

# THE IMPORTANCE OF GETTING NAMES RIGHT: THE MYTH OF MARKETS FOR WATER

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*If names are not correct, then language is not in accord with the truth of things. If language is not in accord with the truth of things, then affairs cannot be carried out successfully. — Confucius*

**Abstract.** Markets are much in vogue as ideal institutions for managing water both nationally and internationally. Markets are presented as functioning automatically and nearly painlessly. True markets, however, have seldom existed for water rights and there are good reasons for believing that they seldom will. Water is an ambient resource where the actions of any one user necessarily affect many other users. It is, in fact, no accident that water metaphors have long been used by economists to describe situations where markets fail: “common pool resources”; “spill over effects”; etc. Thus, if true markets are to be relied on to allocate for particular uses and distribute water among users, the transaction costs of organizing contracts with all holders of water rights (let alone those holding less formal claims affected by a sale or lease) generally have been and will be prohibitive. Water, in short, is the quintessential public good for which markets simply do not work.

## DO NAMES MATTER?

Confucius was onto something—even if his point that using names correctly is central to a successful ordering of society is not self-evident to many speaking and writing today. His point is particularly important in the legal profession that all too often richly rewards members who succeed in obfuscating names and meanings. In this paper, I address one particular name much in vogue around the globe since the end of Communism and the virtual demise of socialism—the word “market.” (Yergin & Stanislaw) I address the use of this word as applied to a particular context—namely the now fashionable claim that markets for water will provide a nearly painless means for resolving problems of water allocation, distribution, and preservation. (Anderson & Hill; Anderson & Snyder; Israel & Lund; Kaiser; Kaiser & Phillips; Symposium; Thompson) Most alarming about this fashion is the misuse of the name “market.” (Dellapenna 2000b)

Of course, water in relatively small quantities can easily be bought or sold. Raw water in bulk—rivers, lakes, aquifers, and the like—are another matter. Certain questions in connection therewith have been made more difficult to assess by misuse of the name “market” to describe certain situations that simply are not markets. I am not opposed to markets on principle. I have lived in a Communist command economy for a year—in a remote corner of the People’s Republic of China without the protections from local conditions that even then foreigners living in large cities like Beijing, Guangzhou, or Shanghai could expect. As a result, I fully appreciate the many virtues of a market economy. My concern is narrower than questions about the utility of markets generally. Simply put, all too often, the proponents of markets as water management tools confuse the administrative use of economic incentives for markets. Consider the following example.

Bolivia is one of the poorest nations on the planet. Like many poor nations, it has had trouble providing water to its cities, its industries, and its farmers. In an effort to deal with the problem, the Bolivian government recently proposed to privatize the delivery of water, beginning in the city of Cochabamba, the country’s third largest city. (Associated Press) The plan involved the construction of a new electricity and drinking water network by a consortium of American, Bolivian, British, Italian, and Spanish companies at a cost of \$200,000,000. The project promised more reliable delivery of potable water, but would raise the cost of the water to the residents of the city and the surrounding countryside by 35 percent. The plan provoked such widespread public opposition—including roadblocks across highways in widely scattered regions and violent protests in which people on both sides died—that the consortium cancelled its project.

The project might very well have been the best possible solution to the pressing needs for a safer and more certain water supply for Cochabamba. Places in the world where water delivery facilities do not recover their costs from their customers are places where water delivery facilities are under-funded, unreliable, and generally decrepit. Furthermore, making water users at least pay the cost of processing and delivering water is the easiest way, perhaps the only way, to make individual water users consider the

worth of the use relative to the cost of using the water. Only if they consider the cost of the water usage will individual water users make rational decisions regarding whether and how to use water.

The problem is that the Bolivian proposal is very unlikely to produce anything like a real market—that is, a setting where water users will be able to negotiate over the price of water, users seeking out the least cost provider, providers seeking out the user willing to pay the highest price, and both otherwise engaging in the sorts of activities that give rise to the expectation that markets are likely to generate the “highest and best” or at least the most economically efficient use of water. The price of water in Cochabamba almost certainly would be set by the consortium, with or without governmental regulation. Who receives water at what price and for what purposes is an administrative decision that does not result from the play of market forces.

