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Water markets, individual incentives and environmental goals

by Richard Howitt

Gardner and Warner conclude that the environmental constraints imposed by the Central Valley Improvement Act (CVIA) will be a serious deterrent to the free trading of federally developed water in California. However, I expect other aspects of the Act will stimulate market sales from California's Central Valley Water Project (CVP). The critical question is whether the new environmental regulations restrict water sales more than the new incentives will encourage them.

Gardner and Warner give a cogent account of the advantages of water markets and some of the most important provisions of the CVIA, but do not address a clause that will significantly change the incentive for individual farmers to sell federal contract water. This shift of control over 20 percent of the water away from the water district and to the individual user substantially increases potential water market supplies in California.

A coalition of environmental and urban interests initiated and passed the CVIA because both groups saw benefits from the environmental realloca-

tion of water and increased water trading. From a wider policy view, the CVIA also contains certain clauses that herald a new policy coalition between environmental and some production agriculture interests.

Externalities, coalitions and environmental restrictions of the CVIA

The CVIA reflects the policy influence of a recent coalition of urban and environmental interests and a shift in California voter preferences away from agricultural development and cheap food and towards urban water supplies and environmental quality. The first stated purpose of the legislation is

“To protect, restore, and enhance fish, wildlife, and associated habitats in the Central Valley and Trinity River basins of California.”

Restoration corrects externalities that environmental interests perceive occurred from the arbitrary misallocation of water to agriculture in the initial planning of the CVP several decades ago. The CVIA aims to redistribute the initial endowment of water

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resources partly away from agriculture and to environmental uses. The reallocation mechanism is a dramatic, but simple, increase in the quantity of CVP water slated for environmental in-stream flows. The CVIA specifies that an additional 800,000 acre feet be allocated in all but drought years. Due to differing water right priorities, this cut in project water only affects a third of the CVP irrigation regions, and in many years represents a 33 percent reduction in surface supplies in these areas.

The CVIA also attempts to control environmental third party effects by restrictions on water trades, as noted by Gardner and Warner. Concern over third party effects from water trades is widespread in California. For example, representatives of the major urban purchaser of water clearly warn of the importance of third party effects:

“No water transfer can be successfully implemented if third-party interests are ignored...”
(Holburt, Atwater, and Quinn).

Gardner and Warner note with disapproval that the pricing reform in the CVIA reduces water costs to growers of crops that benefit wildlife. Cynical observers assign most of the motivation for this provision to political compromise in the hearings stage of the bill. Others, however, explain that this clause results from a novel shift in co-

that rice growing results in both environmental benefits and degradation. Waterfowl habitat and groundwater recharge benefitted from rice production, but it also produced air pollution from burning, pesticide contamination of urban drinking water and water diversion at certain critical times of the year.

After a decade of contentious litigation, both sides began working toward compromise solutions and technological changes that would enable the rice industry to meet higher environmental standards. The cost modification clause in the CVIA is one of the fruits of this emerging environmental-agricultural coalition which points a new direction for policy coalitions available to several agricultural production regions.

In a broader context and looking to the future, agricultural and environmental interests should recognize that agriculture provides the open space environment that is closest to most urban areas, and creates both positive and negative effects on urban dwellers. To maintain an open environment for wildlife and aesthetic reasons, agricultural, environmental and urban interests should cooperate rather than confront one another.

A third goal of the CVIA encourages market reallocations to better meet

the regulatory framework, the allocation of water will change with changing priorities and technologies.

Individual incentives to trade water

Gardner and Warner fail to address CVIA section 3-405 which states that:

“Transfers involving more than 20 percent of the Central Valley Project water subject to long-term contract within any contracting district or agency shall also be subject to review and approval by such district or agency under the conditions specified in this subsection.”

By allowing farmers to sell up to 20 percent of their water without approval of their local water district or agency, the CVIA has, for the first time, vested the property right to the first 20 percent of contract water directly in the individual user. The section continues by specifying that the transfer must be between willing buyers and sellers and based on mutual agreement. The conditions continue with the stipulation that:

“All transfers...shall be subject to the right of first refusal on the same terms and conditions by entities within the Central Valley Project service area.”

