Articles

THE LEGAL FRAMEWORK FOR WATER TRANSFERS IN ARIZONA

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I. INTRODUCTION

Most municipal water providers in Arizona currently rely on some combination of groundwater, imported Colorado River water and/or other surface waters for their water supplies. Anticipating that population growth and provisions of the state's Groundwater Management Act will prove these supplies insufficient to meet projected demands, water providers, and developers are turning to water transfers for an abundant source of water.

During the past few years, municipalities, developers, and investors have spent close to $200 million to acquire tens of thousands of acres of land in rural Arizona, not for the value of the land or its crops or any structures on it, but for its access to surface or groundwater.[1] This phenomenon, termed "water farming," has generated significant controversy over the potential effects on rural areas in which the water originates.

This article describes the historical setting of water farming in the West, early transactions in Arizona, and the legal and social forces driving the current water farming activity. The current legal framework for transferring various types of water in Arizona is presented, including recent legislation dealing with some of the negative impacts of water farming on areas of origin, and the possible consequences of a court decision on the legal status of

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1. G. WOODARD, E. CHECCHIO, THE WATER TRANSFER PROCESS IN ARIZONA: ANALYSIS OF IMPACTS AND LEGISLATIVE OPTIONS 39, 133-56 (Div. of Econ. & Bus. Research, Univ. of Ariz., April 1988).

effluent. Unresolved policy issues and earlier legislative attempts to pass comprehensive transfers legislation also are discussed.

II. HISTORICAL SETTING

Historically, new water users in the West appropriated water rights to which no previous claims had been established and constructed water development projects to capture, store and transport water to areas where local supplies were perceived as inadequate. The federal government subsidized these projects so heavily that direct beneficiaries of projects constructed in the 1950s and 1960s typically bore only 30 percent of project costs. During this era, there was little incentive to bid water rights away from existing users because appropriation of unclaimed water and subsidized supply development provided an attractive alternative to market transfers.

More recently, surface water supplies in many areas have become fully appropriated and some states have set limits on new groundwater pumping so that it is no longer an inexpensive and straightforward matter to acquire new water rights. The costs of water development projects continue to rise as the best reservoir sites long since have been developed, and environmental considerations prompt litigation, project delays and costly impact studies. The local share of costs are rising, too, as budgetary constraints have made the federal government unwilling to subsidize project costs to the extent it did in the past.

These changes, combined with a gradual shift in the economy of the West from agriculture and mining towards municipal growth, industry and tourism, are generating increasing pressure for developing means to acquire existing water rights. Some areas have well-developed water markets with many transactions occurring every year.[2] In these areas, professional water brokers, with ready access to information on recent prices and water rights availability, facilitate transactions. In most of the West, however, sales of water rights historically have been confined to exchanges among similar water uses. In many western states, the rules governing water rights transfers are in a state of flux. In these areas, transactions occur sporadically, information on quantities and prices of water sold is hard to obtain, and the attorneys and real estate brokers who facilitate water transactions do so as a sideline to their regular business activities. This is the current situation in Arizona.

While water transfers were a common occurrence in other western states, surprisingly few inter-basin transfers occurred in Arizona prior to 1980. Despite the growth and aridity of the state, water farming came late to Arizona for a couple reasons. First, most municipalities in Arizona rely heavily on groundwater supplies. In Tucson, for example, groundwater is

2. Preliminary analysis of a USGS-sponsored study on water transfers in the West shows that from the mid-1970s through the mid-1980s, there have been an average of 70 water transfers per year in Colorado, 100 in New Mexico and 300 in Utah. By contrast, only one or two transfers per year occurred in California and two or three in Wyoming. For descriptions of water transfer activity in the Western states, see Saliba & Bush, *Water Markets in Theory and Practice*; WATER MARKET UPDATE 1-3 (S. Shupe, ed. 1987-89).

the sole source of potable municipal water.[3] Pumping groundwater allows one to postpone the day of reckoning to a far greater extent than when relying primarily on surface water. Even when the rate of consumptive use exceeds the rate of recharge, there is no immediate crisis, since wells can be sunk several hundred feet deep. The overdraft causes groundwater levels to decline, but usually no more than a few feet per year. Furthermore, since groundwater aquifers are relatively unaffected by periods of drought, there is no sense of urgency, no reason to panic.

A second factor which postponed the water farming phenomenon is that most water transfers in Arizona involve *groundwater* rather than surface water as in most other western states. This presents difficulties in transporting the water from its area of origin to a distant intended point of use. Whereas surface water rights purchased near their headwaters generally can be transported by gravity flow, groundwater is pumped out of basins at low elevation; transporting it hundreds of miles across basin-and-range terrain may be prohibitively expensive.

III. EARLY ARIZONA TRANSFERS

Water transfers for municipal use occurred in Arizona as early as 1948, when the city of Prescott purchased farmland in the nearby Chino Valley. The city developed a well field on the land and began pumping water for domestic use in Prescott. The transfer proved controversial from the start, as local farmers charged that the pumping by Prescott exceeded that normally needed for agriculture, leading to water level declines in the basin and prolonged litigation.

Additional water farming activity took place in Arizona in the 1970s. The city of Tucson began purchasing and retiring farmland in the Avra Valley, located about 15 miles northwest of Tucson, in 1971. After a five year hiatus between 1979 and 1984, additional purchases were made through 1986. These purchases total nearly 21,000 acres for a total purchase price of $22.7 million, or an average price of just over $1,000 per acre. At one time, the city planned to acquire a total of 30,000 acres in the Avra Valley; any additional purchases are pending clarification of state water transfers law.[4]

While these purchases initially caused considerable concern in their areas of origin and led to major precedent-setting lawsuits,[5] they did not create the kind of intense, state-wide controversy that Arizona currently is experiencing. These purchases differed from those occurring recently in several important respects:

(1) the area of origin was relatively near the area of use;
(2) the water was in the same hydrologic basin, although in different sub-basins;

3. This is expected to remain the case until Colorado River water is delivered to Tucson via the Central Arizona Project for treatment and potable use. This is scheduled to occur by 1992.

4. Proposed changes in Arizona's water law make the value of obtaining additional Avra Valley acreage uncertain. See discussion of unresolved policy issues, *infra* Part II.

5. For a discussion of the pre-1980 groundwater law, see Goodman, *Current Groundwater Law in Arizona*, ARIZ. ST. L.J. 205-24 (1978); and Note, *The Right to Use Groundwater in Arizona after Chino Valley II and Cherry v. Steiner*, 25 ARIZ. L. REV. 473 (1983).

(3) the land was in the same county, so that most property tax impacts were internalized; and
(4) the cities incorporated the purchased land into their service areas, assuring an adequate water supply for the areas of origin.

These water transfers were limited in scope and driven by a relatively immediate need for water. In most respects, they bear little resemblance to the transactions characterizing Arizona's developing water farm market today.

IV. DRIVING FORCES BEHIND RECENT WATER TRANSFERS

Several factors are responsible for the flurry of water farming activity occurring since 1984. Chief among these is the 1980 Groundwater Management Act with its assured water supply and safe yield provisions. Other factors include: the continued rapid growth of Arizona's urban areas; recent Indian water rights settlements; a depressed agricultural economy; and construction of the Central Arizona Project[6] (CAP) aqueduct.