Unfortunately, all too often economists and others will proclaim that proposals such as the now abandoned Cochabamba plan were markets. An excellent example of such misnaming is the California Water Bank to be discussed below. This matters because—particularly since the collapse of Communism and socialism on a global scale—we presume that the results reached in a market are “correct”—a presumption that we do not indulge for the outcomes of governmental or other non-market decisions. (Trelease 1974) After all, there are serious questions about whether experts at any administering agency can realistically be expected to acquire the necessary information ever to arrive at the right conclusions. The market, on the other hand, functions like a mammoth computational system that translates relevant information in common factors—dollars and cents—which can then be combined to tell us through a single figure—the price—the sum of all the variables that impact upon the price. No wonder many persons advocate markets not only for managing water, but for managing environmental problems generally. (Anderson & Leal)

I fully accept that markets are the best tool we have for managing resources when markets work reasonably well, and I fully accept the presumption that the outcome of a set of market transactions are the best outcomes. But that presumption ought not to be accorded to the outcomes of administrative events masquerading as markets. (Blumm; Dempsey) To call an administrative system a market reduces, if it doesn't remove altogether, the sort of close, on-going scrutiny that the decision properly deserves. Thus we must be very careful to use the name “market” accurately. Once we begin to use the label “market” accurately in water management contexts, perhaps the most striking point that we discover is that, as an empirical matter, actual markets in free-flowing water have always

been extremely rare. Such markets as there are generally have been used to transfer fairly small quantities of water among similar users in close proximity to each other, such as between farmers or ranchers within a single irrigation or water management district. (Thompson at 708-23; Wahl 1989, at 133-40; Young) The modern concern, however, is not with creating markets to facilitate such transactions, but to find ways to move large quantities of water out of existing uses into uses that were not developed at the time the water was first allocated to existing patterns of use. This generally means moving water out of agriculture in order to meet the needs of growing cities, new industries, or newly recognized environmental needs. (Anderson & Snyder; Israel & Lund; Kaiser, at 185-92; MacDonnell & Rice; Tarlock & Van de Wetering; Thompson; Wahl 1989, at 140-44; Weber 1990) Water markets in fact have seldom been used to accomplish such significant changes in the ways in which water is used even when there would be clear benefits to society from the transaction. (McCormick; Thompson, at 708-23; Wahl 1989, at 197-289) This poses the interesting, if all too obvious, question: If markets for water are so good, why are they so seldom used?

#### WHY DO MARKETS FOR WATER FAIL?

Markets are not natural phenomena. Markets are cultural artifacts created and structured by social arrangements that we term “law.” To understand markets, how and why they operate, and when and how they fail, one must begin by examining the law that structures a particular market. Most fundamental to the functioning of markets are the laws that define the property rights that form the “objects” of a market's transactions. Yet the idea of owning water is not so self-evident as economists and others who advocate the utility of markets as water management tools assume. Such advocates typically do not address why markets are so seldom found or why there is so much resistance to applying market principles to water; instead, they are likely to denigrate critics of water markets as holding onto to cultural, religious, even mystical notions of the importance of water, resulting in arbitrary legal impediments to markets when water ought to be treated just like any other commodity. (Anderson & Snyder, at 17-29, 114-16; Kaiser, at 247-50, 260; MacDonnell & Rice, at 52; Wahl 1989, at 147-91; Young, at 1144-45, 1149) This attitude ignores the most important features of water.

People look upon water differently from other resources because water is more immediately essential to life than any other resource except air. Deprive us of air, and we die in minutes. Deprive us of water, and we die in days. Deprive us of food, and we can go on for weeks or months,

depending on our physical condition at the beginning of the fast—and on whether we have adequate supplies of water. And, as a Turkish businessman once commented, “Countless millions of people have lived without love, but none without water.” Furthermore, water is an ambient resource that by its very nature is shared among users. Therefore, water cannot be owned in the usual senses of that word. This reality was caught in a famous aphorism: “A river is more than an amenity, it is a treasure. It offers a necessity of life that must be rationed among those who have power over it.” (New Jersey v. New York, at 342)

Because of water’s importance to human and other life and because of its ambient nature, water has long been considered to be the quintessential “public good.” (Harbison; Williams) Economists are so accustomed to considering water as a paradigm of a public good that they customarily use water metaphors to discuss public goods generally: “common pool resource,” “spill over effects,” and so on. This fact alone should be enough to give even the most free-market oriented economists pause to consider whether true markets will function effectively for these resources. Yet water is not a public good in the narrowest sense of that term. Only the impossibility of setting up real markets for raw water in bulk demonstrates the wisdom of treating water as a public good.

### The Concept of a Public Good

A “public good” is one that shares two qualities: indivisibility and publicness. (Kaul, Grunberg, & Stern) Indivisibility means that a good cannot be divided up among the consuming public, allowing some consumers access to the resource while excluding other potential consumers. Publicness means that the resource is shared freely (if not equally) among the group—consumption by one person does not, at least usually, interfere with consumption by others. Because the good is indivisible, one cannot simply divide it up and buy as much as one wants; because it is public, it is impossible to keep others from accessing and enjoying the good so long as it is accessible and enjoyable by anyone. In other words, all within the relevant public must enjoy the good more or less equally, or no one can enjoy it at all.

