

Governor's Commission
To Review California Water Rights Law

THE TRANSFER
OF WATER RIGHTS
IN CALIFORNIA

Background And Issues

By Clifford T. Lee



Staff Paper No. 5

December 1977

GOVERNOR'S COMMISSION
TO REVIEW CALIFORNIA WATER RIGHTS LAW

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THIS PAPER HAS NOT BEEN REVIEWED
OR APPROVED BY THE COMMISSION

This paper is part of a series of background and issue papers prepared by the staff of the Governor's Commission to Review California Water Rights Law. The background material is intended to assist persons who may lack detailed knowledge of California's water rights law and procedures. The issues have been listed as a basis for discussion by the public and for the Commission when it considers various legislative options. Initial papers in the series are as follows:

- Staff Paper No. 1: Appropriative Water Rights
in California
- Staff Paper No. 2: Groundwater Rights
in California
- Staff Paper No. 3: Legal Aspects of Water
Conservation in California
- Staff Paper No. 4: Riparian Water Rights
in California
- Staff Paper No. 5: The Transfer of Water Rights
in California
- Staff Paper No. 6: Legal Aspects of Instream
Water Uses in California

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THE TRANSFER OF WATER RIGHTS IN CALIFORNIA

Water traditionally has not been viewed by the law as a marketable resource. Roman law treated running water as common property which no one could privately own. ^{1/} Early commentators compared water with wild animals, arguing that the resource, prior to capture, was beyond private ownership. ^{2/} Under both civil and common law, the public was considered owner of the actual corpus of the water, but individuals could claim a private right of use in the water. ^{3/} Thus, Blackstone, a distinguished common law scholar, described water rights in the following manner:

A man can have no absolute permanent property in these, as he may in the earth and lands, since these are of a vague and fugitive nature, and therefore can admit only of a precarious and qualified ownership which lasts so long as they are in actual use and occupation, but no longer. ^{4/}

Thus, early common law classified water rights as a "usufructuary" right, a right only to the flow and use of the water. ^{5/}

Similarly, in public discussion of water issues water has not generally been treated as a marketable resource. Because water is necessary for human survival and because it has recreational and aesthetic values which are difficult to quantify, water has often been considered "different" or "unique." ^{6/} Luna Leopold, a respected water specialist, has called for a "reverence for rivers", arguing that "our economic views are too

^{1/} 1 S. Wiel, Water Rights in the Western States 2 (1911).

^{2/} Id. at 26-30.

^{3/} Id. at 14-17.

^{4/} 2 W. Blackstone, Commentaries 395.

^{5/} 1 S. Wiel, supra note 1 at 754.

^{6/} M. Kelso, The Water Is Different Syndrome or What is Wrong with the Water Industry?, Proceedings of the Third Annual Water Resources Conference of the American Water Resources Association 176-83 (Proceedings Series No. 3, 1967).

insensitive to be the only criteria for judging the health of the river organism." ^{7/}

The growing scarcity of useable water supplies has forced a reconsideration of this conventional wisdom regarding water. During the 1976-1977 water year, state precipitation was only 35 percent of normal. ^{8/} As of April, 1977, accumulated statewide snowpack was only 25 percent of normal. ^{9/} As a result, the State Water Project has reduced water deliveries to its agricultural users by 60 percent and to its municipal and industrial users by 10 percent. ^{10/} The federal Central Valley Project has reduced its contract entitlement deliveries, in some cases, by up to 75 percent. ^{11/}

In order more efficiently to use existing resources, water users have been increasingly willing to transfer their rights to other users at market established prices. ^{12/} Numerous commentators have argued that existing

^{7/} L. Leopold, Reverence for Rivers, Proceedings of the Governor's Drought Conference of the Office of Governor Edmund G. Brown, Jr., the Department of Water Resources and the Department of Food and Agriculture 34 (1977).

^{8/} Cal. Department of Water Resources, The Continuing California Drought 1 (1977).

^{9/} Id.

^{10/} Id. at 22.

^{11/} Id. at 23.

^{12/} One example of this increased willingness to sell recently came before the State Water Resources Control Board. Anderson Farms Company, a farming operation in Yolo County, sought to obtain storage credit behind the Oroville Dam through a reduction in surface diversions and an increase in groundwater pumping. The credited water would then be conveyed and sold to Berrenda Mesa Water District of Kern County, through the State Water Project facilities. The Department of Water Resources conditioned approval of the use of its conveyance facilities on approval of the proposal by the State Water Resources Control Board. The Board found that the proposal violated the Emergency Delta Regulations (23 Cal. Admin. Code, Section 764.20(c)(3)), was contrary to the public interest, and could potentially be an unreasonable method of diversion under Article 10, Section 2 of the California Constitution. Cal. State Water Resources Control Bd. Decision No. 1474 (September 22, 1977).

water rights law discourages such voluntary exchanges. ^{13/} Economist Mason Gaffney has contended that existing water law creates diseconomies in the distribution of water throughout the State. ^{14/} Hirshleifer, De Haven and Milliman have asserted that "current laws do not effectively establish water rights as property capable of the economic treatment

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- ^{13/} J. Hirshleifer, J. De Haven, and J. Milliman, Water Supply: Economics, Technology, and Policy 234-43 (1960); W. Ellis, "Water Transfer Problems: Law" in Water Research 234-38 (A. Knesse and S. Smith, ed.) (1965); J. Bain, R. Caves, and J. Margolis, Northern California's Water Industry 68-69 (1966); L. Hartman and D. Seastone, Water Transfers: Economic Efficiency and Alternative Institutions 23-25 (1970); C. Meyers and R. Posner, Market Transfers of Water Rights: Toward an Improved Market in Water Resources 17-38 (1971); National Water Commission, Water Policies for the Future 164-67 (1973); S. Ciriacy-Wantrup, Concepts Used as Economic Criteria for a System of Water Rights, 23 Land Econ. 295 (1956); J. Milliman, Water Law and Private Decision-making: A Critique, 2 J. of Law and Econ. 41 (1959); F. Trelease and D. Lee, Priority and Progress--Case Studies in the Transfer of Water Rights, 1 Land and Water Law Review 1 (1966); F. Trelease, Changes and Transfers of Water Rights, 13 Rocky Mountain Min. L. Inst. 507 (1967); Note, Water Law - Legal Impediments to Transfers of Water Rights, 7 Nat. Res. J. 433 (1967); D. Shapiro, Water Rights and Wrongs, 3 Annals of Reg. Science 139 (1969); Note, Towards an Economic Distribution of Water Rights, 1970 Utah L.R. 942; C. Hill, Limitation on Diversion from the Watershed: Riparian Roadblocks to Beneficial Use, 23 S. Car. L.R. 43 (1971); Note, The Efficient Use of Utah's Irrigation Water: Increased Transferability of Water Rights, 1975 Utah L.R. 158; M. Gaffney, "Diseconomies Inherent in Western Water Law: A California Case Study", Conference Proceedings, Committee on the Economics of Water Resources Development and Committee on the Economics of Range Use and Development of the Western Agricultural Economics Research Council 55 (Rept. No. 9, 1961); F. Trelease, Water Law and Economic Transfers of Water, 43 J. of Farm Econ. 1147 (1961); M. Gaffney, Water Law and Economic Transfers of Water: A Reply, 44 J. of Farm Econ. 427 (1962); F. Trelease, Water Law and Economic Transfers of Water: A Rejoinder, 44 J. of Farm Econ. 435 (1962); C. Martz, "Legal Problems in Water Transfer", Conference Proceedings, Committee on the Economics of Water Resources Development of the Western Agricultural Economics Research Council 39 (Rept. No. 10, 1961).
- ^{14/} M. Gaffney, "Diseconomies Inherent in Western Water Law: A California Case Study", Conference Proceedings, Committee on the Economics of Water Resources Development and Committee on the Economics of Range Use and the Development of the Western Agricultural Economics Research Council 55 (Rept. No. 9, 1961).

accorded to other types of property like land or mineral rights."^{15/}

Bain, Caves, and Margolis have concluded that existing law allocates water "in a haphazard fashion which could only by unlikely coincidence approximate an economically efficient allocation."^{16/}

This paper will review the possibility of encouraging water rights transfers in California.^{17/} More specifically, the paper will discuss the economic considerations of water rights transfers, the existing legal impediments to such transfers and the current status of the water transfer market in the State.

^{15/} J. Hirshleifer, J. De Haven and J. Milliman, Water Supply: Economics, Technology, and Policy 234 (1960).

^{16/} J. Bain, R. Caves and J. Margolis, Northern California's Water Industry 122 (1966).

^{17/} For the purposes of this paper, a water rights transfer will be defined as a voluntary exchange of a water right for adequate consideration resulting in a change in the point of diversion, place of use or purpose of use. Water rights may include contract rights as well as traditional property rights in water (i.e., appropriative, riparian, pueblo, and prescriptive rights).

I. Water as a Marketable Resource

A. Theory of Equimarginal Value

Resources have value because they are scarce, in the sense that the quantity demanded exceeds the supply at zero price. ^{18/} Where scarcity exists, it is necessary to develop some method of resource allocation. Economists have commonly posited the economic efficiency objective as a criterion for optimal resource allocation. ^{19/} The theory of equimarginal value asserts that, as a necessary condition of economic efficiency, all users of a resource must derive equal value from the last unit of the resource each user has consumed. ^{20/}

The value of any unit of water is essentially measured by the maximum amount which the consumer would be willing to pay for that unit. ^{21/} The marginal value is the value of the last unit consumed. ^{22/} For any consumer, the marginal value will ordinarily decline or rise as the quantity of water consumed in any period increases or decreases. ^{23/} Thus, if the marginal value to consumer "A" of one acre-foot of water is \$20, and the marginal value to consumer "B" is \$10, then both parties would be better off in terms of their own preferences if B sold A one acre-foot of water at some price between \$10 and \$20. Since B's consumption of water has decreased due to the sale, his marginal value for water will increase (perhaps to \$11 an acre-foot). Similarly, since A's consumption has increased, his marginal value for water will decrease (perhaps to \$19 an acre-foot). Economists have

^{18/} R. Young and S. Gray, Economic Value of Water 33 (1972) (prepared for the National Water Commission).

