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ABSTRACT

As new supplies of water resources become increasingly scarce in the arid West, existing water rights are being reallocated to meet new demands. Water is at times reallocated involuntarily, such as through forfeiture or adverse possession, although voluntary market mechanisms are more common forms of reallocation. Water marketing takes many shapes, including temporary leasing of water, purchase of permanent rights, dry year options, water banking, and many other innovative arrangements. As the volume of water marketing grows in the West, so too do the associated controversies. Questions involving impacts on rural communities, the off-reservation leasing of Indian water, interstate marketing, sale of federally-supplied water, and many other issues will challenge western officials during this new era of water reallocation.

INTRODUCTION

The nineteenth century marked the beginning of an era of intense resource allocation in the western United States. Land, minerals, and other resources passed into private ownership as Congress enacted laws to facilitate the open-the-West ethic that prevailed during this period. Farmlands were homesteaded, mineral claims were patented, and railroad companies received valuable acreage from the public domain. Water, too, was allocated to serve private needs, for it was recognized as the key needed to unlock these riches of the arid West.

State water law, as deferred to by Congress, evolved primarily into the prior appropriation doctrine which granted a permanent water right to those who first appropriated surface waters.[1] This doctrine of "first in time, first in right" shaped a pattern of resource allocation during this era which led to the current situation in which water supplies in many

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1. *See, e.g.*, Coffin v. Left Hand Ditch Co., 6 Colo. 443 (1882); Irwin v. Phillips, 5 Cal. 140 (1855).

areas throughout the arid western states are fully appropriated. The demand for additional water, however, has not stopped.

Expanding municipalities, industrial development, and other economic activities compete for limited supplies in regions where there is simply no additional water available to tap. Increasingly, users who need new sources are looking to existing water rights as a means for augmenting their supplies. In particular, senior irrigation rights (which account for more than 80 percent of total water consumption in the West) are being purchased in order to satisfy new demands in many western areas. In short, we are entering an era of water "reallocation" in the West that is just as significant as the allocation era of the previous century, and which presents as many difficult questions.

This article takes a close look at this new era, beginning with a summary of the mechanisms through which water rights are currently reallocated under western state law. A practical discussion of water right purchases follows, including descriptions of the prices and characteristics of current market transactions. The article concludes with an analysis of the legal and institutional issues that are emerging to challenge those who make policies in the era of water reallocation.

WATER REALLOCATION MECHANISMS

Although the marketing and transfer of water rights is receiving increased attention, the concept of reallocating water rights is not new to the West. One of the most famous examples was the undercover purchase of tens of thousands of acres of agricultural land and its associated water rights in the Owens River Valley by agents of Los Angeles shortly after the turn of the century.[2] In addition, common law evolved under the prior appropriation doctrine that provided for the reallocation of water under certain conditions. State legislatures stepped into the picture and refined legal doctrines (for example, forfeiture) that effected water rights transfers. Today reallocation of water in the West can be accomplished either by adverse action taken against a water user's right, or by voluntary arrangements between old and new water users.

Involuntary Loss of Water Rights

Water rights occasionally are transferred against the will of the water rights holder. Involuntary loss of water rights is effected both through common law and through statutory provisions.

2. W. KAHRL, WATER AND POWER (1982).

Forfeiture and Abandonment

All or part of a water right can be forfeited under the laws of most western states. The benefit of such forfeiture inures to junior water users, new appropriators, or the public. State statutes specify a time period, typically three to five years of continuous non-beneficial use, that results in prima facie forfeiture of a water right.[3] Forfeiture statutes can be invoked when water rights have fallen into complete disuse, or when water is over-applied and not used beneficially for the statutory time period.

Abandonment is the common law relative of forfeiture which serves to extinguish unused water rights. In the case of abandonment, however, there is no prescribed period of nonuse, and the intent to abandon the water right by its holder must be shown. Local competitive pressures for limited water supplies can trigger forfeiture and abandonment claims, although they have not been invoked frequently. Such claims may become more common in stream adjudications and regulatory proceedings as water shortages become increasingly acute. The moving parties in such actions are often junior water users attempting to reallocate dormant senior water rights to themselves. Senior rights may also be involuntarily reallocated through adverse possession, wherein land and water are adversely used for a statutory period, resulting in the loss of the property by the original owner to the interloper.

Eminent Domain

Public agencies and utilities are frequently authorized under state law to condemn existing water rights. Such takings, though unpopular, have preceded the construction of several large water projects. For example, the rights of riparian owners to flood flows of the San Joaquin River in California were condemned and ruled compensable in the construction of the Friant Dam in the Central Valley Project. Condemnation is also an option for cities that find it difficult to identify new water sources to meet growing water demands. Municipal water condemnation authority can be found in many western state constitutions and statutes that create a hierarchy of beneficial uses or that allow a "higher and better" use to prevail.[4] Just compensation must accompany any condemnation of vested water rights in order for the reallocation of water by taking to be constitutional.

3. *See, e.g.*, ARIZ. REV. STAT. ANN. § 45-141(C) (1988); IDAHO CODE § 42-222(2) (1987); OR. REV. STAT. ANN. § 540.610 (1988); WYO. STAT. ANN. § 41-3-401 (1977).

4. *See, e.g.*, WASH. REV. CODE 90.03.040 (1989).

The Public Trust Doctrine

Owners of vested water rights historically have felt secure in their continuing ability to utilize the rights for their needs. The threat of condemnation was small, and if invoked would result in payment for the water rights. The security of senior water rights holders has been shaken, however, by the recent extension of the public trust doctrine to inland waters.[5]

In 1983 the California Supreme Court ruled that Los Angeles' rights to take water from streams feeding Mono Lake, acquired decades earlier under state law, are subordinated to the public interest in preserving Mono Lake.[6] The state, as trustee for its citizens, is not entitled to issue water use permits to Los Angeles if such permits would undermine the public interest in Mono Lake. The Supreme Court remanded the case for determination of the extent to which the existing diversion rights of Los Angeles may need to be curtailed in order to reallocate the water to the in situ public needs at Mono Lake.