Public goods generally are free goods as far as markets are concerned because consumers cannot (or cannot realistically) be excluded from enjoying the good. (Cowen) How much can one charge others for viewing the blue sky over one’s property? The only costs, if any, associated with a public good are the costs of capture, transportation, and delivery, not a cost for the good itself. This means, however, that if you invest in developing or improving the good others who invest or pay nothing will enjoy the

benefits of your investment because you cannot exclude those others from enjoying the good. (Coase 1974) Such others are known as “free riders” and are seen as a serious inhibition to investment unless some institution (like the government) takes responsibility for assuring that all or nearly all in fact pay for the benefits they receive. (Bac; Coase 1960)

Air pollution is an excellent example. Automobile exhaust is a significant source of air pollution. If many people voluntarily invest in cleaner running cars in order to protect the air we breathe, I will have cleaner air just as much as they will. If I decide not to buy a cleaner running car, that decision by itself will not greatly affect the quality of the air we all breathe. I can (and many would) decide to become “free riders” on the efforts of others to clean the air. As more people realize that this possibility exists, fewer would voluntarily buy a cleaner running car. Under these circumstances, all or nearly all simply will not buy cleaner running cars voluntarily. The solution, of course, is to compel all to buy cleaner running cars. Relying on the market simply won’t work; relying on regulation will.

### Water as a Public Good

Water, of course, is not indivisible and public in the strictest sense, and a few scholars therefore have denied that it is a public good. (Anderson & Snyder, at 113-14; Harbison, at 546-47) But few things are strictly indivisible and public, which is why economists and philosophers often use something like nuclear deterrence as an example of a true public good. What a culture treats as a public good, however, is not determined just by its physical characteristics, but also by its social and economic characteristics. When the costs to exclude others would be so high that it is impractical, or when there are other (perhaps cultural) reasons why a society will not exclude some of its members from access, the good is treated as a public good.

The most usual social or economic characteristic that leads to our treating something as a “public good” that is not strictly indivisible or public is that transaction costs are simply so high that no market can function with even minimal effectiveness. (Howe, Boggs, & Butler; Polinsky, at 12-14) Yet, most who advocate markets as management tools for raw water say little or nothing about transaction costs. Economist Ronald Coase has argued that economists who ignore transaction costs are practicing “blackboard economics.” (Coase 1988, at 1-20) The most important and consistent simplifying assumption that most economists make is to assume a “frictionless market”—a market without transaction costs. Lawyers, on the other hand, focus precisely on the costs and frictions of the marketplace

for their role is to minimize, accommodate, or overcome such problems. Lawyers simply are not concerned about how ideal markets could function—except as a baseline for measuring the failures of real markets.

Another reason for treating something as a public good is because society's values require that all receive a "fair" share of the resource. When transaction costs make markets impossible yet the good is perceived as essential for the minimum socially acceptable well-being of all members of society, society (today, usually the government) undertakes to provide the good to all without direct cost for the amount consumed. Such goods could be termed socially created public goods. Examples of socially created public goods include fire protection or public education, both of which are, in some settings, treated as private goods but today are generally made available to all by governments, at no direct cost to actual consumers. The status of socially created public goods changes through time. Thus, there now is a growing demand in some quarters to reprivatize education (through vouchers, for example).

Water is just such a commodity. This is most obvious for the protection of instream flows. Less obvious, but no less true, is the public nature of water when withdrawn for private use. While it is easy enough for someone to own and manage water unilaterally in small amounts (for example, bottled water), a river is an ambient resource that can never be fully controlled or fully owned. Even building a dam only delays the flow of the water; it cannot stop the flow altogether. Thus doing something to water on a large scale necessarily affects many others, making it difficult to procure the assent of all significantly affected persons. Transaction costs on all but the smallest streams, lakes, or aquifers, quickly become prohibitive unless those "spill over" effects are ignored. It is this reality that underlies the tradition of treating water as a free good—a good available to all at no cost for the water itself, but only for the cost of capturing, transporting, and using the water. Advocates of private action as the prime means for protecting instream values simply miss the point. (Anderson & Snyder, at 114-16; Kaiser & Binion, at 169-73)

Water should not be a free good any longer. Economic incentives should be introduced for those who use water so they will more realistically evaluate the social consequences of their conduct. (Cummings & Nercissiantz) I cannot stress too strongly that economic incentives, including fees, taxes, and "water banks," undoubtedly are useful in managing public property. But resort to economic incentives should not obscure the fact that water remains the prime example of a public good for which prices cannot be set in a marketplace.