^{19/} Id. at 11.

^{20/} Id. at 19; J. Hirshleifer, supra note 15 at 38.

^{21/} J. Hirshleifer, supra note 15 at 37.

^{22/} Id. at 37-38.

^{23/} Id. at 38.

therefore concluded that the most efficient allocation of water resources requires the eventual equalization of the marginal values of all water consumers. ^{24/}

Water values will vary substantially depending upon the type of water use. The National Water Commission found a wide variation in values among the same uses and between different uses. ^{25/} The Commission therefore recommended the encouragement of water rights transfers in order to reduce such disparities in value. ^{26/}

B. Problems in Application

1. The Theory of the Second Best

As noted, one condition for the optimal allocation of a resource is the equalization of marginal values among the consumers of the resource. Some economists have argued that where the economy does not conform to all conditions for optimal resource allocation then a "second best" conformity may not necessarily increase total system efficiency. ^{27/} For example, where all goods and services are not priced at marginal cost, the introduction of marginal cost pricing in one sector of the economy might worsen the allocation of the resources. ^{28/} The obvious implication of the theory of

^{24/} Id. at 38; B. Gardner and H. Fullerton, Transfer Restrictions and Misallocations of Irrigation Water, 50 Am. J. of Ag. Econ. 556 (1968).
^{25/} National Water Commission, Water Policies for the Future 260-61 (1973).
^{26/} Id. at 261-70.
^{27/} "It is not true that a situation in which more, but not all, of the optimum conditions are fulfilled is necessarily, or is even likely to be, superior to a situation in which fewer are fulfilled." R. Lipsey and K. Lancaster, The General Theory of Second Best, 24 Rev. of Econ. Studies 12 (1956-57).
^{28/} R. Davis, et al., Pricing and Efficiency in Water Resource Management 38 (1971) (prepared for the National Water Commission).

the second best is that piecemeal efforts to achieve system efficiency may not be desirable. ^{29/}

Commentators on the theory of the second best have noted that the theory assumes an interdependent economic system. However, economic optimization in some broad sector of the economy may be justified where the outputs and relative prices have negligible repercussion in the rest of the economy. ^{30/} The same argument would apply where a geographical area has tenuous economic links with the rest of the economy. ^{31/} Furthermore, where deviations from the conditions of optimal allocation are initially large in the free sectors of the economy and relatively small in the restrained sectors, then movement towards optimalization in the free sectors may still be desirable. ^{32/}

^{29/} One economist has explained the rationale behind the theory of the second best as follows:

Equalizing the value of the marginal products in the controllable, or free sectors does have repercussions on the value of the outputs in the constrained sectors. This follows from the simple proposition that, given an interdependent system, in response to a movement along any market demand curve, prices and quantities purchased in all other sectors cannot both be held constant. Thus if there were a quantity constraint in the production of X, any reallocation in the free sectors would in principle alter the price of X and, therefore, the value of the marginal product of factors used in X. If, alternatively, there were a price-marginal cost constraint in X, a reallocation of factors in the free sectors would in principle entail a change in the output of X. In either case then the value of output in X is altered. There is no warrant, therefore, for concluding that the set of all relative product prices thrown up from the process of optimizing in the free sectors only will be that at which the value of the social product of the entire economy (including, that is, the value of the product in the constrained sector X) is greater than it could be for any conceivable nonoptimal arrangement in the free sector. E. Mishan, Welfare Economics: Ten Introductory Essays 152 (1969).

^{30/} Id. at 155.

^{31/} Id. at 156.

^{32/} Id. at 153.

Finally, regardless of its impact on total system efficiency, the theory of the second best does not impair gains achieved by individual parties who seek to improve their position through private transfers. The reallocation of water so as to equalize marginal values will still increase the total value productivity of that water. ^{33/}

2. Externalities, Spillover Effects and Third Party Effects

An economic externality occurs where actions by one individual or a group of individuals affect outside parties because of a failure in markets. ^{34/} The market process fails because it does not cause the individual whose action results in an externality to adjust his behavior in accordance with the consequences. ^{35/} Thus, a private transaction imposes costs or benefits upon a third person who has not been party to the bargaining process.

For example, a paper mill that discharges untreated effluent into a river imposes costs that are not internalized in its transactions with paper purchasers. These wildlife, fishery and recreational losses are examples of negative externalities. On the other hand, the improvement by a private landowner of his property will commonly enhance the value of his neighbor's property. This increase in property value is an example of a positive externality.

^{33/} Letter of October 24, 1977, from B. Delworth Gardner, Professor, College of Agricultural and Environmental Sciences, Agricultural Experimental Station, University of California Davis, to Clifford T. Lee, staff attorney, Governor's Commission to Review California Water Rights Law.

^{34/} W. Heller and D. Starrett, "On the Nature of Externalities", in Theory and Measurement of Economic Externalities 10 (S. Lin. ed.) (1976); Hirshleifer, supra note 15 at 51; R. McKean, Efficiency in Government Through Systems Analysis 134 (1958).

^{35/} L. Hartman & D. Seastone, Water Transfers: Economic Efficiency & Alternative Institutions 2 (1970).

It is also important to distinguish between technological externalities and pecuniary externalities. Most commentators agree that one should only consider the impact of technological externalities when evaluating the efficiency of any particular transfer. ^{36/} Technological externalities impose actual losses or gains on the productive capacity of society. ^{37/} The externality affects the actual, physical output or satisfaction that a third party producer or consumer can get from his physical inputs. ^{38/} For example, flooding agricultural land in order to operate a dam imposes actual, physical losses in the productive capacity of agriculture.

Pecuniary externalities, on the other hand, do not change the real productive capacity of society. ^{39/} Instead, the gains or losses suffered by the third parties occur through changes in prices. For example, the reservoir created by the new dam may increase recreational opportunities thereby reducing the existing gains of private recreation facility operators that service any neighboring reservoirs.

A discussion of water rights transfers requires consideration of externality theory because water rights transfers commonly affect third parties. ^{40/} A transfer by an upstream user outside of the watershed may reduce the return flow available to downstream users. ^{41/} Pumping by an overlying landowner for purposes of export to nonoverlying land may affect the availability of

^{36/} J. Hirshleifer, supra note 15 at 41; R. McKean, Efficiency in Government Through the Systems Analysis 135 (1958).

^{37/} J. Hirshleifer, supra note 15 at 51.

^{38/} R. McKean, Efficiency in Government Through Systems Analysis 143 (1958).

^{39/} J. Hirshleifer, supra note 15 at 51.

^{40/} M. Brewer, The Economics of Water Transfer, 4 Nat. Res. J. 522, 528 (1965).

^{41/} Commentators have suggested that, in general, upstream use should be favored over downstream use because of the reuse potential of return flow. L. Hartman & D. Seastone, supra note 35 at 8 (1970).

groundwater to adjacent landowners.^{42/} Equalization of private marginal values through transfers would not, in such situations, meet the efficiency objective. The water transfer prices would not properly reflect the costs or the benefits imposed upon third parties. If external costs or benefits are created by these transfers, unadjusted prices would be too low or too high and the number of transfers would be too great or too small.^{43/}

In addition to their impact on the efficient use of the resource, the third party effects of water rights transfers may also have distributional impacts on communities from which water is being exported.^{44/} For example, the decline of economic activity in a community due to the purchase and export of water for use outside of the basin may harm community residents.^{45/} The difficulty of compensating those harmed third parties might be a valid distributional argument for opposing transfer projects.^{46/}

^{42/} J. Hirshleifer, supra note 15 at 59-66.

^{43/} R. Davis, supra note 26 at 34. Davis' comments regarding externalities were in reference to the pricing policy for public water supply development. The conclusions, though, equally apply to private transfers.

^{44/} M. Brewer, supra note 40 at 528-29. Brewer, in a discussion of water transfers and economic growth, concluded that "'equitable' economic growth will be considered as a positive rate of change of the real output of an economy with a smaller aggregate variation from the mean on a per capita basis." Id. at 529. Other commentators have suggested different values in distributing resources. See J. Rawls, A Theory of Justice 62 (1971).

^{45/} J. Hirshleifer, supra note 15 at 51. It is unclear whether the secondary economic impacts constitute a pecuniary or technological externality. McKean, supra note 38 at 156-57. This distinction becomes important when compensating those harmed by the secondary effects. If secondary economic impacts are primarily technological externalities, that is those that affect actual productive capacity, then economic efficiency might require compensation for the harmed parties. If the externality is pecuniary in nature then compensation for injury cannot be justified on efficiency grounds. J. Hirshleifer, supra note 15 at 51.

^{46/} J. Hirshleifer, supra note 15 at 51.

II. Legal Impediments to Water Rights Transfers in California

Transfer impediments involve both questions of water right security and flexibility. An effective market system requires definite and certain property rights. ^{47/} Lack of security may reduce investment in the resource by reducing the value of the right. ^{48/} Similarly, a market system requires a property right with sufficient flexibility to allow transfer of the resource from less to more highly valued uses. ^{49/} To the extent that the existing water rights system creates property rights which are uncertain and inflexible, it reduces the potential for water rights transfers.

A. The Security of the Right

Economist Ciriacy-Wantrup has noted three kinds of uncertainty which may affect water rights: legal, physical and tenure uncertainty. ^{50/} Legal uncertainty concerns the protection of the right against unlawful acts by others. ^{51/} Physical uncertainty measures the variability over time of the quantity of water due to changes in the weather or other aspects of the hydrologic cycle. ^{52/} Tenure uncertainty considers the potential variation in quantity due to lawful acts of others. ^{53/} The legal impediments to transfer

^{47/} J. Hirshleifer, supra note 15 at 235-39; W. Ellis, "Water Transfer Problems: Law" in Water Research 234 (A. Kneese and S. Smith, ed.) (1965).

