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To Market or Not to Market: Allocating Water Rights in New Mexico

ABSTRACT

Recent Supreme Court decisions have declared groundwater to be an article of interstate commerce and have made its efficient conservation imperative for retaining a state's rights over it. Market allocation of water has been suggested as a means of achieving the required efficiency. However, while a competitive market may be an efficient allocative mechanism, it is not an efficient allocative institution due to the presence of redundancy and the threat of infrastructure dislocation. In addition, it is not particularly good or efficient at achieving community goals such as ecological preservation, species protection, or welfare promotion for future generations. This article explores these concepts in the context of water rights litigation in New Mexico.

THE LEGAL SETTING

With a statewide annual average of only 13 inches of precipitation,¹ water is precious in semiarid New Mexico. Recognizing the importance of this resource to the livelihood of the inhabitants in the area, the supply and use of water has been regulated since the days of prehistoric Indians. "Long before other states began thinking about protecting their water, New Mexico was passing water laws. The state also can be proud of the administration of those laws."²

Traditional patterns of state control and management of water resources were disrupted in 1982 when the United States Supreme Court handed down a landmark decision in *Sporhase v. Nebraska ex rel. Douglas*³ which resulted in substantial diminution of state control over its water.⁴ The significance of *Sporhase* stems initially from it being "a pioneering, first

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1. U.S. Bureau of Reclamation, Dep't of the Interior, New Mexico Water Resources Assessment for Planning Purposes 10 (1976).

2. L. Harris, New Mexico Water Rights 1 (New Mexico Water Resources Research Institute Miscellaneous Report No. 15, 1984).

3. 458 U.S. 941 (1982); Gross, *Commerce Clause Curbs State Control of Interstate Use of Ground Water: City of El Paso v. Reynolds*, 24 Nat. Res. J. 218-20 (1984).

4. Bird, *Implications of Sporhase in Water-Resource Planning*, 112 J. Water Res. Plan. & Mgmt. 202 (1986).

attempt of the court to grapple with interstate groundwater disputes."⁵ More important, the court in *Sporhase* extends commerce clause principles to groundwater transfers,⁶ declaring that groundwater is an article of commerce, to be traded in interstate commerce.⁷ In so doing, the court departs from the prior doctrine of equitable apportionment which governs the allocation of interstate surface flows.⁸ Such departure creates a good deal of confusion and uncertainty for planning and management. Scientific evidence has shown that surface water and groundwater commonly belong to a hydrogeologically integrated system. The Supreme Court, on the other hand, seems to be distinguishing between surface water and groundwater and treating them differently by applying different legal doctrines.⁹

Insofar as New Mexico is concerned, the more immediate impacts of *Sporhase* came when the federal district court of New Mexico applied the commerce clause ruling to *City of El Paso v. Reynolds*¹⁰ and struck down the New Mexico statute banning groundwater exportation.¹¹ Given that El Paso has filed applications to drill as many as 326 wells in the Hueco and Mesilla Bolsons in southern New Mexico to appropriate up to 296,000 acre-feet of groundwater per year,¹² policymakers and planners are justifiably concerned about sizable appropriations by out-of-state appropriators that might deplete its groundwater resources. In addition, New Mexico must be concerned about preserving its surface water rights. It was made clear in yet another Supreme Court decision, allocating water in the Vermejo River between New Mexico and Colorado, that unwasteful

5. Utton, *In Search of an Integrating Principle for Interstate Water Law: Regulation versus the Market Place*, 25 Nat. Res. J. 985, 1001 (1985).

6. Water Law Study Committee, *The Impact of Recent Court Decisions Concerning Water and Interstate Commerce on Water Resources of the State of New Mexico*, 24 Nat. Res. J. 689, 690 (1984).

7. *Sporhase*, 458 U.S. 941.

8. Equitable apportionment as a doctrine was originally fashioned by the court in *Kansas v. Colorado*, 206 U.S. 46 (1907), to establish the extent and limits to sharing an interstate stream between the states.

9. The issue of distinguishing between surface water and groundwater and treating them as separate systems lies outside the scope of this paper. Suffice it to point out that, in December 1982, less than half a year after the *Sporhase* decision, the Supreme Court ruled in *Colorado v. New Mexico*, 459 U.S. 176 (1982), later proceeding, 463 U.S. 1204, 464 U.S. 927 (1983), dismissed 467 U.S. 310 (1984), that equitable apportionment applied in the sharing of the Vermejo River between Colorado and New Mexico, thereby reaffirming the doctrine. Colorado received zero share in that decision, nevertheless.

10. 563 F. Supp. 379 (D.N.M. 1983), judgment vacated and remanded, *City of El Paso v. Reynolds*, 597 F. Supp. 694 (D.N.M. 1984).