## PATTERNS OF PROPERTY IN WATER

In all the world, there are just three basic approaches to property rights: (1) common property; (2) private property; and (3) public property. The paradigm of property in the common law remains the fee simple absolute. Even today, land can be marked off and considered for most purposes as the exclusive domain of a particular owner with little regard for the effects of the owner's conduct on others' persons or property—despite the law of nuisance and the modern law of zoning. Land, however, stays put within its boundaries. Flowing water, like any ambient resource, simply does not fit easily into such a paradigm. While considerable ink has been consumed in devising subtly varied versions of marketable water rights for the United States, no such scheme has ever actually been implemented. The major changes in private property rights in water have instead stressed the public nature of the resource and the limitations that public nature impose upon private rights. (American Society of Civil Engineers; Dellapenna 1991d)

The three ideal models of property each correspond rather more closely than many realize to the three real world models of water law found today in the United States. Although there has been some convergence in recent years regarding state water laws in the states of the United States, the various states remain committed—in nearly equal numbers—to the three distinctly different approaches represented by these paradigms. The correspondence between modern forms of American water law and the several theoretical models of property types is more than a simple curiosity. The correspondence of forms of water law to theoretical models enables us to predict with some certainty whether existing forms are adaptable to changing circumstances, or whether an entirely new form must be substituted when circumstances of water demand or supply change dramatically.

## WHY COMMON PROPERTY SYSTEMS CANNOT SURVIVE

Biologist Garrett Hardin explained more than thirty years ago, in his famous article on *The Tragedy of the Commons*, why a common property system can function only when the common pool resource is available in much greater supply than the demand for the resource. (Hardin) Whenever each common owner can decide for herself whether to increase her use of the resource regardless of the effect on other common owners (except for direct interference with the uses of the others), each owner will be

able to appropriate for herself the whole of each additional increment of use, while the whole group will share equally the cost imposed on the common resource. Hardin has been criticized, particularly by economists, as having oversimplified the reality of how "commons" functioned in prior times or in remote areas. Hardin's critics have demonstrated that many such commons have functioned over extended periods quite satisfactorily even when close to the carrying capacity of the resource through informal regulations imposed by the small communities sharing a commons. (McCay & Acheson; Ostrom) The point is well taken, yet it is utterly irrelevant for describing how a "commons" works in a much larger society where, because most persons are strangers to each other, informal sanctions do not function effectively and formal law recognizes no real limits on any one person's exploitation of the commons. When the common owners are strangers to each other, as each user receives the full incremental value of the changes he induces while bearing only a small fraction of the costs, the only rational course for each common owner is to increase his uses until the resource is exhausted. This is more than a mere theoretical model. We have witnessed it over and over again in this century regarding common pool resources "governed" by the rule of common property. (Hardin & Baden) Hardin concluded that only a private property system, in which the costs as well as the benefits of resource management decisions are concentrated on the particular owner making the decision, could avoid the tragedy of the commons.

Experience with riparian rights suggests another feature of common pool resources. If exploitation of a common pool resource requires significant capital investment, the inability of potential investors to keep others from preempting an investor's uses will bring about under investment in the resource. (Rose 1986) This fear caused the rejection of riparian rights in the drier, western states of the United States in favor of an attempt at a sort of private property system such as Hardin would argue was necessary a century later. (*Coffin v. Left-Hand Ditch Co.*; Dellapenna 1991c, §8.01)

#### WHY PRIVATE PROPERTY SYSTEMS FAIL FOR WATER RESOURCES

While the early history of water law in the eastern United States is not entirely clear, it appears that an earlier version of riparian rights, the "natural flow" theory, was once followed that was as clear and certain a system of property law as one could imagine. (Dellapenna 1991b, §7.02(c)) Under the natural flow theory, each riparian owner had an apparently unqualified right to have water

flow down undiminished in quality and unchanged in quantity except insofar as upstream uses exploited the water source for strictly domestic uses. In the mid- to late-nineteenth century the natural flow theory was replaced throughout the eastern United States with the modern "reasonable use" theory, which as we have noted is a common property system. (Dellapenna 1991b, §7.02(d)) Today, similar transitions are underway for groundwater and for diffused surface water. (Dellapenna 2000a, §10.03(b)(3); Murphy) Transitions from a private property system to a common property system are rare. The occurrence of such transitions for ambient resources like water suggests that, despite the asserted advantages of private property systems, such systems do not work well for such resources.