^{48/} S. Ciriacy-Wantrup, Concepts Used as Economic Criteria for a System of Water Rights, 32 Land Econ. 295, 301-02 (1956). Ciriacy-Wantrup has observed that:

The value of durable physical assets depends on the flow of net income which the assets are expected to "yield" over time. Assets themselves, however, refer to the present; and the income flow which determines their value is subject to a time discount and an allowance for uncertainty. Thus, we are concerned here with the protection against physical and tenure uncertainties to which this income flow is subject. Id.

^{49/} J. Hirshleifer, supra note 15 at 239; S. Ciriacy-Wantrup, supra note 48 at 304.

^{50/} S. Ciriacy-Wantrup, supra note 48 at 297.

^{51/} Id.

^{52/} Id.

^{53/} Id.

primarily, concern the tenure uncertainty aspects of existing water rights law. The unquantified character of riparian rights, the absence of maximum quantity limitations on certain appropriative rights, the presence of dormant municipal appropriations and State Water Project filings and the impact of the constitutional mandate requiring the reasonable beneficial use of water all contribute to uncertainty in the water rights system.

1. The Uncertain Character of the Riparian Right

In 1850, the California Legislature adopted English common law where not inconsistent with state law. Included within English common law was the riparian system of water allocation.^{54/} A riparian right holder has the right to the reasonable use of the stream which passes his land. The right is not lost through nonuse and is generally restricted to land adjacent to the stream and within the watershed. As a transferable resource, the riparian right represents the most uncertain right in the California water rights system.

The riparian landowner is entitled to a "reasonable" share^{55/} of the water sufficient to meet his present and prospective needs.^{56/} As among riparians, the riparian share remains unquantified.^{57/} As between riparians

54/ See D. Anderson, Riparian Water Rights in California (Governor's Commission to Review California Water Rights Law, Staff Paper No. 4, 1977).

55/ Santa Margarita v. Vail, 11 Cal.2d 501, 534, 81 P.2d 533 (1938); Turner v. East Side Canal & Irrigation Co., 168 Cal. 103, 110, 142 P. 69 (1914).

56/ DiJare Irrigation Dist. v. Lindsay-Strathmore Irrigation Dist., 3 Cal.2d 489, 525, 531, 45 P.2d 972 (1935); Corona Foothill Lemon Co. v. Lillibridge, 3 Cal.2d 522, 530-31, 66 P.2d 443 (1937); Albaugh v. Mt. Shasta Power Corp., 9 Cal.2d 751, 762, 73 P.2d 217 (1937); Meridian v. San Francisco, 13 Cal.2d 424, 445, 90 P.2d 537 (1939); City of Los Angeles v. City of Glendale, 23 Cal.2d 68, 75, 142 P.2d 289 (1943); Carlsbad Mutual Water Co. v. San Luis Rey Development Co., 78 Cal. App.2d 900, 912, 178 P. 844 (1947); City of Los Angeles v. City of San Fernando, 14 Cal.3d 199, 268, 537 P.2d 1250, 123 Cal. Rptr. 1 (1975).

57/ Seneca Consolidated Gold Mines Co. v. Great Western Power Co., 209 Cal. 206, 220, 287 P. 93 (1930); Prather v. Hoberg, 24 Cal.2d 549, 559-60, 150 P.2d 405 (1944)

and prior appropriators, a court may quantify the riparian's present, reasonable beneficial uses in order to determine if surplus is available for appropriation. ^{58/} The determination of reasonableness is a factual question ^{59/} to be determined under the individual circumstances of each case. ^{60/} The court may consider the length of the stream, the volume of water, the extent of each ownership, the character of the soil owned by each claimant, and the area sought to be irrigated. ^{61/} As among riparians, the right is reciprocal; that is, in time of shortage apportionment is dependent upon the individual, reasonable needs of all other riparians. ^{62/} The riparian right, in short, is subject to substantial variation in quantity.

Numerous commentators have noted the adverse effect of this variability on the development of a water rights market. ^{63/} Uncertainty as to quantity affects the transferability of all water rights along the stream as well as

^{58/} Tulare Irrigation Dist. v. Lindsay-Strathmore Irrigation Dist., 3 Cal.2d 489, 525, 529-30, 45 P.2d 972 (1935); Corona Foothill Lemon Co. v. Lillibridge, 8 Cal.2d 522, 531, 66 P.2d 443 (1937).

^{59/} Carlsbad Mutual Water Co. v. San Luis Rey Development Co., 78 Cal. App.2d 900, 911, 178 P.2d 844 (1947).

^{60/} Prather v. Hoberg, 24 Cal.2d 549, 562, 150 P.2d 405 (1944).

^{61/} Harris v. Harrison, 93 Cal. 676, 681, 29 P. 325 (1892).

^{62/} Pabst v. Finmand, 190 Cal. 124, 129, 211 P. 11 (1922); Cowell v. Armstrong, 210 Cal. 218, 226, 290 P. 1036 (1930).

^{63/} S. Ciriacy-Wantrup, Concepts Used as Economic Criteria for a System of Water Rights, 32 Land Econ. 295, 300 (1956); W. McPherson, Can Water Be Allocated by Competitive Prices?, 38 J. of Farm Econ. 1259, 1261 (1956); J. Milliman, Water Law and Private Decision-Making: A Critique, 2 J. of Law and Econ. 41, 43, 55 (1959); F. Trelease, A Model State Water Code for River Basin Development, 22 Law and Contemp. Problems 301, 307-08 (1957); C. Martz, "Legal Problems in Water Transfer", Conference Proceedings, Committee on the Economics of Water Resources Development of the Western Agricultural Economics Research Council 39, 42-43 (Rept. No. 10, 1961); Note, Towards an Economic Distribution of Water Rights, 1970 Utah L. R. 442, 443.

the rights of any particular unquantified riparian. The tenure uncertainty reduces the value of the right thus inhibiting its sale. Since the riparian right is dependent upon the reasonable needs of all riparians, the tenure uncertainty of one riparian right affects the certainty of all other riparian rights along the stream. Similarly, where riparian rights are paramount to appropriative rights along the stream,^{64/} the tenure uncertainty of any riparian right affects the certainty of subsequent appropriative claims.

The problem of unused riparian rights further destabilizes the security of water rights along the watercourse. As previously noted, the riparian may properly claim the right to water sufficient to meet his actual and prospective reasonable beneficial needs.^{65/} Appropriators may use the amount in excess of present riparian uses; but such appropriative uses are subject to preemption by future riparian uses.^{66/} Thus, holders of appropriative rights may face a preemption of their right upon the development of previously dormant or partially developed riparian rights. Such a preemption could occur regardless of investment effort a preempted appropriator might have made in reliance on the interim water use. In discussing dormant riparian rights one commentator has alleged that:

^{64/} Riparian rights in California originally attached to public domain land transferred by grant to the State or by federal patent to private individuals. Appropriations made prior to these conveyances of the public land have priority over the riparian rights that attached to such lands. With this exception, riparian rights are normally paramount to appropriative rights along the stream. See D. Anderson, Riparian Water Rights in California (Governor's Commission to Review California Water Rights Law, Staff Paper No. 4, 1977).

^{65/} Supra note 56.

^{66/} Tulare Irrigation Dist. v. Lindsay-Strathmore Irrigation Dist., 3 Cal.2d 489, 525, 45 P.2d 972 (1935); City of Los Angeles v. City of Glendale, 23 Cal.2d 68, 74-75, 142 P.2d 289 (1943); City of Los Angeles v. City of San Fernando, 14 Cal.3d 199, 268-69, 537 P.2d 1250, 123 Cal. Rptr. 1 (1975).

These rights constitute the main threat to nonriparian and out-of-watershed development, they are the principal cause of insecurity of existing riparian uses, and their presence adds greatly to the cost of obtaining firm water rights under a riparian system. They are unrecorded, their quantity is unknown, their administration in the courts provides very little opportunity for control in the public interest. To the extent that they may deter others from using the water for fear of their ultimate exercise, they are wasteful, in the sense of costing the economy the benefits lost from the deterred uses. ^{67/}

2. Uncertainty as to Appropriative Rights

Most commentators have suggested that appropriative rights are much more amenable to transfer than riparian rights. ^{68/} Professor Frank Trelease has noted that:

As for certainty of tenure of water rights, the appropriative right seems, again, to be preferable. It has been defined as a vested right to take and divert from the source a particular quantity of water annually forever. The right is clearly defined as to priority, quantity, period of use, and point of diversion. ^{69/}

In California, though, even a holder of an appropriative right cannot always claim a clear, definite quantity of water.

Prior to the adoption of the Water Commission Act of 1913, one appropriated water either by following certain mining customs ^{70/} or, after 1872, by

^{67/} F. Trelease, A Model State Water Code for River Basin Development, 22 Law and Contemp. Problems 301, 318 (1957).

^{68/} S. Ciriacy-Wantrup, supra note 48 at 302; J. Milliman, Water Law and Private Decision-Making: A Critique, 2 J. of Law and Econ. 41, 51 (1959); C. Martz, "Legal Problems in Water Transfer", Conference Proceedings, Committee on the Economics of Water Resources Development of the Western Agricultural Economics Research Council 39, 45 (Rept. No. 10, 1961); but see M. Gaffney, "Diseconomies Inherent in Western Water Laws: A California Case Study", Conference Proceedings, Committee on the Economics of Water Resources Development and Committee on the Economics of Range Use and Development of the Western Agricultural Economics Research Council 55 (Rept. No. 9, 1961).

^{69/} F. Trelease, supra note 67 at 309.

