WATER RESOURCES ISSUES
THE ECONOMIC AND POLITICAL EVOLUTION OF WATER MARKETS IN CALIFORNIA

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The Problem

Water is the lifeblood of the desert regions of the western states, and it remains one of the issues over which political battlelines are drawn fastest and firmest. In the western states, a system for the capture, transportation, and delivery of water provides perhaps the most important element of the economic infrastructure of the regional economy. Over the past century, the combined efforts of visionaries in both the public and private sectors developed a vast water supply network that has allowed for the development of a robust economy in an increasingly important region of the nation. Today, in many areas, the reliability of that water supply system is as tenuous as it is important.

Given current levels of water development, there is not enough of the resource to go around, and everyone- -city residents, farmers, environmentalists, and recreationists--seems to want more of it. In coastal Southern California alone, last year natural population growth and net in-migration added roughly 400,000 new residents. This represents an increase in water demands during a single year that exceeds the total water demands of the cities of Miami, Cincinnati, Pittsburgh, or St. Louis. The Metropolitan Water District of Southern California (Metropolitan), which provides imported water to coastal Southern California, estimates that additional reliable supplies of more than 500,000 acre-feet (AF) will have to be secured for the area by 2000, followed by another 500,000 AF during the first decade of the 21st century.

Increasing water demands are by no means restricted to western cities. Many agricultural areas are seeking additional water to relieve groundwater overdraft problems and, in some cases, to satisfy unmet irrigation demands. More water is also being demanded in efforts to preserve the natural environment and support freshwater-related recreation and tourism activities.

Against this backdrop of intensifying competition for water resources, available reliable water supplies have dwindled. Urban Southern California lost over one half of its dependable supply of Colorado River water as a result of the Arizona decision of the United States Supreme Court. The State Water Project (SWP), designed and constructed in part to offset this loss of Colorado River water, remains incomplete and can deliver barely one half of the water for which Southern California has contracted. The evolving Public Trust Doctrine has undermined water rights previously regarded as unassailable, such as in the Mono Lake basin where the City of Los Angeles could lose up to 70,000 AF of water supplies annually in order to preserve the environment. Finally, the availability of local groundwater resources could decline considerably as our technical ability to detect chemical contaminants in groundwater basins develops and public concern over water quality grows.

Water Markets

In this complicated and precarious political environment of growing demands and dwindling supplies, water transfers or "water markets" have

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evolved as a potential source of additional water supplies in the western states. Broadly defined, water markets involve the use of economic incentives or financial assistance to better conserve, manage, or otherwise reduce water use in one area so that water can move from lower value uses to higher value uses.

In California and the other western states, water transfers have been commonplace for decades. In the San Joaquin Valley, agricultural water agencies have long participated in water trading so that available contractual supplies could be reallocated from areas of ample supply to areas of short supply. Similarly, pumping rights have been quantified and marketable since the 1940s in adjudicated groundwater basins of Southern California. These market-like institutional mechanisms for the intrabasin allocation of California water are similar to the more frequently cited examples of water marketing in Colorado and Utah. However, in California, as in the other western states, market transfers between water basins have been rare and raise substantial controversy.

Even so, there is little disagreement that water transfers, including major interbasin transfers, will be increasingly important as a source of additional reliable water supplies. Politically, the concept of water markets has become an odd common ground around which old rivals can gather. The concept receives at least some support from the water industry, environmentalists, and political leaders alike. The real policy question has become notwhether, but how, water transfers will evolve as a more significant element of water policy in the west. And as is the case for most interesting policy issues, there is plenty of room for serious disagreement on key implementation issues.

Water Transfers in Practice

In recent years, Metropolitan and other water agencies in California have made considerable progress toward implementing water transfer projects. Late in 1988, Metropolitan and the Imperial Irrigation District (IID) signed a landmark agreement which could result in the transfer of 100,000 AF of Colorado River water annually from one of the state's largest agricultural agencies to its largest urban supplier. Also last year, the United States Congress authorized the lining of portions of the All-American Canal, a Metropolitan financed conservation project which could make available to urban Southern California another 100,000 AF of Colorado River water now diverted by agricultural agencies but lost due to seepage from the unlined canal.

In the San Joaquin Valley, Metropolitan in February, 1989, entered into an interim agreement with the Arvin-Edison Water Storage District (Arvin-Edison), a large agricultural contractor for federal Central Valley Project (CVP) water in the San Joaquin Valley. The interim agreement is another step toward a long-term program under development since early 1986 that will transfer approximately 100,000 AF of additional water to Southern California during future dry periods. In other San Joaquin Valley water transfer activities, the City of Los Angeles and the Mono Lake Committee, with the cooperation of Metropolitan and others, is seeking a water transfer from CVP contractors to offset water that may be lost by the City in order to preserve the Mono Lake environment. In addition, the Castaic Lake Water Agency, which serves a rapidly growing urban area north of Los Angeles, has acquired an option on a "water ranch"to transfer 12,000 AF of State Water Project agricultural entitlements to urban uses.

Ironically, these and other projects at various stages of development symbolize not only progress toward developing water transfers, but also the enormous emotional, technical, economic, legal, and political difficulties in implementing interbasin water transfers on a long-term reliable basis. The fact is that while the transfers under development have the potential to provide several hundred thousand acre-feet of water, none has been completed and each faces unique challenges *in* implementation.