Although the legal issues are far from settled, other western state courts have also recently looked with favor on the public trust doctrine for protection of inland water resources. In interpreting Idaho law, the Director of Water Resources stated in 1987 that water rights granted under state law "remain subject to the public trust. This duty is a continuing duty, which may take precedence over vested water rights."[7] Depending on how the law evolves, the public trust doctrine holds the potential to become a powerful force in the reallocation of western water rights from senior uses to instream flows and other purposes that serve the public.

Voluntary Transfers

Although several legal mechanisms exist for mandating reallocation of water rights, a majority of water transfers involve voluntary agreements between willing parties. A variety of strategies that are advantageous to each party can be used to effect water right transfers.

Sale of Total Entitlement

In many instances, water rights holders are free to sell their entire entitlements to one or more purchasers. Procedures for and restrictions on the outright sale of senior water rights depend on the nature of the

5. For a discussion of the public trust doctrine, see Dunning, *The Public Trust Doctrine and Western Water Law: Discord or Harmony*, 30 ROCKY MTN. MIN. L. INST. 17 (1984).

6. National Audubon Soc'y v. Superior Court, 33 Cal.3d 419, 658 P.2d 709, 189 Cal. Rptr. 346, *cert. denied*, 464 U.S. 977 (1983).

7. In the Matter of Application for Permit to Appropriate Water No. 36-7200 (Idaho Dept. of Water Resources, July 22, 1987) (Memorandum Decision and Order of the Director).

rights and the jurisdiction in which they are located. A private water right can be embodied in a filing or decree in the courthouse, a license or permit issued by a state agency, a share of mutual water company or district stock, a pattern of historical use without written record, ownership of riparian land, or a water delivery contract with a local, state, tribal, or federal water agency.

The transfer of each of these types of rights has specific characteristics. With a riparian or a recorded appropriative right, for example, the total interest in that water right is transferred by implied or express reference in the delivery of the deed to the appurtenant land. Water right shares in a mutual company, or contract rights in a project, are often simply assigned from one party to another to complete a transfer. State-issued licenses and permits may likewise be assigned, although typically only with governmental review and approval.

Although the formalities differ among jurisdictions, the prevailing rule in the West is that most appropriative water rights may, with state agency or court approval, be sold and transferred to different land.[8] Such transfers may include changes in type and location of use and in the point of diversion, so long as the change does not adversely affect other water right holders on the stream. Exceptions to this rule exist, but even with constraints to water marketing in some states, the permanent sale and transfer of water rights occurs widely throughout the West.

Leases for a Fixed Term

The transfer of the right to use water need not be permanent. A water right in most jurisdictions may be leased for a season, a year, or many years. This can be an attractive option for both parties because it maintains continuity, preserves ownership by the holder of the right for future use, and accommodates an intermediate use that has either a predictable life span (as in the case of a power plant with a 30-year amortization period) or an uncertain duration (as in a farming enterprise facing variable commodity prices).

Parties to a water lease are able to customize the arrangement to accommodate their specific needs. To increase flexibility, the lease can contain an option for renewal. Also, to reduce future uncertainties, the rental rate can be indexed over time to reflect inflation or deflation of the economy. Many fixed term leasing arrangements exist among western water users.

The city of Albuquerque is active in pursuing leases of its surplus

8. *See, e.g.*, Gould, *Conversion of Agricultural Water Rights to Industrial Use*, 27B ROCKY MTN. MIN. L. INST. 1791, 1820 (1982).

waters. In early 1987, the city council authorized the expenditure of $100,000 to promote its leasing program of San Juan-Chama water imported into the Rio Grande from the Colorado River basin.[9] The San Juan-Chama project was completed in 1971, and Albuquerque is paying the Bureau of Reclamation more than one million dollars annually for delivery of 48,200 acre-feet/year (ac-ft/yr). Because the city does not yet need the water, it has leased a portion of its surplus, including 1,100 ac-ft/yr to vineyard owners in southern New Mexico. Albuquerque annually charges $40/ac-ft, a price roughly equal to the amount it pays per acre-foot to the Bureau of Reclamation.[10]

Many short term leasing arrangements occur in other areas of the West. In Idaho, seasonal leasing arrangements have been formalized into the Upper Snake Water Bank. Holders of surplus surface water entitlements from the Bureau of Reclamation may place those entitlements into the bank for lease to water users who want additional supplies. The local board of control sets the price at $2.50/ac-ft, the amount the lessor owes the Bureau for the water. The major lessee of the water entitlements typically is Idaho Power Company, which leaves the water instream for hydropower generation. Each acre-foot of water in the stream generates from $11 to $23 worth of electricity for Idaho Power Company.[11]

Seasonal leasing of water in Idaho, as elsewhere in the arid West, can also be triggered by drought. In 1987, with snowpack averaging only about 50 percent of normal, Idaho farmers began leasing water from neighbors with groundwater supplies. Following an announcement by the Boise Project Board of Control that farmers would get less than half their normal 3 ac-ft/acre of surface water delivery, prices for leased groundwater jumped from $20/ac-ft to as much as $60/ac-ft. Major lessees included farmers with late-season irrigation needs who had already planted their potatoes, sugar beets, seed corn, and hops at costs of up to $3,000/acre.[12]

During droughts, water users do not necessarily have to scramble to

9. 1 WATER MARKET UPDATE, Mar. 1987, at 8. The WATER MARKET UPDATE is a newsletter that tracks the latest developments in the legal, social, and business aspects of water reallocation and marketing the western United States. It is published monthly by Shupe & Associates, Inc., Steven J. Shupe, editor.