^{70/} "The right to appropriate water was customarily initiated by posting a notice at the place of intended diversion and was established by diverting water and applying it with due diligence to the intended beneficial use." W. Hutchins, The California Law of Water Rights 86 (1956).

complying with the water rights provisions of the Civil Code. ^{71/} Neither mining custom nor the Civil Code required the prospective appropriator to declare the maximum amount of water he planned to use per year. The Civil Code provisions only required the declaration of a flow rate, not a quantity rate. ^{72/} Furthermore, while the Civil Code did require filing of a notice with the county recorder, ^{73/} the legislation did not require centralized state filing of appropriations. Because of this absence of quantity restrictions and centralized recording, one cannot determine with any precision what amount of water an appropriator may claim under any particular pre-1914 right. ^{74/}

Appropriations filed under the Water Commission Act of 1913, and its successor, the Water Code, provide partial relief from this burden of uncertainty. All prospective appropriators are required to file permit applications with the State Water Resources Control Board. ^{75/} The Water Code, though, does not require the permit applicant to state, in acre-feet per year, the maximum amount of water he seeks to appropriate. ^{76/} Board regulations only require that the amount of water "shall be stated in definite terms of some established

^{71/} "The procedure in the Civil Code for the appropriation of water was as follows: A person desiring to make the appropriation was required to post a notice in writing in a conspicuous place at the point of intended diversion, stating the claimed number of inches of water, measured under a 4-inch pressure; the purpose for which he claimed it and the place of intended use; and the means by which he intended to divert it, with specifications of the means of diversion. A copy of the notice was to be recorded in the office of the county recorder within 10 days after being posted. Within 60 days after the posting of notice, the claimant was to commence the construction work, which must be prosecuted diligently and uninterruptedly to completion unless temporarily interrupted by snow or rain." *Id.* at 89.

^{72/} Cal. Civil Code, Section 1415 (West 1954).

^{73/} *Id.*

^{74/} See generally W. Ellis, "Water Transfer Problems: Law" in Water Research 235 (A. Kneese and S. Smith, Ed.) (1965).

^{75/} Cal. Water Code, Section 1250 (West 1971).

^{76/} Cal. Water Code, Section 1260 (West 1971).

unit of measurement, such as cubic feet per second, standard miner's inches, gallons per minute or per day, or acre-feet per annum." 77/

Recently, the Board has administratively placed quantity limitations on new permits and licenses. In 1969, the Board began issuing permits with quantity restrictions measured in acre-feet per year. In 1970, the Board began issuing licenses with such a total quantity limitation. 78/ The vast majority of appropriative rights in California are therefore only restricted by flow rate and season conditions rather than total quantity restrictions.

3. Municipal Appropriators and State Filings

As previously noted, the existence of unused riparian rights reduces the certainty of the rights of all subordinate appropriators along the stream. Municipal appropriations and applications for appropriation by the Department of Water Resources (state filings) similarly lessen the water rights security of any subsequent appropriator. 79/

77/ 23 Cal. Admin. Code, Section 655.

78/ Telephone conversation with Lawrence Spencer, Division of Water Rights, State Water Resources Control Board on October 18, 1977.

79/ The economic effect of this insecurity is the under-utilization of the resource. Economist Ciriacy-Wantrup has explained this under-utilization with the following example:

Let us assume that a reservation exists in the flow of a stream and that a municipality holds the reservation and will not need the water for 20 years. During this period the water is available for temporary appropriation by other users. Let us assume that only alternative use is agricultural. Let us assume further that such use involves considerable expenditures for diversion and storage dams, main canals, a distribution system, land leveling, and other durable improvements. A private user will make these expenditures only if they seem warranted by the income stream that the durable assets are expected to yield. From the standpoint of the private user, the duration of the income stream is uncertain because of his water tenure. Under these conditions, the expenditure may not be forthcoming, and the water may go unutilized for 20 years. S. Ciriacy-Wantrup, supra note 48 at 302-03.

a. Municipal Appropriations

In California, most appropriators who have received a permit from the State Water Resources Control Board must commence construction of project works and utilize the water for beneficial purposes "with due diligence." ^{80/} Failure to complete construction of the project works or to utilize the water may result in revocation of the permit. ^{81/} Such a revocation would free the water for further appropriation. ^{82/} The purpose of the "due diligence" requirement was to speed the development of water resources in the State by preventing an appropriator from retaining the appropriative priority without putting the water to beneficial use. ^{83/}

Water Code Section 106.5 exempts municipalities from this requirement. The provision allows cities to acquire appropriative rights for existing and future uses. ^{84/} It thus grants municipalities a preferred position by protecting water rights presently acquired but not yet fully utilized. ^{85/} The Board may issue permits for the temporary appropriation of water in excess of existing municipal needs, but such a water right is subject to divestment upon the ripening of the city's prospective uses. ^{86/} In the event such divestment occurs, the municipality must make just compensation for the

^{80/} Cal. Water Code, Section 1396 (West 1971).

^{81/} Cal. Water Code, Section 1410 (West 1971).

^{82/} Id.

^{83/} Nevada County and Sacramento Canal Co. v. Kidd, 37 Cal. 282, 314 (1869). The court observed that "[t]he doctrine is that no man shall act upon the principle of the dog in the manger, by claiming water by certain preliminary acts and from that moment prevent others from enjoying that which he is himself unable or unwilling to enjoy, and thereby prevent the development of the resources of the country by others." Id.

^{84/} Cal. Water Code, Section 106.5 (West 1971).

^{85/} People ex rel City of Downey v. Downey County Water Dist., 202 Cal. App.2d 786, 796, 21 Cal. Rptr. 370 (1962); City of Los Angeles v. City of San Fernando, 14 Cal.3d 199, 245, 537 P.2d 1250, 123 Cal. Rptr. 1 (1975); Cal. State Water Rights Board Decision No. 1027 (July 19, 1961).

^{86/} Cal. Water Code, Sections 1203 and 1462 (West 1971).

facilities constructed for the interim appropriation that has been rendered valueless. ^{87/} The Water Code, however, does not require compensation for the reduced investment value of the interim user's property due to the municipality's assertion of its previously dormant rights.

b. State Filings

State filings may similarly impede the transfer of water rights. Water Code Section 10500 allows the Department of Water Resources to "make and file applications for any water which in its judgment is or may be required" to implement the state's water resource development program. ^{88/} The provision expressly exempts the Department from compliance with the due diligence requirement, unless it releases its priority or assigns the application. ^{89/} The advantage of the exemption of an application filed under Section 10500 from the generally applicable requirements of diligence is that the priority of the application as of the date of its filing is maintained even though the actual use of the water may be long delayed. ^{90/} Unlike municipal appropriators for future use, the assertion of a prospective use by the Department or an assignee does not impose a duty of compensation as to subsequent appropriators harmed by such new development. Therefore, the exercise by the Department of its filing rights or the assignment of those rights may reduce in value the priority of subsequent appropriators to the water in the stream. ^{91/}

^{87/} Cal. Water Code, Section 1463 (West 1971).

^{88/} Cal. Water Code, Section 10500 (West 1971) (emphasis added).

^{89/} Id.

^{90/} 25 Ops. Cal. Atty. Gen. 32, 37-38 (1955).

^{91/} A subsequent appropriator might be able to obtain some relief by applying to the Board for a "release from priority" with regard to the state filing. The release from priority must be for the purpose of development not in conflict with the general water development plan of the State or with required water quality objectives. Cal. Water Code, Section 10504 (West 1971).

Unassigned state filings may amount to as much as 58 million acre-feet of storage rights. ^{92/} The assertion of such dormant rights may therefore substantially affect established uses.

4. Restrictions as to Purpose and Method of Use

Article 10, Section 2 of the California Constitution restricts all water use to the amount reasonably necessary for beneficial purposes. ^{93/} Determination of reasonable beneficial use depends upon the facts and circumstances of each case. ^{94/} Reasonableness may therefore vary depending upon the availability of water, ^{95/} the method of diversion, ^{96/} and the purpose of use. ^{97/}

Some commentators have argued that the reasonable beneficial use requirement reduces the tenure certainty of all water rights. ^{98/} As noted, such uncertainty discourages the transfer of the right or investment in the resource. People will be unwilling to pay much for property, however valuable, if they cannot receive a reasonably secure right, and the existing holder will be wary about investing in the resource if there is a significant risk of loss. ^{99/}

^{92/} A. Schneider, Water Supply and Use Data (memorandum prepared for the Governor's Commission to Review California Water Rights Law, August 4, 1977). The amount of unassigned state filings may be overestimated. There exist no data as to the amounts of state filings "released from priority." Furthermore, the state filings include some duplicate filings along the same stream course.

^{93/} Cal. Const. Art. 10, Section 2.

^{94/} Joerger v. Pacific Gas and Electric Co., 207 Cal. 8, 22, 276 P. 1017 (1929); Tulare Irr. Dist. v. Lindsay-Strathmore Irr. Dist., 3 Cal.2d 489, 567, 45 P.2d 972 (1935); Prather v. Hoberg, 24 Cal.2d 549, 560, 150 P.2d 405 (1944); Carlsbad Mutual Water Co. v. San Luis Rey Development Co., 78 Cal. App.2d 900, 912, 178 P.2d 844 (1947); People ex rel State Water Resources Control Board v. Forni, 54 Cal. App.3d 743, 750, 126 Cal. Rptr. 851 (1976).

^{95/} Tulare Irr. Dist. v. Lindsay-Strathmore Irr. Dist., 3 Cal.2d 489, 567, 45 P.2d 972 (1935).

^{96/} Erickson v. Queen Valley Ranch Co., 22 Cal. App.3d 578, 584-85, 99 Cal. Rptr. 466 (1971).

^{97/} Joslin v. Marin Municipal Water District, 67 Cal.2d 132, 141, 429 P.2d 889, 60 Cal. Rptr. 377 (1967).

^{98/} J. Hirshleifer, supra note 15 at 228-34; M. Gaffney, supra note 14 at 73.

^{99/} J. Hirshleifer, supra note 15 at 42.

