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Dellapenna

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The Importance of Getting Names Right: The Myth of Markets for Water

Joseph W. Dellapenna
Villanova University School of Law

Abstract

Markets are now fashionable as institutions for managing water both nationally and internationally. True markets, however, have always been rare for water rights and there are good reasons for believing that they always will be. Water is an ambient resource where the actions of any one user necessarily affect many other users. If true markets are relied on to allocate water for particular uses and distribute water among users, the transaction costs of organizing contracts with all holders of water rights have been and will be prohibitive. Water therefore is the quintessential public good for which markets do not work. Treating water as common property causes a tragic over exploitation as soon as water becomes a scarce commodity. Market failure is also characteristic of treating the right to use water as private property. Public water management avoids these problems by treating water as a form of inherently public property for which basic allocation and distribution decisions are made by public agencies. Economic incentives, including fees, taxes, and “water banks,” are useful role in managing public property, but true markets must remain a phenomenon marginal to the enterprise of managing large quantities of water for the benefit of numerous users.

Keywords: common property; markets; private property; public property; regulated riparianism; tragedy of the commons; water rights; water bank

1 Introduction

Markets have become fashionable institutions for managing water both nationally and internationally. (Anderson & Snyder; Dinar & Letey) Markets fundamentalists present markets as functioning automatically and nearly painlessly and market-based allocations as deserving a high presumption of validity, a pre-

sumption only reinforced by the utter failure of socialism. Nonetheless, as an empirical matter, actual markets in free-flowing water have always been rare, and such markets as there have been generally were used for the transfer of relatively small amounts of water among similar users. (Glass; Kloezen) Water markets have seldom been significant for changing the ways water is used. This raises an interesting, if obvious, question: If markets for water are so good, why are they so seldom used?

Market fundamentalists seldom address this question except to denigrate their critics as holding cultural, religious, even mystical prejudices about water. (Brown) But water is different. 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 last for weeks or months. Furthermore, water is an ambient resource that is in its very nature shared among users. Water and air are not only our most essential resources, they are also the quintessential “public goods”—goods for which the transaction costs are so high that no market can function with even minimal effectiveness. (Cowen; Kaul, Grunberg, & Stern) This reality should give even the most free-market-oriented economist pause regarding whether true markets can function effectively for these resources. Treating water as common property leads into a tragic over exploitation as soon as water becomes a scarce commodity. Markets also fail if one attempts to treat the right to use water as private property. (Dellapenna 2000) What works best (albeit imperfectly) is to treat water as inherently public property for which basic allocation decisions must be made by public agencies. Various economic incentives, including fees, taxes, and “water banks,” are useful in managing public property, but markets must remain marginal to the management of large quantities of water for numerous diverse users.

2 Patterns of Property in Water

Markets are not a natural phenomenon. Markets are cultural artifacts created and structured by social arrangements in the form of law. To understand markets, and why they fail, one must examine the laws that structure a particular market, especially the laws that define the property rights that form the “objects” of the market’s transactions. The paradigm of property remains the ownership of land. Land can be marked off and considered for most purposes as the exclusive domain of a particular owner without regard for any effects on other persons or property—despite modern regulatory regimes. Land, however, stays within its boundaries. Flowing water simply does not fit very easily into such a paradigm. Claims to ownership of the right to use water have had to adapt to this reality.

The three patterns of property in water—(1) common property; (2) private property; and (3) public property—are found in various nations around the world. Because water allocation is a state matter in the American federal system, each of the three patterns is also found in the United States. Although there has been

some convergence in recent years regarding state water laws, the latest round of innovations have left the states of the United States grouped into three groups that are defined by the basic approach to property rights in water and which correspond to the three ideal types of property.

