

Add Water to Market and Mix: A Recipe for Western Water Policy

by John A. Leman

Free market supporters and environmentalists often find themselves at loggerheads because what is economically efficient is not always "environmentally efficient" in the eyes of environmental advocates. In some cases this will lead to irreducible differences between the two groups, but it may often be that with appropriate changes in the legal system the environment be protected while the economy operates efficiently. For water policy in general, and California water policy in particular, the aims of environmentalists and free market supporters coincide neatly.

The purpose of this article is two-fold: first, to describe the problems created by California water policy in economic and environmental terms; and second, to illustrate how the principles of, and discipline imposed by free markets can provide solutions to those problems. I intend to do so at only the most basic and elementary levels; there are those who devote their entire lives to the study of water and agriculture but I am not one of them. I have simply applied my knowledge of economics and free market principles to a pressing problem where a nexus of interests between free marketeers and environmentalists exists.

The Economic Impact

By any objective economic or environmental standard, water policy in the Western states is an absolute disaster. Water policy is not a disaster in the same way that the Loma Prieta earthquake, or Hurricane Andrew was. Current water policies constitute a disaster that when viewed within its own artificial world, has a certain perverse logic to it. And most importantly, unlike disasters caused by hurricanes or earthquakes, human beings have almost complete control over disasters caused by water policy.

That world, in the case of water policy, is agriculture. While 9% of California's water is consumed by residential use and a mere 6% is used by business, a staggering 85% is used by agriculture.¹ And as spring follows winter,

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water follows agriculture. In the world of agriculture, taxpayers give farmers a mind-boggling number of direct subsidies to lower their costs and enforce quotas which limit the number of acres farmers plant to increase the prices farmers' get for their crops. The

increased prices encourage farmers to try to harvest even more crops from the same number of acres. Thus, farmers profit in two ways: payments from the government for not planting too many acres and increased profits from higher prices. Intensified farming policies often involves over-use of pesticides and water, and higher food prices mean that the government must either allocate more money for food stamp and welfare programs or allow people on those programs to carry the burden of government-created higher prices.²

But perhaps the most irrational and harmful aspect of an American agricultural policy is our water policy. The diversion and over-use of water by government and agribusiness have led

to the destructive salinization of land and rivers and deadly build ups of selenium and salt.³ It has also resulted in bringing into the production of crops tens of thousands of acres of marginal farm land which would be better left fallow.

Most farmers currently pay \$5-10 per acre foot⁴ while residential users pay up to \$250 per acre foot. Depending on the source of the water, the actual cost of an acre foot runs anywhere from \$100 to \$800 in real terms. Indeed, if all the direct and indirect costs of supplying water to farmers through the state are added up, farmers who are entitled to cheap water often will end up getting it essentially for free.⁵ As if the huge federal subsidy were not incentive enough for farmers to use water inefficiently, those who do not use all of their water in a given year can have their allocation for the next year reduced significantly.

In good years, when rainfall has been plentiful, the burden of supporting California's farmers' excessive water use could be tolerated. And in an age when bringing home state and federal largess to constituents helps legislators retain their offices, water projects provided a convenient form of pork-barrel spending. In exchange, dollars flowed back from the agricultural and water interests to favored candidates at the state and national levels. But this state is now entering its seventh year of drought and water is running short. California cities, especially in Southern California and along the coast, have had to enforce almost draconian restrictions on the use of water. Yet a mere 7% reduction in the water usage of agriculture would provide California cities with enough water to last for the next twenty years.⁶ So the issue is coming to a head and radical change must take place.