11. N.M. Stat. Ann. § 72-12-19 (repealed 1983).

12. Applications of the City of El Paso, Texas, Public Service Board Nos. LRG-92 through LRG-357 (September 12, 1980) for the appropriation of 246,000 acre-feet per annum from the Lower Rio Grande Underground Water Basin and No. HU-12 through HU-71 (September 18, 1980) for the appropriation of 50,000 acre-feet per annum from the Hueco Underground Water Basin. Subsequent to initial filing, El Paso on November 21, 1986 withdrew 39 applications to appropriate 40,000 acre-feet per annum from the Hueco Underground Water Basin. This resulted in 21 applications remaining for a total appropriation of 10,000 acre-feet per annum from the Hueco Underground Water Basin. "Findings and Order" by the State Engineer of New Mexico (December 23, 1987), 2, 3-4.

use of water is extremely important to protecting a state's right to water, even under the system of equitable apportionment.¹³

Thus New Mexico is in an unenviable position. First, it faces the prospects of losing the right to large quantities of groundwater to Texas through appropriation and exportation by El Paso. Second, it must not become wasteful in its use of the surface water in the Vermejo River lest the Supreme Court reverse its decision and grant a share of the water to Colorado.¹⁴ Faced with these prospects, the critical need to conserve water is forcefully brought to the fore. There are different ways to achieve conservation, to be sure, but somehow proposals to use a water market to encourage the "highest and best use"¹⁵ of water become the dominant focus.

How the requirement to conserve water gets turned into the proposition that a water market be used to promote "efficiency" is not entirely clear. One possible explanation, provided by Julia Vitullo-Martin, is based on the allegation that a great deal of water is wasted in the Southwest, and the way to stop such waste is "to introduce the discipline of the marketplace."¹⁶ However, it is clear that there are a number of uses of water which, though perhaps not meeting the criterion of "highest and best use," are nonetheless necessary, recognized, and legitimate.¹⁷ Furthermore, these uses generally satisfy the conservation requirement alluded to above. What is to be done with them? This article will focus on the issues of whether competitive markets are inherently efficient, whether they promote efficiency, and whether market allocation of water helps achieve societal goals. Discussion will be limited to allocations within the State of New Mexico; issues concerning interstate competition have been addressed elsewhere.¹⁸

ECONOMIC RATIONALE FOR MARKET ALLOCATION

Market allocation of water means "the distribution of rights which would result from the operation of a system of free market transfers."¹⁹ Jarret Oeltjen and Loyd Fischer put forth the following rationale to explain

13. *Colorado v. New Mexico*, 467 U.S. 310 (1984).

14. It is instructive to note that the Supreme Court in *Colorado v. New Mexico*, 467 U.S. 310 (1984), focused on "the issue of whether New Mexico could more efficiently conserve the Vermejo water supply." McCrossen, *Is There a Future for Proposed Water Uses in Equitable Apportionment Suits?*, 25 Nat. Res. J. 791, 806 (1985). For any state to retain its water rights, water must not be wasted.

15. The "highest and best" use is defined in economic terms, i.e., those uses which provide the highest monetary return per unit of water used. Oeltjen & Fischer, *Allocation of Rights to Water: Preferences, Priorities, and the Role of the Market*, 57 Neb. L. Rev. 245, 247 (1978).

16. Vitullo-Martin, *Ending the Southwest's Water Binge*, *Fortune*, Feb. 23, 1981, at 96.

17. For example, instream flow to protect fish and wildlife habitat or to provide recreational opportunities.

18. See Chan, *To Market or Not to Market: Allocation of Interstate Waters*, 29 Nat. Res. J. 529 (1989).

19. Oeltjen & Fischer, *supra* note 15, at 247. See also *infra* notes 25, 26 and accompanying text.

why the market ought to be entrusted to allocate water: "The basic proposition is that market forces should be permitted to play an expanded role in the allocation of water rights thus encouraging or at least permitting efficiency in water use."²⁰

Encouraging efficiency is a very worthwhile objective, but what exactly does efficiency mean? Tom Tietenberg takes it as maximizing both consumer and producer surpluses.²¹ He demonstrates this first by specifying what he calls well-defined property rights.²² Next he posits, "When well-defined property rights are exchanged, as in a market economy, this exchange facilitates efficiency. . . . Given a market price, the consumer decides how much to purchase by choosing that amount which maximizes his or her individual net benefit."²³ And finally he concludes, "In a system with well-defined property rights and competitive markets in which to sell those rights, producers try to maximize their surplus and consumers try to maximize their surplus. The price system, then, induces those self-interested parties to make choices which are efficient from the point of view of society as a whole."²⁴