A. *The 1980 Groundwater Management Act*

The primary driving force behind water farm purchases in Arizona is the 1980 Groundwater Management Act (GWMA).[7] The GWMA provides incentives for Arizona municipalities to reach far into rural counties for secure water supplies to guarantee their future growth. The GWMA created the Arizona Department of Water Resources (ADWR)[8] and established four Active Management Areas (AMAs) within which groundwater is being managed intensively to reduce groundwater withdrawals.[9] Approximately 80 percent of the state's population resides within these AMAs, and about 70 percent of water consumption occurs there.[10] The statutory management goal for the Phoenix, Tucson, and Prescott AMAs is to achieve safe yield by the year 2025.[11] Safe yield for purposes of the statute means that groundwater withdrawals may not exceed groundwater recharge[12]—in other words, the basin must become hydrologically "balanced." The Pinal AMA, with a primarily agricultural economy, has the goal of extending the life of the agricultural economy as long as possible consistent with the need to preserve water supplies for future nonagricultural uses.[13]

Within AMAs, the GWMA prohibits new development where an assured water supply does not exist. Lands within an AMA may be offered for sale or lease only if the land is located within an area already designated as

6. The Central Arizona Project is a massive federal reclamation project costing in excess of $4 billion featuring a 335-mile long aqueduct that, when complete in the mid-1990s, will have the capacity to move up to 2.1 million acre-feet of water per year from the Colorado River to urban areas and farms in central Arizona.

7. The Arizona Groundwater Management Act passed in a Special Session of the legislature and became effective June 12, 1980. Its provisions are contained in ARIZ. REV. STAT. ANN. §§ 45-401, -651 (1987 and Supp. 1988).

8. ADWR is established by ARIZ. REV. STAT. ANN. § 45-102(A) (1987).

9. ARIZ. REV. STAT. ANN. § 45-411 (1987).

10. K. Ferris, *Arizona's Groundwater Code: Strength in Compromise*, 78 AM. WATER WORKS ASSOC. J. 79 (1986).

11. ARIZ. REV. STAT. ANN. § 45-562(A) (1987).

12. ARIZ. REV. STAT. ANN. § 45-561(7) (Supp. 1988).

13. ARIZ. REV. STAT. ANN. § 45-562(B) (1987).

having an assured water supply or if a certificate of assured water supply is obtained from the Director of ADWR (the Director).[14] This certificate is issued based on the continuous availability of sufficient water of adequate quality to meet the needs of the proposed use for at least 100 years.[15] Additionally, the proposed water use must be consistent with the management plan and achievement of the management goal for the AMA.[16]

Within those AMAs which have safe yield as their goal, an assured water supply eventually may not be based on mining groundwater within AMAs. Consequently, the quantity of groundwater located within AMAs that can "count" toward an assured water supply will be limited to the amount being recharged into the aquifer. Cities and towns (but not private water companies) which have subcontracted to receive CAP water are deemed to have assured water supplies until the year 2001.[17] At that time the determination is subject to review by the Director. The uncertainty created by this provision drives many municipalities with seemingly adequate CAP supplies to obtain additional water rights outside of their AMAs.

The 1980 GWMA not only created a demand for water transfers, it helped create the supply as well, by making it easier to transport water from areas outside AMAs. Prior to 1980, neighboring pumpers harmed by transport of groundwater off appurtenant lands could sue for injunctive relief. The GWMA clarified the rights of landowners to pump and transport water off their land and limited relief of neighboring pumpers to suing for damages.[18]

The virtual absence of restrictions on the withdrawal and transport of groundwater from lands outside AMAs stimulates interest in purchasing these lands for water farms. One can buy just enough land outside an AMA to build a well field and then withdraw and transport as much water as desired, as long as the water is applied to some "reasonable and beneficial use." Most water farm purchasers, however, are avoiding potential damage claims and precluding the possibility of competing pumpers by buying large tracts of land, in some cases, entire sub-basins or aquifers. This strategy has the added benefit of assuring that the purchasers still will be entitled to large quantities of water if at some future date their land is included within a new AMA,[19] since water rights within AMAs are based on historical pumping. Purchase of the entire farm also benefits the farmer, whose land has little economic value independent of its water.

It is not yet clear what quantity of water these purchases will contribute to the buyers' 100 years assured water supplies. In general, purchasers of reliable surface water rights will be credited with a quantity equal to their consumptive use right; purchasers of land overlying groundwater aquifers probably will be credited with estimated annual recharge to the aquifer plus

14. *Id.* at § 45-576(A).
15. *Id.* at § 45-576(L)(1).
16. *Id.* at § 45-576(L)(2).
17. *Id.* at § 45-576(I).
18. *Id.* at § 45-544.
19. ARIZ. REV. STAT. ANN. § 45-414 (1987) provides for the designation of subsequent AMAs through a determination by the Director; *id.* at § 45-415 provides for designation of an AMA by local initiation.

1/100 of the estimated groundwater stored to some particular depth. Most water farm purchases to date involve groundwater aquifers with insignificant recharge rates, meaning that what is available for transfer to urban areas essentially is non-renewable or "mined" groundwater.

B. *Urban Growth*

Arizona has experienced some of the most rapid population growth in the U.S. since 1970. Most of this growth has occurred in the state's two major urban areas, resulting in greatly increased water demand in arid regions with existing concerns about the long-term adequacy of water supplies. This was the principle motivator of Tucson's pre-1980 purchases and has been a contributing factor in subsequent municipal purchases.[20]

In addition to purchases by municipalities, private developers are buying water farms to guarantee a water supply for their developments. Developers may transport the water themselves or trade their water farms to nearby municipalities in exchange for guaranteed water service. A perception that the value of water in the West must inevitably rise due to increasing scarcity[21] has led speculators to invest in water farms. Water-intensive industries, particularly in the mining and energy sectors, require reliable water supplies at reasonable costs at sites for future mines or plants. Additionally, the Central Arizona Water Conservation District, which oversees the CAP, may acquire water for backup supplies during periods of drought.[22]

Some observers claim that Arizona's future urban demand can be satisfied by the water farm purchases already made; others disagree, contending that as much as an additional 100,000 acre-feet per year will be needed by the year 2025, with several times that needed over the next century.[23] Differences of opinion on future water demand result from various sets of assumptions concerning factors that affect municipal water demand, including: population growth rates and demographic factors; land use patterns and housing densities; landscaping tastes; conservation efforts; plumbing codes; reuse of effluent; and the price of water. In addition, uncertainties about *where* development will occur cause the sum of local demand projections to exceed regional demand estimates.

C. *Indian Water Rights Settlements*

The federal government's desire to find water to satisfy Indian water entitlements without building new projects also is generating interest in water transfers. The Southern Arizona Water Rights Settlement Act

20. Buyers include municipalities such as Mesa, Phoenix, Scottsdale and Tucson; Chandler, Glendale, Peoria, Prescott and Tempe all are considering water farm purchases.

21. This is not necessarily the case. *See* Saliba & Bush, *supra* note 2, at 171-76.

22. The CAWCD is negotiating to purchase a half interest in a 27,000 acre, $69 million water farm capable of supplying up to 93,000 acre-feet per year in times of insufficient Colorado River flows. *Water Ranch Plan Stirs Flap*, Ariz. Republic, Aug. 30, 1989, at B1-2.

