

Making Every Drop Count: The Case for Water Markets

by Don Leal

Nearly every summer, cities and farming regions in the West experience water shortages. Such shortages may seem inevitable in the arid West, but, in fact, much of our precious Western water is actually wasted.

One reason for such waste is that it is difficult for people to trade water. Enormous amounts of water have been made available through government-financed dams like Hoover and Glen Canyon, but the people who received the right to that water many years ago don't have the freedom to sell it to others today. Fast-growing municipalities may be willing to pay more than the water is worth to the current users—but such trades are usually impossible to arrange.

Legal restrictions also discourage owners of water rights from saving water and protecting the environment. If the owner decides to save some of the water for fish by leaving it in the stream, the owner usually forfeits the right to that water. Given Americans' growing interest in sportfishing and environmental amenities, such a restriction is out of step with the times.

The purpose of this article is to show how water markets can solve water shortage problems and enhance environmental quality, and to suggest what institutional changes are necessary to make this happen.

Don Leal is a Research Associate with the Political Economy Research Center (PERC) in Bozeman, Montana. He appreciates the helpful comments on this article from PERC Senior Associate Terry L. Anderson.

The History of Water Trading

During the last half of the nineteenth century, the early California gold miners initiated a system of property rights to water that allowed buying and selling. The system, known as the "prior appropriation" doctrine, allowed miners to establish rights to divert specific quantities of water based on who diverted it first. This "first in time, first in right" ownership, which was upheld by the mining districts and later by state courts, provided the basis for water trading. For a time, the West had in place a system which fostered efficient water use.

For most of the twentieth century, however, courts and state legislatures have been chipping away at the foundations of the prior appropriation doctrine. Critics of private ownership contended that water was a "necessity of life," too precious to be controlled by the market and thus in need of state administration to guide its usage. The water rights that evolved from the quasi-legal setting of the early mining districts were replaced by permits to use state-owned water, with decisions on water use ultimately determined by state water officials.

At the same time, growing interest in instream uses from navigation to recreation began to collide with demands to divert water for agricultural and mining purposes. A general belief that only government could meet these demands for instream water meant that private ownership was limited to diverted water, not instream water.

Furthermore, in response to the claim that private owners could never support the huge capital investments needed to meet water demands in the developing West, the federal government became a major factor in providing water. Starting in 1902, the Bureau of Reclamation began to build massive delivery and storage systems “to make the desert bloom like a rose,” supplying water to farmers at a fraction of its total cost. Today, much of the water used in agriculture is effectively owned by the federal government. Irrigators may derive benefits from water, but they are not at liberty to transfer their water to other than agricultural uses. Water must stay where it is, and other users who want water have to come up with expensive alternatives, such as building new dams and reservoirs.

The Problem That Water Markets Would Solve

For many years, engineering marvels like Hoover Dam and Glen Canyon Dam seemed to make water scarcity a thing of the past. The federal government had the deep pockets, the Bureau of Reclamation had the bureaucratic savvy, and the Western farmers had the political clout to push for more such projects. This “iron triangle” encouraged overinvestment in water storage and delivery, wasteful water practices, overdevelopment of marginal agricultural land, and destructive environmental practices.

During the Carter Administration, this triangle began to break down. In spite of massive water projects such as the Central Arizona Project and the Garrison Diversion Project, water shortages continue to exist, and building new dams is no longer automatic. The best sites have disappeared, and environmentalists, opposed to the destruction caused by dams, have more clout. With Congress facing large budget deficits, congressmen can’t appropriate money for dams and large reclamation projects as easily as in the past. Out of this breakdown is emerging renewed interest in the water marketing system devised by frontier entrepreneurs.

If water rights were fully owned—that is, clearly defined, enforced, and transferable—

owners could be expected to act very differently. A true water owner faces the full cost of using water, including its value in other uses. To use water himself, an owner must forgo other offers. If these alternative uses are more valuable, the owner has the incentive to reallocate the scarce commodity to its higher-valued use by selling it.