One is struck by the great leap of logic from maximizing individual surpluses to promoting societal efficiency. William Apgar and James Brown attempt to shed additional light on this issue when they point out that "an important aspect of efficiency is that the resources used in the production process add the most to society's well-being."²⁵ This outcome is made possible when "an efficient economy produces the goods most valued by consumers [and] distributes those goods to the particular consumers who value them most."²⁶ That means society achieves efficiency

20. Oeltjen & Fischer, *supra* note 15, at 245.

21. T. Tietenberg, *Environmental and Natural Resource Economics* 41-43 (1988). Consumer surplus is the difference between the maximum price a consumer is willing to pay for a specific unit of a product and its market price. Producer surplus is the difference between the market price and the minimum price a producer wants to receive before making available to the market an additional unit of output. For more detailed discussion, see, e.g., D. Hyman, *Modern Microeconomics*, 165-71, 317-18 (1988).

22. Well-defined property rights, according to Tietenberg, must meet the following conditions:

1. *Universality*: all resources are privately owned and all entitlements should be completely specified.
2. *Exclusivity*: all benefits and costs accrued as a result of owning and using the resources should accrue to the owner, and only to the owner, either directly or indirectly by sale to others.
3. *Transferability*: all property rights should be transferable from one owner to another in a voluntary exchange.
4. *Enforceability*: property rights should be secure from involuntary seizure or encroachment by others.

T. Tietenberg, *supra* note 21, at 39.

23. *Id.* at 41.

24. *Id.* at 42.

25. W. Apgar & H. Brown, *Microeconomics and Public Policy* 203 (1987).

26. *Id.* at 204.

when resources are used to create the most benefit which in turn is reflected by the highest value consumers attach to it. Furthermore, goods are made available to those who pay the highest price for them.

Oeltjen and Fischer put the preceding arguments in the clearest terms and apply them to the question of water use: "Theoretically, the only priorities and preferences that a market recognizes are those which reflect the 'highest and best use' as defined in economic terms. In other words, that person who can derive the highest net return from a particular use of a given unit of water will be able to buy and use the water for that purpose."²⁷ In sum, two principles are at work here: (1) consumer sovereignty holds that individual consumers are the best judges of what will do them the most good, and (2) willingness-to-pay reflects consumers' preferences and measures their perception of a good's value.²⁸

SITUATION IN NEW MEXICO

A number of developments in New Mexico seem to have strengthened the argument in favor of using the market to allocate water rights. An examination of water availability in the state as well as water use by category in 1980 and 1985 (the latest figures available) will highlight some of these developments. On the one hand, "all the state's surface water and much of its groundwater is appropriated. This situation has given rise to the current trend of marketing water rights. Most water rights transactions now involve transfers rather than appropriation of original rights."²⁹ On the other hand, as the state's population continues to grow and the economy continues to develop, more water is required to satisfy domestic and industrial demands.³⁰

Meanwhile, irrigated agriculture is using the greatest amount of water in both absolute and percentage terms. Nevertheless, the most recent trend begins to show an absolute decline in water withdrawal for irrigated agriculture.³¹ Total agricultural use, which includes irrigated agriculture, livestock, and stockpond evaporation, accounted for 77 percent of total water withdrawn in 1985, down from 80 percent in 1980.³² These developments seem to confirm the assertion that "there is a growing trend of transfers from agricultural use to municipal and industrial use."³³ Furthermore, there is some evidence that such transfers illustrate the

27. Oeltjen & Fischer, *supra* note 15, at 247.

28. W. Appgar & H. Brown, *supra* note 25, at 203.

29. Frames, *Who's After Your Water Supply?* 8 N.M. Bus. J. 90, 93 (1983).

30. B. Wilson, *Water Use in New Mexico in 1985*, at 8-9 (New Mexico State Engineer Office Technical Report 46, 1986).

31. *Id.*

32. *Id.* at 8.

33. U.S. Bureau of Reclamation, *supra* note 1, at 42.

market at work. "In a number of instances, industry has approached irrigation farmers and paid them a far more attractive price than they could have gotten for their crops."³⁴

Other uses also are placing greater demand on the water supply. Partly as a result of rising population, personal income, urbanization, and the amount of leisure time, there is a heightened desire for an opportunity to hunt and fish. Managers of game and fish are finding ways to enlarge the supply.³⁵ Additional water supply is indispensable to that effort.³⁶ At the same time, growth in recreational water use is expected to proceed at a phenomenal rate.³⁷ A Bureau of Reclamation planning document identifies the future requirements of recreation water use: "The most urgent need for the future is development of recreational sites near the urban areas. . . . Water-oriented activities are the most popular forms of recreation, and interest in these sports is widening. Fishing, boating, and water skiing require the largest surface areas for outdoor recreation. . . . Developments in outdoor vehicles have opened up an entirely new realm of recreation."³⁸