23. Purchases to date total nearly one-half million acre-feet per year on a 100 year basis. An acre-foot of water is the quantity of water needed to cover one acre of land to a depth of one foot, or 325,851 gallons. This is sufficient water to meet the domestic needs of five to 10 persons for one year, or to irrigate roughly one-quarter acre of a "typical" crop.

(SAWARSA),[24] which involved claims of the Tohono O'odham Nation, and the Ak-Chin Settlement Act both involved the transfer of Colorado River water. Similar provisions recently were negotiated in the Salt River Pima-Maricopa Indian Water Rights Settlement Act. The Gila and Little Colorado River general stream adjudications, currently in progress, may necessitate additional annual water deliveries of up to one million acre-feet to Indian reservations in Arizona.

Since most tribes lack the capital needed to develop their "paper rights" into reliable water supplies, Indians may find themselves in a position to lease portions of their water entitlements. There is much legal uncertainty, however, regarding the marketability of Indian water rights. Although tribes commonly lease water to non-Indians for use *on* the reservations, congressional approval generally is needed for Indian water to be marketed and transferred for use *off* the reservation.[25] Such approval only has been granted in a very limited number of cases.[26]

D. *Other Factors*

A recent decline in the agricultural sector of Arizona's economy has created a pool of willing water farm sellers. Many farmers in distressed financial positions are eager to sell their land. In addition, some irrigation districts are similarly willing to trade water for financial relief. Periods of economic hardship in agriculture are a recurring phenomenon, however, and an upturn in the sector eventually should occur. Nevertheless, the current situation is characterized as a buyers' market.

As the Central Arizona Water Conservation District begins deliveries of CAP water, Arizona's municipalities become increasingly dependent on CAP allocations that are less reliable than the groundwater supplies they replace. Not only do Colorado River flows vary from year to year, but the CAP has a low priority compared to other categories of Colorado River water. These abundant senior rights to Colorado River water are attractive to municipal providers seeking secure water supplies. Additional forces driving water transfers include the interest shown by other states, particularly California, acquiring water from Arizona and continuing attempts to modify the distribution of Colorado River water.

V. ROLE OF THE CAP AQUEDUCT

The CAP aqueduct occupies a unique role in Arizona's water transfer

24. Pub. L. No. 97-293, 301, 96 Stat. 1274 (1982).

25. Of three Indian water rights settlement bills passed by Congress in October and November 1988, only the Salt River Pima-Maricopa Indian Community Water Rights Settlement Act of 1988, Pub. L. No. 100-512, 102 Stat. 2549, retained an off-reservation water leasing provision. In the cases of the San Luis Rey Indian Water Rights Settlement Act, Pub. L. No. 100-675, 102 Stat. 4000, and the Colorado Ute Indian Water Rights Settlement Act of 1988, Pub. L. No. 100-585, 102 Stat. 2973, off-reservation leasing provisions were removed prior to passage. *See* WATER MARKET UPDATE, Vol. 2, No. 11 (1988).

26. In addition to the Salt River Pima-Maricopa Settlement, congressional approval was granted under SAWARSA in 1982 for the Tohono O'odham Nation to sell a portion of their water entitlement to Tucson area users subject to approval by the Secretary of the Interior. *See* Pub. L. No. 97-293, § 306(c), 96 Stat. 1280 (1988).

picture. As discussed above, the high cost of moving groundwater poses a serious impediment to groundwater transfers in the state. The costs of physically transporting water from area of origin to area of use often are of the same order of magnitude as the costs of purchasing the water farm or appurtenant land for surface water rights. Transport costs are particularly significant if natural channels or existing infrastructure cannot be used and new infrastructure must be built. Costs also are high if considerable energy is required to lift the water, as is the case for most proposed groundwater transfers in Arizona.[27]

The CAP aqueduct offers potentially cheap and reliable transport of vast quantities of water from rural to urban areas of the state, allowing the supply and demand of water to meet. However, many important details, such as the amount and distribution of excess aqueduct capacity over time, priority of use, and the terms and conditions under which this capacity will be available to would-be transferrors, are uncertain.[28]

In spite of these uncertainties, nearly every major water farm purchased in the state is located near the CAP aqueduct, demonstrating its attractiveness as a potential means of moving water to central Arizona. Phoenix area cities and private developers with water farms all are assuming they will be able to use the aqueduct to move water. The tendency to purchase water farms near the CAP aqueduct has had the additional effect of concentrating any adverse effects associated with water farms in one part of the state.

VI. IMPACTS OF WATER FARMING

Several consequences of water farm purchases can occur in the rural areas of origin. These can occur: 1) immediately upon purchase; 2) when the land is retired from agricultural production; or 3) when the water actually is transported out of the area to a municipality or other user.

Fiscal repercussions occur as soon as the land is purchased by any tax-exempt entity. They result primarily from the constitutional exemption of municipally-owned lands from county taxes.[29] Fiscal impacts include the loss of property tax base and bonding capacity, tighter spending limitations, and effects on revenue sharing.[30]

Direct economic and certain environmental impacts occur when farmland is retired. Farmland may be retired or substantially reduced at time of purchase or not until many years later. Direct economic impacts include the

27. The city of Phoenix paid $30 million for land in McMullen Valley, while estimated costs of the infrastructure to move the water to the CAP aqueduct range up to $50 million; if the aqueduct cannot be used, a parallel delivery system built in the CAP right-of-way could cost an additional $200 million. Various transport options considered by Scottsdale have costs that exceed the $11.6 million price of the land. A recently proposed water farm purchase involving 27,000 acres of land costing $69 million has estimated capital costs of $40 million for a wellfield and pipeline to move the water to the CAP aqueduct.

28. For further discussion, see G. WOODARD, *supra* note 1, at 41-46.

29. ARIZ. CONST. art. IX, § 2(1) states that "[T]here shall be exempt from taxation all federal, State, county and municipal property."

30. La Paz County has borne the brunt of the water farming impacts. Results of an economic analysis of these impacts are presented in Charney & Woodard, *Water Farming Study Estimates Economic Losses in La Paz County*, ARIZONA'S ECONOMY (September 1989).

loss of farm sector jobs and income. Indirect economic consequences follow as businesses that provide goods and services to farmers are affected. These include seed and agricultural chemical suppliers, farm equipment dealers, processors, and crop dusters. Eventually, all businesses in the area, including retail shops and restaurants, are affected by the general economic decline. Environmental consequences of retiring agricultural land to conserve the groundwater for transfer include soil erosion, blowing dust, and tumbleweeds that arise after crop production ceases and the land is left vacant.[31]

Economic development in the area of origin is inhibited both at the time the land is purchased and the area is labelled as a water farming area, and later when the water is transported from the area. A declining tax base and uncertainties about future availability of water and land can scare off development. Additional environmental impacts can occur if groundwater pumping or surface water diversions threaten any of the state's increasingly rare streams, rivers, marshlands or other riparian habitats. Quantifying these damages is extremely difficult, yet the potential harm is significant.[32]

When assigned a dollar value, the losses suffered by areas of origin may appear insignificant compared to the total state economy or even to the substantial benefits of additional water supplies which may accrue to importing municipalities. Such losses, however, tend to be concentrated in particular areas and can seriously impair the viability of small, rural communities which may lack the economic strength and diversity to respond to such rapidly changing conditions.[33] In addition, when a significant amount of local real property is owned by outside municipalities and developers and is earmarked for uses that do not contribute to the local economy, the future of that region depends to a large degree on decisions made elsewhere by persons with little stake in the local welfare.[34] When such a situation is unexpected and occurs over a relatively short period of time, strong feelings of fear, anger, and frustration are inevitable. The complaints of rural Arizonans in areas experiencing water farm purchases can be condensed into two fundamental assertions: that they are being harmed by these water farming transactions and that what is happening is unfair. Urban interests respond that the state's groundwater law precipitated the purchases, and that any actions on the part of the legislature to protect areas of origin may

31. Blowing dust and weeds are major problems associated with the dry-up of irrigated acreage. In Arizona, years of conflict and litigation over dust storms and tumbleweeds generated by municipally-owned water farms culminated in legislation requiring owners of water farms to maintain the retired agricultural acreage free of dust and noxious weeds.