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The Environmental Cost

Ironically, the onset of the current drought may be fortunate because it may finally force the government to re-examine its water policies. Until recently, our nation's biggest polluter, the federal government, has almost totally ignored the impact of its water policies on California.⁷ Bureau of Reclamation and Army Corps of Engineers planners, like their counterparts in the Soviet Union, have made it their goal to build as many dams and water projects as possible, each one preferably bigger than the one before, with no regard for the environmental impact or the economic value of the project. And now the Western states have tough decisions and consequences to face: the "filling in" of reservoirs with sediments, dangerous build-ups of selenium and salt on farmland, depletion of underground water sources, and destruction of prime fishing grounds.⁸

Beyond saying that current water policy is damaging the environment, the current system of water allocation prevents us from saying anything more quantitative about the problem. How much is a salmon worth? A wild-river canyon? Although some in the environmental movement would call such things "priceless" for reasons of principle and pragmatism, this is not necessarily true. But in the absence of a rational system of pricing, there is no basis by which we can "purchase" an "efficient" amount of "environment". One thing we can be sure of, however, is that when it comes to water, the massive subsidies government provides to water projects and farmers causes an inefficiently high level of water demand, and subsequently an inefficiently high supply, and by inference, an inefficiently low level of environmental protection.

The Solutions

Before looking at any specific ways the current system of water allocation could be reformed, it's important to remember that water policy is governed by neither rationality nor free-markets. For decades, water projects and water distribution have been a huge source of pork-barrel spending for representatives at the state and federal levels. Such spending is more likely to be made on the basis of political considerations and getting government officials re-elected, than with improving efficiency or preserving the environment.

Agricultural water use in California must be reduced, period. There is no other way to solve the problems we face that is acceptable on environmental and economic grounds. A reduction in water consumed by agriculture need not mean an end to agriculture in California, or even a reduction in farmland or farmers (although for other policy reasons outside the scope of this paper, this could be highly desirable). It does mean that farmers will have to make more efficient use of their water. This may mean insulating trenches or grow less water-intensive crops.⁹

Government Rationing

Government could essentially decide who needs how much water and then give it to them. This approach has some appeal to those who believe in the good intentions and abilities of government, but it proves to be the least efficient solution on several grounds. First, if government simply gave water to those who could prove they "needed" it, there would be no incentive to conserve water. Just the opposite would be the most rational behavior. Water users would have incentives to show as much demand as possible to justify large enough allotments to fulfill actual needs. Second, based on the historical records of state and federal water agencies, water would not be truly allocated based on who values the water most, but rather on who was the smallest, best organized and best financed interest group. Chances are that consumers would suffer while small, water-use intensive interest groups (farmers being by far the most powerful) would gain inordinately.

Our current system of water rationing is essentially a system of government rationing: interest groups have been able to secure water rights at virtually no cost, while consumers try to scarp together enough water at higher prices to meet their minimum needs. The government

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essentially rations water by setting prices at astronomically low-levels for some groups and then giving them first priority to purchase the water, while society at large buys the leftovers at incredibly high prices.

Government Auction

A much more rational approach would be a market system in which government sells water to the highest bidder. Eligible bidders would include farmers, water districts, utilities, and perhaps even private interest groups such as hunters and environmentalists or environmental agencies. Based on the previous year's rainfall, expected rainfall the next year, the depth of the snowpack, etc., the state and federal government agencies in charge of water projects would estimate the amount of water available and sell shares of rights to the water. If the state underestimates the amount of water available, that water could be sold in supplemental auctions, or if all needs had been met that year, simply allow the excess water to run its course. If the government overestimates the available amount of water, water would be allocated on a proportional basis.

Of course, not all water is created equally. Water drawn from the ocean and desalinated is much more expensive than water which accumulates in the Sierra snow pack and runs through our rivers. In addition, water transportation is often expensive in terms of money and evaporation losses. So lumping all water together for sale at one state-wide price would be inefficient. Therefore, those who want their water shipped into the middle of a desert should pay more for their water than those who live close to rivers and lakes, if for no other reason than to encourage people to live where water is relatively inexpensive. And of course, if people are willing to cover the actual cost of shipping water into the desert, there is no reason why their needs cannot be met as well.

Once the water has been sold, the right to resell the water must be granted if the market is to operate at maximum efficiency. A major incentive for agricultural users to waste water is that they are not usually allowed to re-sell the water they buy. And if farmers fail to use or buy all the water allocated to them, they will very likely have their water allocations for the next year cut.