The California Supreme Court decision in Joslin v. Marin Municipal Water District indicates the pitfalls which may afflict the water right holder under the reasonable beneficial use requirement. In Joslin the plaintiffs were owners of riparian land along Nicasio Creek in Marin County. ^{100/} The creek carried rock, sand, and gravel which were deposited on the plaintiffs' land. ^{101/} Since 1955 the plaintiffs had used these deposits to develop a rock and gravel business allegedly valued at \$250,000. ^{102/} The defendant water district constructed a dam across the creek under a permit right obtained from the State Water Rights Board. ^{103/} The dam reduced the stream flow and eliminated the deposit of rock and gravel previously delivered to the plaintiffs' land. ^{104/}

The court, in declaring that the plaintiffs' use was unreasonable under Article 10, Section 2, stated that:

Although, as we have said, what is a reasonable use of water depends on the circumstances of each case, such an inquiry cannot be resolved in vacuo isolated from statewide considerations of transcendent importance. Paramount among these we see the ever increasing need for the conservation of water in this state, an inescapable reality of life quite apart from its express recognition in the 1928 amendment. On the other hand, unlike the unanimous policy pronouncements relative to the use and conservation of natural waters, we are aware of none relative to the supply and availability of sand, gravel and rock in commercial quantities. ^{105/}

The court held that:

[I]n the instant case the use of such waters as an agent to expose or to carry and deposit sand, gravel and rock, is as a matter of law unreasonable within the meaning of the constitutional amendment. ^{106/}

^{100/} Joslin v. Marin Municipal Water Dist., 67 Cal.2d 132, 134, 429 P.2d 889, 60 Cal. Rptr. 377 (1967).

^{101/} Id.

^{102/} Id.

^{103/} Id. at 134-35.

^{104/} Id.

^{105/} Id. at 140. (Emphasis added.)

^{106/} Id. at 141.

The plaintiffs in Joslin were thus denied the flow of the creek necessary for the deposit of rock and gravel on their land. What kind of "policy pronouncements" a private water user would be required to show in order to thwart any challenge of unreasonable use by a public agency remains unclear. This kind of uncertainty may dampen the possibility that a water rights holder will invest in his resource or that a purchaser will be willing to buy.

Even in the absence of a competing user for the resource, a water rights holder may lose his right to the extent that he fails to use it in a beneficial manner. A pre-1914 appropriator may lose his right after five years of nonuse. ^{107/} A post-1914 appropriator loses his right after three years. ^{108/} Hirshleifer, an economist critical of the forfeiture principle, has argued that:

If someone else can make productive use of the water, the solution to the problem is economic rather than legislative or judicial. That is, the potential user can purchase the right from the owner, either in full or in part, perpetually or for a term of years, as mutually agreed. If the owner chooses not to sell, that can only mean that he foresees the possibility of greater revenue - that is, of turning the water to a still more productive use - in the future, in which case current non-use has a useful function of preventing premature commitment of the water supply to the community. ^{109/}

^{107/} Smith v. Hawkins, 110 Cal. 122, 126-27, 42 P. 453 (1895).

^{108/} "When the person entitled to the use of water fails to beneficially use all or any part of the water claimed by him, for which a right has vested, for the purpose for which it was appropriated or adjudicated, for a period of three years, such unused water reverts to the public and shall be regarded as unappropriated public water." Cal. Water Code, Section 1241 (West 1971).

Whether forfeiture automatically occurs upon the lapse of the three year period or whether divestiture requires an affirmative action by the State Water Resources Control Board remains an unresolved question. Eaton v. State Water Rights Board, 171 Cal. App.2d 409, 415, 340 P.2d 722 (1959); but see Erickson v. Queen Valley Ranch, 22 Cal. App.3d 578, 582, 99 Cal. Rptr. 446 (1971). Resolution of this question would only affect the degree of uncertainty posed by the forfeiture statutes, not the actual presence of uncertainty.

^{109/} J. Hirshleifer, supra note 15 at 237.

As previously noted, a water rights holder would not be likely to invest in his resource nor would a prospective user be likely to purchase where neither party can be reasonably certain whether the water right has been forfeited through nonuse.

B. The Flexibility of the Right

Economist Ciriacy-Wantrup has defined the "flexibility of water rights" as those aspects of water rights which facilitate or obstruct changes over time in the allocation of water resources between regions, uses, and users. ^{110/} An effective water rights market requires such flexibility in the property right as to allow the transfer of the resource to all who are willing to bid for it. Existing law imposes numerous restrictions on water rights and on certain holders of water rights which reduce this desired flexibility.

1. Riparian Rights

Proponents of water rights transfers have been highly critical of the inflexible character of riparian water rights. ^{111/} Traditionally, the common law has treated riparian rights as an incident to property, "inhering in and part and parcel of the abutting land." ^{112/} Riparian water rights and riparian land have not been considered separate resources capable of separate beneficial uses.

^{110/} S. Ciriacy-Wantrup, supra note 48 at 304.

^{111/} C. Martz, "Legal Problems in Water Transfer", Conference Proceedings, Committee on the Economics of Water Resources Development of the Western Agricultural Economics Research Council 39, 41 (Rept. No. 10, 1961); Note, Limitation on Diversion from the Watershed: Riparian Roadblock to Beneficial Use, 23 S. Cal. L.R. 43 (1971).

^{112/} Fall River Valley Irrigation Dist. v. Mt. Shasta Power Corp., 202 Cal. 56, 65, 259 P. 444 (1927); Martin v. Western States Gas & Electric Co., 8 Cal. App.2d 226, 230, 47 P.2d 522 (1935); Los Angeles County Flood Control Dist. v. Abbot, 24 Cal. App.2d 720, 733, 76 P.2d 188 (1938); Gonzales v. Arbelbide, 155 Cal. App.2d 721, 723, 318 P.2d 746 (1957).

a. Land Abutting the Watercourse

Traditionally, riparian rights have been restricted to land adjacent to the watercourse. ^{113/} Such a requirement resulted from the early common law recognition that only abutting landowners could claim access to the stream. ^{114/} Thus, in Rancho Santa Margarita v. Vail the California Supreme Court, in determining whether appellants' land was riparian to the river, held that:

[I]t is access to the stream and not whether all surface drainage from the area in question drains directly into the stream at the point of access, that determines the riparian status of the land. ^{115/}

Upon subdivision of riparian land, abutting parcels may receive water where parties to the subdivision intended that such parcels retain their riparian rights. ^{116/} But holders of riparian rights cannot transfer their water right independent of their riparian land. ^{117/}

b. Chain of Title Restrictions

In California, the courts have restricted riparian land to parcels held under the original grant of public land from the government. Where the original government grant involved separate government patents, only those patents describing land abutting the stream would carry with them riparian water rights. ^{118/} Similarly, additions to a riparian parcel would not add to the riparian land. The settled rule was that the riparian right extended only to the smallest tract held under one title in the chain of title to the present owner. ^{119/}

^{113/} Gallatin v. Corning Irrigation Co., 163 Cal. 405, 416, 126 P. 865 (1912); Rancho Santa Margarita v. Vail, 11 Cal. 2d 501, 528-29, 1 P.2d 533 (1938).

^{114/} I S. Wiel, *supra* note 1 at 759 (1911).

^{115/} Rancho Santa Margarita v. Vail, 11 Cal.2d 501, 528, 81 P.2d 533 (1938).

^{116/} Copeland v. Fairview Land & Water Co., 165 Cal. 148, 161, 131 P. 119 (1913); Strange v. Baldwin, 154 Cal. 150, 156-57, 97 P. 178 (1908).

^{117/} Spring Valley Water Co. v. County of Alameda, 88 Cal. App. 157, 168, 263 P. 312 (1927).

^{118/} Boehm v. Big Rock Irr. Dist., 117 Cal. 19, 26-27, 48 P. 908 (1897).

^{119/} Rancho Santa Margarita v. Vail, 11 Cal.2d 501, 529, 81 P.2d 533 (1938).

Thus, only a portion of a riparian's land might be eligible to receive water under a riparian water right.

c. Watershed Restriction

Finally, the land, in order to be riparian, must be within the watershed of the stream. ^{120/} The rationale for this rule appears to be the assumption that all the water diverted and used within the watershed will eventually return to the watercourse and that all return flow belongs to the downstream user. ^{121/} Land riparian to a tributary of a stream and land riparian to the stream below the confluence of the tributary and the main stream are considered to be within the same watershed. ^{122/} Land riparian to two tributaries above the confluence of the main stream and the tributaries has been held to be within different watersheds. ^{123/}

d. Impact of Severance of the Riparian Right from Riparian Land

In spite of these restrictions as to riparian land, riparians have occasionally attempted to convey their water rights to nonriparian landowners. It is settled that such a conveyance only grants the nonriparian a promise that the riparian seller will not object to the nonriparian diversion. ^{124/} The effect is to prevent the riparian seller from challenging the buyer's use of the water. ^{125/} The conveyance would also prevent any successor of the riparian seller from objecting to the nonriparian use. ^{126/}

^{120/} Id.

^{121/} Anaheim Union Water Co. v. Fuller, 150 Cal. 327, 330, 88 P. 978 (1907).

^{122/} Holmes v. Nay, 186 Cal. 231, 240-41, 199 P. 325 (1921).

^{123/} Anaheim Union Water Co. v. Fuller, 150 Cal. 327, 330-31, 88 P. 978 (1907).

^{124/} Duckworth v. Watsonville Water and Light Co., 150 Cal. 520, 526, 89 P. 338 (1907); Duckworth v. Watsonville Water and Light Co., 158 Cal. 206, 213, 110 P. 917 (1910); California Pastoral and Agricultural Co. v. Madera Canal and Irr. Co., 167 Cal. 78, 86, 138 P. 718 (1914).

^{125/} California Pastoral and Agricultural Co. v. Madera Canal and Irr. Co., 167 Cal. 78, 86, 138 P. 718 (1914).

^{126/} Spring Valley Water Co. v. County of Alameda, 88 Cal. App. 157, 163, 223 P. 318 (1927).