10. 1 WATER MARKET UPDATE, Feb. 1987, at 1.

11. 1 WATER MARKET UPDATE, Jan. 1987, at 3. The year 1988 was an exception, when Idaho Power Company was able to buy only 50,000 acre-feet. Local irrigators purchased the majority of water from the bank in response to drought conditions.

12. 1 WATER MARKET UPDATE, May 1987, at 1. Summer rains in 1987, however, eased the shortage, resulting in fewer water transfers than were anticipated. During the drought of 1988, the Boise Project Board of Control established a local water bank similar to the Upper Snake Water Bank. The price for leasing water from the Boise Bank in 1988 was set at $5.50/acre-foot, a price exceeding that paid by Boise Project contractors to the United States, but still significantly less than the market value of water in the area.

find emergency water supplies. Increasingly, users that need reliable supplies are assessing the purchase of dry-year options.

The Dry-Year Option

When water users normally have a reliable supply but are subject to unacceptable shortfalls in dry years, they can acquire an option to lease water from another party during those dry years. Dry-year options have been negotiated between some cities and farmers in the West. For example, a Utah city paid $25,000 for the option to lease a senior irrigation water right, and agreed to supply the farmer with 300 tons of hay and $1,000 in any season that it exercised its option.[13] For the first twenty-five years that the arrangement was in effect, the city used the water a total of three dry seasons. In those seasons the farmer had hay without harvesting, a cash payment, and some pasture production from non-irrigated farming.

In 1987, the Metropolitan Water District of Southern California (MWD) initiated negotiations on a dry-year option with farmers in the Palo Verde Irrigation District for the right to use up to 100,000 ac-ft of their water during future dry years. MWD offered the irrigators $200 for each acre they place in the option program and a minimum of an additional $400/acre each year that MWD exercises its option and diverts the water (estimated to be 4.6 ac-ft/acre) to southern California municipalities.[14] If agreed upon, the arrangement would last 35 years, with the irrigators continuing to farm except during those years in which MWD exercises its option.[15]

In northern California, the East Bay Municipal Utility District (EBMUD) is assessing a dry-year option as one strategy to augment municipal water supplies. In July, 1988, EBMUD offered to enter into a long term arrangement with local irrigators for a dry-year option. In those years deemed "critically dry" by the state's index, EBMUD would purchase the irrigators' water for about $50/ac-ft. The proposal proved controversial and was rejected by area water users who consider the price too low. Despite this setback, EBMUD is still exploring a dry-year option as one way to meet future water supply needs.[16]

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13. Clyde, *Legal and Institutional Aspects of Drought Management*, in DROUGHT MANAGEMENT AND ITS IMPACT ON PUBLIC WATER SYSTEMS (1986).

14. 1 WATER MARKET UPDATE, June 1987, at 8.

15. Irrigators rejected this proposal due to the uncertainty it would have introduced into their long range farm planning. PVID currently is considering an alternative proposal made by MWD which involves a lease program. See 2 WATER MARKET UPDATE, Feb. 1988, at 2.

16. 2 WATER MARKET UPDATE, Sept. 1988, at 13.

Subordination Agreements

Subordination agreements achieve a purpose similar to that of dry-year option arrangements. They are based on the fact that a major attribute of an appropriative water right is its relative priority, which can be marketed separately from the right itself. For example, a subordination agreement could be useful for a city with a junior water right (for example, the fourth priority on a stream system) that needs to build a new water treatment plant but cannot obtain financing because its water right is not judged reliable enough. If the city could purchase "consent-not-to-sue" agreements from the holders of the three senior priorities, under which those holders would allow their rights to become subordinate in dry years, a more reliable water right could be created without any formal transfer.

A senior priority may be compromised for something other than money. It can be given up for storage rights or other benefits in a new water project. For example, the Navajo Indian Nation, which has a senior priority claim on the San Juan River, agreed in 1968 to share shortages during droughts in order to obtain federal authorization for the Navajo Indian Irrigation Project. This allowed construction of the San Juan-Chama Project, which delivers transbasin water into the Rio Grande drainage basin to serve central New Mexico.[17]

Conservation Offsets

Another reallocation strategy for junior municipal and industrial users that need a more reliable supply is to make water conservation investments in a senior use. By financing the modernization of old irrigation systems, junior users may be able to make surplus water available for their use, while letting the senior user continue to irrigate the same amount of land with less water. Although the legal questions involving such an arrangement are complex, this strategy is being pursued in a number of areas around the West.

The city of Casper, Wyoming, applied this conservation strategy in the early 1980s in conjunction with the Alcova Irrigation District. The city financed canal lining and other means of reducing irrigation losses in the district, then diverted the salvaged water for municipal use. Casper, which receives an annual right to divert several thousand ac-ft under this arrangement, concluded that financing conservation measures was the most cost-effective way to increase its water supply.

Conservation strategies are also being pursued in southern California to firm up municipal water supplies. In October 1988, the Bureau of

17. Price & Weatherford, *Indian Water Rights in Theory and Practice*, 40 LAW & CONTEMP. PROB. 128 (1976).

Reclamation awarded a $5.2 million contract to line 1.5 miles of the Coachella Canal. The project will test an in-place lining technique that may eventually be used to seal large portions of the Coachella and All-American canals. Annual water savings of the ultimate lining project are expected to total 100,000 ac-ft/yr. The MWD is a major proponent of the project and plans to pay a large part of the bill in return for diverting salvaged water.[18] South of Coachella, the Imperial Irrigation District (IID) is also engaged in water conservation planning that may save 300,000 to 500,000 acre-feet a year through canal lining, tail-water recovery, and other improvements. IID has negotiated with MWD for the financing of these improvements, with the parties having reached a tentative agreement in late 1988. Under the agreement, MWD will divert 100,000 ac-ft/yr of conserved water for 35 years at an annual cost of about $128/ac-ft.[19]

Exchanges

An agreement to exchange one water supply for another temporarily, seasonally, or permanently can prove advantageous to parties with water rights that for some reason are not appropriate to their respective needs. For example, exchanges can be motivated by water quality differences when a municipality exchanges its surface diversions for an irrigator's higher quality groundwater. More commonly, however, water exchanges are arranged in order to accommodate delivery of water to the place of need. Examples of such exchange arrangements abound in the western states.