Because most water in the state has already been appropriated, additional supplies to meet these new demands most likely will have to come from transfers of existing rights. Some have expressed great confidence that such transfers will proceed smoothly through market allocation. The same Bureau of Reclamation planning document states: "With regard to the near future there is little basis for challenging the proposition that fairly large amounts of water could be released from agricultural use for industrial, urban, power generation, recreation, and other uses which would, under current market conditions, yield a greater dollar value per acre-foot consumed."³⁹ Others base their optimism on the rate of substitution. "'If we cut irrigation water use by only 15 percent,' [New Mexico State Engineer Steve Reynolds] says, 'we could double the supply available to municipalities and industries.'"⁴⁰

The theme of the preceding argument is that efficient use of water resources means putting it to the "highest and best use" which is defined in terms of the monetary value it helps create.⁴¹ The market mechanism

34. Frames, *supra* note 29, at 93.

35. Cole, Ward & Ward, *Using Systems Analysis for Fishery Management in River Basins*, in Proceedings of the Thirty-First Annual New Mexico Water Conference 181 (New Mexico Water Resources Research Institute Report No. 219, 1987) [hereinafter Proceedings]; U.S. Bureau of Reclamation, *supra* note 1, at 133.

36. U.S. Bureau of Reclamation, *supra* note 1, at 135, 141.

37. *Id.* at 143; see also Findling, *Recreation and Water—Pools and Flows*, in Proceedings, *supra* note 35, at 80.

38. U.S. Bureau of Reclamation, *supra* note 1, at 140.

39. *Id.* at 42.

40. Frames, *supra* note 29, at 93.

41. See *supra* notes 19, 25, 26 and accompanying text.

is said to be perfectly suited to allocate water resources efficiently. In New Mexico, as in many agricultural states, water should be transferred from agriculture, where its value is relatively low, to other higher value uses. At the moment, industrial, residential, and recreational users appear ready to acquire agricultural water rights. These assertions and their implications will be evaluated in the next section.

EVALUATING THE COMPETITIVE MARKET

A good deal has been written about the efficiency of the competitive market as an allocative mechanism.⁴² Indeed, much of neoclassical microeconomic theory⁴³ is a theoretical/technical justification of that claim. Let's accept for the moment the proposition that the competitive market is in fact an efficient allocative mechanism. The focus of the present analysis is on evaluating whether the competitive market is an efficient allocative *institution*. It will be argued below that the competitive market, as an institutionalized pattern of behavior, is inherently inefficient for at least two reasons.

Duplication and Infrastructure Dislocation

First, a competitive market requires the presence of a sufficiently large number of transaction participants, especially sellers, to ensure the dispersion of economic power.⁴⁴ Clearly this requirement creates a great deal of duplication of effort and organization.⁴⁵ Duplication and redun-

42. See, e.g., Fama, *Efficient Capital Markets: A Review of Theory and Empirical Work*, 25 J. Fin. 383 (1970); W. Baumol, *The Stock Market and Economic Efficiency* (1965); Ali, *Some Evidence of the Efficiency of a Speculative Market*, 47 *Econometrica* 387 (1979). The efficient market theory is predicated on two primary conditions: (1) price reflects all information available to market participants, and (2) above-average rate of return cannot be sustained.

43. Neoclassical microeconomic theory is principally a theory of exchange which examines the behavior of consumers and producers in a market economy. In such an economy, prices play the crucial rationing role in allocating resources to different uses and in distributing products among potential buyers. Microeconomic theory, therefore, is also known as price theory. For an explication of the role of prices in the market economy, see J. Quirk, *Intermediate Microeconomics* 16-18 (1987).

The theory demonstrates that at market equilibrium, the competitive economy will attain "an allocation of resources that is so efficient that it is impossible to make one person better off without hurting [some] other person by any reallocation of resources." R. Ruffin, *Modern Price Theory* 149 (1988).

44. See, e.g., D. Hyman, *supra* note 21, at 290. The purpose of this requirement is to ensure that "no single operating entity is in a position to exploit its superior power to undermine competition and to gain unjustified advantage." Chan, *supra* note 18, at 537.