Such agreements, however, have no effect on other riparians along the stream. ^{127/} Since a riparian may not use his water on nonriparian land or riparian land other than his own, nonriparians may not buy the water right for nonriparian purposes. ^{128/} Unless the nonriparian buyer purchases all of the riparian rights along a stream, the remaining riparians need not respect the nonriparian use. ^{129/} Where riparian rights are extensive this restriction may make the transfer of riparian rights exceptionally expensive. ^{130/}

2. Overlying Rights

Groundwater users face certain economic disincentives which confront all users of a common pool resource. Property rights in a common pool resource are not clear and discrete. Users draw competitively on a "fugitive" supply, that is, the commodity is no one's property until and unless captured for use. ^{131/} Wildlife and fish are classic examples of such common pool resources. ^{132/}

The characteristic quality of a common pool resource is that each owner's private use decision fails to take account of losses imposed on others. ^{133/} With regard to groundwater, each individual pumper may only consider the effect of his own pumping on the water level in his well. Such effect may be negligible if there are many pumpers. In determining his use, the pumper has no incentive to consider the fact that his pumping may reduce the water levels

^{127/} Mt. Shasta Power Corp. v. McArthur, 109 Cal. App. 171, 192, 292 P. 549 (1930).

^{128/} Duckworth v. Watsonville Water and Light Co., 150 Cal. 520, 526, 89 P. 338 (1907).

^{129/} C. Martz, "Legal Problems in Water Transfer", Conference Proceedings, Committee on the Economics of Water Resources Development of the Western Agricultural Economics Research Council 39, 41 (Rept. No. 10, 1961).

^{130/} Id. In the construction and operation of the Los Angeles Aqueduct, the City of Los Angeles spent six million dollars in purchasing water rights and land in the Owens Valley. E. Nadeau, The Water Seekers 78 (1974).

^{131/} J. Hirshleifer, supra note 15 at 60.

^{132/} Id.

^{133/} Id.

in the wells of all other users of the groundwater supply. ^{134/} The pumper's failure to consider such secondary costs ordinarily encourages the excessive use of the resource. ^{135/}

In approaching this problem California courts have sought to allocate individual property rights in the common pool to groundwater users. ^{136/} The courts have drawn an analogy between the rights of overlying users and riparian rights. ^{137/} As between overlying landowners, each landowner can claim a "correlative" right to a "fair and just proportion." ^{138/} The courts have protected the overlying user against withdrawals for nonoverlying use by limiting such withdrawals to water surplus to the needs of the overlying user. ^{139/} As between nonoverlying users, the courts look to prior appropriation theory and grant a priority right to the user who was first in time. ^{140/}

Declining groundwater tables in Southern California forced a reconsideration of these rules. In Pasadena v. Alhambra, the California Supreme Court modified groundwater law by introducing the doctrine of mutual prescription. ^{141/} Prescription occurs where a use is actual, open, and notorious, hostile and adverse to the original owner, continuous and uninterrupted for the statutory period of five years, and under a claim of right. ^{142/} Where there exists

^{134/} Id.

^{135/} Id. Economists characterize this phenomenon as a situation where the marginal social cost of an individual pumper's decision to secure water exceeds the marginal private cost of pumping to that pumper. Its effect is to encourage excessive pumping. Id. at 64-65.

^{136/} See A. Schneider, Groundwater Rights in California 3-37 (Governor's Commission to Review California Water Rights Law, Staff Paper No. 2, 1977).

^{137/} Katz v. Walkinshaw, 70 P. 663, 666 (1902).

^{138/} Katz v. Walkinshaw, 141 Cal. 116, 134, 74 P. 766 (1903).

^{139/} Corona Foothill Lemon Co. v. Lillibridge, 8 Cal.2d 522, 531, 66 P.2d 443 (1937).

^{140/} City of Lodi v. East Bay Municipal Util. Dist., 7 Cal.2d 316, 341, 60 P.2d 439 (1936).

^{141/} Pasadena v. Alhambra, 33 Cal.2d 908, 928, 207 P.2d 17 (1949).

^{142/} Id. at 926-27.

such an invasion of the original owner's right and a failure by the owner to protect his right by judicial action during the statutory period, the wrongful party obtains a prescriptive right to the original owner's property to the extent of his use. ^{143/}

The court in Pasadena applied prescriptive theory to groundwater law by holding that the continuous lowering of the groundwater table beyond the safe yield of the groundwater basin provided sufficient adversity of use to constitute an invasion of the original owner's right. ^{144/} Since, in an overdrawn basin, the rights of all pumpers were invaded, the court could require all parties mutually to reduce their withdrawals based on their prior use. ^{145/} Thus, the junior nonoverlying users would not have to bear the entire burden of curtailing the groundwater overdraft of the basin. ^{146/}

The mutual prescription doctrine provided a convenient tool for managing groundwater basins. The court in Pasadena noted that proportionate reductions in withdrawals would be less disruptive than reductions based on priority of use. ^{147/} Furthermore, from the standpoint of developing a water transfer market, the doctrine created the possibility of obtaining a more secure property right. A court could now quantify pumping rights based on prior use.

Groundwater basin adjudications following Pasadena reflected this new security. These adjudications have contained provisions authorizing the transfer or assignment of pumping rights. In the West Coast Basin of Los Angeles County the parties agreed to create an Exchange Pool. ^{148/} The judgment provided for

^{143/} Id. at 927.

^{144/} Id. at 928-29.

^{145/} Id. at 933.

^{146/} Id. at 932-33.

^{147/} Id. at 933.

^{148/} California Water Service Company v. City of Compton, Civil No. 506806, Cal. Super. Ct., Los Angeles County, August 22, 1961 at 27-32.

certain mandatory and voluntary releases to the pool and established price restrictions on subsequent sales. The Central Basin adjudication in Los Angeles County also provided for a similar exchange mechanism. ^{149/} Other adjudicated basins have also allowed the transfer of the adjudicated rights. ^{150/}

The recent Supreme Court decision in Los Angeles v. San Fernando substantially modified the mutual prescription doctrine enunciated in Pasadena. The court restricted prescription involving public entities, ^{151/} redefined the concept of overdraft, ^{152/} and implicitly revised the requirement of notice of adverse use. ^{153/} It is now possible that a court will only apply the mutual prescription formula to groundwater allocation where all users have privately agreed to the formula's use. ^{154/} The overall effect of San Fernando is greatly to decrease the certainty of all groundwater pumpers through the elimination of the formula under which a court might establish groundwater rights. In addition, the court may have substantially restricted the transferability of adjudicated overlying rights.

As previously noted, in defining the groundwater rights of overlying users, the California courts had originally drawn an analogy to riparian rights. Overlying rights were correlative and could only be exercised on overlying land. ^{155/} The Pasadena court expressly chose not to determine the character of the right obtained by an overlying landowner under the mutual

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- ^{149/} Central and West Basin Water Replenishment Dist. v. Adams, Civil No. 786656, Cal. Super. Ct., Los Angeles County, October 18, 1965 at 49-60.
^{150/} Upper San Gabriel Valley Municipal Water Dist. v. City of Alhambra, Civil No. 924128, Cal. Super. Ct., Los Angeles County, December 29, 1972 at 31.
^{151/} Los Angeles v. San Fernando, 14 Cal.3d 199, 270-77, 537 P.2d 1250, 123 Cal. Rptr. 1 (1975).
^{152/} Id. at 280.
^{153/} Id. at 283.
^{154/} A. Schneider, supra note 136 at 30.
^{155/} Pasadena v. Alhambra, 33 Cal.2d 908, 925, 207 P.2d 17 (1949).

prescription doctrine. ^{156/} Therefore, until the San Fernando decision, it was unclear whether the overlying landowner retained his overlying right by pumping during the statutory prescription period or whether he obtained a new prescriptive right as against other uses. The San Fernando court clarified this question by holding that an overlying landowner did not obtain a new prescriptive right through his continuous pumping, but merely retained his original overlying right to the extent he had exercised it. ^{157/} Thus, even after a basin adjudication, overlying users may be required to meet the place of use restrictions that are characteristic of unadjudicated overlying rights. ^{158/}

Groundwater adjudications negotiated prior to the San Fernando decision did not distinguish between overlying and nonoverlying rights in determining the capacity of any individual user to transfer or exchange his adjudicated right. All rights, with regard to their transferability, were treated equally. The San Fernando decision may possibly restrict the use of retained overlying rights to the users' overlying land and limit full transferability to nonoverlying rights.

This potential restriction on transferability has already affected at least one groundwater adjudication in Southern California. In the proposed stipulation for judgment in the adjudication of the Chino Basin, the parties

^{156/} Id. at 932.

^{157/} Los Angeles v. San Fernando, 14 Cal.3d 199, 293, 537 P.2d 1250, 123 Cal. Rptr. 1 (1975).

^{158/} The court in Alhambra noted that, "[g]enerally speaking, an overlying right, analogous to that of a riparian owner in a surface stream, is the right of the owner of the land to take water from the ground underneath for use on his land within the basin or watershed; the right is based on ownership of the land and is appurtenant thereto." Pasadena v. Alhambra, 33 Cal.2d 908, 925, 107 P.2d 17 (1949).

may only transfer appropriative rights, the right to nonoverlying use. ^{159/}
This limitation appears severely to restrict the transfer of rights within
the basin. The appropriative pool constitutes only 49,834 acre-feet of the
basin's 140,000 acre-feet per year of declared safe yield. ^{160/}

3. Change of Point of Diversion, Place of Use or Purpose of Use

In California, appropriative rights are transferable, like any other
property right. ^{161/} The Supreme Court, early in the development of California
water law, announced that:

The ownership of water, as a substantive and valuable property
right, distinct, sometimes, from the land through which it
flows has been recognized by our courts This right of
water may be transferred like other property. ^{162/}

A prospective seller of post-1914 appropriative rights must obtain
approval of the transfer from the State Water Resources Control Board where
such a transfer might change the point of diversion, place of use, or purpose
of use. ^{163/} The Board must disapprove of any sale which might injure other

^{159/} Chino Basin Municipal Water Dist. v. City of Chino, Civil No. 164327,
Cal. Super. Ct., San Bernardino County. A proposed judgment, dated
October 27, 1977, is currently being circulated among the parties.