In May 1987, the town of Alta, which lies in a canyon above Salt Lake City, offered to purchase 235 ac-ft of permanent water rights from a cemetery located in the lower valley. Because it would be prohibitively expensive to pump this water up to Alta, the town negotiated with Salt Lake City to exchange its newly purchased rights for water rights that Salt Lake City owns in Alta Canyon. The city could make direct use of the cemetery rights, and Alta could utilize the Alta Canyon rights without the cost of pumping.[20]

Water exchange arrangements are common in the Colorado Front Range, where transmountain tunnels and ditches provide flexibility in delivering water between the Colorado, South Platte, and Arkansas river basins. In a 1987 transaction, the city of Aurora in the South Platte basin purchased several hundred acre-feet of permanent water rights from irrigators in the

18. 2 WATER MARKET UPDATE, Oct. 1988, at 10.

19. 1 WATER MARKET UPDATE, Dec. 1987, at 2; 2 *id.* at 4 (Oct. 1988); *id.* at 4 (Dec. 1988).

20. 1 WATER MARKET UPDATE, June 1987, at 1. This deal did not close, however, due to disagreements over contract provisions.

Arkansas basin.[21] Through a complex paper exchange of water to upstream reservoirs and across the drainage divide, Aurora will be able to utilize this water for future municipal needs. A similar need for an exchange faces the city of Mesa, Arizona, which in 1985 purchased 12,000 acres of land in southern Arizona to obtain the associated groundwater rights. The city plans to pump this water for delivery to Tucson in exchange for water entitlements that Tucson would otherwise receive from the Central Arizona Project.

RECENT MARKET TRANSACTIONS

Of the several ways in which water reallocation is taking place in the West, the most common is the outright purchase of water rights. Recent examples of permanent water right purchases reflect various prices and different means through which the sales are accomplished.[22]

Water Ranches

As western water law developed, water rights were generally considered to be appurtenant to the land to which they were originally applied. Some jurisdictions, therefore, require new users to purchase the land associated with the water right in order to effect a water transfer to a new place of use. Also, irrigators are often reluctant to sell water rights independent of the land, because land without water is of little economic value in many parts of the west. These factors have led to the purchase of "water ranches"—lands conveyed solely for their associated water rights.

Arizona has developed the most active market in water ranches as its growing municipalities compete for new supplies. Although most Arizona cities currently have sufficient water, the 1980 Arizona Groundwater Management Act[23] mandates that municipalities and developers must show a 100-year water supply for new growth. As a result, water purveyors in the Phoenix and Tucson areas have been reaching out to buy irrigated farmland to provide a long term water supply for anticipated growth.[24]

The city of Scottsdale began its acquisition program in 1984 by purchasing several thousand agricultural acres with water rights from the Bill Williams River in western Arizona for $11.6 million. The ultimate

21. 1 WATER MARKET UPDATE, Sept. 1987, at 1.

22. The examples of water market transactions described in Section II are all taken from WATER MARKET UPDATE, Vol.1 (1987) and Vol.2 (1988).

23. ARIZ. REV. STAT. ANN. §§ 45-401 to 45-655 (1988). For a description of the Act, see Ferris, *Arizona's Groundwater Code: Strength in Compromise*, 78 AM. WATER WORKS ASS'N J. 79 (Oct. 1986).

24. Arizona's groundwater also is of interest to private investors who have purchased more than 30,000 acres in western Arizona for the associated groundwater.

cost of this project may far exceed that of buying the land and water, since delivery may require construction of a 150-mile pipeline. The city of Tucson also began early purchases of water ranches, buying thousands of acres in the fertile Avra Valley west of the city. In 1986, it purchased an additional 1,350 acres (with associated pumping rights of about 4,000 ac-ft/yr) at costs averaging from $600 to $780/ac-ft of annual water entitlement. Phoenix joined the purchase trend in December 1986 when its city council approved a $32 million purchase of agricultural lands in La Paz county. Phoenix plans to pump 30,000 ac-ft/yr from the region and hopes to use the Central Arizona Project canal to bring the water to municipal users. In the meantime, it has leased much of the land to the Colorado River Indian Tribes for agricultural production.

In Colorado, the city of Thornton (north of Denver) announced in 1986 that it had made arrangements to purchase 12,000 acres of irrigated farmland for $52 million in order to obtain the associated water rights. Thornton had retained private brokers to purchase the land and water secretly in order to prevent prices from rising. By early 1987 the city had finalized 90 real estate closings, and is currently assessing how to transport the water to the city at the least cost and with minimal effect on the agricultural community.

A water ranch was purchased in 1987 in New Mexico by the town of Roswell. The town paid $1.88 million for the 580-acre ranch, which carries a right to pump 1,740 ac-ft/yr for agricultural use. The town expects to be able to convert 70 percent of the right to municipal purposes. Because Roswell does not need the water immediately, it leased the land and water to a local farmer for three years at nearly $49,000/year.

Blocks of Water District Shares

When a municipality or other user needs to purchase water rights, it is not always necessary to buy the appurtenant land. Major transactions in water rights in several areas have involved buying shares of agricultural water district stock independent of the land. This practice has been occurring for twenty-five years in northeastern Colorado, where an active market exists for Colorado-Big Thompson (CBT) shares.