45. While the aim of protection against undermining competition in the market is quite laudable, there is, unfortunately, no guarantee either in theory or in practice that entry into the market by new firms will stop once the minimum number of small operating units to ensure competition is in place. The tendency is just the opposite—too many firms will chase after the lure of profit and begin production. Eventually, the increased supply will bring the price down and drive many firms into bankruptcy. This is the so-called industry shakeout one often hears about. It is also *prima facie* evidence that too much effort and organization have been devoted to this market initially.

dancy are not *per se* inefficient; on the contrary, they are often necessary and desirable for a functioning system. For example, back-up redundancy is a critical element in space exploration; without it we risk tragic accidents such as the space shuttle Challenger disaster. In addition, permitting wider participation in acceptable social, political, or economic transactions is always desirable. It is, after all, one of the requisites of a free society. Nevertheless, duplication and redundancy cannot be justified on the basis of economic efficiency within the neoclassical context. The validity of this assertion can be ascertained by observing that duplication and redundancy mean using more inputs than is absolutely necessary to do the job, and therefore is not technically efficient in production. That in turn translates into higher cost of production, and higher production cost means reduced supply which, combined with given demand, ultimately results in higher price, smaller output, and diminished efficiency in terms of consumer and producer surpluses.⁴⁶

Meanwhile, the profit motive is supposed to be the driving force which makes the market work in a capitalistic system. However, nowhere in the system is there a device which will promptly send out a signal when sufficient output or capacity is in place. Some would argue, by pointing to the efficient market theory, that price is just such a device designed to transmit information to market participants regarding consumer wants and producer capacity.⁴⁷ But consider the cobweb model, which is frequently used to demonstrate the equilibrating process of price adjustment in a competitive market. It shows price fluctuating from above-equilibrium to below-equilibrium level in successive periods that, under proper market conditions, will gradually move toward the market-clearing price. At the same time, output correspondingly changes from surplus to shortage in successive periods until finally arriving at the equilibrium quantity.⁴⁸ How long each period is depends on the product in question. And of course, the longer it takes to clear the market, the lower the efficiency of the market. Another problem could also surface—that the market may never be able to settle in an equilibrium due to frequent or even continuous changes. As a result, the system is plagued by chronic shortages or surpluses in the short-run and under- or over-capacity in the long-run. Neither situation can remotely be considered efficient.⁴⁹

46. See *supra* note 21 and accompanying text.

47. See discussion *supra* note 42. Financial markets are frequently held up by efficient market theorists as shining examples of efficient markets. See sources cited *supra* note 42. However, the 1987 stock market crash caught them by surprise and left them completely perplexed as to why stock prices could fluctuate so wildly. See Donnelly, *Efficient-Market Theorists Are Puzzled by Recent gyrations in Stock Market*, Wall St. J., Oct. 23, 1987, at 8, cols. 1-2.

48. See, e.g., W. Nicholson, *Intermediate Microeconomics and Its Application* 318-21 (1987).

49. Some might object to the use of the competitive market and the cobweb model to analyze the operation of water markets in the West as these markets are far from competitive. But their use

Assume for the moment that over-capacity exists. Conventional wisdom holds that it cannot persist for long in a competitive environment. Price falls when quantity supplied exceeds quantity demanded. So an inevitable shakeout eventually will take place—witness the ongoing developments in the airlines and personal computer industries—leading to dislocation and wastes. High technology production serves a particularly useful example here. It typically requires specialized inputs, including physical capital and labor. Specialized machines and personnel are generally not very useful to anything except that for which they are designed or trained. After a shakeout, unneeded resources routinely sit idle, but idle resources are costly. Unused or underutilized capital imposes a cost on society in diminished output, not to mention opportunity cost.⁵⁰

The same can be said of the workers as well. Take, for instance, the oversupply of dentists and physicians in several specialties.⁵¹ These well-trained professionals are not functioning at their potential. Their initial training costs are by no means low. Now faced with unemployment or underemployment, the affected individuals and society at large must bear the additional financial, psychic, and social costs. There is, for example, ample evidence linking unemployment to higher levels of emotional stress, which in turn lead to higher incidence of physical ailment.⁵² And one will be hard pressed to ignore or even deny the real contribution of unemployment to crime and other anti-social behavior.

All these costs ought to be included in the overall calculus which determines the efficiency of market allocation. Nevertheless, invariably they are not. Had they been included as they should, it would have been extremely difficult to demonstrate that the competitive market is an efficient allocative institution.

Consider the following scenario. When a family is driven off the farm and into the city, not only is dislocation of persons and skills created but dislocation of infrastructure as well. The entire system of streets and bridges, schools and hospitals, utilities and public safety of the community

here is intended only to show that even the competitive market, generally accepted as the most efficient among all market structures, is actually a rather inefficient allocative institution. If the real world condition of non-competitive markets are used in the analysis, that inefficiency will simply become even more glaring.

50. Opportunity cost is the cost concept used in economics. It is defined as the value of benefit foregone for choosing a particular course of action. Here, the opportunity cost of unused or underutilized capital previously devoted to some high technology production, but now sitting idle, is the benefit to society that capital could have produced had it been put to some other productive use. Of course that benefit is currently lost when the capital is either not working or not working at its potential.

