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Shifting the Uses of Water in the West: An Overview

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Moving the West's Water to New Uses: Winners and Losers

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Shifting the Uses of Water in the West: An Overview

I. Introduction.

A. Summary.

Water resources in the American West are essentially fully allocated. Increasingly, new and expanding uses will have to be met through some kind of reallocation process. Rights to use water can be reallocated in two general ways--either by governmental action (e.g. forfeiture, condemnation, public trust supervision) or by voluntary action of the water right holder (e.g. sales, leases, exchanges, changes). The predominant approach in the West has been for the reallocation decision to be privately made but to subject the reallocation action to public review for protection of specified interests.

Water transfers, defined as the voluntary change in the existing purpose and/or place of use of water under an established legal right or entitlement, occur to some degree in all the western states. Most commonly, these transfers are short-term, seasonal arrangements within an irrigation district. Transfers may also occur when water uses change on lands with riparian rights or with groundwater development rights. Generally these transfers are not subject to state review. In most western states, changes in the point of diversion, place of use, and/or purpose of use under an existing appropriative water right may be made subject to the requirement that there is no impairment of other existing water rights.

A study of water transfers in six western states (Arizona, California, Colorado, New Mexico, Utah and Wyoming) between 1975 and 1984 provides information regarding characteristics of transfers subject to state review during this period and regarding the state review processes themselves. The number of applications during this period ranged from 3853 in Utah to only 3 in California. In states with a high level of activity, the quantities of water involved generally are small. The majority of transfers involved a shift from agricultural to non-agricultural uses. Most transfer applications are approved. The approval rate ranged from 75% in Wyoming to 94% in New Mexico. Formal protests were filed in 60% of the Colorado applications compared to 6% of the New Mexico applications. The average time to decision varied from about 6 months in New Mexico to 21 months in Colorado. Analyses of transactions costs associated with a sample of cases in Colorado and New Mexico indicated

average costs ranging from about \$200 to \$380 per acre-foot.

Many important issues are raised by the reallocation of water uses in the West. While the primary reallocation decision probably will continue to be made privately in most cases, states are likely to be reviewing the rules and requirements that will attach. They may require consideration of interests in addition to those of other water right holders. They may find ways to clarify laws and procedures in a manner that would facilitate valuable transfers. They may wish to encourage water transfer approaches that encourage water use efficiency while maintaining existing beneficial uses. They may find it necessary to reconsider the structure and authority of water user organizations which control the use of large shares of the water resources in the West. They may also be concerned with ways to provide for reallocation of water needed for instream flow purposes.

B. General References.

Water Transfer Working Group, *The Water Transfer Process as a Management Option for Meeting Changing Water Demands* (NRLC Research Report, 1990).

MacDonnell, Transferring Water Uses in the West, 43 *Oklahoma L. Rev.* 1 (1990).

Analyses of State Water Transfers Laws in Arizona, California, Colorado, New Mexico, Utah, Wyoming," collected in 31 *Arizona L. Rev.* 721-904 (1989).

B. Colby Saliba & D. Bush, *Water Markets in Theory and Practice: Market Transfers, Water Values and Public Policy* (1987).

Meyers & Posner, Market Transfers of Water Rights: Toward an Improved Market in Water Transfers, National Water Commission Legal Study No. 4 (July 1971).

L. Hartman & D. Seastone, *Water Transfer: Economic Efficiency and Alternative Institutions* (1970).

II. Reallocation of Water Uses.

A. Rights to the use of the West's water are essentially fully allocated.

1. Most water rights are based on appropriation. They are permanent rights evidenced by a decree or a permit.
 2. Riparian rights still exist in some parts of the West.
 3. In some states, rights to groundwater may be based on overlying land ownership.
 4. Many water users in the West receive water on the basis of a contract.
- B. There are two general reallocation approaches.
1. The reallocation decision can be made by the holder of the water right.
 - a. The water right may be sold to another user.
 - b. Water available under a water right may be leased to another user.
 - c. Rights to the use of water may be exchanged.
 - d. The holder of a water right may change the use under that water right.
 - e. The holder of a water right may intentionally abandon the right to the benefit of junior users.
 2. Reallocation may occur as the result of government action.