32. For a discussion of the economic benefits associated with instream flows, see Colby, *The Economic Value of Instream Flows*, INSTREAM FLOW PROTECTION IN THE WEST (L. MacDonnell, T. Rice and S. Shupe, eds. 1989). An overview of legislative responses to instream flow issues is found in Shupe, *Keeping the Waters Flowing: Streamflow Protection Programs, Strategies, and Issues in the West* in Instream Flow Protection in the Western United States: A Practical Symposium (Natural Resources Law Center, Univ. of Colo. School of Law, 1988).

33. For a comparison of economic impacts on several Arizona counties, see Checchio & Nunn, *Water Transfers: Calculating an Index of Economic Impacts*, forthcoming in the WATER RESOURCES BULLETIN.

34. Nunn, *Developing City Water Supplies by Drying up Farms: Contradictions Raised in Water Institutions under Stress*, AGRICULTURE AND HUMAN VALUES (1988); Nunn & Ingram, *Information, the Decision Forum, and Third-Party Effects in Water Transfers*, 24 WATER RESOURCES RESEARCH 473 (April 1988).

reduce the number of water farming transactions, or at least make them more costly to accomplish.

VII. CURRENT LEGAL FRAMEWORK FOR WATER TRANSFERS

The transferability of water in Arizona depends on its legal classification. Water is divided into two broad categories under Arizona law: surface water and groundwater.[35] Each is broken into subcategories that are subject to different restrictions regarding water rights transfers and water transport. Surface water is defined as the waters of all sources, flowing in streams, canyons, ravines or other natural channels, or in definite underground channels, with the exception of effluent, whether perennial or intermittent, flood, waste or surplus water, and of lakes, ponds and springs on the surface.[36] Groundwater is defined as all water under the surface of the earth except water flowing in underground streams with ascertainable beds and banks.[37]

A. *Groundwater Transfers*

The withdrawal, use, and transportation of groundwater is regulated by the provisions of the 1980 Groundwater Management Act. The GWMA was motivated, in part, by a need to resolve uncertainties created by court-made rules limiting the transportability of groundwater.[38] Provisions of the act removed some limitations on the transportation of groundwater to promote development. For example, the act eliminated injunctive relief as a remedy for a neighboring landowner damaged by water transport and specified a set of circumstances and conditions under which a rightholder who has suffered injury may sue to recover damages.[39] This means that a damaged party cannot stop the transport, but can, under certain circumstances, be compensated for any losses suffered. An action to recover damages usually is allowed when groundwater is moved across a basin or sub-basin boundary, but injury is not presumed merely from the fact of transportation.[40] The legal nature of groundwater varies depending on whether the water is withdrawn from outside or from within an AMA.

There are no quantified groundwater rights outside of an AMA. Instead, a landowner simply has the right to pump water underlying the land. The groundwater must be withdrawn for "reasonable and beneficial" use[41]—a fairly loose standard—but aside from this standard there are no limitations on the amount withdrawn or on the place of use. If water is transported

35. ARIZ. REV. STAT. ANN. § 45-101(4) (1987) defines groundwater; *id.* at § 45-101(6) defines surface water.

36. *Id.* at § 45-101(6) (1987).

37. *Id.* at § 45-101(4) (1987).

38. The 1980 Groundwater Management Act displaced a body of court-made groundwater law that restricted most water transfers. For a complete discussion of the 1980 GWMA, see Connall, *A History of the Arizona Groundwater Management Act*, ARIZ. ST. L.J. 313 (1982); Higdon & Thompson, *1980 Arizona Groundwater Management Code*, ARIZ. ST. L.J. 621 (1980); J. JOHNSON, SUMMARY OF THE 1980 ARIZONA GROUNDWATER MANAGEMENT CODE, (State Bar of Arizona, Continuing Legal Education, 1981); Kyl, *The 1980 Groundwater Management Act: From Inception to Current Constitutional Challenge*, 53 COLO. L. REV. 471 (1982).

39. ARIZ. REV. STAT. ANN. § 45-545 (1987).

40. *Id.* at § 45-545(A).

41. *Id.* at § 45-453(1).

across basin or sub-basin boundaries, however, the transporter is liable for any damages to neighboring rightholders shown to be caused by the transport.[42]

A landowner within an AMA is not automatically granted the right to withdraw groundwater. Unless the well qualifies as an exempt well,[43] groundwater users within AMAs must have one of the following rights or permits to withdraw groundwater: grandfathered rights, withdrawal permits, service area rights, or storage and recovery permits.[44] The transferability of groundwater within an AMA depends on the type of right to which the groundwater is associated. Groundwater transfers within AMAs generally involve only grandfathered rights.

Rights to pump groundwater to irrigate lands within AMAs are based on historic patterns of use.[45] These rights are quantified on the basis of a "water duty," the amount of water in acre-feet per acre that is reasonable to apply to irrigated land, as determined by the Director of ADWR for each AMA.[46] As state water conservation requirements become more stringent, water duties gradually will be reduced.[47]

An IGR may not be sold apart from the associated land; in other words, the right is appurtenant to the land. The groundwater withdrawn under this right may be used only to irrigate the land to which the right pertains.[48] In order to apply an IGR to a non-irrigation use it first must be converted to a Type 1 right.[49]

A Type 1 right allows the owner of land which was retired from agriculture in anticipation of a non-irrigation purpose to retain entitlement to use water. A new Type 1 right is created by retiring and converting an irrigation grandfathered right; once converted to a Type 1 right, the land associated with the right may never be returned to irrigation. With few exceptions, the irrigated land being retired must be located outside the service area of a city, town, or private water company.[50]

The rules governing Type 1 rights are complex. The original owner of a Type 1 right may withdraw the groundwater from the associated retired farmland for use at any location, for any permissible non-irrigation purpose, subject to limitations if the land is within a service area, either on or off the associated land. The original owner also may withdraw the groundwater from a well that is not located on the retired farmland; however, in this case the water can be used only on the retired farmland associated with the right.[51]

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42. *Id.* at § 45-544(2). Phoenix's proposed import of water from its McMullen Valley holdings would be an example of this type of transport.

43. *Id.* at § 45-454. An exempt well has a maximum pump capacity of 35 gallons per minute and is used to withdraw groundwater only for non-irrigation purposes. *Id.* at § 45-454(E) states that only one exempt well is allowed to serve the same use at the same location.

44. *Id.* at §§ 45-461 to -482 (1987).

45. *Id.* at § 45-462.

46. *Id.* at § 45-465.

47. ARIZ. REV. STAT. ANN. § 45-572 (Supp. 1988).

48. ARIZ. REV. STAT. ANN. § 45-465 (1987).

49. *Id.* at § 45-463.