Some scholars have described the earlier transition in the approach to riparian rights as a means for introducing flexible development into a capital poor and technologically backward, but resource rich, nineteenth-century America. (Abrams 1989a, at 1391-1400) The more recent transitions suggest that the problem is more basic than a mere lack of cash. Ronald Coase demonstrated that a private property or market system is the most efficient mechanism for allocating resources to particular uses when it does work, but that such systems fail if there are significant barriers to the functioning of a market. (Coase 1960) The fact that markets for water as such have never actually played much of a role even in such a paradigmatic private property system as appropriative rights is evidence that markets do not work well for ambient resources like water. Indeed, one might note that similarly meager results were realized from the effort to introduce "marketable emission allowances" in the *Clean Air Act of 1990* in order to harness markets for improving air quality. (Drury *et al.*; Joskow & Schmalensee; van Egteren & Weber)

#### Impediments to Markets for Water

The explanation for the failure of markets in environmental contexts goes under the rather name of "externalities"—a use by one person affects the uses by many others, perhaps all others, and hence a significant change in any use infringes upon the interests of many other users. (Carter, Vaughn, & Scheuring) While it might theoretically be possible for a properly structured market for water that copes with all of these concerns, in any economically large or complex hydrologic system the difficulty and expense of structuring transactions (the problem of transaction costs) are a sufficient explanation of why real markets simply have never developed in practice, and do not appear likely to develop. (Colby; Kaiser, at 246-56; McCormick) Only by disregarding all such externa-

lities do markets become possible.

Under appropriative rights, water rights are defined in terms of an authorization to commit a specific quantity of water at a specific point at specific times for specific uses on specific land and with a specific (time-based) priority. The regime comes as close as one might hope to a true private property system of water rights. One might expect that such externalities would be less of a problem under appropriative rights because senior appropriators have superior rights to junior appropriators. The temporal priorities among water uses might lead one to expect that the law would routinely ignore externalities when the transfer is undertaken by a senior appropriator and externalities affects only junior appropriators. The law of appropriative rights, however, consistently prohibits even a senior appropriator from changing the time, place, or manner of use if the change would produce a significant injury to a junior appropriator. (Anderson 2000, § 16.02(b); Gould; Kaiser, at 213-14, 246-47; MacDonnell & Rice, at 29-31; Mitchell; Williams) The burden of proving no injury to other users of water is on the one seeking to make the change, rather than on the one objecting to the change. If the evidence is inconclusive, a court will forbid the change.

Precisely such uncertainty is usually the case if the question is what portion of the water diverted from the stream (the usual measure of the appropriative right) was consumptively used by the senior appropriator and what portion constituted a return flow to the benefit of junior appropriators. (Anderson 2000, § 16.02(b); Gould, at 25-28) Indeed, the burden on applicant for a change of proving a negative—that there would be “no injury” to any other water user—often is a practical impossibility. While we can easily obtain exact measurements of return flows through “point sources” of discharge that characterize return flows from municipalities or industries, measuring return flows through “non-point sources”—as in agriculture—is far from easy and nearly always uncertain. Yet it is from agriculture that the proponents of markets seek to move water, not the other way around. (Anderson & Snyder; Israel & Lund; Kaiser, at 185-92; Kaiser & Binion; MacDonnell & Rice; Tarlock & Van de Wetering; Thompson; Wahl 1989, at 140-44; Weber 1990) As a result, a sale or lease of a water right can be blocked by any affected third party—including a junior appropriator—who is willing to seek an injunction. The transaction cannot take place unless all potentially affected holders of water rights have consented. Obtaining such consents will require contracts and compensation to be paid to all affected third parties. On even a moderately sized water source, the costs of identifying each affected water right holder and then securing the necessary consents will

be prohibitively expensive. (Colby; Harbison, at 543-49; Howe, Boggs, & Butler; Lund)

The classic example of what happens when a buyer seeks water for a use that is fundamentally different or at a considerable remove from that of the seller is the case of *City of Denver v. Fulton Irrigating Ditch Company*. The City of Denver sought to trade its sewage water for Coors brewery’s “clear mountain stream.” Denver would take Coors’ clear mountain stream to augment its municipal supplies; Coors would have the right to use unlimited quantities of Denver sewage water for making beer. The transaction failed not because of fears over possible outrage on the part of beer drinkers, but because a group of farmers downstream from Denver (organized as the Fulton Irrigating Ditch Co.) obtained an injunction against this trade because it would deprive them of the water on which they were relying. (Williams, at 311-21)