Consider the potential gains to many groups from water trading. If a city is willing to pay more for drinking water than the water is worth for irrigating crops, farmers gain by selling or leasing it to the city. The city obtains a new water source without large capital outlays. Taxpayers gain by not having to finance water projects, and citizens generally gain by not having dams and canals which harm the environment. It is from these gains that political coalitions favoring water marketing are being built.

Such a coalition is emerging in support of water trading between farmers in California’s San Joaquin Valley and southern California’s burgeoning metropolitan population. The Metropolitan Water District (MWD) of Southern California is forecasting significant supply shortages for the 1990s unless new sources can be acquired. Simultaneously, three hundred miles north, the San Joaquin Valley is experiencing a steady deterioration of soil quality from years of salt build-up and high concentrations of selenium in its agricultural drainage water. In fact, it became evident in 1985 that drainage water into Kesterson Wildlife Reservoir was causing bass, catfish, and carp to die and newly hatched waterbirds to display crippling deformities. As a result, water to the San Joaquin’s Westlands Water District was shut off temporarily and now millions of dollars are being spent to correct the problem caused by cheap agricultural water.

A water trade between the MWD and the Westlands Water District could, according to the Environmental Defense Fund senior economist Zach Willey, “take us a long way toward defusing the water crisis.” Since MWD will have to pay as much as \$500 per acre-foot to divert river water into new reservoirs, it surely could strike a bargain with farmers. Farmers could make a profit—even if they invested in water-saving drip irrigation costing \$175 per

acre-foot. The environment would be better off, too, since less high-salt water would drain into lands such as the Kesterson Refuge.

This trade may never happen unless the Bureau of Reclamation, which supplies the water to the Westlands Water District and controls its use, allows farmers to sell the water. In the past, the Bureau typically would not allow such a transfer of water it controls, but new coalitions are changing the political climate for the Bureau, putting it under increasing pressure to allow water trading.

While the trade between the MWD and the San Joaquin farmers offers one of the better examples of gains from water trading, others are waiting in the wings. A recent report from the Water Efficiency Working Group of the Western Governors' Association suggested that many potential transfers "probably are thwarted simply because the procedures for making the transfers and the Bureau's willingness to approve them are not clear."

Enhancing the Environment Through Instream Flows

In addition to encouraging the efficient use of diverted water, water trades have untapped potential for enhancing the environment. In recent years, Americans have increased their demand for water-related recreation and for environmental amenities. Both are greatly influenced by the quantity and quality of streamwater, neither of which is now represented in market transactions.

Currently, the job of assuring adequate water in streams and rivers belongs to state agencies. Understandably, they are reluctant to reserve instream flows when such reservations collide with existing diversion rights, as they may in streams where all or nearly all the water has been allocated.

An excellent alternative would be for private owners to purchase water rights and keep the water in the stream. Unfortunately, legal obstacles abound. To obtain a right to water, the owner must put it to what the courts or administrative boards consider a "beneficial use." And in most states, courts have looked upon claims as non-beneficial if there is no diversion. For example, in *California Trout, Inc. v.*

State Water Resources Control Board, a 1979 case, a private non-profit corporation was denied an appropriation of water to protect fish habitat. The argument was that there was no evidence that California Trout, Inc. was diverting or physically controlling the water it wanted.

If legal obstacles to private ownership of instream flows were removed, conservation groups such as Trout Unlimited and the Nature Conservancy could make great strides in protecting fish and wildlife. On the Gunnison River in Colorado, for example, Pittsburgh and Midway Coal Company has agreed to donate a large water right to the Nature Conservancy to maintain instream flow, and has promised not to divert additional water from the Gunnison Gorge, even though it has the right to do so. The Conservancy will have to turn this water over to the state to keep it in the river. (Currently, the only way that the water can be kept instream is for the state to have control of it.)