The CBT project began importing water from the Colorado River basin into the South Platte basin around 1960, primarily to provide supplemental irrigation water to area farmers. Local cities in this region, however, experienced rapid expansion and began buying shares, as did farmers who wanted to increase their irrigated acreage. Although prices for CBT water remained under $100/ac-ft during the initial years of trading, by the late 1970s the purchase price had risen to about $3,000/ac-ft. Then, in 1981, prices plummeted after the local cities committed themselves to

financing the Windy Gap Project to import additional Colorado River water for municipal use. Purchases of CBT units still occur today, but at prices averaging slightly more than $1,000/ac-ft.

Many other water district shares are being purchased in Colorado, primarily by municipalities. In December 1986, the Fort Collins City Council authorized the purchase of 100 shares in the North Poudre Irrigation Company at $3,250/share, or about $1,000/ac-ft of consumable water. The city is leasing back most of the water to the farmers at nominal cost for a period of eleven years. The city of Aurora also has made a number of recent water stock purchases, primarily from the Arkansas River basin in the southeastern part of the state. For example, in a 1986 agreement involving 90 shareholders, Aurora paid $2,500/ac-ft for water shares in the Colorado Canal Company that yield 5,600 ac-ft/yr of consumable water. In response to these transactions, brokers talked to local irrigators and in 1987 began offering 64 percent of the shares in the Fort Lyon Canal Company for sale. These shares represent 92,000 ac-ft of annual historic consumptive use at an asking price of $2,500/ac-ft.[25]

Utah also has a history of water district share purchases. In the early 1980s, the Intermountain Power Project in southern Utah purchased shares worth about $70 million in local irrigation districts for water needed at its new power plant. Purchase price for the water was about $1,750/ac-ft, with the sellers responsible for obtaining approval of the change of use and arranging for protection of third-party rights. More recently the Central Utah Water Conservancy District, which delivers water to Salt Lake City, has been negotiating with local irrigation companies for the purchase of up to 125,000 ac-ft of permanent water rights. In May 1987, the District published an offer of $164/ac-ft of permanent water rights, which elicited responses totaling about 200,000 ac-ft of rights for sale. By August 1988, the District had purchased 85,000 ac-ft of rights at the $164/ac-ft price.

Standing Purchase Offers

Instead of going out to buy blocks of irrigation district shares, several western municipalities and other major water purveyors maintain standing offers to buy existing water rights. The city of Albuquerque, New Mexico, has acquired a number of water rights through its standing offer to purchase senior irrigation rights for about $1,000/ac-ft of historic consumptive use. Although the city has more than adequate water supplies for the next several decades, it is planning for its future needs by slowly acquiring rights under this standing offer. Farmers who sell their water rights to

25. As of December 1988, these rights were still listed for sale at the $2,500/acre-foot.

Albuquerque under this program are automatically allowed to lease them back for a nominal fee for ten years.

The Las Vegas Valley Water District holds out a $1,000/ac-ft standing offer to buy groundwater rights in southern Nevada. It uses groundwater to meet peak demands during the summer, supplementing its main supply of Colorado River water stored in Lake Mead. Further north, in Reno, the local water utility holds out a standing offer of $2,000/ac-ft for senior rights from the Truckee River. Since initiating this offer in 1987, the utility has purchased nearly 2,000 ac-ft primarily in numerous small transactions.

In another region of the West, a standing offer price has decreased dramatically. In the early 1980s, when a recreational land boom was occurring in Summit County east of Salt Lake City, the Weaver Irrigation District held out a standing offer of about $500/ac-ft for water rights in a local canal company. Currently, with the growth rate decreasing, the District's standing offer is less than half this amount.

Individual Sales

Many water rights transactions simply involve single sales between buyers and sellers, independent of standing offers, land purchases, or district shares. Private developers typically use this type of transaction for their subdivisions and commercial developments. The developer will purchase a senior irrigation right, retire it, and dedicate the water to the domestic use associated with the development. In resort areas with limited water supplies, the cost of individual water rights can be quite high. In the Park City area in the mountains above Salt Lake, purchase prices have exceeded $4,000/ac-ft. Water rights in the mountain resort areas of Colorado have been purchased for nearly $10,000/ac-ft in some instances.

Individual water purchases by developers are often stimulated by local ordinances that require developers to dedicate water to the town or county in which the subdivision is to be located. In Las Lunas, New Mexico, developers must permanently dedicate 2.1 ac-ft of water for each acre within the subdivision, or pay $2,400 per acre as modified by an inflation adjustment factor. A similar ordinance in Greeley, Colorado, requires a 3 ac-ft/acre dedication or an in lieu payment of about $1,000/ac-ft. In the Reno-Sparks area of Nevada, dedication requirements have resulted in a lively market in small water rights transactions priced in the $1,800 to $2,500/ac-ft range. Water right prices are lower in Brownsville, Texas, where developers must contribute 1.5 ac-ft/acre of development or make an in lieu payment of $720/acre.

Even though the agricultural economy is suffering in general, some farmers are also making individual water right purchases to improve their

irrigation capacity. Permanent water rights for irrigated orchards have sold in the Pecos River basin of New Mexico at prices of $1,100 to $1,200/ac-ft. In Idaho, an irrigator along the Snake River purchased a 2,000 ac-ft water right for $250/ac-ft in September 1988.

Investments Per Se

Not all water purchases are made to fulfill the needs of cities, developers, irrigators, and other end users. Many individuals and corporations have bought water rights simply because they believe the value of water rights will escalate. A typical investment transaction involves the purchase of irrigation water rights and a leasing back of the rights to the farmer for continued irrigation until the investor is ready to resell the rights. The lease-back provision can be critical, not only in order to create annual benefits from the water during the holding period, but also to continue the beneficial use of surface rights to protect them from forfeiture.

