example, people who recreate on federal lands enjoy the amenities, but pay almost nothing; the costs are covered by general funds collected through taxes. The political agents who supply the land must divert it from, say, timber production, for which there is an opportunity cost. However, neither consumers nor suppliers in the political process fully account for that cost. Private landowners interested in maximizing the value of the resource must take this cost into account in the price of recreation. By contrast, the bureaucratic manager or politician who does not own the land does not face all the opportunity costs of his decisions. He takes the forgone values into account only if the political process forces him to. If we assume that the political process works perfectly, (which is the equivalent of assuming that markets work perfectly), then each opposing side's countervailing powers would internalize the benefits and costs for the decisionmaker. Relaxing this assumption, however, creates the prospect of political externalities that impose third-party costs. And just as externalities result in too much pollution or in overgrazing of the commons, political externalities result in excessive production of public goods.

Rethinking natural resource and environmental policy in light of information costs, contracting costs, and third-party costs forces policy analysts to consider the incentives that each decisionmaker faces. No matter how well-intentioned professional resource managers might be, incentives affect their behavior. Such incentives might include job security, prestige, power, salary, political pressure, and so on. Like it or not, individuals will undertake more of an activity if the costs of that activity are reduced or the rewards increased. This holds as much for bureaucrats as it does for profit-maximizing owners of firms. The typical analysis of

\$6.9 billion for environmental cleanup of weapons plants, versus \$5 billion for Navy attack aircraft. Currently the Department of Energy estimates that \$26 billion to \$50 billion will be spent over the next two decades in nuclear weapons cleanups.

GREGG EASTERBROOK, *A MOMENT ON EARTH* 522 (1995).

¹⁸ See JOHN BADEN & RICHARD STROUP, *BUREAUCRACY VS. ENVIRONMENT* (1981) (providing examples of how perverse incentives in the political sector can create environmental problems).

externalities explains why a manager of a profit-maximizing firm might dump production wastes into a nearby stream if he does not have to pay for the cost of that action. By the same reasoning, a politician or bureaucrat who is not accountable for allowing oil development on federal lands or for permitting an agency to dump hazardous wastes into the environment may also allow 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 development and dumping from political representatives. This helps to explain why politicians continue to approve the building of water projects, the clearing of forests, and the dumping of wastes despite environmental costs and dubious economic benefits.

Once incentive effects are recognized, we can no longer rely on good intentions to generate good natural resource and environmental management. Even if the superintendent of a national park believes that grizzly bear habitat is more valuable than additional campsites, his good intentions will not necessarily result in the creation of more grizzly bear habitat. In a political setting, where camping or snowmobile interests have more influence over a bureaucrat's budget, his peace and quiet, or his future promotions, intentions will have to override incentives for grizzly bear habitat to prevail. Although they may prevail in some cases, there is ample evidence that good intentions are not enough.¹⁹

On the other hand, if a private resource owner believes that grizzly bear habitat is more valuable and that he can capture that value through a market transaction, then politics will not matter. If those demanding the preservation of grizzly bear habitat are willing to pay more than those demanding campsites are, then incentives and information reinforce each other. Therefore, alternative management institutions simply cannot be adequately analyzed without careful attention to information costs, contracting costs, third-party costs, and the incentives faced by the actors involved. Under this lens, the public sector—with all of the trappings of public interest—faces the same scrutiny as the private sector.

II. SCIENTIFIC MANAGEMENT OR ECONOMICS WITHOUT PRICES

The idea of scientific management surfaced in the United States with the formation of the U. S. Forest Service in the late nineteenth century. Ostensibly, scientific management directed at the federal level was supposed to be the answer to the perceived exploitation of U.S. forests.²⁰ Because the main task of the Forest Service was to manage forests for

¹⁹ *Id.*

²⁰ See SAMUEL P. HAYS, CONSERVATION AND THE GOSPEL OF EFFICIENCY: THE PROGRESSIVE CONSERVATION MOVEMENT, 1890-1920 28 (1959).

future wood fiber production in accordance with the best silvacultural techniques, there was little need to consider other values. As citizens began to demand other products and services from political lands, however, professional foresters have been forced, by politics or legislation, to consider other values and to trade-off between multiple uses.²¹

Making these trade-offs in the economist's framework is a simple matter of comparing the additional value of one use to the additional value of another. If the additional or marginal value of one resource use is greater than another use, then allocation will be improved if the resource is transferred from the latter use 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. Put simply, neither demand nor supply is insensitive to price changes. If prices rise, then consumers will adjust by shifting consumption to the nearest substitutes, and suppliers will adjust by shifting to other inputs or technologies or by producing other products. The logic of this analysis combined with models and computers capable of simulating resource use can lure policy analysts into thinking that efficient resource management is a simple matter of marginal analysis.