50. *Id.* at § 45-469(A).

51. *Id.* at § 45-473 (1987).

Like an irrigation grandfathered right, a Type 1 right may be sold only with the land to which it is appurtenant.[52] Once sold, a Type 1 right is more restricted; the new owner can withdraw the water only from the land to which the right is appurtenant, though the water withdrawn still can be used, under certain circumstances, either on or off the associated land.[53]

The law regarding inter-basin transfer of water pumped pursuant to a Type 1 right was amended by the legislature shortly after Mesa's acquisition of some 11,600 acres of farmland within the Pinal AMA. No one purchasing Type 1 rights may transport water pumped pursuant to those water rights out of that AMA if the rights were acquired after April 18, 1986.[54] However, water pumped pursuant to IGRs acquired for the purpose of subsequently converting them to Type 1 rights under the "development plan" provisions of the law[55] still may be transported out of the AMA. Transportation of groundwater withdrawn under a Type 1 right is not subject to payment of damages even if the pumping adversely affects adjacent groundwater users.[56]

The quantity of groundwater that can be pumped annually pursuant to a Type 1 right is fixed at the time of conversion from an IGR and is equal to the lesser of three acre-feet of groundwater or the irrigation water duty, multiplied by the water duty acres of the farm unit and divided by the irrigation acres.[57] In other words, the right is limited to either three acre-feet per acre or an estimate of the average water consumed before the land was retired, whichever is less.

Both Tucson and Mesa purchased water farms within AMAs to obtain the associated water rights. Tucson already has converted a portion of its IGRs to Type 1 rights; Mesa will have to do the same before it can transport any water from its Pinal County land. Tucson's transfers involve moving water between sub-basins within the same AMA, while the Mesa proposal involves transfers from one AMA to another.

A Type 2 right is based on historical pumping of groundwater for uses other than crop irrigation such as for livestock watering, golf course irrigation, mining, power generation or industrial purposes.[58] Unlike an irrigation or Type 1 right, a Type 2 right is not appurtenant to any land and may be sold or leased for some non-irrigation purpose within the same AMA. The point of withdrawal may be changed as long as it remains within the same AMA.[59] The whole Type 2 right or a portion of the right may be leased;[60] if sold, however, the right must be sold in its entirety.[61] Transportation of water withdrawn under a Type 2 right across basin or sub-basin boundaries

52. *Id.* at § 45-473(A).
53. *Id.* at § 45-473(D).
54. *Id.* at § 45-473.01.
55. *Id.* at § 45-469.
56. *Id.* at § 45-542(C).
57. *Id.* at § 45-469(F).
58. *Id.* at § 45-464.
59. *Id.* at § 45-464(F).
60. The law was amended in 1987 to clarify the right to lease. *Id.*
61. *Id.* at § 45-474(C).

is, unlike Type 1 rights, subject to the payment of damages.[62]

Service area rights permit cities, towns, private water companies, and irrigation districts to withdraw groundwater to serve their customers.[63] The service area is the area actually being served water, plus additions to that area which contain an operating distribution system.[64] The GWMA prohibits the extension of a service area primarily to include a well field within its boundaries, and the service area of an irrigation district may not extend beyond the boundaries of the district.[65]

The service area right is an unquantified right limited only by the ADWR management plans which contain specific water conservation requirements aimed at achieving the management goals established for the AMAs.[66] Service area rights are transferable when, for example, a city purchases a private water company and pumps pursuant to the former water company's service area right. Groundwater withdrawn under a service area right may be transported to any point within the service area, though transport across basin or sub-basin boundaries is subject to the payment of damages.[67]

To demonstrate an assured water supply, a developer must not only demonstrate the physical availability of water, but also the legal right to access that water. That legal right almost always is based on a service area right, but in some cases the service area right must be established by pumping pursuant to a Type 1 or Type 2 right for a period of time. If a Type 1 or Type 2 right is necessary, the Director will not issue a certificate of assured water supply unless the developer has acquired the Type 1 or Type 2 right.[68]

B. *Surface Water Transfers*

1. *Non-Colorado River Water*

Under Arizona law, surface water belongs to the public and is subject to private appropriation with the approval of the Director.[69] Under Arizona's prior appropriation system, a permanent water right is granted to those who first appropriate surface waters.[70] The "first in time, first in right" nature of this doctrine means that, in times of shortage, junior appropriators - those with later-dated rights - may not be satisfied, making the priority date a very important characteristic of the right. A surface water right is established and maintained by the diversion and application of water to a specific beneficial use.[71] If appropriated surface water goes unused for five consecutive years the right may be forfeited and become available to new appropria-

62. *Id.* at § 45-543(A)(1).
63. *Id.* at § 45-492.
64. *Id.* at § 45-402.26. Service areas as defined by ADWR are not the same as service areas defined by the Arizona Corporation Commission for private municipal water providers.
65. *Id.* at § 45-493 (1988).
66. *Id.* at §§ 45-564 to -569 (1988).
67. *Id.* at § 45-543.
68. Written communication from ADWR legal department.
69. ARIZ. REV. STAT. ANN. § 45-141(A) (1987).
70. *Id.* at § 45-151(A) (1988).
71. *Id.* at § 45-152.

tors.[72] This "use it or lose it" doctrine is causing Scottsdale to grow alfalfa, a high water-use crop, in an effort to perfect and maintain its surface water rights at the Planet Ranch.

In Arizona, as in most western states, the *point of diversion* of a water right may be changed provided the source of the water does not change and other users' rights are not adversely affected.[73] Surface water rights may be transferred to a new *place of use* only with the approval of the Director. Prior to approval, an application for severance and transfer is made, followed by a hearing at which any interested person may contest the application.[74] Any transport by Scottsdale of its surface water rights in the Bill Williams River, for example, will be subject to the director's approval.

Transfers of water rights within water service organizations such as irrigation districts, agricultural improvement districts or water users associations, are permitted only with the prior written consent of the organization.[75] In the case of a transfer involving water from a watershed or drainage area which supplies water to lands within a water service organization, the transfer must be consented to by each organization within the drainage basin. This provision prohibits the ADWR from even accepting an application for severance and transfer of a water right unless the consent of downstream water service organizations is first obtained.[76] Consequently, water districts can veto a water transfer within their watershed without having to prove they would be damaged. This provision was promoted by the Salt River Project (SRP) at a time when there was minimal regulation of water rights, in an effort to ensure that SRP rights were not impaired through water transfers.[77] Under Arizona law, any changes in *purpose or type of use* also must be approved by the Director.[78] Although the statutes are silent regarding criteria for deciding on applications for change of use, the case law clearly establishes that a lawful change of use may not have any adverse effect on other vested water rights.[79]

2. *Colorado River Water*

Colorado River water is a large resource likely to become the focus of future water transfers. Some transfers of Colorado River water already have occurred, and others are being considered. The rules and regulations governing the Colorado River, known as the "Law of the River", have evolved from a combination of inter-state compacts, federal and state statutes, a major court decision, international agreements, and various administrative decisions. The legal status of Colorado River water is complicated, as it falls under many jurisdictions. Interested parties have raised the possibility of interstate transfers of Colorado River water.