- a. A water right may be deemed to have been forfeited as a result of nonuse.
 - b. Water rights may be condemned.
 - c. In California, water rights may be subject to alteration for public trust purposes or if not being used "reasonably".
- C. The predominant means of long-term reallocation is the voluntary transfer of an appropriative water right or a share in an appropriative water right.
- 1. Often, the transfer includes a change in ownership of the right.
 - 2. For there to be a true reallocation, there must be a change in the existing purpose and/or place of use of water under an established legal right or entitlement.
 - 3. Seasonal transfers often occur informally but long-term transfers generally are subject to state review.

III. The Changing Western Landscape.

- A. The population of the West is now more urbanized than any other region of the country.
 - 1. The population of the West has increased dramatically since World War II. Especially large increases occurred during

the decades of the 1960s and 1970s. That growth slowed noticeably during the 1980s.

2. Nevertheless, the population density of the West remains much below the national average (17 people per square mile versus 64 people per square mile). (M. El-Ashry & D. Gibbons, **Troubled Waters: New Policies for Managing Water in the American West** (1986).)

B. The West's economy is shifting from its traditional agricultural and resource extraction base to a more diversified mix involving recreation and other service-based activities, technology-based industries, and federal government support activities.

C. Because of these economic and demographic changes, the nature of the demands for water also is changing.

1. Water use in the West has been dominated by withdrawals for irrigation. Generally, about 80% of all water withdrawn for out-of-stream uses is for irrigation. Moreover, about 90% of all the water consumed and thus unavailable for other use is consumed in agriculture.

2. The rate of increase of irrigated acreage has been declining in the West and may even have gone negative in the 1980s.
3. Withdrawals for irrigation actually declined in the West (and nation-wide) between 1980 and 1985. (Estimated Use of Water in the United States in 1985 (U.S. Geological Survey Circular 1004, 1988).
4. By comparison, withdrawals for public water supply continued to increase.
5. The demands for instream uses of water for recreation, fisheries maintenance, water quality and other purposes may be the fastest growing component of all, but there are no real estimates of the amounts of water involved.

D. Supply patterns are changing.

1. Perhaps the major means of satisfying new demands in this century in the West has been through construction of storage facilities--reservoirs to hold peak runoff for subsequent use. In the past 20 years, however, very little additional reservoir capacity intended for withdrawal purposes has been added. The reasons include the increased cost of reservoir construction,

the limited remaining number of good locations for storage facilities, the withdrawal of major federal subsidies for construction of dams, and the increased concerns about the environmental effects of diversion and storage facilities.

2. Groundwater use has quadrupled between 1945 and 1980. (Z. Smith, *Groundwater in the West* (1989).) In the West, most of that development has been for irrigation use where now nearly 40% of all withdrawals for irrigation come from groundwater. However, total groundwater withdrawals declined 12% between 1980 and 1985 and most of this decline was in irrigation use.
3. In some parts of the West, additional storage and increased groundwater development will continue to play an important role in meeting new and changing consumptive demands. Increasingly, however, as the limits of these supplies are reached, we will have to find ways to reallocate some portion of our existing uses to meet new and changing uses for the West's limited water resources.