Unfortunately, such logic and simplification are not helpful guides because they mask transaction costs and incentives.

Consider the case of multiple use management of the national forests, where scientific managers are required to balance timber production, wildlife habitat, aesthetic values, water quality, recreation, and other uses to maximize the value of the forest.²² Scientific managers, not motivated by profits or self-interest—who are armed with the economic concept of marginal analysis—are assumed to be omniscient, analytical, and impartial.²³ But as F. A. Hayek pointed out many years ago, “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.’”²⁴

Scientific management assumes that values are known or can be discovered and, therefore, that there is also an efficient solution waiting to be discovered. Thomas Sowell describes this view of traditional resource economics as it relates to scientific management: “Given that ex-

²¹ See ROBERT NELSON, *PUBLIC LANDS AND PRIVATE RIGHTS* 121-145 (1995).

²² See Richard Behan, *RPA/NFMA- Time to Punt*, 79 J. FORESTRY, 802 (1981).

²³ See ALAN RANDALL, *RESOURCE ECONOMICS* (1981).

²⁴ Hayek, *supra* note 8, at 519.

PLICITLY 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. . . .”²⁵

As analytical tools, economic models focus on the importance of marginal adjustments, but they cannot instruct managers on which trade-offs to make or which values to place on a particular resource. In the absence of subjective individual evaluations, the marginal solutions derived by sophisticated efficiency-maximization models are unachievable ideals. Unfortunately, these models add sophistication to decisions giving them an aura of authority and correctness.

No matter how rational or comprehensive the models may be, such models still require obtaining costly information. Once again, Hayek’s insights are valuable here because he understood the allocation problem as one 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 utilizing knowledge not given to anyone in its totality.”²⁶

Subjective human values are best revealed through human action in accordance with those values. What form that action takes – for example, bidding or lobbying – will depend upon incentives that in turn depend upon the allocation system. The market process generates information on the subjective values as individuals engage in voluntary trades.²⁷ 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.”²⁸ Once we understand that most knowledge is fragmented and dispersed, then we can understand that “systemic coordination among the many supersedes the special wisdom of the few.”²⁹ Traditional economic analysis has failed to recognize this fundamental point. The information necessary for “efficient” resource allocation depends on the knowledge of what Hayek called the special circumstance of time and place.³⁰

The idea of scientific management ignores the incentives of both consumers and suppliers in the political sector and can therefore mis-

²⁵ SOWELL, *supra* note 6, at 46.

²⁶ Hayek, *supra* note 8, at 520.

²⁷ Hayek offers the best discussion of information provided through market processes. *See id.*

²⁸ *Id.* at 521-22.

²⁹ *Id.* at 48.

³⁰ *See* Hayek, *supra* note 8.

guide public policy.³¹ The economic analysis of markets focuses on incentives in the form of prices that determine the benefits and costs that decisionmakers face. Market failure is said to result when neither benefits are captured nor are costs borne by decisionmakers. The existence of these externalities or third-party effects means that either too little of a good is produced in the case of uncaptured benefits or too much is produced in the case of unborne costs. A system of private water allocation, for example, will not provide a sufficient supply of instream flows for wildlife habitat and environmental quality if owners of water cannot easily charge recreationists and environmentalists who value free-flowing water. In addition, too much pollution will exist if firms do not have to pay the full cost of waste disposal. Hence, they "overuse" the air or water as a garbage dump. Such under- or overproduction is often taken as a sufficient condition for political control of resource allocation.