72. *Id.* at § 45-141(C).
73. *Id.* at § 45-172.
74. *Id.* at § 45-172(7).
75. *Id.* at § 45-172(4).
76. *Id.* at § 45-172(5).
77. Private communication from Rodney Smith to Elizabeth Checchio.
78. ARIZ. REV. STAT. ANN. § 45-156(B) (1987).
79. *Id.* at § 45-172.

The topic is controversial, as some believe the Colorado River Compact clearly precludes transfers between the Upper and Lower Basins, while others disagree. Similarly, whether interstate transfers within the lower basin are prohibited is a matter of dispute. Whether a person can sell his Colorado River entitlement at all, or whether it automatically becomes available to the next junior appropriator is one of the many unresolved questions regarding the transfer of Colorado River water. Despite the complexities and controversies surrounding this issue, transfers of Colorado River water are possible, and cannot be ruled out.

C. *Transfers of Effluent*

In recent years treated sewage effluent has received increased attention in Arizona for its potential as a marketable resource, in conserving water through exchanges of potable for nonpotable supplies, for recharging groundwater aquifers, and in satisfying Indian water entitlements. New golf courses in the state's urban areas are required to use primarily effluent, and existing golf courses are being encouraged to switch from potable water to effluent. Regulations prohibiting the filling of decorative lakes and ponds with potable groundwater also are increasing the demand for effluent.

In Tucson, for example, some 10 percent of the city's 60,000 acre-feet per year of effluent currently is reused by golf courses and parks; that percentage is expected to rise to 25 percent by 1995, as new golf courses come on line and schoolyards are connected to the expanding distribution system.[80] An agreement to provide effluent to the San Xavier District of the Tohono O'odham Reservation was a key component of the SAWARSA water rights settlement.[81]

Several other Arizona cities currently are implementing their own effluent reuse programs. Over half of the nearly 190,000 acre-feet of average annual effluent generated in Phoenix currently is used; some 35 percent goes to the Palo Verde nuclear plant and the rest to agriculture. The sale of effluent to the power plant, which is located some 50 miles from the wastewater treatment facility and outside the city's service area in a neighboring subbasin, has been the focus of litigation over issues of ownership, appropriation and transport of effluent.

That litigation concerned contracts entered into by defendant municipalities to deliver effluent for use in cooling towers of a nuclear power plant owned by defendant utilities. Some 70,000 acre-feet per year of effluent from Phoenix's treatment plant and 9,000 acre-feet from Tolleson is transported 50 miles by pipeline. This pipeline and the water treatment system built at the power plant cost several tens of millions of dollars.[82]

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80. Conversations with Director and Hydrologist for Tucson Water (August 1989).

81. It does not appear likely that the effluent will be delivered to the reservation due to the cost of constructing a non-potable pipeline. Instead, it may be exchanged for other water delivered to the Nation.

82. Arizona Public Service Co. v. Long, 160 Ariz. 429, 773 P.2d 988 (1989). This may have influenced the outcome. Twice the court mentioned the costs incurred by defendants in transporting the water. In addition, a four-page appendix to the decision explains that two justices excused themselves from the case because of their ownership of stock in one of the defendant utilities and that "[i]t is quite possible that a corporate party to this case might be substantially affected by the outcome or

In an earlier case, *City of Phoenix v. Long*,[83] the contracts to sell effluent were attacked on the grounds that municipal competitive bidding requirements had been ignored and that the length of the contracts exceeded statutory limits. Defendants received summary judgment in that case, which was upheld by the Court of Appeals. The court apparently viewed the contracts as an economical way to dispose of a "noxious bi-product [sic] of the treatment of sewage" rather than as the non-competitive long-term sale of a valuable commodity.

In a companion case,[84] two plaintiffs, A Tumbling T Ranch and Hassayampa Ranch, claimed an appropriative right in the effluent that for years had been discharged into the Salt River channel, and asserted that the city must therefore continue the discharge. Long, a plaintiff developer, claimed that effluent derived from groundwater was subject to the restrictons of the GWMA and effluent derived from surface water had to be re-used upon the land to which it was appurtenant. Long also claimed that statutory provisions prohibited the sale.[85]

Defendants claimed that, unlike surface and groundwater which is owned by the public in Arizona and to which one can have only a right to *use*, they owned the effluent outright and could do with it as they pleased. They based this on the argument that the water had lost its character as surface or groundwater and was the property of the party that had expended funds to create it.

The questions as posed by the court were: "(1) Can the Cities contract to sell sewage effluent for use on lands other than those involved in the original appropriation? And (2) once the Cities dump sewage effluent into a stream and such effluent is appropriated by downstream users, must the Cities continue such dumping ad infinitum?" In reaching decisions on these issues, the court had to decide whether effluent that began as surface or groundwater remained such, or became a different type of water, or was in fact no longer water at all. The court also considered whether flows of effluent were appropriable and, if so, what the legal limits of that appropriation were.

The court concluded that effluent was indeed water, but that Arizona statutes distinguished between surface water, groundwater and effluent,[86] making it a distinct type of water with which the cities could do as they chose, within the broad limits of "reasonable and beneficial use." The court also found that the plaintiff ranches did indeed have an appropriative right in the effluent, but that the right could only be exercised against other, more junior appropriators and could not be used to compel the cities to continue

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that the value of a judge's share in a corporate party might be increased or decreased to some material extent by the result of this case."

83. 158 Ariz. 59, 761 P.2d 133 (Ariz. Ct. App. 1988).

84. *Long*, 160 Ariz. 429, 773 P.2d 988 (1989).

85. *Long*, 160 Ariz. at 439, 773 P.2d at 998; ARIZ. REV. STAT. ANN. § 45-493(A)(2) (1988). A service area may not be extended primarily to furnish disproportionately large amounts of water to any large user unless consistent with the management plan and approved by the Director. Also ARIZ. REV. STAT. ANN. § 45-543(A)(2) (1988), groundwater may be transported between sub-basins *if* transported within a service area.

86. *Long*, 160 Ariz. at 434, 773 P.2d at 993; ARIZ. REV. STAT. ANN. § 45-402(6) (Supp. 1988).

discharging effluent into the riverbed. Finding effluent synonymous with "waste water", the court concluded that mandating permanent discharges would force cities to continue "wasting" water.

Argument of the case was hindered by a lack of relevant, contemporary precedents.[87] The problem was compounded by the fact that, between the time the first contract was entered into in 1973 and the time that the case was decided, sewage effluent had metamorphosed from a nuisance to be disposed of as cheaply as possible to a valuable commodity and an important water resource.[88] In selecting one outdated case to support their conclusions and distinguishing it from other equally dated cases, the court may have inadvertently placed some unfortunate restrictions on transfers of effluent.

The court relied on *Wyoming Hereford Ranch v. Hammond Packing Company*,[89] described as "a case in which the issues are on all fours with ours."[90] There, a city's contract to dispose of its effluent was upheld on the basis that the means by which a city disposes of a potential nuisance should not be constrained. In distinguishing the facts of the case from those in *Pulaski Irrigation Ditch Co. v. City of Trinidad*,[91] the court stated:

> There the city had purified the sewage and was selling it. But the court recognized that when the situation is such that the city cannot turn the sewage into the stream without causing a health hazard, the city must find some other way of disposing it. *But once the city purifies it, the water must be returned to the stream because the water element of the sewage always belongs to the public* (emphasis added).[92]

The language used in discussing *Pulaski* implies that if the effluent is treated to some higher level, it stops becoming effluent and reverts to being surface or groundwater, and must be returned to the riverbed. However, new technology for treating effluent makes it practicable to produce higher quality effluent, making it fit for higher-valued uses, such as industrial or even potable uses.[93] It would be an unfortunate result if disincentives were created to using latest technology to treat effluent for higher-valued uses.