^{160/} Id.

^{161/} McDonald v. Bear River and Auburn Water and Mining Co., 13 Cal. 220, 232-33
(1859).

^{162/} Id. "Under the law of this state as established at the beginning, the
water right which a person gains by diversion from a stream for a bene-
ficial use is a private right, a right subject to ownership and disposition
by him, as in the case of other private property," Thayer v. California
Development Co., 164 Cal. 117, 125, 128 P. 21 (1912). See also Stevinson
Water Dist. v. Roduner, 36 Cal.2d 264, 270, 233 P.2d 209 (1950).

^{163/} Cal. Water Code, Section 1701 (West 1971).

legal users of the water involved. ^{164/} The Board is required to give notice of any filing of a petition for change. ^{165/} Where persons protest the petition for change the Board must provide a hearing of the petition and of any objections. ^{166/} Prospective sellers of pre-1914 water rights need not comply with the administrative review process, ^{167/} but they must comply with the prohibition against injury to other legal users. ^{168/}

Downstream reliance on the existing flow of the stream has been the primary reason for this statutory protection of other users along the stream. In 1862, the California Supreme Court succinctly described the rationale:

^{164/} In each case, the Board is required to make a finding that "the change will not operate to the injury of any legal user of the water involved", Cal. Water Code, Section 1702 (West 1971). Thus, the Board has determined that where no diversions of water are being made between the authorized point of diversion and the proposed point, the change will not operate to injure any legal user of the water involved. Cal. State Water Resources Control Board, Decision No. 1362 at 4 (July 16, 1970). Similarly, where there would be substantially less water available to the applicant at its new point of diversion over the old, the Board has determined that no injury would result from any change in points of diversion. Cal. State Water Rights Board, Decision No. 1013 at 2-3 (May 25, 1961). See also Cal. State Water Resources Control Board, Decision No. 1439 at 5 (September 19, 1974); and Cal. State Water Resources Control Board, Decision No. 1456 (February 19, 1976). On the other hand, where a series of permits had been issued under a prior decision which restricted the place of use, the Board denied a request for a change of place of use by one permit holder which would have enlarged his eligible land. Cal. State Water Resources Control Board, Decision No. 1333 at 3 (March 6, 1969). Similarly, where a license holder seeks to increase his diversion by reviving the dormant riparian rights of one parcel and shifting the place of use for his appropriative right to another parcel, the Board has held that this increase in diversion would injure other water users along the stream. Cal. State Water Rights Board, Decision No. 1282 (August 31, 1967).

^{165/} Cal. Water Code, Section 1703 (West 1971).

^{166/} Cal. Water Code, Section 1704 (West 1971).

^{167/} Cal. Water Code, Section 1701 (West 1971).

^{168/} Cal. Water Code, Section 1706 (West 1971).

Plaintiffs maintain that their appropriation of the entire water of the stream in 1853 or 1854 gives them the right to use all its water in any way, at any time and at any place, notwithstanding any intervening appropriation by others; that is, if a stream issuing from a mountain lake has a volume of water sufficient to turn one good mill with a moderate fall, has a course of ten miles to its mouth, and within each mile has sufficient fall for a mill, and A builds a mill at the lowest fall near its mouth, whilst the balance of the stream is unappropriated; subsequently, B, C and others build mills on each mile of its course, commencing one mile above A, and extending up the stream to its source in the lake; after nine mills have been built above A - not in the slightest degree diminishing his supply of water - he has the right to go to the head of the stream, divert all of its water, and leave the mills on the stream dry, simply because he first appropriated the water at its mouth. Such a proposition is absurd, yet it is the result of plaintiffs' position. 169/

The court then concluded that appropriators "could change as often as they pleased," but that "the change must not be to the prejudice of others." 170/

Thus, where an appropriator changes his point of diversion, place of use or purpose of use without injuring any other user, California courts have found no objections. 171/ But, where a change of place of use reduces the return flow relied upon by downstream users, then the court has enjoined the diversion. 172/ These rules apply even when a water rights transfer rather

169/ Butte T. M. Co. v. Morgan, 19 Cal. 609, 615 (1862).

170/ Id.

171/ Kidd v. Laird, 15 Cal. 161, 181 (1860); Jacob v. Lorenz, 98 Cal. 332, 340-41, 33 P. 119 (1893); Ramelli v. Irish, 96 Cal. 214, 217, 31 P. 41 (1892); Byers v. Colonial Irrigation Co., 134 Cal. 553, 555, 66 P. 732 (1901); Walnut Irrigation Dist. v. Burke, 158 Cal. 168, 170, 110 P. 518 (1910); Hand v. Cleese, 202 Cal. 36, 44, 258 P. 1090 (1927).

172/ Scott v. Fruit Growers Supply Co., 202 Cal. 47, 50, 52-53, 258 P. 1095 (1927).

than the expansion or revision of an existing use has caused the change. ^{173/}

At least one commentator has questioned whether junior appropriators should be protected at all. ^{174/} Water law scholar Joseph Sax has observed that:

It is interesting to note that the problems created by the absolutist attitude toward protecting junior appropriators are absent in the parallel situation in real property law. The reason is that a landowner has never been thought to have a property right in the maintenance of neighboring uses. For example, a theatre may exist when I open a restaurant down the block, and the theatre patrons may be a valuable source of business for me. Nonetheless, I cannot prevent the theatre from converting into a warehouse, though the change is economically disastrous for me. Cf. Reichelderfer v. Quinn, 287 U.S. 315 (1932). Why should juniors on a stream be in a better position than landowners like the restaurateur? ^{175/}

On the other hand, efficiency criteria may justify some continued protection of the return flow rights of junior appropriators. Farmers would be reluctant to build irrigation works or make other investments necessary for utilizing return flows if they knew that a transfer by an upstream appropriator could wipe out their water supply. ^{176/} Furthermore, the subsequent reuse of return flow creates new, productive value in the water

^{173/} Peoples Ditch Co. v. Foothill Irrigation Dist., 112 Cal. App. 273, 278, 197 P. 71 (1931); Orange County Water District v. City of Riverside 173 Cal. App.2d 137, 194-95, 343 P.2d 450 (1959). There appears to be an exception to this rule where the corporation holds title to the water rights and grants equitable ownership to its shareholders. The Supreme Court has held that individual shareholders may not divert water from a point of diversion other than the diversion point used by the corporation. The court reasoned that "the sole right of each and every stockholder in each of said corporations is the right in mutuality with its fellow stockholders of having the proportionate share of each in the distributable waters owned by such corporation supplied to stockholder through the instrumentalities, including the system of dams, intake, and ditches provided by the corporation" Consolidated Peoples Ditch Co. v. Foothill Ditch Co., 205 Cal. 54, 64, 269 P. 915 (1928).

^{174/} J. Sax, Water Law Cases and Commentary 207 (1965).

^{175/} Id.

^{176/} C. Meyers & R. Posner, Market Transfers of Water Rights 27 (1972) [prepared for the National Water Commission].

that an individual buyer and seller might not consider in the negotiation of a transfer agreement. ^{177/}

Assume, for example, that A, a senior appropriator, diverts ten acre-feet and returns five acre-feet to the stream and that B, a downstream junior appropriator diverts the five acre-feet of return flow and then returns 2.5 acre-feet to the stream. Assume further that A values his use at \$100 and B values his use at \$50. If A sells his full ten acre-feet to C, a buyer whose intended use would not allow for any return flow, at a price of \$110, the transfer would lower the net productivity of the water by \$40. ^{178/} Thus, the maximization of productive value may require protecting the junior appropriator's return flow rights and restricting transfers to the transferor's actual, consumptive use. ^{179/}

The National Water Commission has recommended that, in the case of new transfers, the purchaser of the right should be allowed to recapture or resell the return flow he has created. Until the purchaser chooses to use or sell the return flow, other water users would be permitted to make interim use of the water. ^{180/} Such a rule would allow the water right purchaser to obtain the full economic benefit of the right he has purchased. By authorizing the purchaser to sell the return flow, the rules would allow market criteria rather than fortuitous stream position to determine water use. If applied prospectively, no legal injury to downstream users would result.

To some extent, the National Water Commission recommendations follow existing California law regarding the allocation of return flow. While rights

^{177/} L. Hartman, supra note 35 at 10; C. Meyers, supra note 176 at 27-28.

^{178/} A's value in use (\$100) plus B's value in use (\$50) minus C's value in use (\$110) equals loss in productivity (\$40).

^{179/} C. Meyers, supra note 176 at 27-28.

^{180/} National Water Commission, Water Policies for the Future 263-64 (1973).

to return flow do vest in downstream users, ^{181/} this rule is subject to some major limitations. Where the source of the return flow is outside of the watershed and where the upstream user recaptures the water within his irrigation works or on his own land, the upstream user may retain the return flow to the detriment of those downstream. ^{182/} Similarly, where an upstream user discharges return flow with the clear intention of subsequent recapture, then that water user is not obligated to continue the discharge of even that return flow. ^{183/} Therefore, if the water right purchaser's return flow originated from a foreign source and is deliberately discharged into the stream for purposes of subsequent recapture, then no rights may vest in downstream users to the continued discharge of the water. ^{184/}

^{181/} Scott v. Fruit Growers Supply Co., 202 Cal. 47, 50, 52-53, 258 P. 1095 (1927).

^{182/} Stevens v. Oakdale Irrigation Dist., 13 Cal.2d 343, 352, 90 P.2d 58 (1939). The California Supreme Court has broadly interpreted the definition of "irrigation works" for the purpose of this doctrine. In Los Angeles v. Glendale, defendant landowners were claiming return flow rights to water imported by the plaintiff and sold to the landowners that subsequently returned to the groundwater basin. The Court, applying the Stevens doctrine, held that the groundwater basin was the "plaintiff's reservoir", therefore allowing the plaintiff the right to recapture. Los Angeles v. Glendale, 23 Cal.2d 68, 77-78, 142 P.2d 289 (1943); Los Angeles v. San Fernando, 14 Cal.3d 199, 257-58, P.2d 1250 123 Cal. Rptr. 1 (1975).