E. The economic value of water uses also is changing.

1. Professor Robert Young has estimated that the marginal value of irrigation water is less than \$40 per acre-foot in about 80% of its uses. (Local and Regional Economic Impacts in Water Scarcity: Impacts on Western Agriculture (E. Engelbert with A. Schearing eds. 1984).)
2. Others have estimated the value of water for stream electric generation at \$600 per acre-foot and the value of water for household use at \$200 per acre-foot. (D. Gibbons, The Economic Value of Water (1986).)
3. One analysis comparing the value of reservoir releases in a New Mexico river estimated that use for recreation would yield benefits of \$700 to \$1100 per acre-foot compared to \$40 per acre-foot for alternative (primarily irrigation) uses. (Ward, Economics of Water Allocation to Instream Uses in a Fully Appropriated River Basin: Evidence From a New Mexico Wild River, 23 Water Resources Research 381 (1987).)

IV. Water Transfers: The Legal and Policy Framework.

A. Water transfer principles involving appropriative water rights were established in a trilogy of decisions by the California Supreme Court between 1857 and 1867.

1. In Maeris v. Bicknell, 2 Cal. 261 (1857), the California Supreme Court said:

It would seem clear that a mere change in the place of use of water, from one mining locality to another, by the extension of the ditch, or by the construction of branches of the same ditch, would by no means affect the prior right of the party. It would destroy the utility of such works were any other rule adopted.

2. Kidd v. Laird, 15 Cal. 161 (1860), involved a change in point of diversion by a senior appropriator to a place upstream of a junior appropriator's point of diversion. In protecting the senior's priority, the court noted that an appropriative water right is regarded as a property right and that the use of property is limited only by the requirement that it not cause "injurious consequences" to the rights of others.
3. Davis v. Gale, 32 Cal. 26 (1867), concerned the effect of a sale of a water

right and its subsequent use at a different location and for a different use than under the original right. In its analysis, the California Supreme Court held that the existence of a water right depends only on appropriation and continuing use. The original place of use and purpose of use are not fundamental and may be changed without loss of priority so long as no injurious consequences result to other water users.

4. A subsequent Colorado case (Strickler v. City of Colorado Springs, 16 Colo. 61, 26 P. 313 (1891)) held that water rights may be purchased separate from the land on which they had been used and transferred to a different purpose and place of use.
- B. Initially these principles were widely accepted but, in several states, objections were raised.
1. The objections were of two general types. The first concerned the problems of allowing water rights changes in highly appropriated systems without injury to other water rights holders. Many water rights authorized diversions well in

excess of the water actually used. Elwood Mead, in his 1903 book **Irrigation Institutions**, pointed out the practice of selling such unused water rights thereby unfairly enriching the seller and unfairly making the buyer a senior right holder.

2. A second type of concern involved the treatment of water and water rights as commodities to be bought and sold. This concern is well illustrated in a 1901 decision of the Arizona Supreme Court (Slosser v. Salt Lake River Valley Canal Co., 7 Ariz. 376, 65 P. 332 (1901)) ruling that the appropriator must own the land on which the water is used, that therefore water rights are appurtenant to the land on which they are used, and that they may only be transferred from that land if the land itself becomes unusable through natural causes. The decision came in reaction to the growing practice in Arizona of investors buying up shares of canal company stock and then renting the shares at a considerable profit to farmers needing irrigation water.

3. Both Arizona and Wyoming enacted laws severely restricting the transferability of water rights.
- C. In recent years, water transfers have been viewed more favorably in the West.
1. Shifting economic and demographic forces have increased the power of cities which need the water and reduced the relative value of water used for irrigation. Some view water transfers as a means of minimizing the need for additional environmentally damaging dams. Others are attracted to the market-oriented approaches that have been used.
 2. Many of the earlier concerns have been met through the development of laws and procedures that effectively protect other water rights. Most important among these are the requirements that transfers are limited to water that has been historically diverted and used, and that there can be no net increase in stream depletions to the injury of other water rights as a result of the transfer. Engineering techniques have been

developed to analyze consumptive water use.

3. Arizona eliminated its strict appurtenancy requirement in 1962 and Wyoming explicitly authorized changes of water rights in 1973. In 1980, California enacted legislation strongly favoring water transfers.