In the political process, human action generates very different results than in market trades. As noted earlier, voting, lobbying, contributing to campaigns, letter-writing, and protesting are all examples of actions designed to influence political decisions. Also, wealth is often redistributed rather than created, in the political process, so that, at best, it is a zero sum game. As resources are invested in the redistribution, the game becomes negative sum.³² Economists call this "rent-seeking" where rent refers to returns in excess of costs.³³ Whether people or groups make large campaign contributions or form voting coalitions, they do so with the expectation of collecting rents that come at the expense of other citizens. In the absence of voluntary exchange, there is no guarantee of net gains from trade in this rent-seeking process; one group's gain is another's loss.

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. Consider that most Americans will pay marginally higher prices for petroleum products if oil production is prohibited in the Arctic National Wildlife Refuge.³⁴ Since the 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 on this issue. On the other hand, organized groups that, for example, favor preserving wildlife habitat in the pristine tundra, gain when they can prevent drilling

³¹ See GWARTNEY AND STROUP, *supra* note 11, at 100-05.

³² See TERRY ANDERSON & PETER J. HILL, *THE BIRTH OF A TRANSFER SOCIETY* (1980) (describing this negative sum game in U.S. politics).

³³ See J. M. BUCHANAN ET AL., *TOWARDS A THEORY OF THE RENT-SEEKING SOCIETY* (1980).

³⁴ See Pamela Snyder & Jane Shaw, *P.C. Oil Drilling in a Wildlife Refuge*, WALL ST. J., Sept. 7, 1995, at A14.

there. To the extent that those benefiting from wildlife preservation do not have to pay the opportunity costs of forgone energy production, they will demand "too much" wildlife habitat. Thus, in the absence of a perfect political process, we must depend on good intentions to overpower the special interest incentives built into an imperfect system.

Traditional thinking about natural resource and environmental policy has tended to emphasize the information and incentive problems inherent in markets, but to ignore them in the context of political processes. Markets with positive costs of eliminating third-party effects have been compared with a political process where those costs are implicitly assumed to be zero. One natural resource economics textbook takes this approach: "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 to this approach, but it permits us to abstract from the details of the political process."³⁵ To abstract from the details of the political process ignores incentives inherent in that process. Daniel Bromley claims 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.³⁶

Why must we "presume" that the "wishes of the full citizenry are more properly catered to?" Moreover, what does "full citizenry" mean? Is there unanimous consent? Does a majority constitute the "full citizenry" when voting turnout is traditionally low? Bromley also charges that "claims for volitional exchange are supported by an 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.³⁷

Because traditional thinking about resource and environmental policy pays little attention to the institutions that structure incentives and provide information in the political sector, practitioners often seem puzzled that efficiency implications from scientific management models are

³⁵ JOHN M. HARTWICK & NANCY D. OLEWILER, *THE ECONOMICS OF NATURAL RESOURCE USE* 18 (1986).

³⁶ DANIEL W. BROMLEY, *PROPERTY RIGHTS AND THE ENVIRONMENT: NATURAL RESOURCE POLICY IN TRANSITION* 55 (1988) (emphasis added).

³⁷ *Id.* at 54.

ignored in the policy arena.³⁸ Efficiency is not the direct goal of private sector decisionmakers either, but because profits result from decisions that move resources from lower valued to higher valued alternatives, there is a tendency toward efficiency in the private sector. The incentive structure in the political sector is less likely to tend toward efficiency because voters are rationally ignorant, because benefits can be concentrated and costs diffused, and because individual voters seldom (probably never) influence the outcome of elections. For these reasons, it is unlikely that elections will link political decisions to efficiency in the same way that private ownership does in the market process.³⁹

With private ownership, profits and losses are the measure of how well decisionmakers are managing. Even where shareholders in a large company have little effect on actual decisionmaking, they can still observe stock prices and annual reports as measures of management's performance. In other words, private ownership and profits give 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, we can expect citizens to remain rationally ignorant about most aspects of political resource allocation and rationally informed only about issues that directly affect them. The rewards for political resource managers depend not upon maximizing net resource values, but upon providing politically active constituents with what they want with little regard for cost. 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:

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 allo-

³⁸ See Elizabeth Brubaker, *Property Rights: Creating Incentives and Tools for Sustainable Fisheries Management*, FRASER FORUM (1998).