The question of what government would or should do with the revenues it generates from the auction of water rights is a difficult one. Ideally, the revenues would be used to help farmers who have grown dependent on federal and state subsidies to adjust to competition in the new market for water: money to help farmers enter new professions, switch to less water intensive crops, make more efficient use of the water they do purchase, and for the improvement of current, and development of necessary new, water projects. But we should be skeptical of the ability of a government which can't distribute water efficiently to use the proceeds of selling water efficiently.

Another problem would concern how government would determine how much water is "available" to be distributed, i.e. diverted from its natural flow. State and federal government tends to award money and perks to small, well organized and well financed special interest groups. While agriculture, business, and undoubtedly environmental groups would be well-represented in determining how much water would be sold, allocations might tend to fluctuate in tune with political cycles rather than natural or efficient cycles.

Farmers To Water Sellers

In some ways, a less radical change would simply be to allow farmers to continue to buy their water cheaply and sell the water in a free market. Instead of forcing farmers to "use it or lose it" for agricultural purposes, farmers could sell the water or use it any way they pleased. This would undoubtedly help deal with the water shortages in our homes and businesses, as farmers would take water and sell it for far more than they could make with using it for agricultural purposes.

To be sure, water prices would drop for cities and large amounts of water would continue to be used by agriculture because cities and environmental concerns simply could not purchase the 85% of our water currently consumed by agriculture. But simply allowing water to be sold by farmers, while doing much to alleviate the pain to residential and business water users, does nothing to alleviate the fundamental environmental problems and economic inefficiencies caused by selling government subsidized water to farmers in the first place. Transforming farmers into water sellers would not change the total amount of water farmers desire to "use"; it would simply change what farmers use the water for. Farmers might demand even more water than before, as they try to continue to use the same amount of water for agriculture while also purchasing extra water for sale to cities and towns. At government subsidized rates, with freedom to sell water on the open market, demand for water by farmers could skyrocket, aggravating rather than alleviating California's water crisis.

Transforming farmers into water sellers will only provide a more efficient system of water distribution if the water which farmers have the right to buy and sell is sold to them at market prices. Such a system would of course involve a radical change in the way we use and distribute water, but it does have the salutary effect of easing the pain caused to agriculture by a radical shift in water pricing. While many farmers would have to seriously curtail their farming activities, switch to different crops, or leave farming altogether, they would be compensated by the fact that they could sell water instead of farming. Revenue from water sales would replace lost farm incomes.

Such a change would undoubtedly raise an issue of equity in the minds of many. Farmers

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would undoubtedly reap profit windfalls from the sale of their newly acquired liquid capital, although more likely they would simply enjoy profits equal to or somewhat greater than, those earned from farming. But these profits could hardly be more unjust than the current subsidies given to farmers and other special interest groups, and they would definitely be more efficient.

In addition to providing a more efficient distribution of water, the profits earned by farmers would obviate the need for a government-run welfare or retraining program for farmers. Although farmers do not have a "right" to subsidized water, they do have a rational and reasonable expectation (from their own individual perspective) that water supplies would continue to be subsidized. Basic notions of justice, in addition to a desire not to cause serious economic disruption in California and other agricultural states, requires that farmers either be given warning far in advance of a major policy shift or that some form of compensation be given. Allowing farmers to profit from the release of water rights into the free market would be both efficient and would meet this need for compensation.

Sell water system to private concerns

A fundamental problem remains with the various methods of allocating water I have outlined above: whether distributing water by government fiat, government auction, or market transfers of water from farmers to others, government remains the base supplier of water in California. That means that in the long-term, none of the solutions proposed above can truly achieve the delicate balance that must be maintained in supplying California's water needs. Water could be allocated efficiently, but it would not be produced efficiently.

A brief example should suffice. Let's say that after the restoration of a free market in water, with prices set by demand and supply instead of by special-interest political power, that California simply doesn't need all the dams it has built over the past decades, and that it would be most efficient and most environmentally efficient to shut down the dam and restore the river to its natural state. In other words, by any economic or environmental criteria, the dam is no longer needed and is a drain on society and nature. That dam simply will not be shut down.