4. While there now appears to be a general acceptance of water transfers (defined, again, as the voluntary change in the purpose and/or place of use of water under an existing water right), there also is a trend toward conditioning approval of transfers on protection of an increasingly broad set of interests.

- a. Arizona law requires the approval of any irrigation district, agricultural improvement district, or water users association for transfers of rights within their boundaries or of rights using water from the watershed in which the entities derive any of their supply.
- b. Wyoming allows the State Board of Control to consider (1) economic

losses to the community and the state related to the transfer, (2) the extent to which these losses would be offset by benefits from the new use, and (3) the availability of other sources of water.

c. California law requires that transfers not "unreasonably" affect fish, wildlife, or other instream beneficial uses or the economy of the area from which the water is to be transferred.

d. New Mexico requires that water transfers not be detrimental to the public welfare or the conservation of water.

e. In 1989, the Utah Supreme Court ruled that water transfers in that state must pass a public interest review.

V. Water Transfer Activity: Results from a Six-State Study.

A. Researchers from the states of Arizona, California, Colorado, New Mexico, Utah and Wyoming recently completed a study of water transfer law and activity in these states.

The results of this 30-month study are available in a two-volume report from the NRLC and will be summarized here in part.

B. Water transfers take many forms in the six study states.

1. The most common form involves a change in the purpose and/or place of use of an appropriative water right or a share of such a right. The change may be temporary (seasonal) or permanent. It often involves the "marketing" or sale of the right to another party who desires to make the new use. Permanent changes always are subject to state review.
2. Water rights may be exchanged on a short-term basis or under a longer-term arrangement. Exchanges allow holders of existing water rights to work out more advantageous arrangements for the use of those rights. Generally, there is only limited state review of exchanges.
3. Contracts for water use provided by an entity with a water withdrawal right may be transferred if permitted by contract terms and other applicable law. In some parts of the West (such as the Central

Valley of California), Bureau of Reclamation-supplied water is based on contracts. State review generally is involved only if a change in the underlying appropriative water right is necessary.

4. Water transfers may occur in conjunction with a change in land use. For example, in California riparian rights still exist in some locations. Changes in the use of the riparian lands may involve a change in the riparian water use. No state review is involved. Another example concerns groundwater use on overlying land. In some states (or even in certain areas of states), groundwater use is essentially a right of land ownership. In these situations changes of use on the overlying land may occur without state review, though transport for use off the land may have some limitations. In Arizona, where surface appropriative rights are considered appurtenant to the land on which they are used, changes of use on these lands may occur without state review. State review is required

if transfer for use on other lands is contemplated.

C. The study examined characteristics of water transfers.

1. The study collected data on those transfers subject to state review applied for between 1975 and 1984 that involved a change in the purpose and/or place of use of an existing appropriative water right.

2. Transfer activity of this particular type varied widely across the study states: Arizona (30), California (3), Colorado (858), New Mexico (1133), Utah (3853), Wyoming (40). There were no discernible trends in the number of applications filed during the 10-year study period.

3. Though the overall pattern showed a shift of water right use from predominantly agricultural to predominantly non-agricultural purposes, the pattern varied considerably from state to state.

4. Most transfer requests involved small quantities of water. This is particularly true in states with higher levels of transfer activity.

5. In the majority of study states, transfers predominantly involved surface water rights. In New Mexico, however, transfers were about evenly split between surface water and groundwater while, in Utah, over 70% of the transfers involved groundwater.

D. The study also examined the manner in which the state review processes operated.

1. Most transfer applications are approved. The rate of approval during the study period ranged from 94% in New Mexico to 75% in Wyoming. Very few applications were denied.

2. The average length of time to decision varied among the study states. For approvals, the average length of time ranged from 5.8 months in New Mexico to 19.5 months in Colorado.

3. Formal protests may be entered under each of the state review processes. The protest rate varied widely across the states during the study period, ranging from 60% in Colorado to 6% in New Mexico. In several states, there is a strong

correlation between time to decision and whether the application was protested.