³⁹ See GWARTNEY AND STROUP, *supra* note 11.

cate resources efficiently, there is the question of his ability to do so.⁴⁰

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

III. GETTING THE INCENTIVES RIGHT

To enjoy gains from trade, each party to a transaction must measure and monitor the activities of the other. If individuals were entirely self-sufficient and never interacted, these costs would disappear, but gains from trade and specialization are the reward for interaction even if they bring additional transaction costs. The problem we face, therefore, is balancing the gains from trade and specialization against the costs of measuring and monitoring the performance of those with whom we contract.

FME keeps this balancing in the forefront when evaluating alternative mechanisms aimed at improving natural resource use and environmental quality. Such an approach is equally useful for examining relationships in the political sector, where citizens employ politicians or bureaucrats to produce certain goods and services, as it is in the marketplace. At a minimum, the political process grants to the government a monopoly on the use of coercion, enabling 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 of the free rider problem. For example, if the costs of excluding fishermen from a free-flowing stream are high, then there will be less incentive for the private landowners to provide fishing streams; market failure is said to result in the underproduction of such public goods.⁴¹ The government's coercive power to charge all citizens (or at least all fishermen) can overcome this problem.

Unfortunately, this coercive solution creates another problem; namely that citizens cannot be certain that the state is producing the desired bundle of public goods. Indeed, the fundamental dilemma of political economy is that once the state has the coercive power to do what voluntary (market) action cannot do, how does it prevent that power from being usurped by special interests?⁴²

At least two variables are important in resolving this dilemma. First, the complexity of the good in question will have a direct bearing on

⁴⁰ ANTHONY FISHER, *RESOURCE AND ENVIRONMENTAL ECONOMICS* 54 (1981).

⁴¹ See CLAY LANDRY, *SAVING OUR STREAMS THROUGH WATER MARKETS* (1998). Though it is common to assume that enforcement costs of providing instream flows are prohibitive, there is reliable evidence that the market works to provide these amenities. See *id.*

⁴² See DOUGLASS C. NORTH ET AL., *GROWTH AND WELFARE IN THE AMERICAN PAST* 143-148 (1983) (discussing this dilemma).

the ability of a consumer or citizen to measure the performance of suppliers. If lands managed by the political sector produce timber, measuring the board feet of lumber 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 desired results. Public goods such as environmental quality, risk management, soil conservation, national heritage, and wilderness values are all costly to measure.

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

Because the same kinds of costs exist with market transactions, we must complete the analysis by comparing the measurement and monitoring costs in political processes with those in market processes. 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 ensuring that buyers cannot enjoy the benefits of the good without paying for them. 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, trespass) 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 might not take place.

There are three important characteristics of private sector transactions, however, that tend to reduce these costs. First, measurement costs are greatly reduced in market transactions by prices. As noted earlier, prices convey valuable, condensed information allowing consumers to compare and aggregate inputs and outputs. In the absence of price information, which 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 managers of his firm are performing, he can at least consult the profit-and-loss statement. Such a statement may not be a perfect measure of performance, but continual losses suggest that actual results differ from desired results. This can indicate to the shareholder that he should consider alternate managers who can produce the product at a lower cost or that he should reconsider whether to retain ownership in the firm. 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 in the private sector provide concise information with which owners can measure the performance of their agents.

Second, the political and private sectors differ in the degree to which measurement and monitoring costs are borne by those demanding the goods. In the political process, voters ultimately decide who the suppliers will be. In order to make rational decisions, voters must gather information about alternative candidates or referenda issues and vote on the basis of that information. If an individual takes the time to become informed and votes on what is best for society, he does a service to his fellow citizens. If, however, the voter is not well-informed and votes for things that will harm the society, then this cost is spread among all voters. In other words, well-informed voters produce a classic public good and, as with any public good, other voters will be free riders. Many voters will under-invest in becoming informed, thus remaining rationally ignorant. By contrast, individuals in the private sector bear the costs of being informed, but they also directly reap the benefits derived from rational choices and bear the costs of irrational ones. For example, when a landowner hires a forest manager, he will incur the cost of seeking information about the manager's ability and by monitoring his performance. If the private landowner incurs none of these information costs and gets a bad manager, then he will suffer the consequences of bad management. On the other hand, if the landowner incurs the costs and management is improved, then the benefits are internalized in the form of higher profits. It is the clear assignment of these profits and losses that distinguishes the private from the political sector.