51. See, e.g., U.S. Bureau of Health Manpower, Dep't of Health, Education, and Welfare, *Physician Manpower Requirements* (1978).

52. See, e.g., D. Glass, *Behavior Patterns, Stress, and Coronary Disease* (1977); Kobasa, *The Hardy Personality: Toward a Social Psychology of Stress and Health*, in *Social Psychology of Health and Illness* 3 (G. Sanders & J. Suls eds. 1982).

from which the family departs overnight becomes just a little bit too big to be efficient. Upon arrival in a new community, this family begins using the same services, but the facilities of its new abode are just a little bit too small to accommodate its needs efficiently. Consequently, there is waste in one place, congestion in another, and inefficiency everywhere.⁵³

As the push for water rights transfers from agriculture to other uses continues, more and more people will have to leave their farms and enter the cities. The costs associated with misplaced infrastructure will quickly mount. These costs are real and economists need to account for them. Indeed, it has been suggested that public transfer payments be made to farmers to keep them on the farm in an effort to prevent infrastructure dislocation from becoming a reality and perhaps to enable society to accrue some cost saving.⁵⁴

Community Goals

That the competitive market is an inefficient allocative institution is not sufficient to conclude *prima facie* that it is not very useful in helping to achieve broad societal goals. Tietenberg has asserted that self-interest will prompt individuals operating in a price system "to make choices which are efficient from the point of view of society as a whole."⁵⁵ Implicit in this is an identity of interest between private aims and community goals—that what is good for the average citizen or a business enterprise is also good for the country. Such an assertion demands careful consideration.

At issue is the distinction between private preferences and social values.⁵⁶ Is the market equally capable of satisfying private preferences as it is of promoting social values? George Lodge thinks not. He explains, "The old belief was that the uses of property are best controlled through competition among individual proprietors, each seeking maximum gain by bidding to satisfy individual desires in an open market place. This has become increasingly irrelevant to important segments of the American economy. In its place arises the notion that community *need* is in many instances clear and distinct from consumer *desire* and that it is this need . . . that must be the arbiter of property use."⁵⁷

53. The author wishes to thank Professor Bert Evans for sharing this illustration and his insight.

54. *Id.*

55. T. Tietenberg, *supra* note 21, at 42.

56. For an excellent exposition of the debate, see Sagoff, *Values and Preferences*, 96 *Ethics* 301 (1986).

57. G. Lodge, *The New American Ideology* 235 (1975). The U.S. Supreme Court recently upheld a Pennsylvania law empowering the state to require coal companies to leave enough coal in the ground to avoid damaging buildings above. *Keystone Bituminous Coal Ass'n v. DeBenedictis*, 480 U.S. 470 (1987). Justice John Stevens wrote for the majority: "Under our system of government, one of the state's primary ways of preserving the public weal is restricting the uses individuals can make of their property." *Id.* at 491.

Still, allocation and production according to the dictates of the market admittedly will supply the society with an abundance of privately demanded products. It is in guiding allocation and production to meet community needs that it falls short of the mark. Lodge illustrates, "The fact that consumers in the 1960s were not eager to buy either safer or less polluting cars did not mean the community did not need them."⁵⁸ The market simply fails to register that need. Hence society suffers from a poverty of goods and services which are both desirable and necessary. John Kenneth Galbraith calls this phenomenon "social imbalance," the image of which is conveyed by the following example.

The family which takes its . . . air conditioned, power-steered, and power-braked automobile out for a tour passes through cities that are badly paved, made hideous by litter, blighted buildings, billboards, and posts for wires that should long since have been put underground. They pass on into a countryside that has been rendered largely invisible by commercial art. . . . They picnic on exquisitely packaged food from a portable icebox by a polluted stream and go on to spend the night at a park which is a menace to public health and morals. Just before dozing off on an air mattress, beneath a nylon tent, amid the stench of decaying refuse, they may reflect vaguely on the curious unevenness of their blessings.⁵⁹

That there is a significant difference between private aims and community goals in terms of motivation and ethical foundation is clear. Individual decisions geared toward private benefit often are contrary to social welfare. When the price is right, many people conceivably would not think twice about clear-cutting a forest, exhausting an aquifer, or using the environment as a dumping ground, if all they ever care about is the monetary gain going into their pockets. Fortunately, people generally are not that single minded.