E. The transactions costs associated with going through the state review process were analyzed from a sample of cases in Colorado and New Mexico.

1. For 9 Colorado cases selected out of a stratified random sample, the transactions costs ranged from \$0.37 per acre-foot to \$1702 per acre-foot. The average among the 9 cases was \$380.
2. A regression analysis showed that there were very significant scale economies so that transactions costs per acre-foot decline as the quantity of water transferred increases. The analysis also demonstrated that the existence of formal opposition to the transfer increases the costs sharply.
3. The New Mexico study collected data on transactions costs for the applicant through use of a survey questionnaire. Based on an analysis of 201 responses, applicant transactions costs ranged from \$0.06 per acre-foot to \$1100 per acre-foot with an average of \$135. Using a

factor of 36% of applicant costs for costs of the State Engineer's office (from Colby et al., Water Transfers and Transactions Costs: Case Studies in Colorado, New Mexico, Utah, and Nevada (U. of Ariz. Dept. of Ag. Econ., July 1989)) yields an estimate of total average transactions costs of \$184 per acre-foot.

VI. Issues for Further Discussion.

A. States and the federal government should consider changes in laws and procedures to facilitate valuable transfers.

1. Barriers to transfers still exist in state laws. Some have been removed (e.g. strict appurtenancy rule in Arizona in 1962, no change without loss of priority in Wyoming in 1973, no transfer of irrigation rights to domestic uses on other lands in South Dakota in 1989). Nevertheless, others remain that states should consider eliminating (absolute veto power by irrigation districts over transfers in Arizona, prohibition against sale of water rights by municipalities in Utah, prohibition against transfers

outside conservancy district boundaries in Wyoming, prohibitions against changing the purpose of use of a water right in Nebraska).

2. States can develop rules and guidelines governing the processing of transfer applications that can clarify and streamline the process. For example, requirements could include evidence of historical use and a rule that transfers are limited to no more than the quantity of water beneficially used. In cases where there are no protests, general guidelines could be utilized to determine historical consumptive use. Streams could be administratively determined to be highly appropriated and, in such situations, there could be a rule that the transfer may not result in an increase in net depletions to the stream.
3. States can utilize approaches that will help to address questions of injury to other water rights. The no injury standard could be defined to exclude de minimis levels of impairment. As with Colorado and Utah, injury to other water

rights could be held to prevent transfers only if terms and conditions cannot be devised that would offset the injury or if satisfactory compensation to adversely affected water rights holders cannot be arranged. To avoid the need for conclusive proof of non-injury, approval could be made subject to review during a specified trial period if evidence of injury became available.

4. States can review laws governing water supply and user organizations such as irrigation districts, conservancy districts, and municipal water districts for provisions that unnecessarily impede water transfers. Examples include provisions that prevent or limit transfers from going outside district boundaries or that give districts undefined discretion to prevent transfers. States could facilitate transfers by clarifying the decision making process for making transfers of water supplied by water districts including who has the authority to make the transfer decision and what the

standards are that apply to this type of transfer.

5. Federal agencies--in particular, the Bureau of Reclamation and the Corps of Engineers--can review their rules and procedures governing transfers of water supplied by their projects. Determining the transferability of rights to use these waters involves consideration of a mix of federal statutes, agency documents, contracts with water districts and other users, water district rules, and state law relating to water districts. Department of the Interior has issued a general policy concerning Bureau of Reclamation water transfers together with explanatory guidelines. These documents provide a start on clarifying BOR transfer rules but considerable additional work is needed.

B. States need to define and implement consideration of a broader set of interests potentially affected by water transfers beyond those of other water right holders.

1. Effects not considered traditionally include possible impacts on instream

values such as fisheries, recreation, and water quality, impacts on wetlands maintenance, impacts on groundwater recharge, and impacts on the local area from which the water is transferred.