In thinking of “property” in water, one likely has in mind a system of rights that define rights to water in clear and certain terms, with law serving to protect the resulting entitlements except in so far as the owners agree to changes through market transactions. The closest we come to such an arrangement in American law is appropriative rights. In contrast, a rule that allows anyone to use of a “common pool resource” so long as the use is “reasonable” hardly seems like a rule of property at all. Such a rule leaves courts to sort out conflicting claims of right in cases where one use directly interferes with another use through the law of torts (delicts). This is a rule of common property, rather than of private property, somewhat as if tenants in common were to dispute the use of land. The American law of riparian rights is a prime example of such a legal regime. The third possibility is active public management of the common resource. The newest system of American law for the allocation of surface water, “regulated riparianism,” is such a public ownership model.

3 Why Common Property Systems Cannot Survive

Under a common property system, each common owner decides individually whether and how to use of the resource without regard to 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. Consider cows grazing on a common pasture. For each additional cow I add to the herd, I obtain the full benefit, while the common owners as a group share the burden of the reduction in pasturage. (Hardin)

This account has been criticized by economists as having over simplified the reality of how “commons” functioned in prior times or in remote areas. Such commons have functioned satisfactorily over extended periods even when close to the carrying capacity of the resource through informal regulations in small communities sharing the commons. (McCay & Acheson; Ostrom) In a larger society, where most persons are strangers to each other, informal sanctions do not function effectively and formal law recognizes no real limits on any one’s exploitation of the commons. In such a context, 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. We have witnessed this process over and over again regarding common pool resources when the rule of common property is not displaced by a different rule. Consider the fish in the sea or excessive demands for access to national parks. (Nickler)

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, is a possible means to avoid the tragedy of the commons. In contrast, appeals to moderation and similar forms of moral suasion can only be self-defeating: Those who responded to the appeal simply leave the field to the common owners who continue to increase their own exploitation of the resource to the point of exhaustion. As each realizes that heeding a moral appeal reduces their own gains with little or no benefit to the common resource, even many who agree with the appeal would not change their behavior. If exploitation of the common pool resource requires significant capital investment, the inability of potential investors to keep others from preempting an investor's use causes under investment in the resource. Rather more puzzling is how, given the apparent superiority of private property over common property as a resource management system, the common property system we now know as riparian rights came to be substituted for the earlier private property version of that system of law.

4 Why Private Property Systems Fail for Water Resources

The “natural flow” theory of riparian rights once provided as clear and certain a system of property law as one could imagine. Apart from domestic uses, each riparian owner had an unqualified right to have water flow down undiminished in quality and unchanged in quantity, and hence was limited to using flowing water only to the extent that she could do so without affecting the right of any lower riparian to the continued natural flow of the water. In the mid- to late-nineteenth century the natural flow theory was replaced the eastern United States with the “reasonable use” theory—a common property system. (Horwitz; Rose) Similar transitions are now underway in the United States for diffused surface water and for groundwater. Transitions from private property systems to common property systems are rare. Some legal historians have described the earlier transition in riparian rights as a means for introducing flexible development into a capital poor and technologically backward, but resource rich, nineteenth-century America. (Horwitz) The more recent transitions, however, suggest that the problem is more basic than mere lack of cash, suggesting that, despite the asserted advantages of private property, it does not work well for ambient resources like water.

While a private-property market system is the best mechanism for allocating resources when it works, that system fails if there are significant barriers to the functioning of a market. (Coase) That markets for water as such have never actually played a large role even in a private-property system like appropriative rights suggests that markets do not work well for ambient resources like water. When one user attempts to convey a water right, particularly to someone seeking to make a completely different use of the water, the problem of “external-

ities” arises—a use by one person affects uses by many others, perhaps all other uses from the same source, and hence a significant change in use infringes upon the interests of the other users. While it is theoretically possible for a properly structured market to cope with these concerns, in any hydrologically large and complex system the difficulty and expense of structuring transactions (transaction costs) prevent markets from developing unless the law disregards externalities. The law of appropriative rights, however, has consistently held that even a senior appropriator cannot change the time, place, or manner or use if the change would produce a significant injury to a junior appropriator—even though the senior appropriator has rights superior to those of a junior appropriator. (Howe, Boggs, & Butler) Generally the burden of proof that there will be no injury to other users of water is on the one seeking to make the change. Therefore, if the evidence is inconclusive, courts prohibit the change. Uncertainty regarding 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 is quite normal. Upon considering these rules, one readily grasps why small-scale transfers of water rights among farmers or ranchers—all of whom are making roughly similar uses—are the only ones that regularly occurred without state intervention.