"Our obsolete market mentality" often blinds us to what actually sustains us, what makes us human.⁶⁰ Consider the statement by University of Arizona economist William Martin that "there is no reason to avoid mining water any more than we avoid mining coal, or copper, or any depletable resource. Economically, resources do us no good just lodging in the ground."⁶¹ This statement shows a complete lack of moral responsibility to anyone and anything that is not human or living in the present generation. "Resources" are viewed merely as the stuff which enables humans to satisfy their desires. Since the goal is to maximize that satisfaction,⁶² it follows that humans should use as much resources

58. G. Lodge, *supra* note 57, at 237.

59. J. Galbraith, *The Affluent Society* 253 (1958).

60. Polanyi, *Our Obsolete Market Mentality*, 3 *Commentary* 109, 115-16 (1947).

61. Quoted in Vitullo-Martin, *supra* note 6, at 100.

62. The most basic assumption of consumption theory in economics is that consumers maximize their satisfaction. D. Hyman, *supra* note 21, at 13.

as possible. If it entails mining and exhausting a depletable resource, there is no reason not to do so.

As for future generations, they would have to fend for themselves. They could perhaps ask the competitive market for help. Meanwhile, the present generation is going to enjoy life. Human action in the areas of species extinction and toxic/hazardous materials, to name only two, is indicative of the disregard for the welfare of future generations.

Furthermore, what about the integrity of nature apart from humans? The book of Genesis directs humans on earth to "be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth."⁶³ Thus, for those who accept the Bible as the word of God, as have many influential thinkers and politicians in Western Civilization, humans are given a sort of license by God not only to use but to dominate nature. That may be why Martin is able to proclaim that "resources do us no good just lodging in the ground." Resources cannot be exploited so long as they remain underground.

If nature is not to be exploited, how can it be protected? Because of the market-oriented notion that nature is a resource, fictitious though it may be,⁶⁴ to be traded on a free, open market, humans can protect nature if they so choose by paying the proper price.⁶⁵ The Audubon Society or Nature Conservancy, for example, can purchase a tract of land where a critical wildlife habitat or an exceptional wilderness is located, set it aside, and protect it. This may have the appearance of emancipating nature, but nature is not free from bondage in that its freedom and protection extend only to the boundaries of the preserve. Alternatively, nature itself can enter the market and buy its own freedom. Of course this suggestion is absurd, but that is the logical outcome when market allocation is extended into spheres which properly ought to be restricted.⁶⁶

Some have suggested that humanity rethink its relationship to nature.⁶⁷ "Our experience has taught us the lesson that the environment is actually a complex ecological system with humankind being an integral part of it. . . . Given the multitude of interdependences, it is in the interest of the community as a whole as well as its constituent members that each member be 'entitled to continuance.'"⁶⁸

63. *Genesis* 1:28.

64. See Polanyi, *supra* note 60, at 110-11.

65. See *supra* note 27 and accompanying text.

66. See Polanyi, *supra* note 60, at 113-15.

67. See, e.g., H. Sprout & M. Sprout, Multiple Vulnerabilities: The Context of Environmental Repair and Protection 18-19 (1974); A. Leopold, *A Sand County Almanac* 247 (1970).

68. A. Chan, The Evolutionary Concept of Property Rights in Natural Resources Management 3 (paper presented at the Southwestern Economics Association Meetings, Dallas, TX, Mar. 19-21, 1987).

This suggestion stems from a dissatisfaction with the way the issue traditionally has been framed. Laurence Tribe warns of a trap when environmental protection and resource management are undertaken for the long term potential of nature's contribution to human welfare rather than for the protection of nature for its own sake.⁶⁹ Furthermore, Aldo Leopold aptly clarifies, "[A] system of conservation based solely on economic self-interest is hopelessly lopsided. It tends to ignore, and thus eventually to eliminate, many elements in the land community that lack commercial value, but that are . . . essential to its healthy functioning."⁷⁰ This conceptual pitfall can be avoided by reframing the issue and redirecting the debate. As a first step, nature needs to be acknowledged, accepted, and accordingly treated by humans as a fellow member of the biotic community. "Respecting natural objects as fellow members of the biotic community frees us from the disingenuous pretense we feel obliged to manufacture in order to justify their continued existence."⁷¹ To truly treat nature with respect, humanity must accept its moral responsibilities to nature and develop Leopold's "land ethic"—an ethic dealing with humans' cooperative relation to soils, waters, plants, and animals.⁷²

The values which motivate humans to preserve resources, to be concerned about future generations, and to protect nature are in the main ethical, not self-interested. The goals in these regards reflect humanity's beliefs of what a good community should be. That is why it is disturbing when recreationists and tourist trade operators in New Mexico join the chorus in arguing for accelerated water rights transfers, presumably from agricultural use.⁷³ Many recreationists view themselves as environmentalists and consider instream flow vital to protecting fish and wildlife habitat, but their arguments have been couched in terms of market allocation,⁷⁴ believing that recreational use can compete successfully in the marketplace.⁷⁵