Third, private sector relationships differ from those in the political sector in terms of the cost of choosing alternative suppliers. In the political sector, if a citizen does not believe he is getting from government the goods and services he desires, he can attempt to sway a majority of the voters and elect new suppliers or he can physically move from one location to another. In either case, the costs of changing suppliers are higher than in the private sector, where there is more competition among potential suppliers. If a local supermarket does not sell what a customer

desires, the customer has alternatives from which to make purchases. Even in the more complex case of corporate managers, a stockholder can change agents by selling shares in one company and purchasing shares in another. Basically, because changing suppliers in the private sector does not require agreement from a majority of the other consumers, change is less costly. This condition imposes a strong competitive discipline. In general, information conveyed through prices, internalization of costs and benefits from monitoring by individuals, and agent discipline imposed by competition, reduce measurement and monitoring costs in market processes.

Market transactions fail to occur in natural resource and environmental amenity contexts because the costs of measuring and monitoring resource use are high there. Suppose, for example, a landowner is deciding whether to forego commercial timber production to enhance an aesthetic quality. If the aesthetic quality involves a beautiful flower garden, a high fence may be sufficient to exclude free riders and capture the full benefits from the product. However, if the trade-off is between cutting trees and preserving a beautiful mountainside, excluding casual sightseers might be too costly to preclude capturing a return on production of the view.

Therefore, the key to effective markets in general, and FME in particular, is the establishment of well-specified and transferable property rights. When a conservation group purchases a conservation easement on a parcel of land, the exchange requires that property rights be well-defined, enforced, and transferable.

The physical attributes of the resources must be specified in a clear and concise manner; in other words, they must be measurable. The rectangular survey system allows us to define ownership rights over land and clarifies some disputes over ownership. This 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 third dimension above ground. If property rights to resources cannot be defined, they cannot be exchanged for other property rights.

Property rights must also be defensible. 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. On the western frontier; barbed wire provided an inexpensive way to defend property rights; locks and chains do the same for parked bicycles. But enforcing one's rights to peace and quiet by "fencing out" sound waves is more difficult, as is 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 monitoring 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 hinder the potential for gains from trade. Suppose 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. The farmer will, therefore, have less incentive to leave the water in the stream.

In sum, FME requires well-specified rights to take actions with respect to specific resources. If such 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 atmosphere are not as easily defined and enforced as are ones involving the earth's surface. Private ownership of land works well for timber production, but measuring, monitoring, and marketing the land for endangered species habitat requires entrepreneurial imagination—especially if the species migrate over large areas.⁴³

FME does not assume that these property rights exist or that they are costless to create. Rather, it recognizes the costs of defining and enforcing property rights and emphasizes the role of entrepreneurs in producing new property rights when natural resources and environmental amenities become valuable. Where environmental entrepreneurs can devise ways of marketing environmental values, market incentives can have dramatic results.⁴⁴ Entrepreneurs recognize that externalities provide profit opportunities for those who successfully define and enforce property rights where they are lacking. A stream owner who can devise ways of charging fishermen can internalize the benefits and gain an incentive to maintain or improve the quality of his fishing stream. 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 prices.

The property rights approach to natural resources recognizes that property rights evolve depending on the benefits and costs associated with defining and enforcing rights. This calculus will depend on such

⁴³ See TERRY L. ANDERSON & PETER J. HILL, *WILDLIFE IN THE MARKETPLACE* 58 (1995) (discussing the problems of establishing property rights in wildlife).

⁴⁴ See ANDERSON & LEAL, *supra* note 7.

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 costs and benefits of definition and enforcement. Thus, the lack of property rights does not necessarily imply a failure of markets because property rights are continually evolving.⁴⁵ 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 can potentially be reduced by governmental institutions, such as courts. Furthermore, because transaction costs are positive, market contracts will not take all costs into account. In the case of water pollution originating from sources that cannot be identified at low costs (with current technology), for example, the definition and enforcement of property rights governing water use may be impossible. Indeed, excluding non-payers from enjoying a scenic view may be so costly 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 no guarantee that the results from political allocation will be any better than a market with positive transaction costs. If markets produce "too little" clean water because dischargers do not have to pay for its use, then by contrast, political solutions may produce "too much" clean water because those who enjoy the benefits do not pay the cost.