It also appears that effluent cannot necessarily be transported via the cheapest, most efficient method available. Had it been practical for Phoenix to deliver effluent to the nuclear power plant via the river channel, the plaintiff ranches would have been able to exercise their senior appropriative rights in the effluent flow against the utilities as junior appropriators. Construction of the expensive pipeline would have been necessary, because once the efflu-

87. *Long*, 160 Ariz. at 439, 773 P.2d at 998. The court declared "[t]here is no body of case law dealing with rights to and the use of effluent. Research by counsel and the court has produced, at best, two or three outdated cases dealing with rights to the type of effluent with which this case is concerned."

88. While both the cities and the utilities were defendants, the cities stood to benefit if Long's position were accepted by the court and the contracts declared invalid. The utilities pay $35 per acre-foot, while effluent currently is sold for up to $500 per acre-foot in urban Arizona.

89. 33 Wyo. 14, 236 P. 764 (1925).

90. *Long*, 160 Ariz. at 434, 773 P.2d at 993.

91. 70 Colo. 565, 203 P. 681 (1922).

92. *Long*, 160 Ariz. at 434, 773 P.2d at 993.

93. The Long-Range Water Plan for the city of Tucson assumes eventual direct potable reuse of treated effluent and estimates current treatment costs at between $450 and $600 per acre-foot, as compared with current costs of $140 per acre-foot to treat effluent for irrigation uses.

ent was discharged into the riverbed, Phoenix apparently would have nothing to sell.

In finding that the effluent was neither surface nor groundwater, the court removed the use of effluent from regulation under the surface water code and the groundwater code. If the decision remains the last word on the subject, then effluent may be one of the most marketable water commodities in Arizona. However, when the court ruled that effluent was indeed water, it established that it was subject to legislative and regulatory controls. The court pointedly and repeatedly invited the Arizona legislature to fill this vacuum in state water law.

The transferability, transportability and other relevant characteristics of various types of water resources in Arizona are summarized in Table 1. Anticipated legislative action, however, would modify the transferability of some of these types of water.

VIII. LEGISLATIVE EFFORTS TO DATE

Existing state water law developed prior to the increased water farming activity of the mid-1980s has proved inadequate to protect areas of origin from the adverse effects of water transfers. Earlier statutes were aimed at protecting only water rights holders and water service organizations from injury due to water transfers.[94] Currently in Arizona, the only third party impacts that must be mitigated or compensated are those impairing neighboring pumpers or downstream diverters; however, there are several instances of buyers negotiating with third parties over other types of impacts. This is because, despite the lack of statutory or regulatory mandates to compensate or mitigate, buyers are aware that intense political reactions to transfers in areas of origin may be costly in terms of legislative response and political fallout in the area of use.[95] Despite the legislature's failure to pass comprehensive water transfer legislation, several measures have been enacted which respond to specific concerns.

A. *Transfers Study*

During the 1986 legislative session, following calls by angry rural interests for a moratorium on all water farm purchases, Arizona lawmakers enacted legislation which established the Joint Legislative Committee on Groundwater and Surface Water Exportation and appropriated $200,000 for

94. ARIZ. REV. STAT. ANN. § 45-172(5) (1987) states: "No right to the use of water on or from any watershed or drainage area which supplies or contributes water for the irrigation of lands within an irrigation district, agricultural improvement district or water users association shall be severed or transferred without consent of the governing body of such . . . ." However, there are no reported Arizona cases involving this law.

Statutes also require a hearing with ADWR before transfers of appropriated surface water rights can be approved. Such hearings are publicized in local papers and any interested person may speak about the impacts of the proposed transfer.

Exporters of groundwater from one basin to another are potentially liable for damages to affected individuals in the basin of origin. ARIZ. REV. STAT. ANN. §§ 45-544, -545 (Supp. 1988).

95. One example of voluntarily negotiated compensation is Mesa's payment of over $100,000 to Pinal County in lieu of taxes in 1986. Phoenix also has made voluntary in-lieu of tax payments; however, the amount of the payment currently is in dispute.

a hydrologic and socio-economic impact study of water transfers.[96] The study was intended to guide legislators in evaluating the need for additional legislation governing water transfers in Arizona. It was hoped that the study also would prove to be a useful planning tool for rural communities with water farm potential.

The study provided baseline conditions and addressed the hydrologic and socio-economic effects of potential water transfers. The study was to have suggested ways to mitigate adverse impacts of water transfers as well as recommend legislation for the 1988 session. It is generally recognized, however, that the scope of the study was too narrowly defined and executed to provide useful policy guidance to the legislature. The Joint Legislative Committee on Groundwater and Surface Water Exportation disbanded without making formal recommendations.

B. *In-lieu Tax Payments*

Another bill enacted in 1986[97] provides the authority for municipalities which own water farms to make voluntary contributions, in lieu of taxes, to the county and other taxing authorities in which the city's rural property is located.[98] It stipulates the time frame and methods for determining the amount of the contribution. The legislation also provided for control of noxious weeds and tumbleweeds on the water farms.

While the legislation addressed an immediate concern, the statute is not considered a long-term solution to the tax base problem. Rural counties want in-lieu tax payments to be mandatory to assure that payments will be made now and in the future. Such assurances are needed for areas of origin to sell tax-free bonds backed by in-lieu tax payments. While such a measure may require an amendment to the constitution, the legislature has sought other ways to assure payment of in-lieu taxes. In addition, rural counties want water farms to be assessed at a rate other than the agricultural rate used prior to purchase by municipalities. Arizona's agricultural land is taxed on the basis of its production value, rather than on its market value, and market-value tax assessments generally are considerably higher.

C. *Property Tax Base*

A 1987 bill[99] further addressed the problems of eroding tax bases in areas of origin created by the constitutional exemption of municipally-held lands from county tax rolls. The new law 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

96. H.R. 2265, 37th Leg., 2nd Reg. Sess., 1986 Ariz. Legis. Serv. (West) 1617.

97. H.R. 2264, 37th Leg., 2nd Reg. Sess., 1986 Ariz. Legis. Serv. (West) 452 (*enacted as* 45 ARIZ. REV. STAT. ANN. § 472 (1987)).

98. This addresses the concern that taxpayers residing in a city owning a water farm could sue to stop any voluntary tax payments to the area of origin because of the constitutional prohibition on taxing municipal property.

99. H.R. 2462, 38th Leg., 1st Reg. Sess., 1987 Ariz. Legis. Serv. (West) 816 (*enacted as* 42 ARIZ. REV. STAT. ANN. § 301 (1987)).

levy limits, but only if the municipality agrees, through an intergovernmental agreement, to pay in-lieu taxes to the county. The constitutionality of this provision as it relates to bonding capacity is in doubt.[100]

D. *Out-of-State Transfers*

State law authorizing the Director of ADWR to approve or deny at his discretion any proposed out-of-state transfer has been replaced by a statute passed in the 1989 session.[101] The decision to approve or deny a transfer permit still lies with the Director, but a number of conditions and criteria are defined, including: whether the proposed action is consistent with the conservation of water; potential harm to the public welfare of Arizonans; adequacy of supply of water and current and future water demand in Arizona in general and the proposed area of origin in particular; feasibility of intrastate transportation of the water; availability of other sources of water to proposed area of use; and demands placed on the applicant's supply.