The law of appropriative rights does not go as far as it might in inhibiting transfers of water to new uses. For one thing, only the rights of other appropriators are protected. Generalized social costs, such as the loss of tax revenues to a community, are not protected from the effects of transfers. (Anderson 2000, § 16.02(b); Gomez & Loh; Kaiser, at 219-222, 248-29; MacDonnell & Rice, at 31-34, 53-54; Oggins & Ingram; Tarlock & Van de Wetering, at 177-79, 183-85; Weber 1990) Concern over generalized social costs have generated enough political pressure to bring about the enactment of “area-of-origin” statutes. (Anderson 2000, § 16.02(c)(2); Kaiser, at 215-18, 251-53; Weber 1994) Area-of-origin statutes have not been significant barriers to market transactions only because the law protecting the rights of junior appropriators provides so much deterrence to market transactions that it really does not matter much whether social costs are ignored or considered.

Economists and others who champion the free play of the market have insisted that the protection of third-party rights represents an overly rigid legal regime. (Kaiser, at 214; McCormick) If only such requirements were removed, markets would flourish. This mischaracterizes the situation. Area-of-origin statutes are regulations that have the potential to interfere with or to prevent market transactions. The protection of third-party rights operate differently. Such protections prevent market-generated externalities from destroying the property rights of third parties. Rather than representing government intervention that prevents or distorts markets, such protections are the minimum that is necessary to assure that property rights—each person’s property rights—are transferred only through markets. (Jordan)

Once one realizes how the law affects the possibility of sales of water rights, one readily grasps why small-scale

transfers of water rights among farmers or ranchers—all of whom are making roughly similar uses at more or less the same place—are the only ones that regularly occurred without state intervention. (Anderson 2000, §§ 16.04(c)(2) to § 16.02(c)(5); Thompson at 708-23; Wahl 1989, at 133-40; Young) For small-scale, like-kind transactions, there is little likelihood of effects on third parties. The only large-scale transactions involving a significant change in the place or manner of use and achieved purely by market transactions have been in situations where the transferor was the last beneficial user of the water. The prime example is the transfer of water from the Imperial Irrigation District in southern California to the Metropolitan Water District or the San Diego County Water Authority serving the urban conglomerates of southern California. (MacDonnell & Rice, at 37-38; Wahl 1994, at 51-52.) In that context, if the transferred water were not conserved by the irrigation district and conveyed to the water district it would have passed into the increasingly saline and increasingly polluted Salton Sea which will not even sustain wildlife. Even so, the transactions evoked strong, but unavailing resistance from local communities that feared the ensuing fallowing of land would injure their economic base and from other irrigation districts who contended that the salvaged water should have gone to them without charge notwithstanding that they did not benefit from any relevant return flow.

Besides economic efficiency, another issue needs to be considered—namely, distributive equity—although economists often are uncomfortable discussing it. (Ferber & Nelson; Korobkin & Ulen; Polinsky, at 7-10, 119-27; Posner 1980; Shavell) In the nineteenth century, with limited and ineffective government in the United States, a transition from a private property system (which had the effect of freezing uses rather than of creating a market) to a common property system introduced a measure of flexibility into the possible uses and thereby promoted social and economic development. (Abrams 1989a, at 1392-96) The transition from private property to common property also, whether intended or not, worked a massive and continuing, if haphazard, wealth redistribution. (Abrams 1989a, at 1394; Chinn; Heller) Generally, wealth is transferred from the poorest users of water (who hold the smallest water rights or no water right at all, and in either case are unattractive to potential buyers) to the wealthier members of society—those who can afford to buy water rights but need no longer worry about compensating the small water users who lose their expected return flows. (Bauer; Easter & Hearne) Today, the transition to a common property system seems much less prudent as demand for water outstrip supplies, creating a real risk of the tragedy of the commons for those parts of the United

States that follow traditional riparian rights. The probably regressive distributive effects on the allocation of water rights ought to make one wary of any such transition in today's world.