These conditions contrast sharply with the incentives facing potential water sellers in Bureau of Reclamation districts before passage of the CVIA. The Miscellaneous Purposes Act of 1920 allowed water transfers provided permission was first obtained from existing water user associations in the project, and the transfer was not “detrimental to the water service for such irrigation project or to the rights of any prior appropriator” (Wahl).

In short, as long as any users in the district could use the water at its nominal cost, individuals could not sell water at market prices. With these legis-

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litions. In 1991, environmentalists perceived that Sacramento valley farmers, and rice producers in particular, resisted environmental goals. Since 1991, the rice growing industry has reevaluated the wisdom of confrontation with environmental interests. The environmentalists and rice producers realized

a broader array of environmental needs that reflect the current political consensus and changing social values. The main mechanism to achieve this is a deliberate attempt to shift power over part of the water from local water agencies to individual contractors. If the market mechanisms can work within

lative restrictions on gains from trade, water districts and groups of members often obstructed water trades.

year similar to 1977 and received 820,000 acre feet in the two and a half months before the Department

don't care for it and we're not going to do it" (*New York Times* 4/7/1991).

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Past barriers to trade

Several researchers note how the historical structure of water districts in California impede water trades. Smith and Vaughn (1988) state that:

"Many familiar barriers impede water trades, including unclear water rights and cumbersome legal procedures. A less obvious but equally important barrier is the unsuitability of many irrigation organizations for successfully negotiating trades."

The absence of incentives for sales by individual water users first came to the fore in California's 1976-77 drought. When faced with this severe drought, the Bureau of Reclamation established an emergency drought water bank to purchase water from contractors and sell it to other Bureau and non Bureau users. Given the restrictions under the legislation current in 1977, the Bureau could only offer a small incentive price above the nominal cost of the water. Purchases averaged \$39.60 per acre foot with some as low as \$15 per acre foot. As might be expected, the inability of the Bureau to offer a price that reflected the opportunity cost of the water in alternative uses dampened farmer response to the bank. In the year of its operation the bank only attracted sales of 38,000 acre feet of water from farmers. This meager response to the 1977 Bureau water bank contrasts sharply with sales under the 1991 drought water bank run by the State Department of Water Resources. The 1991 bank offered \$125 per acre foot in a drought

stopped purchases.

Despite the high price offered by the State water bank in 1991 and the large quantity of water sold relative to sales in 1977, farmer response came largely from those who had water rights that allowed individual decisions. The Bureau of Reclamation interpreted water sales as detrimental to project water service, and thus did not allow any CVP water to be sold to the bank. Exceptions were made for water based on water rights that some contractors held before the project was built.

Opposition to water sales also coalesced on a commodity basis. Many Bureau contractors in the Sacramento Valley grow rice and were subject to pressure from the local community and rice farmer cooperatives not to participate in the water bank. The northern rice growing regions opposed water sales for several reasons. Cooperatively owned rice processing organizations feared loss of volume, while some growers wanted a higher water price.

Of the 250 contracts to sell water signed by April 1, 1991, only four were with rice growers. Even the generous "Zero-ninety two" price support program for rice and intensive water use did not entice rice growers to sell water to the bank. Because Bureau contracts dominate surface water supplies in rice growing regions, the regional opposition effectively vetoed water sales from certain areas. In some non rice growing areas, boards and managers of Bureau water districts facilitated sales to the water bank for those contractors with preproject water rights.

Under the CVIA, local interests can no longer veto trades for the first 20 percent of Bureau contract water.