2. Several states now subject water transfers to a general "public interest" review. A few have specified particular issues for review. For example, Wyoming law allows consideration of the economic losses to the local community and to the state that may result from a transfer. California law requires that transfers not have an "unreasonable effect" on fish, wildlife, or other beneficial instream uses or on the economy of the area from which water is transferred.
3. These so-called "third party" effects of transfers raise important and difficult issues. What are legitimate interests that should be protected? What kind of protection is appropriate? How can this protection best be achieved? Are existing review processes adequate? Who should make these kinds of decisions?

What other approaches should be considered?

4. At least some instream flow needs may be able to be met through water transfers. The Nature Conservancy has successfully implemented this strategy in a number of states. State wildlife divisions have used water transfers in a few states to protect water needed for fish and wildlife resources. Montana has established a trial water leasing program to temporarily transfer consumptive water rights to instream flow purposes. States can lease or purchase water rights for transfer to instream flow needs if state law enables such activities and if funds are made available for this purpose.
5. Some impacts could be met by means of a mitigation/compensation fund established with revenues from a fee assessed on all transfers. In some cases, the effects of a transfer may be very difficult to assess in advance. The availability of a fund can help to offset adverse effects that become apparent after the transfer occurs. Furthermore, the effects of

transfers may be far more significant cumulatively than individually. As these cumulative effects become apparent, a fund can help to provide mitigation.

6. Some impacts on rural areas could be avoided if transfers did not require permanent loss of productive agricultural lands. States could encourage this result through establishment of policies favoring agricultural water salvage or conservation as a means of moving water from irrigation to other uses. State law could provide that water presently diverted and used under an existing water right that can be conserved without injury to other water rights (and other protected interests) may be transferred to a new use with the same priority as the original right. Following this approach, the city of Casper has been making improvements in the irrigation systems within the Casper-Alcova Irrigation District and using the saved water for its municipal water supply. Similarly, the Metropolitan Water District of Southern California and the

Imperial Irrigation District have entered an agreement under which MWD will finance improvements in IID's irrigation system in return for the use of the conserved water.

Another approach with considerable promise involves the use of dry-year options. This approach recognizes that many water users, including cities and industries, have an adequate base water supply for normal years but seek control of additional water rights for increased needs or as a more secure supply in dry years. Under the dry-year option approach, the would-be water user takes the right to use water only in a dry year in exchange for offsetting payments. The irrigator earns some extra income and maintains long-term control of his water rights. In some situations, this approach could be varied by having the would-be water user provide an alternative water supply, as from groundwater, that could be used in dry years.

7. States can utilize the water transfer review process to evaluate impacts. Conditions could thus be imposed on the transfer to provide the desired levels and types of protection. Certainly such an approach is possible for those states with a "public interest" review standard.

Considerations for such an approach are the need to give clearer definition to what will be required to pass a public interest review (what interests are to be considered? What levels of protection are appropriate?) and who should be making these judgments (a state engineer or a water judge?). Unboundaried review authority can itself become a barrier to transfer. Legislative guidance in setting forth an approach probably is appropriate. Some possible issues extend beyond traditional technical and legal judgments concerning injury to other water rights. It is not evident that engineers and judges are best suited to make these types of decisions.

III. Conclusion.

- A. Reallocation of rights to use the water resources of the West is underway and will become more important as the limits of additional water development are reached.
- B. The predominant reallocation approach in the West leaves the fundamental reallocation decision in the hands of the holder of the water rights (the so-called water marketing approach) with the public role one of setting the rules under which the reallocation may occur.
- C. Western water law and procedure need to be updated to reflect the importance of water transfers as a means of satisfying new water demands. In some cases, barriers to transfers still exist and, in other cases, the existing laws and procedures are simply inadequate to properly manage water transfers.
- D. Water transfers potentially affect legitimate interests beyond those of other water rights holders. State laws need to address this broader set of interests. The West will not benefit if transfers are made at the expense of those interests.

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