IV. ADDRESSING THE CRITICS

There are three main critiques of FME: FME considers only economic values and ignores environmental values; FME pays too little attention to the distribution of rights; and FME's focus on markets and politics ignores other important allocative institutions.⁴⁶

A. WHICH VALUES, ECONOMIC OR ENVIRONMENTAL?

Because FME focuses on human values, it is criticized by those who argue that "saving the environment" is a moral issue not an economic one. Philosopher Mark Sagoff puts it this way:

⁴⁵ See Terry L. Anderson & Peter J. Hill, *The Evolution of Property Rights: A Study of the American West*, 18 J. L. & Econ. 163, 163-69 (1975).

⁴⁶ An entire issue of *Critical Review* was devoted to a critique of the general idea of FME. See Mark Sagoff, *Free Market Versus Libertarian Environmentalism*, 6 CRR. REV. (1992).

Lange's Metalmark, a beautiful and endangered butterfly, inhabits sand dunes new Los Angeles for the use of which developers are willing to pay more than \$100,000 per acre. Keeping the land from development would not be efficient from a microeconomic point of view, since developers would easily outbid environmentalists. Environmentalists are likely to argue, however, that preserving the butterfly is the right thing morally, legally, and politically—even if it is not economically efficient.⁴⁷

Assuming that property rights to the land in question are well-defined and that the environmental values can be captured, Sagoff is correct.⁴⁸ FME argues that the willingness of developers to outbid environmentalists reveals which values are higher. This is not to say that moral values have no place in decisions or that moral suasion is not a valuable tool for influencing human behavior. Sagoff further asserts that “environmentalists are concerned about saving magnificent landscapes and species, keeping the air and water clean, and in general, getting humanity to tread more lightly on the earth. They are not concerned . . . about satisfying preferences on a willing-to-pay basis.”⁴⁹ Turning moral values into political issues and arguing that it is a matter of treading more lightly on the earth, however, becomes another form of rent-seeking wherein people with one set of moral values get what they want at the expense of others.

B. WHOSE RIGHTS?

The second criticism of FME is that it pays too little attention to the distribution of rights. The issue here is who has claims over resources and therefore who must pay whom.⁵⁰ To the extent that those wanting to save magnificent landscapes and species must pay landowners for those landscapes and habitats, distribution will be important. It is entirely possible that people with “environmental preferences” will not have enough wealth to act on their preferences. It is here that environmentalists like to take a page from Marx and suggest that “what is important is not the choices people *do* make but the choices people *would* make if they were free of their corrupt bourgeois ideology.”⁵¹ By this reasoning, it is easy to say that environmentalists would be willing pay more if only they had

⁴⁷ *Id.* at 214.

⁴⁸ The FME argument is premised on the existence of property rights. It can always be argued that externalities exist and therefore that market exchanges won't work, but this is an efficiency argument, not a moral argument.

⁴⁹ Sagoff, *supra* note 47, at 218.

⁵⁰ See Coase, *supra* note 9.

⁵¹ Sagoff, *supra* note 47, at 218.

the resources. Of course, this is not verifiable through voluntary trading and thus opens the door for political redistribution.

A related argument is that the distribution of wealth favors people with non-environmental preferences over those with environmental preferences.⁵² In the case of public lands, making people pay for the use of national parks or forests is unfair because it precludes poor people using the parks. In the case of private land, big corporations already have the rights to use land, and poor environmentalists cannot afford to purchase these rights from them.