### The California Water Bank

California, facing a five-year long drought in the late 1980s and early 1990s, sought to transfer water from low-valued agricultural uses to higher valued urban uses. California is a dual system state that still recognizes riparian rights to some extent even while placing dominant emphasis on appropriative rights. (Dellapenna 1991c) California did not attempt to enforce the common property principles already in place or to replace its private property principles in its version of appropriative rights with a common property system. Instead, the state set about to create something the state and many commentators have termed a “market” where none had existed before through an institution called the “California water bank.” (Gray; Israel & Lund; MacDonnell & Rice, at 46, 52-53; O'Brien & Gunning; Wahl 1994, at 49-50)

One must use considerable care in discussing “water banks” for the phrase is used in widely differing senses in the several states in which “water banks” have been created. (Anderson 2000, § 16.04(c)(2); Kaiser, at 201-03) The California Water Bank functioned as a mechanism for facilitating the movement of water out of agriculture in order to serve the far more numerous voters in northern California cities. The California Water Bank itself was a rather piddling affair by California standards, involving in its peak year (1992) some 400,000 acre-feet when the state's shortfall alone exceeded 6,000,000 acre-feet. Furthermore, the California Water Bank was a most peculiar “market.” For the 350 persons who were willing to sell water rights, the state was the only buyer, while for the 20 institutions willing to buy water rights the state was the only seller. The state of California as buyer or seller also had an inestimable advantage over private buyers or sellers for California decided that when it buys or sells water rights it need not concern itself with the effects on third parties, even if the affected third parties hold valid water rights. (Wahl 1994, at 58-60) No private buyer or seller would have been allowed to ignore the spill-over effects on third parties. (O'Brien & Gunning, at 1062-74)

The California Water Bank's prices (\$125/ac-ft. to sellers, as much as \$400/ac-ft. to buyers) can hardly be described as having resulted from the market place. The state chose to whom it would sell, setting the prices by administrative fiat. (Gray, at 21-24; MacDonnell & Rice, at 46-47; O'Brien & Gunning, at 1095; Wahl 1994, at 58-60) As a result, some 70 percent of the water made

available through the water bank went to just three urban water providers. That this was not really a set of market transactions is particularly underscored when the state implicitly (and sometimes explicitly) underscored its "offers" to buy with the threat of condemnation.

Rather than being an example of a market, the California Water Bank was an instance of state management hiding behind the facade of a market. The state applied economic incentives to encourage private (and public) actors to comply with the state's policy choices while disregarding the effects of the state's actions on other private (or public) actors whose claims would preclude the accomplishment of the state's goals. Flexibility was introduced to enable fundamental transformation of water uses within the state and (incidentally) wealth was transferred from those who formerly used water to those who thereafter would use water. (Dixon *et al.*; Harbison, at 553-59; O'Brien & Gunning, at 1078-83) Specifically, the California Water Bank transferred wealth from relatively small, poor farmers to relatively wealthier middle class urban dwellers. These may very well be laudable goals in California in the late twentieth century, although considerable evidence suggests that when it comes to water equity is more important to society than efficiency. (Howe)

## THE PUBLIC PROPERTY OPTION

Unlike the nineteenth century, when the eastern and western states moved in very different directions to escape the strictures of the "natural flow" version of riparian rights, both eastern and western states today increasingly turning are to active public management of water resources. The states of the United States that have adapted a public property approach for water management have determined that a transition to public property appears to offer significant advantages over both common property and private property in terms of efficient allocation of the resource and in terms distributive justice. (Freyfogle)

### Public Property Distinguished from Common Property

Unquestionably there are considerable difficulties in defining appropriate public goals or in making the right decisions to achieve those goals. (Farber; M'Gonigle) Over the past 50 years, about half of the states that formerly followed the common property approach of riparian rights have changed to a system of public property now coming to be called "regulated riparianism." (Dellapenna 1991c) Perhaps the leading example of such a system available today is the *Regulated Riparian Model Water Code* of by the American Society of Civil Engineers. (American

Society of Civil Engineers) While the details of these new systems are vary more highly than the administrative systems under appropriative rights, there is a common core to the new systems that enables us to describe the systems as they appear to be evolving. The most fundamental departure from common law riparian rights in regulated riparian statutes is the requirement that, with few exceptions, water cannot legally be withdrawn from a water source except pursuant to a time-limited permit issued by the state in which the withdrawal occurs. The rights of water users are determined by the permits, not by the riparian nature of a use. The "riparian" element comes from the criterion by which permit applications are judged, namely whether the proposed use is "reasonable." Nonetheless, the criterion of "reasonable use" is applied very differently than at common law. An administering agency decides before a use begins whether a use is reasonable, both in terms of general social policy and in terms of the effects of the proposed use on other permitted uses. If the decision-making process were to continue to be a crisis-response process that comes into play only after significant interference arises between competing uses, the regulated riparian statutes could be indicted for the same faults that have bedeviled common law riparian rights. The regulated riparian statutes, however, all provide a process whereby the decision whether a proposed use is reasonable is made before investment in the use takes place through the issuance or denial of a permit. The existence of the permit process thus fundamentally transforms the operation of the concept of "reasonableness" from that known under traditional riparian rights. Such an ambitious program of public management might very well fall short of the goals set for it. It could be improved by the introduction of various economic incentives as part of the public management scheme—but one simply should not confuse economic incentives with markets.