The reason has to do with government and bureaucracy. Bureaucracies in a rational world will not seek to "solve" the problems they have been created to deal with. It is in the best interests of bureaucracies for the problem it was formed to address to continue perpetually. If the problem grows smaller or goes away completely, then the survival of that agency itself is threatened. This need to maintain the problem need not be fraudulent or deceitful or even fully-conscious. Bureaucrats rationalize that the problem is far greater or far more persistent than

previously thought, or they simply decide that a new approach is needed to tackle it. And that's why no bureaucracy has ever asked to have itself dismantled because the problem it was meant to cope with has been taken care of.

We have also seen how the members of the legislative branch will fight tooth and nail to protect pork-barrel spending, regardless of the economic implications. Some of the shrillest critics of the Pentagon, who have called for massive cuts in defense spending, were the first to come forward and howl in protest at plans to close military bases in their own districts. Viewed in this context, political considerations rather than market or environmental concerns will continue to drive the root of water policy in this state if the very means of storing up and transporting water are left in the hands of the federal or state governments.

Across the world, nations are grappling with the problems caused by inefficiency and waste generated by government ownership of capital and resources. Although the approaches differ regarding resource distribution, and how quickly the redistribution should take place, all have the same goal: remove the resources from the hands of government and move them into the market. These nations have learned that only a free market can meet the complex and varied economic needs of their citizens.

There is no reason why government should not be able to sell its water generating, storage, and transportation facilities to the private sector. Sales agreements could include provisions guaranteeing minimum in-stream flows to meet environmental needs, leaving the owners free to distribute the remaining water to the highest bidders. If no one would buy such facilities, that would be a very strong indication that they are not needed or need to be rebuilt entirely and could be dismantled.

Under a privatized water system, there would be no need to continue to impose taxes on consumers which would then feed subsidies to farmers. A small levy could be placed on water sales which would be used both to purchase water for environmental uses and to help agriculture adjust to the new era in water policy. Or perhaps environmental groups could raise money to purchase water which would allowed to take its natural course, much as such groups today purchase land to keep it from being developed.

It is doubtful that we will move to a system of government rationing of water, or even retain the current pseudo-government rationing system. Thus whether water is distributed by sales from farmers, or sales by government on the open market, the long term goal should be the total divestiture of water rights from the government, and the transference of those rights into the free market. The central lesson of economics in the latter half of the twentieth century has been that only the spontaneous order of a free market can allocate resources to their best uses. The sooner we apply that lesson to water policy, the better for our economy and our environment.

NOTES

1. *The People Who Live in the Desert*; The Economist; v315, p.26, May 12, 1990

2. Berg, Steve; *City Folks' Tough Questions Shake Up Farm Debate*; Minneapolis Star Tribune; July 6, 1990; Page 01A; American agricultural policy increased food prices by an estimated \$10 billion per year under the 1990 farm bill.

3. Reisner, Marc; Cadillac Desert; Viking Penguin, Inc., New York, 1986; pp. 473-488

4. Spencer, Leslie; *Water: The West's Most Misallocated Resource*; Forbes; April 27, 1992; Page 68; An acre foot is enough water to cover a football field one foot deep.

5. Supra note 3, at pg. 501

6. Hof, Robert; *California's Next Crash Crop May Soon Be... Water?*; Business Week; March 2, 1992; pg. 76

7. Dumanoski, Diane; *Pentagon Takes First Steps Toward Tackling Pollution*; The Boston Globe; September 9, 1990, page 79; The Pentagon alone is the nation's single largest polluter. This does not include pollution from the Department of Energy's nuclear programs, or properties owned by the Departments of Interior and Agriculture, nor NASA and other government agencies. And of course, that figure does not include pollution caused by state and local governments, including government owned sewage and trash disposal plants.

8. In general, see Cadillac Desert, supra note 3, for a discussion of these issues.

9. Some hydrologists have estimated that farmers lose up to 50% of their water by channeling it through uninsulated open trenches.