In response, there is the empirical question of whether poor people do, in fact, use environmental amenities such as national parks at their current low price. If not, there is hardly any reason to keep subsidizing park use for the wealthy. Second, because poor people do not have access to many amenities, there may be an argument for redistributing income in their favor, but the redistribution does not have to come in the form of in-kind services from national parks. If they had more income, they could decide how to spend it. They might choose to visit parks or to purchase video games, but this transforms income distribution argument into a preference argument. Finally, is it actually the case that environmentalists are poor compared to the rest of the population? A growing body of evidence suggests that the demand for environmental quality is highly sensitive to income and that members of environmental groups have relatively high incomes. If so, the income distribution argument seems tenuous.⁵³

C. IS THE CHOICE ONLY BETWEEN MARKETS AND POLITICS?

Market processes and political processes are but two alternatives for addressing natural resource use and environmental quality. Even within each of these there are gradations between individual resource owners, corporate owners, town governments, and national governments. There is growing recognition that between markets and government are community organizations that can play a role in resource allocation.⁵⁴ These might be communities of fishermen who regulate access to a fishery⁵⁵ or tribal members who restrict access to a grazing common.⁵⁶ In both cases,

⁵² See Peter S. Menell, *Institutional Fantasylands: From Scientific Management to Free Market Environmentalism*, 15 HARV. J.L. & PUB. POL'Y 489, 509 (1992).

⁵³ Jane Shaw, *Environmental Regulation: How it Evolved and Where it is Headed*, REAL ESTATE ISSUES 1, 6 (1996).

⁵⁴ See ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION (1990).

⁵⁵ See DONALD R. LEAL, PERC POL'Y SERIES NO. 7, COMMUNITY-RUN FISHERIES: AVOIDING THE TRAGEDY OF THE COMMONS (1995).

⁵⁶ See TERRY L. ANDERSON, PERC POL'Y SERIES NO. 6, CONSERVATION, NATIVE AMERICAN STYLE (1995).

as well as many others, how well the institutional arrangement works will depend on its ability to generate information on values and provide incentives for individuals to act on those values. Thought of in this way, FME is less about markets and government and more about how various management institutions determine environmental values and how decisionmakers respond to that information.

CONCLUSION

Which institutional process is more likely to move resources from lower to higher valued alternatives is ultimately an empirical question. Traditional natural resource economics has generally concluded that markets do not do this very well and that the political process can do better. FME generally comes to the opposite conclusion. As Sagoff argues with regard to markets, such conclusions often turn on the fallacy of disparate comparison.

A free market with inviolable property rights, low transaction costs, and so on, may, indeed, treat nature better than does an often bumbling and occasionally corrupt bureaucracy beset by special interests. However, this kind of argument. . . commits the fallacy of disparate comparison. It compares what the perfect market would do in theory with what imperfect governmental agencies, at their worst, have done in fact.⁵⁷

Perhaps this is an effective debating tactic, but it is not inherent in the analytical framework described above. Traditional economic analysis stresses the potential for market failure in the natural resource and environmental arena on the grounds that externalities are pervasive. FME explicitly recognizes that this problem arises because it is costly to define, enforce and trade rights in both the private and political sectors. In fact, the symmetry of the externality argument requires that specific attention be paid to politics as the art of diffusing costs and concentrating benefits. Assuming that turning to the political sector can solve externality problems in the environment 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.

FME emphasizes the importance of market processes in getting more human value from any given stock of resources. Only when rights are well-defined, enforced, and transferable will self-interested individuals confront the trade-offs inherent in a world of scarcity. As entrepre-

⁵⁷ Sagoff, *supra* note 47, at 224.

neurs move to fill profit niches, prices will reflect the values we place on resources and the environment. Mistakes will surely be made, but in the process, niches will be created and profit opportunities will attract resource managers with better ideas. Even externalities offer profit opportunities to the environmental entrepreneur who can better define and enforce property rights to the unowned resource and charge the free rider. In cases where definition and enforcement costs are insurmountable, political solutions may be called for. Unfortunately, however, those 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.

FME recognizes that transaction costs are positive under all institutions. The question is which arrangements minimize these costs. Rather than falling into the fallacy of disparate comparison, the challenge for proponents of market solutions, political solutions, or other institutional arrangements is to muster the empirical evidence to support their case. Indeed, since the idea of FME was first articulated, researchers have been uncovering a growing body of evidence showing the efficacy of market approaches to environmental problems.⁵⁸ Let the battle of ideas and evidence continue.

⁵⁸ See e.g., ANDERSON & LEAL, *supra* note 7.