Even with economic incentives, the enterprise of moving fundamental decisions concerning the use of water by private parties from the actors involved into the hands of experts working in an administrative agency poses daunting challenges to those charged with responsibility for administering the program. Administration of the public property system will be less than perfect. Whether the resulting permit process is superior to either traditional riparian rights, to appropriative rights, to a purely market system, or to some other regulatory system has been, and continues to be, hotly debated. (Abrams 1989b; Abrams 1990; Chinn; Dellapenna 1991c, §9.03(a)(5)(D); Korobkin & Ulen; Rose 1990) How one resolves these questions is largely a function of how much confidence one has in the ability of a bureaucratic structure to manage a common pool resource compared to the alternatives. (Cole; Esty;

Rose 1994)

Economists who the proposition that markets, like governments, do fail are forced to introduce “invisible, indeterminate, (heaven forbid) soft factors” to explain why actors in the market place do not behave in ways that economic theory predicts. (Lubet) This simply will not do. To suggest that the sellers of strawberries, for example, who refuse to lower their price to clear their shelves rather than see the strawberries spoil over night have a predilection for rotten strawberries simply does nothing but reduce economic theory to meaningless circularity. When we find that even among Bedouin horse dealers, markets can simply fail to reach the most economically efficient outcome, we must begin to question when markets can be expected to achieve the most socially desirable outcome even if we define “most socially desirable” in the narrowest of economic terms. In the context of water management, one cannot have much confidence in a more purely market system given the scarcity of actual empirical experience with such a system and given the enormous complexities of transaction costs and externalities present as barriers to a successful market for water rights. As for any hypothetically new model beyond those considered in this article, one hardly knows were to begin.

In the eastern United States, the problem of riparian rights as vested property rights in a mature economic system is likely, as a practical matter, to preclude recourse to appropriative rights rather than regulated riparianism. (Dellapenna 1991c, §8.05) Because of the growing shortages of water relative to demand in most eastern states, the trend towards regulated riparianism is likely to strengthen because the system has at least three demonstrable advantages over traditional riparian rights. So long as water is treated as a common pool resource, we face the “tragedy of the commons”; only active public management can avoid the utter destruction of the resource. (Dellapenna 1991a, §6.01(b); Hardin) Furthermore, having a permit in advance of investment provides the security of right, so lacking under common law riparian rights, necessary for intelligent planning or investment decisions. (Abrams 1990; Dellapenna 1991b, §§7.02(d)(3), 7.03; Dellapenna 1991d, §9.01; Freyfogle) Finally, comprehensive planning under regulated riparianism enables problems to be dealt with more rationally by creating the possibility that a problem will be recognized and responded to before it becomes a crisis. (Dellapenna 1991d, §9.05(a), 9.05(d))

### Is Public Management Worth the Cost?

Accepting the public managerial impulse has, of course, substantial costs, both in terms of money and in terms of

the risk of poor decisions by the managers. The question is not, however, whether a public property system creates an ideal model of water allocation, but whether it creates a better model for water allocation than is otherwise available. (Robinson) The rarity of markets for water rights and the deficiencies of either common property or private property systems in water suggest that the allocation of water is not particularly efficient under those models either. (Duxbury) The loss in efficiency, if any, from adopting public property system is not likely to be high, and might well prove to be a gain. In fact, the attempt to rely on private property concepts as the primary means for managing water as a resource has resulted in freezing uses in the pattern of their first use long after those uses have become relatively uneconomic rather than opening up a path to relatively easy transfer from less valuable uses to more valuable uses. Thus, while one would be hard pressed to prove whether treating water as private property or as public property was more likely to result in the economically efficient use of the resource, water is a resource where privatization and markets are not likely to promote the economically efficiency use of the resource. Concerns about distributional equity just might tip the scales.

The problem of using water management to further social justice while preventing too much power from accumulating in the hands of an unelected elite is, of course, part of the central political problem of our time in the face of increasingly administrative states. (Dempsey) Like the problem of efficiency, there is no easy or certain means of resolving the problem. In short, there is no clear answer to whether public property system is worth the cost, or whether a private property system would work better or at less cost. I would simply caution one to examine carefully whether the actual experience of water markets suggests that such a system is workable; if not, one is left with little else than to attempt to make a public property system work effectively and equitably, partly through recourse to economic incentives and partly through administrative command.

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