The law of prior appropriation does not go as far as it might in inhibiting transfers of water to new uses. Generalized social costs, such as the loss of tax revenues to a community, are not protected from the effects of transfers. The protection of the rights of junior appropriators, however, provides sufficient deterrence to market transactions that it really does not matter that general social costs are ignored. In the nineteenth century, a time of limited and ineffective government, a transition from a private property system (which had the effect of freezing use patterns rather than of creating a market) to a common property system introduced flexibility, thereby promoting social and economic development. Transitions from private property to common property also, whether intended or not, worked a massive and continuing, if haphazard, wealth redistribution. (Buchanon & Yoon; Heller; Horwitz) Today, the transition to a common property system seems much less prudent as the demands for water outstrip supplies, creating a real risk of the tragedy of the commons as under traditional riparian rights.

5 The California Water Bank

When California found itself facing a five-year long drought, it transferred water from low valued agricultural uses to higher valued urban uses not by replacing its private property system with a common property system, but by creating a “market” where none had existed before. (Israel & Lund; O’Brien & Gunning) California did so by creating an institution known as a “water bank.” The water bank itself was a small affair by California standards, involving in its peak year

(1992) some 400,000 acre-feet compared to the state's shortfall of more than 6,000,000 acre-feet. The water bank was a most unusual market: For the 350 persons willing to sell water rights, the state was the only buyer; for the 20 institutions who were willing to buy them, the state was the only seller. California simply decreed that in buying or selling water it need not concern itself with the effects of its transactions on third parties, including their water rights. Nor did the resulting prices (\$125/ac-ft. to sellers, \$400/ac-ft. to buyers) result from bidding in a market. The state set the prices and selected buyers and sellers by administrative decision, without regard to willingness to participate in the market.

Under the California water bank, the state applied economic incentives to encourage water users to comply with the state's policy choices while disregarding the effects of the state's actions on yet other users whose claims would preclude accomplishment of the state's goals. The California water bank has the same effects as did the nineteenth century transition from the natural flow theory of riparian rights to the reasonable use theory of riparian rights. Flexibility is introduced to enable fundamental transformation of water uses within the state, and wealth is transferred from those who formerly used water to those who thereafter would use water. (Carter, Vaux, & Scuring) These may or may not be laudable goals in California in the late twentieth century, but the means used to achieve these goals do not involve either private property rights in water or the functioning of a true market. The water bank was a public management system including, but not limited to, economic incentives as a management tool. In short, it was a system of state management hiding behind the façade of a market.

6 The Public Property Option

Today, both states and nations increasingly turn to active public management for surface water exploitation, for surface drainage, and for groundwater. These governments have concluded that, despite the considerable difficulties in defining appropriate public goals or in making the right decisions to achieve those goals, a transition to public property offers significant advantages over both common property and private property in terms of efficiency and distributive justice—whether measured in terms of economic or non-economic values. The core concept of a public property system in water is expressed in regulated riparian statutes as the requirement that all uses qualifying for a permit must be “reasonable.” (Dellapenna 1997; Dellapenna 2001) The factors considered in determining whether a particular use is reasonable under such statutes are virtually identical with the factors considered under the discredited reasonable use theory of traditional riparian rights. 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 would suffer from the same faults as common-law riparian rights. The regulated riparian statutes, however, create a process for deciding whether a proposed use is reasonable before investment in the use through the issuance or denial of a

permit. The permit process fundamentally transforms the operation of the “reasonableness” concept from that under traditional riparian rights.