The issue of the inter-state transferability of water was addressed in *Sporhase v. Nebraska*.[102] There, a farmer whose land was bisected by a state line attempted to pump groundwater from a well on his land in Nebraska and apply it to crops on land on the other side of the line, in violation of Nebraska law. The Supreme Court found that this exercise of Nebraska's police power ran afoul of the Commerce Clause of the U.S. Constitution and ruled the state law unconstitutional. The issues raised in the *Sporhase* decision have been litigated in an ongoing dispute between El Paso and New Mexico; however, the extent to which states can place restrictions on out-of-state water transfers without running afoul of the Commerce Clause remains unclear. Existing cases strongly suggest that one cannot treat potential out-or-state transferrors differently from potential in-state transferrors. Yet, the law in Arizona appears to do that, while hinging its legality on a legislative finding that Arizona has a chronic shortage of water and that maintaining an adequate and reliable supply of water is critically important and essential to social stability and to the public health, safety and welfare.

The statute's permitting approach has been strongly opposed by in-state municipalities, and a "comfort clause" makes it clear that the permitting provisions apply only to out-of-state transferrors. Another striking distinction between out-of-state and in-state transfers is that permits for out-of-state transfers cannot be for a period of more than 50 years. By contrast, in-state transfers are quantified on the assumption that they will continue for 100 years.

IX. UNRESOLVED POLICY ISSUES

The need for additional water transfers legislation is widely accepted in

100. The legislature attempted to deal with the problem of municipal immunity from local property taxes without amending the constitution by encouraging municipalities to enter into binding intergovernmental agreements to make in-lieu of tax payments. That they may not have succeeded in this is suggested by the several bills introduced in the last legislative session that attempted to modify the current provision.

101. H.R. 2429, 39th Leg., 1st Reg. Sess., 1989 Ariz. Legis. Serv. (West) 658.

102. 458 U.S. 941 (1982).

Arizona. During the last three legislative sessions, over 20 bills have been introduced on the subject. Most of these bills dealt with specific aspects of water farming. However, attempts to negotiate and legislate a comprehensive water transfers package have been unsuccessful to date, leaving several key issues unsettled.

While eventual passage of comprehensive legislation is widely assumed, this does not guarantee that all important issues will be settled. The comprehensive bill that passed the House before dying in the Senate last session was described as being completely unburdened by any policy considerations and "a crazy-quilt of special-interest legislation."[103] Debate centered on issues such as the amount of water to be reserved for areas-of-origin, the amounts and timings of taxes and fees paid, and how terms and conditions of transfers could be spelled out in statutory language rather than requiring a case-by-case permitting process.

While these are important points, more fundamental questions were not confronted, including: what will the future demand for urban water be; what should be the roles of mined groundwater, renewable surface water, treated effluent and conservation in meeting these demands; and are the Groundwater Management Act's 100 years assured supply provisions and safe yield goals the best tools for implementing state water resource policy? A clear statement of Arizona's policy with respect to water transfers is difficult to find. It is clear that the drafters of the 1980 GWMA deliberately removed some of the barriers to transferring water to urban areas. It also is apparent that the provisions of the GWMA and not any near-term need for wet water are driving current water farm activity. However, the degree to which these consequences were foreseen or intended in 1980 is a matter of disagreement among those present at the negotiations.

The fundamental policy underlying the GWMA is equally unclear. It appears to embody a principal of gradually eliminating the dependence of urban development on mined groundwater. However, the negotiations were motivated not by a sudden awakening to the problem of urban groundwater overdraft but by a threatened cut-off of federal funding for the CAP. Making a good-faith effort to conserve groundwater to assure continued CAP funding and assuring nervous sources of out-of-state investment capital that Arizona's urban areas have secure water supplies also were key considerations.

If one assumes that the GWMA embodies a policy of assuring that urban water supplies will not be based on declining groundwater aquifers, then the current water farming phenomenon is troubling. The great majority of water involved is groundwater. It makes no sense to eliminate overdraft of aquifers underlying urban areas by mining and transporting the groundwater beneath remote, rural areas of origin. Eventually, the Arizona legislature must determine the function of interbasin water transfers in managing water resources state-wide and must define the state's role in regulating the water farming phenomenon. An encouraging development is recent discussion of the merits of the "super agency" concept. A public entity with water supply

103. Woodard, *Pumping a Country till it's Dry*, The Ariz. Republic, May 7, 1989, at C1, col. 4.

responsibilities for a larger geographic area would better be able to weigh supply and demand management options, acquire a diverse portfolio of water rights and credits, and eliminate the current "land rush" atmosphere of frantic secrecy and heated competition among cities, other government agencies, developers, and speculators in the water farm market.

TABLE 1
TRANSFERABILITY AND OTHER CHARACTERISTICS
OF ARIZONA WATER RIGHTS

TYPE OF RIGHT			IS THE RIGHT TRANSFERABLE?	CAN THE WATER BE TRANSPORTED?	LIMITS TO RIGHT	OTHER IMPORTANT CHARACTERISTICS
GROUNDWATER	AMA	IGR	Yes, but only with the appurtenant land.	No, the right is tied to specific acres.	Limited by the water duty for the AMA.	IGR must first be converted to a Type 1 right to be applied to a non-irrigation use.
		Type 1	Yes, but only with the appurtenant land.	Yes, with no liability for damages, but new owner can't move water out of AMA.	Limited to the lesser of historic consumptive use or 3 acre-feet per acre.	New Type 1 rights created by the retirement and conversion of an IGR.
		Type 2	Yes, and may be sold apart from the land, but can't leave AMA.	Yes, but subject to payment for damages.	Right is quantified and is indivisible, but may be leased.	Does not enhance the assured water supply of AMA. Very flexible since it is not appurtenant to any land.
		Service Area Right	Yes, via purchase of private water companies or the acquisition of city-owned service areas.	Yes, but only within a service area and subject to payment for damages only across sub-basins.	Limited by conservation requirements for the AMA.	Does not enhance the assured water supply of the AMA.
	Non-AMA		Yes, the right to pump water underlying the land is transferable with the land.	Yes, subject to payment for damages.	Water must be applied to "reasonable and beneficial use."	Since no quantified groundwater rights exist outside AMAs, the amount of water which can be withdrawn is virtually unlimited.
SURFACE	Non-Colorado River Right		Yes, with the land to which the right pertains.	Yes, provided no other rightsholders are damaged.	Water must be applied to "reasonable and beneficial" use on appurtenant land.	Right subject to forfeiture for non-use. Seniority of right determines priority in times of shortage.
	Colorado River Right		Not clear. Non-use by holder may free up water for junior rightsholders.	Not clear for interstate transfers and particularly for interbasin transfers.	Water must be applied to "reasonable and beneficial use." Limited by contract with Sec. of Interior.	Seniority of right determines priority in times of shortage.
EFFLUENT			Yes, and with no attachments to the land.	Yes, but if placed in a natural streambed, it reverts to surface water. No liabilities for damages, even outside an AMA.	Water must be applied to "reasonable and beneficial use." Limited by contract with Sec. of Interior.	May be subject to future legislative regulation.