In the case of the Metropolitan/IID agreement, negotiating teams representing the parties first reached agreement in 1985 after nearly two years of negotiation. However, because of the high degree of controversy and raw emotion regarding the project among residents of the Imperial Valley, the 1985 agreement unraveled. The next three years witnessed on-again-off-again negotiations punctuated by disagreements regarding the applicable legal "rules of the game." In 1988, the California State Water Resources Control Board (SWRCB) ruled that the water being lost in the valley was not being applied beneficially, and ordered IID to conserve 100,000 AF annually by the mid 1990s. The two parties finally singed the water conservation agreement in December, 1988, approximately five years after negotiations began.

Shortly after the signing ceremony, the Coachella Valley Water District (Coachella) filed suit contending that it has first priority to use water made available by Metropolitan-financed conservation activities. Palo Verde Irrigation District (PVID), the other major agricultural water user of Colorado River water in California, may elect to withhold formal approval of the agreement, a strategy apparently intended to preserve future legal options. At the time of this writing, discussions with both agencies are underway.

Metropolitan and Arvin-Edison reached agreement on the basic terms for long-term water transfer program after a relatively short nine months of negotiation in 1986. This project would allow Metropolitan to divert CVP surface supplies from the San Joaquin Valley that would otherwise be available to Arvin-Edison during dry years. In exchange, Metropolitan would store SWP water during wet years in the groundwater basins beneath Arvin-Edison and make this water available as a substitute supply to Arvin-Edison farmers.

Within weeks of reaching an agreement in principle, Metropolitan and Arvin-Edison had their hands full contending with a variety of agencies, many with legitimate concerns about the impacts of the program. Most notably, the other State Water Contractors, who along with Metropolitan have contractual rights to SWP water, expressed concerns that under certain conditions Metropolitan's increased utilization of SWP water in the Arvin-Edison program could reduce the availability of entitlement water to them. During a one-year feasibility study, the project was redesigned to avoid this impact (with corresponding increase in estimated project costs of $4 million).

More recently, the SWRCB has indicated that it may require modification of place-of-use permits to recognize the delivery of CVP water to Southern California - a precedent long opposed by numerous CVP contractors in the Central Valley of California. Because Metropolitan provides a substitute groundwater supply for the water it receives from Arvin-Edison, the parties have argued that on-net no federal water is being received by Southern California and they may seek legislation to avoid the permit change. Negotiators for the would-be transferors note that they are barely halfway through what appears to be a six year process and that, despite recent progress, much work remains before the transfer provides an assured supply.

Metropolitan has also negotiated directly with landowners in an attempt to develop "dry year options" under which irrigated acreage would be reduced during dry years to make more water available to Southern California. However, in California individual landowners generally do not "own" their water, but rather have only the right to apply water for beneficial purposes, such as irrigating crops. In most cases, the actual contract or diversion right is held by a public agency, such as an irrigation district. This means that while the landowner may have control over actions that could make water available for urban areas, he does not control the right to transfer that water to others. Consequently, even in those cases where an agreement can be reached with individual landowners, the irrigation district may

cases where an agreement can be reached with individual landowners, the irrigation district may oppose the transfer because of local concerns over third party impacts or disagreements among participating and nonparticipating landowners.

Water Transfers in the Future

The future political evolution of water transfers will be shaped by how we address the potential third party impacts and other controversies associated with transfers. In California, water transfers could evolve in several different directions.

California could follow what might be termed the "Arizona Model" of water markets. In Arizona, where natural water supplies relative to demands are considerably lower than in California, virtually all water transfers activity has been in the form of urban areas purchasing "water farms" with the intent of eventually retiring the land from production and transferring water to the cities. Under the policy direction established by the Groundwater Management Act of 1980, Arizona has chosen an approach to water transfers that emphasizes the development of its urban economy with a correspondingly higher potential for third party impacts in rural areas. While no water has yet changed hands, the potential for urban/rural conflict is evidenced by the numerous bills introduced by representatives of rural Arizona to restrict transfers now under consideration by the state legislature.

Although California has made no policy decision comparable to that in the 1980 Act, water transfers nevertheless will continue to evolve in the state, but along a different path. In California, the acquisition of "water farms" has been rare and accounts for a very small fraction of the water involved in ongoing transfer activities. Proposals to reduce agricultural production as a means of making water available, especially during dry years, will likely occur in the future. However, California is evolving a model of water transfers that emphasizes more conservation and better water management in rural areas. The Metropolitan/LID agreement will not affect agricultural production in the Imperial Valley, but will improve the efficiency of on-farm water management and the distribution system that delivers water to farmers. Within the Arvin-Edison Water Storage District, the only impact on landowners of the agreement with Metropolitan will be in the form of reduced groundwater pumping costs because of higher water table levels resulting from the program.

The relative emphasis in the emerging "California Model" of water markets on conservation and water management rather than on reduced production has the potential for strengthening not only the urban economy but the rural economy of the state as well. If it lives up to this political potential, urban/rural cooperation could pave the way to considerable water transfer activity in the future.