Past investments in water rights have typically involved individual investors purchasing a particular water right or district share. In recent years, however, major water right purchases have been made by investors pooling their money in collective transactions. For instance, private investors paid $7.8 million for an Arizona water ranch and are hoping to resell the associated 6,200 ac-ft groundwater rights for a profit. In Colorado, this concept was taken a step further by Western Water Rights Management, Inc., a corporation that raised $35 million in 1985 to purchase Colorado water rights on behalf of a small group of investors. The corporation has spent more than $10 million on senior irrigation rights that it believes Colorado cities and industries will buy in the future. The investment period for this package is 14 years, at which time the investors hope to realize a significant profit on the resale of the water rights.

Groundwater Markets

The majority of western water transfers involve surface waters. However, groundwater has been purchased with many water ranches, as well as in areas where groundwater rights are separately transferable. One such market has existed for many years in the Los Angeles area. Beginning in the 1960s, a local court established groundwater basins in the Los Angeles region and assigned pumping rights to individual groundwater users. Holders of the rights are free to lease groundwater each season or to sell their rights permanently. In order to facilitate transfers, the court established a state-sponsored clearinghouse for the annual leasing of pumping rights. The rights are leased at a set price that reflects operating costs, local water assessments, and the cost of imported water. In 1988, the state pool price for leasing an acre-foot of groundwater in the Central

Basin was $125, up $7 from the 1987 price. Several thousand ac-ft of groundwater are leased each year in the Los Angeles area.

The Phoenix and Tucson areas also have relatively active markets in groundwater rights. The 1980 Arizona Groundwater Management Act established Type II groundwater rights[26] as part of a strategy to control declining groundwater levels. Type II rights were quantified based upon the amount of pre-1980 groundwater withdrawals for non-irrigation purposes. The act made Type II rights readily transferable with only slight geographic and other legal restrictions. These rights have been purchased by new users as well as by speculators who believe their price will rise. In recent years, such rights have generally sold in the $700 to $1,300/ac-ft range for permanent use.

In Colorado, landowners have the right to mine and market ancient groundwater deposits that lie beneath their land and are not hydrologically connected to surface streams. Particularly in the Denver and Colorado Springs areas, this nontributary groundwater is an important component in current water supplies. Offers to sell this groundwater have recently been published through the Water Exchange Information Service, a multiple listing of water rights for sale in Colorado. Prices for nontributary groundwater rights are currently listed at $1,000/ac-ft and more.

Marketing of groundwater rights also occurs in other regions of the West. Sierra Pacific Power Company signed an agreement in 1987 for the purchase of 2,100 ac-ft of groundwater rights in northwestern Nevada for $1,150/ac-ft. The Company plans to import the groundwater to its Reno-Sparks service area if legal objections can be overcome. In early 1987 an Albuquerque private school advertised for sale 102 ac-ft of its consumable groundwater rights. The school received $1,200/ac-ft for 97 ac-ft and $1,100/ac-ft for the remainder. The city of Albuquerque submitted a bid for the entire amount at its standing offer price of $1,000/ac-ft, but was overbid by local developers and homeowners.

Groundwater marketing occurs as far east as Kansas, where the town of Holcomb recently acquired 200 ac-ft of vested groundwater rights from a local land developer in exchange for water and sewer service (a $500,000 project) and $30,000 cash. Holcomb found this arrangement advantageous because of uncertainties in obtaining groundwater in southwestern Kansas where strict anti-depletion policies are being enforced by the state.

MAJOR ISSUES AND CONTROVERSIES

The increase in water marketing has introduced new issues and complexities to western water users and government officials. State legislators

26. ARIZ. REV. STAT. ANN. § 45-464 (1988).

must decide whether to take a passive role in allowing water markets to operate under existing structures, or to enact new laws either promoting or inhibiting water rights transfers. Rural water users must weigh the desirability of selling water rights and the tradeoffs between a quick cash influx versus long-term viability of the regional economy. Indian tribes, federal agencies, and other groups interested in western water also must assess water marketing and its potential positive and negative effects.

Chief among the legal and institutional issues of water marketing in the West is the effect of water right transfers on rural areas that historically have depended upon irrigated agriculture.

Effects On Rural Areas

Agricultural water rights in many areas of the West are being converted to municipal and other new uses. Large transfers of rights from rural to urban areas typically cause controversy in the area where the water rights originate. For example, residents of rural counties are concerned over erosion of the local tax base when significant amounts of productive land are taken out of irrigation or purchased for their water rights. The issue of rural tax base erosion has been particularly important in Arizona as municipalities have purchased tens of thousands of agricultural acres for their water rights. Under the Arizona constitution, municipalities cannot be charged property taxes on land they own. Consequently, water ranches can severely undermine county tax revenues in areas where cities have purchased a significant percentage of the private land. In 1986, the Arizona legislature addressed this problem by enacting a statute that empowered municipalities to make voluntary payments to counties in lieu of property taxes.[27] Although some cities have started making in lieu payments, many rural county officials want additional security. However, proposed bills to create mandatory payments by cities in lieu of property taxes failed to pass the Arizona legislature in 1987 and 1988.[28]

Water right transfers threaten not only county tax bases, but also the overall economic health of rural areas. When productive agricultural acreage in an area is suddenly reduced, severe secondary economic impacts can debilitate the remaining farmers, as well as affect the businesses that supply and depend upon agricultural customers. State legislatures have been looking at ways of addressing the economic problems associated with water transfers from a region. For example, in the 1987

27. *Id.* at § 45-289.

28. *See, e.g.*, H. R. 2153, 1987 Ariz. Leg. Sess. A 1987 bill which did pass the Arizona legislature allows for municipally-held lands to be included in a county's net assessed valuation for the purpose of distributing state-shared sales taxes to counties. This legislation also permits municipal holdings to be counted in assessed valuation for determining county levy limits, but only if the municipality formally agrees to make payments in lieu of taxes to the county.

