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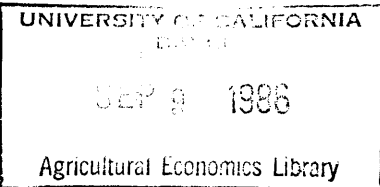
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WATER MARKETS IN COLORADO

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1986
The water market in Colorado is alive, but all is not well. Water is being bought and sold in increasing amounts by growing cities along the front range of the Rockies. Sales range from shares in large reservoirs to be built in the future to stock in irrigation companies on the Arkansas River, the South Platte River, the Big Thompson River and the Cache la Poudre River, to name a few of the more prominent streams.

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The plunge in agricultural land values and the concomitant fall in agricultural water prices has made irrigation water an attractive alternative to building new reservoirs to develop and store currently unused water. Denver has spent \$35 million on an Environmental Impact Statement for a new reservoir on the South Platte River and the study is not yet finished!

Water transfer
The litany of economists urges transfer of water from lower valued uses to higher valued uses. This is seen in R.F.F. publications and in a new report to the Western Governors Conference. Agriculture is in a severe depression; consequently, this use is not highly valued by society. Water should be transferred away from this use to higher valued uses in the urban sector of the economy. Transfer away from agriculture is also urged by environmentalists of various stripes. Trout fishermen must be accommodated, instream advocates want water left in streams for endangered species and other fish and fowl, benthic organisms, river rafters, kayakers and scenic beauty, etc. Reserved rights are pushed for wilderness areas, national forests, national parks and monuments, Indian tribes and so on. A water project for a city of over 100,000 near Denver is held up because four acres of wetlands will be affected if it is completed. Thus fewer and fewer options are available to develop additional water supplies, so the movement has been toward gathering irrigation water for newly developing demands. With

agriculture in the most severe depression since the 1930s, irrigation farmers have few resources to stave off the economic assault on their industry. Indeed, the growing cities with lots of money can be the economic savior to a farmer facing bankruptcy or foreclosure. However, the saving of some farmers on an irrigation canal can create severe difficulties for remaining farmers on the canal. Canals are designed to carry a certain flow of water to provide an adequate head to serve the headgates along its length. If half of the water is transferred away, the canal can no longer function effectively to serve remaining farmers. Carriage losses will be higher per share and runs of the canal will be shorter, i.e., three days per week vs. six days, or the canal will be run at half-capacity. At half-capacity, turnouts do not perform correctly.

The farmers in neighboring irrigation canals that depend on return flows from the ditch above that has sold water will be deprived of return flow water, and will likely seek redress in court for having their traditional water supply removed without their permission and lack of compensation.

A common theme of those who would have markets perform water reallocation is that if only irrigators would practice conservation there would be plenty of water for "new, more valuable uses." But what good would it do to save 10 percent of the water used on farms if there is no place to put it? Conservation in agriculture automatically means a storage facility to catch the water conserved in May, June and July for use during the rest of the year. Rarely do I see any recognition of the erratic hydrograph faced in the west and the need to store saved water for use throughout the rest of the year.

Frequently, one sees reference to the Bureau of Reclamation's policies and practices as a prime target for reform in water pricing and water delivery. If these advocates would only look at the statistics on who provides water to agriculture in the west, they would find the Bureau provides full service to only 10 percent of the irrigated lands in the west. Some of this is in

Montana, Wyoming and other remote places where there is little competition for water.

The Bureau provides supplemental water to about another 12 percent of the irrigated lands in the west. Part of this is the C-BT area of Colorado. In the C-BT area project water can be bought and sold at will, subject to the restriction that the use remain within the district boundaries. I would recommend a look at Irrigation in the West, an ERS bulletin by Dallas Lee, for those who think reform of the USBR will solve the West's water supply problems.

Water markets are an appealing, simplistic idea held by many. If only cheap water could be done away with, the market would solve the allocation problem. Not so. The market would beggar the weaker segments of the economy, i.e., irrigated farmers and their support industries. New storage would be necessary in many places or much water that is now used would run away unused.

A free market for water would likely create another set of problems that might be harder to solve than the problems currently faced. Thus, I would urge caution in advocating universal markets for water. Just as planning and zoning regulations are needed in land use in cities and towns to prevent damage to third parties in changes in property use, so are regulations needed in changes in water use. Many people besides the buyer and seller have an interest in how and where water is used.

So far there are no restrictions on the sale and transfer of water in Colorado, in basins or out of basins, but community sentiment seems to be that there should be some sort of restrictions to prevent damage to communities. The mass transfer of water out of an area where it is currently being used means a reduction in the natural resources base upon which the area depends for its economic wellbeing. Historically in Colorado, when water has been transferred out of basin, the water taken has been from streams in the

Colorado River Basin that still have unappropriated water. Each major trans-mountain diversion completed so far has built compensating storage reservoirs so that existing water right holders are not damaged by water being removed from the area. The water taken has typically been high-flow snowmelt water that previously flowed out of state during high-water periods. Now it is captured in reservoirs and transferred to another basin where it is used and reused.

Many of the complaints that have been heard about this procedure of out-of-basin transfers are from environmentalists and recreationists who would like the water to remain in the original streams so they can play in it. These complaints, in some cases, come decades after the diversion project has been in operation. The irony is that some of the people who complain about diversions live in the Denver area where their jobs and household water supply are dependent upon imported water.

It has begun to dawn on many people in Colorado that the right to buy, sell and transfer water is not without drawbacks.

The recent secret purchase of almost 50 percent of the stock in a major ditch company on the Poudre River for transfer to a Denver suburb has many people, including farmers and local government officials, in somewhat of a state of shock. The Poudre River area for many decades has worked diligently to enhance, import, store, and exchange water to make the water supply meet the needs of a productive agriculture and a growing urban community. Suddenly, the basin is invaded by an opportunistic suburb of Denver that intends to benefit by siphoning off a substantial portion of that supply.

The effect of a willing buyer and a willing seller making a deal to transfer water exposes significant externalities. The community as a whole is coming to realize that it has a large stake in the water resources of the area.