Probable impacts of the 20 percent transfer rule

Freeing 20 percent of the developed Bureau surface water substantially increases the potential aggregate supply of marketable water. Under current contracts the Bureau delivers 8.5 million acre feet in a normal year. Even with 1.5 million acre feet deducted as environmental water reallocations by the CVIA, the 20 percent rule frees up a potential 1.4 million acre feet

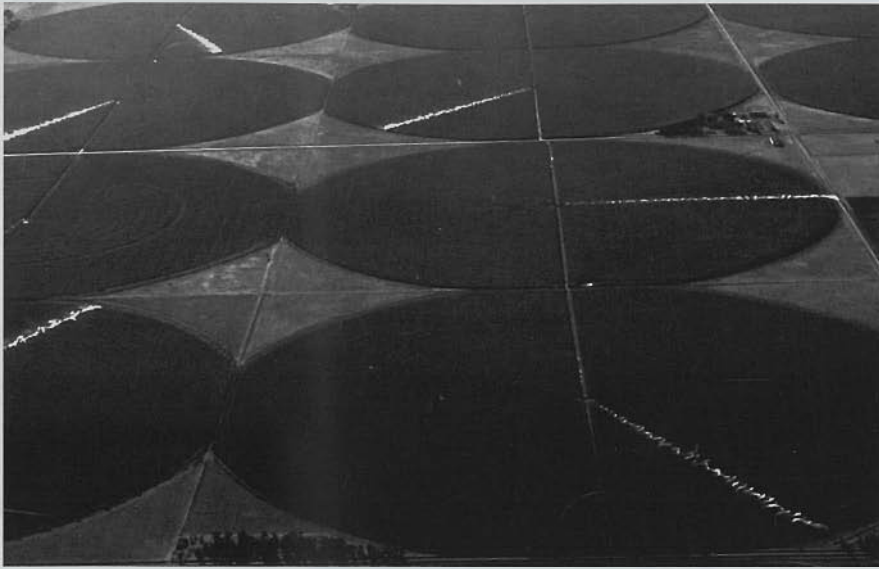
In the ten months since it was signed, the CVIA has even changed the viewpoints on water rights of some influential agricultural leaders.

In addition to these economic reasons, regional political leaders wanted to assert the independence of the area of origin of much of the state's water. Referring to the water bank, a prominent rice grower was quoted as saying:

"None of us here wants to be knot-headed about it. But we

that individual contractors can sell without local veto. By comparison, the 1991 water bank sold 390,000 acre feet which, including transportation losses, required a supply of 510,000 acre feet.

Even allowing for the small proportion of Bureau contractors who sold



to the 1991 bank and the inevitable rigidities in water trades, the CVIA promises a substantial shift in water available for sale. The general manager of the large Metropolitan Water Agency in Southern California, referring to the passage of the CVIA, said: "...it provides, in effect, a new 'reservoir' of water made possible through voluntary sales by farmers..." (Boronkay).

In the ten months since it was signed, the CVIA has even changed the viewpoints on water markets of some influential agricultural leaders. State Assemblyman Rusty Areias, chair of the California Assembly Agriculture Committee and a long time vocal critic of water trading, stunned colleagues and opponents in September 1993 by signing a deal to trade up to 35,000 acre feet at \$175 per acre foot over the next fifteen years from his family ranch. Senator Areias was quoted as saying:

"I still think there are problems with water transfers... But water transfers handled correctly can work" (*Sacramento Bee*, 9/14/1993).

In addition to these well publicized water trades which are not without

criticism from some local leaders and politicians, water lawyers and newly established water brokers scurried to capitalize on this new source of supply. Even with the substantial environmental reallocations, it is likely that water sales will increase and the market price for water will average less than the 1991 fixed price of \$125 per acre foot.

In addition to the effect on inter basin transfers, the 20 percent rule, coupled with the district member's right of first refusal at the market price, will encourage changes in the way farmers and others use water within Bureau districts. Price incentives will encourage farmers and other water users to reevaluate current conservation and cropping practices.

Conclusions

The CVIA increases environmental allocations of CVP water. Some observers expected the CVIA to include reallocation and environmental restraints on free trade, given the history of public involvement in pricing and allocation of CVP water. In a broader context this environmental concern reflects the policy coalition of environmentalists and urbanites which

production agriculture will face in the future. However, the same coalition, through the CVIA, also considerably strengthened the incentives for trade by allocating control over marginal water sales to individual users rather than the local water agency. The net effect should be an increase in CVP water traded despite the stronger environmental regulations.

■ For more information

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