Clearly this thinking is founded foremost on human benefit and private desire. But it is equally clear that ecological integrity for a private water user can never be competitive in the marketplace. Nor should nature be made a competitor, for doing so would mean being ensnared by the trap discussed previously. More important, it is imperative to make sure that recreational activities are consistent with or conducive to environmental preservation. This consideration is particularly crucial in the fragile desert

69. Tribe, *Ways Not to Think About Plastic Trees*, in *When Values Conflict* 69 (1976).

70. A. Leopold, *supra* note 67, at 251.

71. A. Chan, *supra* note 68, at 3-4.

72. A. Leopold, *supra* note 67, at 237-39.

73. See, e.g., Findling, *supra* note 37, at 84.

74. See, e.g., Cole, Ward & Ward, *supra* note 35.

75. Findling, *supra* note 37, at 85.

environment.⁷⁶ To put this more fundamentally: Can recreation promote environmental and aesthetic values? This is not at all clear—certainly not in all instances.⁷⁷

Additionally, is nature to be sacrificed along with the farmers? After the marginal farmers have been eliminated from participation in the market, the remaining farmers are much more proficient in generating monetary value. Already unable to compete successfully against marginal farmers, nature's chances of survival in a much more fiercely competitive marketplace are slim indeed. After most of the farm sector is gone, and perhaps the environment as well, can recreation and tourism continue to compete successfully against remaining uses? Can recreation and tourism survive as an industry without a healthy environment?⁷⁸ And ultimately, is a dangerous precedent not being created when market exchange is extended beyond its proper sphere, an exchange that could lead to very serious adverse consequences?⁷⁹

All these issues are important. Their analysis is complex, and their final answers are not altogether clear. What is certain is that it is not as simple as the prescription of the neoclassical ilk—namely, let the market decide.

CHALLENGE TO OUR WISDOM

The present situation in New Mexico makes it imperative that we wisely manage our water resources and diligently conserve their supplies. There is strong impetus, both nationally and within the state, to assign the primary responsibility for allocating water resources to the market in the name of greater economic efficiency. The arguments presented in this article try to make clear that while the market may be an efficient allocative mechanism, it is hardly an efficient allocative institution.

In addition, treating nature—and its components: land, water, and air—as a resource, to be traded on the market and used to satisfy human desires, raises very serious ethical questions. Issues involving social values are public in nature. They must be discussed in public terms.⁸⁰ Their analysis ultimately derives from the idea of what a good community is.

76. For a discussion of the destructiveness of human activity to the desert ecology, see Lopez, *California Desert, A Worldly Wilderness*, 171 *National Geographic* 42, 66-68 (1987).

77. Some examples of recreational activities that do not promote environmental and aesthetic values are: operating off-road vehicles, including mountain bicycles that carve deep scars in valley floors and mountain sides; snowmobiling, the roar of which breaks the silence and solitude of a winter forest; the increasingly popular organized cruises to watch whales, which place great stress on the animals; and disturbances to birds, fish, and fishermen by motor boating and water skiing.

78. See a negative response in Wallin, *Rio Grande Management: The View from Upstream*, *Proceedings*, *supra* note 35, at 102.

79. See Polanyi, *supra* note 60, at 115-17.

80. Sagoff, *supra* note 56, at 316.

The first step is to define the goals of a good community. Suffice it to point out that ensuring the continued existence of members of the biotic community and safeguarding the integrity of the environment have been embraced explicitly as community goals.⁸¹

The next step is to devise ways to achieve those goals. The competitive market, although quite good at satisfying individual desires and preferences, is not particularly adept in achieving community goals. Mark Sagoff is compelling in pointing to the transcendence of community goals over the market when he says,

They are goals we determine for ourselves as a community, goals we could not conceive, much less achieve, as individuals trading in markets. A community is not an aggregate of individuals or a set of preferences to be satisfied; people in communities know purposes and aspirations together they could not know alone. . . . The goals a society may choose should be consistent with a sense of decency and compassion for which there is no analytical or methodological substitute. They will also depend on the place of that society in the historical progress of humankind and on the lessons it has learned from experience.⁸²

Our action today will be judged by our descendants in the future. It is hoped that we have enough wisdom to be decent and compassionate.

81. See, e.g., Endangered Species Act of 1973, Pub. L. No. 93-205, 87 Stat. 884 (codified as amended at 16 U.S.C. §§ 1531-1543 (1982 & Supp. 1987)); National Environmental Policy Act of 1969, Pub. L. No. 91-190, 83 Stat. 852 (codified as amended at 42 U.S.C. §§ 4321-4370 (1982 & Supp. 1986)).

82. Sagoff, *supra* note 56, at 315.