Colorado legislative session, rural representatives attempted unsuccessfully to require that purchasers of water rights pay the county of origin five times the amount of property tax revenue lost as a result of transferring irrigation water rights to other regions.[29] Also, irrigation and conservancy districts often adopt bylaws to prevent the transfer of water shares outside the boundaries of their districts in order to protect the local economy.

Economics is only one concern in rural communities over the export of water rights. The overall quality and character of life can be undermined in areas where historic irrigation suddenly is terminated. Rural communities and state legislatures are beginning to consider measures to require revegetation of irrigated agricultural land prior to the transfer of water rights. More commonly, individuals and rural groups are taking stands to protect the agricultural lifestyle that is threatened by wholesale removal of water rights. Such an effort recently entered the courtroom in northern New Mexico, resulting in a district court ruling in favor of rural protection.

In re Application of Howard Sleeper [30] involved the sale of 75 ac-ft of agricultural water rights by Sleeper and another irrigator to the Tierra Grande Corporation, which proposed a resort development in northern New Mexico. The New Mexico state engineer approved the transfer of the rights to resort-related uses, but local irrigators challenged his approval in district court. Among other claims, the protestants argued that such a transfer was contrary to the public welfare.

In an opinion issued in early 1985, the district court judge found the proposed transfer to be inconsistent with public welfare in this rural region of the state. Although the proposed resort and ski area would bring in additional jobs, the judge concluded that "[o]ver the long run, the local inhabitants lose management level jobs to outsiders and are relegated to service jobs, such as waiters and maids."[31] The judge also differed with the corporation's position that "greater economic benefits are more desirable than preservation of a cultural identity."[32] According to the judge:

> Northern New Mexicans possess a fierce pride over their history, traditions and culture. This region of New Mexico and its living culture are recognized at the state and federal levels as possessing significant cultural value, not measurable in dollars and cents. The deep-felt and tradition-bound ties of northern New Mexico families to the land and water are central to the maintenance of that culture.[33]

29. H.R. 1257, Colo. Leg., 56th Sess. (1987); see 1 WATER MARKET UPDATE, Mar. 1987, at 6.

30. Rio Arriba County Case No. RA 84-53(C), New Mexico First Judicial District, April 16, 1985, *rev'd, In re* Application of Howard M. Sleeper, P.2d (N.M. Ct. App.) (Westlaw NM-CS library), *cert. denied,* P.2d (N.M. 1988).

31. *Id.*

32. *Id.*

33. *Id.*

The judge was "persuaded that to transfer water rights, devoted for more than a century to agricultural purposes, in order to construct a playground for those who can pay is a poor trade, indeed."[34] He found that the transfer application was clearly contrary to the public welfare and should have been denied by the state engineer.[35]

Trans-Jurisdictional Marketing

In addition to creating local controversy in rural areas, water transfer proposals can generate conflict among competing states and other jurisdictions. The 1982 United States Supreme Court decision in *Sporhase*[36] established that water is an article of commerce, and states can not unreasonably restrict its interstate transport and sale. As a consequence, statutes that ban the export of water are unconstitutional, and western states that had such statutes began assessing alternatives for controlling water exports.

One popular alternative being considered involves the state taking a proprietary interest in water rights and entering the regional water market. This approach could broaden the state's control over who uses water both in-state and out-of-state, as well as generate revenues for public treasuries. The Montana legislature applied this approach in a statute enacted in 1985 providing that any new water appropriation in excess of 4,000 ac-ft/year (or diverted at a rate greater than 5.5 cubic feet per second) must be leased from the state.[37] In the past, such an appropriation would have created a permanent, vested water right in the private owner rather than a permit subject to a term of years, an annual fee, and other conditions imposed by the state.

The New Mexico legislature has initiated a similar approach by approving the use of funds to study the concept of appropriating groundwater in the name of the state and marketing portions of it.[38] This action was spawned by the attempts of El Paso, Texas, to claim significant quantities of groundwater underlying southeastern New Mexico.[39] After New Mexico's anti-export statute was ruled unconstitutional, the state looked to the appropriation and conditional lease of groundwater as a strategy to resist El Paso's bid for water. Similarly, the Nebraska legislature in 1987

34. *Id.*

35. *Id.* This decision was later reversed by the New Mexico court of appeals based on the fact that specific public interest language was not added to the governing statutes until after the application to transfer was filed.

36. Sporhase v. Nebraska *ex rel.* Douglas, 458 U.S. 941 (1982).

37. MONT. CODE ANN. § 85-2-141 (1988).

38. H.B. 337, 38th Leg., 1st Sess., ch. 182, 1987 N.M. Laws 1039.

39. S. SHUPE & J. FOLK-WILLIAMS, THE UPPER RIO GRANDE: A GUIDE TO DECISION MAKING (1988).

approved a bill authorizing the study of state appropriation and purchase of water.[40]

These examples of states considering entering the water market to control their resources occur in situations where no interstate compacts or decrees govern the allocation of interstate waters. Where agreements and compacts do allocate interstate waters, states need not assert jurisdiction over the water in order to claim control over its future use. Nonetheless, difficult interstate marketing issues can arise in basins where compacts allocate limited water supplies among competing states. The specific question arises whether users with vested water rights in an upstream state may sell and transfer their entitlements to users in downstream states.

This question has surfaced in the Colorado River basin as well as other regions of the West over the past few years. Some water officials argue that it is unlawful to undertake interstate marketing of water to a state other than the one that is entitled to use it under compact. Others maintain that to prevent interstate marketing perpetuates antiquated water use patterns that run contrary to efficient water utilization and modern demands. Whatever the case, an increasing number of proposals for interstate water marketing challenge the strict construction of compacts and force decisionmakers to face this difficult issue.