A far better solution would be for the Conservancy to hold the right. The Conservancy serves only one interest, protecting habitat, while the state must serve many interests. During dry periods the state will be under pressure from farmers and ranchers to allow diversion of water it holds.

If ownership of instream water were allowed, private owners could also respond to temporary demands. During a recent drought, resort owners on the Guadalupe River in Texas got together and purchased water releases from an upstream authority, temporarily increasing instream flows from 20 to 100 cubic feet per second. This example indicates that market alternatives do sometimes exist, but they are risky. Owners of downstream rights on the Guadalupe may still be legally entitled to the water that has been added to the river.

Conflict between diversion and instream use was illustrated on the Ruby River in southwestern Montana during a dry period in the spring of 1987. Excessive irrigation reduced the water flow so drastically that over 500 fish died. The fish kill could have been prevented had the flow of the river been increased by 150 cubic feet per second. The state's Department of Natural Resources and Conservation eventually did this—but not soon enough to save the



The Ruby River after draw down.

fish. Furthermore, this modest action by the state created conflicts with downstream diverters, who claimed they had the right to the water.

A market for instream flow rights could have solved the problem. Indeed, while the fish were dying, farmers had water standing in nearby fields! If an organization such as Trout Unlimited could have purchased or rented some of the water of marginal value, the farmers probably would have been happy to supply it.

Ownership of instream rights could enhance recreational opportunities and habitat protection in another way as well. The Yellowstone River Valley south of Livingston, Montana, offers some of the finest opportunities in the world to flyfish on spring-fed creeks. Yet it is the private, not the public, sector which is providing these opportunities to the public at between \$30 and \$35 per person per day. Since the creeks begin and end on private property, owners can collect fees for fishing. They have strong incentives to ensure quality fishing by protecting the stream banks from cattle grazing and by avoiding overfishing. If instream water could

be owned, other opportunities for quality fishing would probably develop because owners would be able to capture benefits from maintaining and improving habitats.

In England and Scotland, private ownership of fishing rights has long been accepted. With rising demand for fishing in England, "there are few landowners . . . who can afford to ignore the commercial aspect of the sporting rights which they own," writes Douglas Clarke in his book *The Landowner*. Privately managed fisheries have proliferated in Britain in recent years, placing many kinds of fishing within easy reach, both geographically and financially. To protect their investment, British owners hire private fish and game managers and invest in capital improvements to the streams.

What Future for Water Marketing?

Some states are beginning to take positive steps to encourage voluntary water transfers. State legislators in New York, Colorado, Utah,

and California have recently made it legal to transfer surface water rights temporarily from one person or agency to another without giving up future rights. The California legislature has also taken steps to encourage voluntary water conservation by allowing those who conserve to sell the water they save. Previously, those who saved water lost it. Steps like these will further efforts to conserve water and move it to higher-valued uses.

Another promising development is the endorsement of water transfers by the Western Governors' Association. In 1986 the Association identified voluntary water transfers as a productive way to increase efficient use of water and formed a working group to figure out how to encourage water transfers. The resulting report urges the governors to work with the Interior Department (which houses the Bureau of Reclamation) to develop legislation facilitating trades of Bureau-supplied water.

In addition, the Bureau of Reclamation recently announced that it is planning to scale down its operations by, among other things, emphasizing "water conservation" and "finding opportunities to turn over projects to local agencies." Such a move may mean that the Bureau will more readily allow local irrigation districts to conduct water transfers.

Enter, the Public Trust Doctrine

But at the very moment that the idea of full, transferable private ownership of water is emerging, a new threat to water markets has arisen. It is called the public trust doctrine.

Originally, this legal theory was used to assure that waterways would be navigable, but this changed dramatically with a 1983 court case in California, *National Audubon Society v. Superior Court of Alpine County*. The state of California was forced to limit diversion of water from Mono Lake—a major source of Los Angeles drinking water. The court decided that the public has a "trust" relationship to the environment and wildlife of Mono Lake, and must protect them.