Under traditional riparian rights, a judicial determination of whether a particular use is reasonable has always been relational, focusing on the relative social utility of the particular uses before a court. While generalized interests widely diffused among the public theoretically could be included in the process of judicially weighing one use against another, this rarely occurred except perhaps through unarticulated intuitions. The administering agency relies on experts who devote their professional life to studying just such questions. Their knowledge, and the plans called for in the controlling statute, shapes the weighing process in a manner which is at once more abstract and more responsive to the total reality surrounding the use of water in a state. Such an ambitious program of public management might very well fall short of its goals set. It might be improved by the introduction of various economic incentives as part of the public management scheme. 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. It is possible, as public choice theorists argue, that the transition to a public property system can be explained either as a simple error on the part of state governments (but so many?), or as yet another form of rent seeking by those who are powerful in the government yet not powerful (or at least not powerful) in the marketplace. (Farber & Frickey; Mashaw)

The administration of the public property system will be less than perfect regardless of the motivations behind its introduction. 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. 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. Yet one cannot have much confidence in a market system given the scarcity of actual empirical experience with such a system and given the enormous complexities of transaction costs and externalities present in any market for water rights.

Because of the growing shortages of water relative to demand in most eastern states of the United States, the trend towards regulated riparianism is likely to strengthen because the system has at least three demonstrable advantages over traditional riparian rights. (Dellapenna 2000) First, 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. Second, having a permit in advance of investment provides the security of right necessary for intelligent planning or investment decisions. Finally, the emphasis on com-

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prehensive planning under regulated riparianism creates the possibility that a problem will be recognized and responded to before it becomes a crisis.

Accepting the public managerial impulse has substantial costs in terms of money and in terms of the risk of poor decisions by the managers. Monetary costs include the salaries and other expenses of the administering agency and of any reviewing agencies, and the costs of applicants and permittees in complying with the numerous procedures and requirements imposed by the agency. Exempting from the administrative process users consuming only small quantities of water or who make low-valued uses can reduce some of these costs, but only by leaving out of the system uses that in the aggregate can amount to a major portion of total consumption. Small or low-valued uses might be included in the process with subsidies through lower fees or complete exemptions from fees, but these users must still incur the expenses of preparing any necessary information to apply for or to comply with a permit. Fee subsidies also increase the burdens of the system on permittees who have to pay for the full cost of their permits or on the general taxpayer who in fact fund most regulated riparian systems.

The occurrence of poor management is more difficult to assess, in part because there is considerable disagreement about what is the test of good management. If one takes a purely economic approach, almost any subsidy to a low-valued use will appear as poor management, as will any management at all if the hydrologic system generally supplies a surplus to all foreseeable potential users. Yet to others, such policies will appear to be merely the management of a major public resource in a socially responsible manner, a manner that does not “surrender” to the marketplace. Still, even some who favor such management because of a desire for social equity, as well as those who argue for economic efficiency as the primary, if not only, criterion for social policy, have raised serious questions about whether the experts at any administering agency can realistically be expected to acquire the necessary information ever to arrive at the right conclusions. When one adds the unrepresentative nature of the bureaucratic process and the tendency of any error to be enormously magnified when applied uniformly through a bureaucratic mechanism, and one might well ask why the public managerial impulse is now so popular.

The question is not, however, whether a public property system creates a perfect system of water allocation, but whether it creates a better system than is otherwise available. The rarity of markets for water rights, coupled with the deficiencies of either common property or private property systems in water, suggests that the allocation of water is not particularly efficient under those models either, and that 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. 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 the central political problem in our increasingly administrative governments. Like the problem of effi-

ciency, there is no easy or certain means of resolving the problem. An active legislative involvement to provide concrete guidance would provide only a partial solution. Such an approach, however, perhaps increases the chances of manipulation of the legislative process to enable particular social groups to capture social rents for themselves. One must examine carefully whether 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.

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