Water leasing by Indian tribes to off-reservation users also raises difficult interjurisdictional issues. The right of tribes to lease land and water for on-reservation development has long been recognized. Congressional approval, however, is generally required for the lease of Indian water outside reservation boundaries to non-Indian users. Although Congress, in 1982, explicitly sanctioned off-reservation leasing by the Tohono O'Odham Indian Nation (located west of Tucson),[41] growing political pressure from western water interests has recently made it difficult for tribes to gain off-reservation leasing approval. Recent Indian water rights settlement bills were delayed in Congress due to controversy over provisions granting tribes the right to market water off the reservation.[42]

Transferring Federally-Supplied Water

Another major issue in the future of western water marketing is the

40. Leg. Bill 146, 1987 Neb. Leg., 90th Sess.

41. Southern Arizona Water Rights Settlement Act, Pub. L. No. 97-293, 96 Stat. 1261 (1982).

42. Of three Indian water rights settlement bills passed by Congress in October 1988, only the Salt River Pima-Maricopa Indian Community Water Rights Settlement Act of 1988 (H.R. 4102) retained its original off-reservation water leasing provision. In the cases of the San Luis Rey Indian Water Settlement Act (S. 795) and the Colorado Ute Indian Water Settlement Act (H.R. 2642, S. 1415), off-reservation leasing was severely restricted in the bills prior to passage. *See* 2 WATER MARKET UPDATE, Nov. 1988, at 8.

transfer of water supplied by Bureau of Reclamation projects. The 1902 Reclamation Act set in motion the construction of numerous dams in the West designed primarily to deliver cheap water to irrigators. As water demands shift to new municipal and industrial uses in many western areas, the question arises whether federally-supplied irrigation waters can be transferred to these new demands, and if so, who should receive the additional income generated.

In early 1986, officials of the U.S. Department of Interior expressed their intent to promote the transfer of federally-supplied waters.[43] Congressional delegates from the western states quickly squelched the idea pending additional study and consideration. Later that year the Western Governors' Association convened a task force composed of state officials and Interior representatives to discuss various water transfer and efficiency issues, including the proper role of the federal government in such transfers. In July 1987, the western governors adopted a resolution reflecting the importance of integrating federal water policy into the water reallocation picture.[44] Actual policy decisions, however, are still being formulated by the Department of the Interior.

Marketing of Salvaged Water

Water marketing is perceived by many as an effective way to promote water use efficiency throughout the West. States are examining how efficiency can be promoted by allowing farmers who modernize wasteful irrigation systems to sell the conserved water.

Current law in western states regarding the marketing of salvaged water is usually complex and rarely clear. Commentators of previous decades were confronted with a simpler situation, and were able to state with some certainty that "the prevailing rule is that the person who installs water saving devices is allowed to take the water thus saved."[45] Such a statement was generally made after citing several old cases in which irrigators who installed pipes and lined ditches were given the right to utilize the former seepage losses.[46]

Such a conclusion is not so simple under current standards, practices, and knowledge. With groundwater now being heavily utilized throughout the West, ditch seepage and other return flows rarely can be salvaged without adversely affecting other water users. Moreover, most jurisdic-

43. The Undersecretary of the Interior announced in a February 1986 speech that a water marketing policy statement was soon to be issued.

44. Res. 87-015 (1987), *Reprinted in* 1 WATER MARKET UPDATE, Aug. 1987, at 11.

45. Dickenson, *Installation of Water Saving Devices as a Means of Enlarging an Appropriative Right to Use of Water*, 2 NAT. RES. LAW 272, 285 (1969).

46. *Id.*

tions flatly prohibit senior users changing the water right in a way that would injure junior users in the basin. As a consequence, improvements in irrigation efficiency that simply reduce return flows usually will not enable the investor to capture the conserved water if those return flows had historically been used by others.

Some states further inhibit water salvage by allowing a transfer of irrigation rights only to the extent of historic crop consumption. Consequently, if there are irretrievable losses (i.e., evaporation, weed transpiration, or irretrievable percolation), the irrigator is not entitled to salvage and market this portion of the water right.

In order to clarify the law and promote water use efficiency, several state legislatures have considered bills that explicitly sanction the marketing and use of salvaged irrigation water. In 1985, the California legislature enacted bills which modified rules to authorize and encourage the transfer of salvaged water.[47] A similar bill was introduced in Colorado that same year, but was defeated by downstream agricultural interests who feared that the salvage of wasted water upstream would ultimately affect their water rights.

The most comprehensive water salvage bill was enacted by the Oregon legislature in 1987.[48] The statute explicitly allows irrigators to reduce their historical losses and market the conserved water to other users. The statute also establishes the guideline that 25 percent of the salvaged water should remain in the stream if it is needed to protect fish and other elements in the public interest.

CONCLUSION

The reallocation of water rights promises to play an important role in meeting future water demands in the West. Numerous questions about the future character of water marketing and transfers remain unanswered. Will states facilitate the marketing of salvaged water to promote improved efficiency? Will Indian tribes choose to lease large amounts of their water, and if so, will they be able to persuade Congress to approve such programs? How will rural communities be protected against water transfers that affect local economies and lifestyles? Will the public trust doctrine result in a judicial reallocation of historic water appropriations to protect the public interest in free-flowing waters?

These and other important issues are on the horizon as we enter the era of water reallocation. Many challenges lie ahead for public officials, water managers, and others who must make decisions regarding the future

47. CAL. WATER CODE § 1011 (1988).
48. OR. REV. STAT. §§ 537.455-.500, 540.510(2), (3) (1988).

use of water in the West. Perhaps we are better prepared to face the upcoming challenges than were decisionmakers in the nineteenth century era of resource allocation. Or perhaps we are destined to learn again through trial and error in an attempt to arrive at an equitable system. It is a time in which dialogue and cooperation among competing interest groups are critical. Water reallocation and marketing, for better or worse, are a part of our future in the West, and we must prepare to face the challenge.