This concept was codified in Montana law in 1985 following two Montana court decisions. Montana law now specifies that 17,000 miles of streambeds be open to the public. Since owners of the land adjacent to these streams no longer have any right to control access, they may well decide to discourage access by allowing the water quality and fish habitat to deteriorate.

But the implication of the public trust doctrine is much greater than this. As it creeps slowly into legal decisions throughout the West, it has the potential to undermine the private right to use water. If the public holds all water in trust, the state may have a right or even obligation to interfere with existing water diversion and water trades. The doctrine also would serve to dampen motivation for private parties to improve instream water since any improvements can prompt the state to claim it in the name of the public trust.

Conclusion

In sum, the prior appropriation doctrine provides the basis for trading water in the West, but legal and bureaucratic restrictions are stifling trades. At the same time, the public trust doctrine threatens to erode what progress has been made.

To make water marketing viable, the Bureau of Reclamation must take steps to encourage exchange, and private ownership of water rights must be extended to instream water. Fortunately, the outlook for developing political coalitions to bring about such reforms is promising because water markets offer something for nearly everyone: They can eliminate water shortages, reduce environmental degradation, and reduce governmental spending, too. The recent announcement changing the focus of the Bureau of Reclamation's efforts, the work by the Environmental Defense Fund supporting water marketing, recent legislative changes in the West, and reports from the Western Governors' Association are indicating that support for water marketing means "going with the flow." □

Celebrating the Constitution—and Village Fires

by Richard R. Mayer

The really interesting thing about a fire isn't watching the fire, or even the fire engines and firemen who are fighting the fire; rather, what's really interesting is to watch the people who are watching it all.

So with our recent celebration of the Constitution. What seemed most interesting was what we as spectators made of its anniversary.

The same was true of other celebrations during the past several years, dealing with the Declaration of Independence and the Statue of Liberty. They were mostly pageantry.

In the case of the Declaration it was hard to detect any serious contemplation of the document or its theses. The Statue's celebration was even more bizarre. It was capped by fireworks and plush yachts in New York harbor and, ironically, the almost simultaneous enactment of a new immigration law requiring not only proof of worth by those who would heed the spirit of the beckoning Lady but, even more so, proof by those of us already born here.

And so with our recent celebration of the Constitution; it seemed mostly irrelevant, even contradictory.

Three emphases were notable: the Preamble, the Amendments, and the Pledge of Allegiance to the flag. The first two seem peripheral, the last, unrelated. What's wrong with emphasizing the Preamble, Bill of Rights, and Pledge of Allegiance? Let's look at each more closely.

The Preamble

The Preamble is just that, a preface. It is not the Constitution itself but rather a setting forth of the reasons for the law which follows. Thus the Preamble speaks of a more perfect union, justice, tranquility, defense, general welfare, and liberty. These were the purposes of the Constitution, but they were not the law itself. The Constitution proper was the nuts and bolts of how officials are selected, who has what powers, and the like. It is political engineering designed to promote the Preamble's purposes. Whether such goals would be gained by this structure was a matter of conjecture on the part of the founders. Yet it must be clear that their product was machinery, not goals. It was the means; whereas the Preamble was the ends.

And here we enter the treacherous thicket of means and ends. The ends sought in the Preamble could not be guaranteed. The best that could be hoped for was to establish a favorable climate. To concentrate on ends is always dangerous; it places us in the position of justifying any means to accomplish them. To emphasize the goals (justice, general welfare, and so on) is to make what followed immaterial—any means would be acceptable. No, it was the means, the constitutional machinery itself, which were agreed upon. The Preamble merely set forth the reason or logic, the guiding star, for that which followed.

This is not unlike other agreements or con-

Mr. Mayer is a surveyor living in Schuylerville, New York