^{183/} Los Angeles v. San Fernando, 14 Cal.3d 199, 157, 537 P.2d 1250, 123 Cal. Rptr. 1 (1975).

^{184/} Return flow rights may also depend upon other varying factors. Recent permits and licenses issued by the State Water Resources Control Board for return flow contain express provisions restricting the user's right to the amount of return flow which the upstream user voluntarily chooses to discharge into the stream. Cal. State Water Resources Control Board, Permit Term Index, permit term No. 25 (1976). The U.S. Bureau of Reclamation water service contracts for water delivery from the Central Valley Project normally reserve to the Bureau the right to all the return flow discharged beyond the boundaries of its contractors. See U.S. Bureau of Reclamation, Contract Between the United States of America and the Pleasant Grove-Verona Mutual Water Company, Diverter of Water from the Sacramento River Sources, Providing for Project Water Service and Agreements on Diversion of Water 10 (1971).

4. County of Origin, Watershed Protection and Delta Protection Acts

By the mid-1920's it had become apparent that California required additional water supply development to meet its dry year needs. ^{185/} It was also equally apparent that only the State could implement such a major public works project. ^{186/} Towards this end the Legislature adopted the Feigenbaum Act in 1927. ^{187/} The Act authorized the State to file for unappropriated water which might be needed to meet a general water resources development plan. ^{188/} In addition, the Act restricted the assignment of state filings and their releases from priority to instances where such action would be consistent with the state's general plan. ^{189/} Thus, the effect of the 1927 legislation was to withdraw the unappropriated waters of the State, filed on by the Department of Finance, from any further appropriation by private parties. ^{190/}

In order to allay the fears of counties from which water projects might transfer water, the Legislature, in 1931, amended the Feigenbaum Act to include certain protections for "areas of origin." ^{191/} This amendment, as subsequently revised, provides that:

No priority under this part shall be released nor assignment made of any application that will in the judgment of the board (State Water Resources Control Board) deprive the county in which the water covered by the application originates of any such water necessary for the development of the county. ^{192/}

^{185/} P. Towner, A Symposium on Federal, State and Local Cooperation in Conservation and Development of Water Resources: The Role of the State, 45 Cal. L.R. 725, 726 (1957).

^{186/} 25 Ops. Cal. Atty. Gen. 8, 9 (1955).

^{187/} Cal. Stats. 1927, ch. 286, p. 508-10 (current version at Cal. Water Code, Sections 10500 et seq. (West Supp. 1977)).

^{188/} Cal. Water Code, Section 10500 (West Supp. 1977).

^{189/} Cal. Water Code, Section 10504 (West 1971).

^{190/} 25 Ops. Cal. Atty. Gen. 8, 11 (1955).

^{191/} G. Weatherford, Legal Aspects of Inter-regional Water Diversion, 15 U.C.L.A. L. Rev. 1299, 1307-09 (1968).

^{192/} Cal. Water Code, Section 10505 (West 1971).

The provision thus sought to protect the future interests of the "counties of origin" by restricting the state's authority to alienate or dispose of the priorities it had obtained under the Feigenbaum Act. ^{193/} It would also be the first in a series of legislative efforts to protect the northern part of the State from water transfers to the south.

In 1933, the Legislature adopted the Central Valley Project Act, thus establishing the basis for the eventual public transfer of water from the northern part of the State to the San Joaquin Valley. ^{194/} The Act contained the following provision, commonly known as the Watershed Protection Act, designed to protect the future developmental interests of the areas from which the State might transfer water:

In the construction and operation by the department of any project under the provisions of this part a watershed or area wherein water originates, or an area immediately adjacent thereto which can conveniently be supplied with water therefrom, shall not be deprived by the department directly or indirectly of the prior right to all the water reasonably required to adequately supply the beneficial needs of the watershed, area, or any inhabitants or property owners therein.^{195/}

This prior right appears to be an inchoate right of priority held by the inhabitants of the protected area as against the State. ^{196/} If an inhabitant of the protected area develops a need for additional water, he

^{193/} 25 Ops. Cal. Atty. Gen. 8, 15 (1955).

^{194/} G. Weatherford, supra note 191 at 1309-10. The Central Valley Project Act was an ambitious effort by the State to develop the Sacramento and San Joaquin River Valleys. The Act authorized issuance of \$170,000,000 in revenue bonds for a series of dams, reservoirs, canals, pumping plants and power plants. The 1930's depression made the revenue bonds unmarketable and, starting in 1935, the U.S. Bureau of Reclamation took over financing and construction of the project. The Central Valley Project Act was later incorporated by reference in the Burns Porter Act of 1959 (Cal. Water Code, Section 12931 et seq. (West 1971)) and provided the vehicle for additional financing of the State Water Project. Cal. Dept. of Water Resources, California State Water Project, Vol. I, History Planning and Early Progress, Bull. No. 200 at 6 (1974).

^{195/} Cal. Water Code, Section 11460 (West 1971).

^{196/} G. Weatherford, supra note 191 at 1300.

must still apply for and perfect the appropriative right as required under existing appropriation procedures. ^{197/} The application, though, cannot be denied or restricted because of water usage by the State. ^{198/} This priority preference only appears to affect naturally available water. Inhabitants within the protected area may not obtain any priority to water made available by the construction of the project unless they purchase it. ^{199/}

In 1959, the Legislature adopted the Delta Protection Act. The Act provides the final layer of area of origin protection under California law. ^{200/} The Act finds the maintenance of an adequate water supply in the Sacramento-San Joaquin Delta to protect Delta area interests and to ensure fresh water for export to areas of deficiency to be "necessary to peace, health, safety and welfare of the people of the State." ^{201/} The Act further declares that the "provision of salinity control and an adequate water supply for the users of water in the Sacramento-San Joaquin Delta" are functions of the State Water Resources Development System (State Water Project). ^{202/} Diversions by the State Water Project from the Delta may not

^{197/} 25 Ops. Cal. Atty. Gen. 8, 21 (1955).

^{198/} Id.

^{199/} "The provisions of this article shall not be so construed as to create any new property rights other than against the department as provided in this part or to require the department to furnish to any person without adequate compensation therefor any water made available by the construction of any works by the department." Cal. Water Code, Section 11462 (West 1971).

^{200/} The Legislature, in 1959, also adopted Section 108 of the Water Code. Section 108 required the Department of Water Resources to consider the "needs of the areas in which the water originates" in developing the State Water Plan. The Legislature was further asked to consider the development of projects necessary to meet the "reasonable ultimate requirements" of protected watersheds when it considers authorization of projects designed to export water outside of any protected watershed. Cal. Water Code, Section 108 (West 1971).

^{201/} Cal. Water Code, Section 12201 (West 1971).

^{202/} Cal. Water Code, Section 12202 (West 1971).

exceed the requirements of the Act. ^{203/} In addition, the Act incorporates by reference both the county of origin and the watershed protection statutes. ^{204/}

The actual impact of these area of origin statutes on water rights transfers remains uncertain because of the ambiguity of the statutes themselves. It is unclear precisely who shoulders the duty to protect the areas of origin, what areas are eligible for protection, and what level of protection is required.

The State, in the construction and operation of the State Water Project, certainly must comply with these requirements. On the other hand, federal compliance, in the administration of the Central Valley Project, is less certain. While Water Code Section 11128 expressly applies the watershed protection requirements to the federal government, compliance by the federal government may depend upon whether the requirements would be inconsistent with the requirements of existing federal law. ^{205/} Even the State may circumvent compliance through the condemnation process. Water Code Section 11575 authorizes the Department of Water Resources to acquire any water or water rights it determines to be "required and necessary for the proper construction, maintenance, and operation of the project and for effectuating the purposes and objects to be accomplished by the construction, maintenance and operation of the project" ^{206/} Assumedly, the Department can condemn any water

^{203/} Cal. Water Code, Section 12204 (West 1971).

^{204/} Cal. Water Code, Sections 12201 and 12202 (West 1971).

^{205/} Ivanhoe Irr. Dist. v. McCracken, 357 U.S. 275, 290 (1957); Fresno v. California, 372 U.S. 627, 629-30 (1962); U.S. v. California, 403 F. Supp. 874, 898-99 (E.D. Cal. 1975), aff'd in part, 558 F.2d 1347 (9th Cir. 1977) cert. granted December 5, 1977, 46 U.S.L.W. 3365.

^{206/} Cal. Water Code, Section 11575 (West 1971); Note, State Water Development: Legal Aspects of California Feather River Project, 12 Stan. L.R. 439, 454 (1960).

right held under the area of origin statutes if such an action is properly based on the requisite finding of necessity.

Uncertainty as to the areas eligible for protection further clouds the meaning of the area of origin statutes. While counties of origin and watersheds are relatively discrete geographic areas, ^{207/} the statutes also protect areas "immediately adjacent" to the watershed "which can conveniently be supplied with water therefrom," a much more ambiguous geographic region. ^{208/} In Fresno v. California, the City of Fresno sought a preference for Bureau of Reclamation water from the Friant Dam that the Bureau would otherwise have delivered to Kern and Tulare counties. ^{209/} The U.S. Supreme Court held that a four county, multiple watershed area including Fresno, Madera, Kern and Tulare counties all fell within one preference area pursuant to the Watershed Act. ^{210/} Thus, the City of Fresno was denied a preference over federal contractors in Kern and Tulare counties.

Uncertainty as to the protection provided by these acts further clouds their impact on water rights transfers. The level of protection provided under the Delta Protection Act is currently at issue in the Contra Costa County Water Agency v. State Water Resources Control Board litigation. The petitioners, who are challenging the Board's interim water quality plan, have argued that the Delta Protection Act grants Delta water users a "prior

^{207/} "The protection afforded by the section to each county relates only to the water which falls as precipitation within that county's boundaries." 25 Ops. Cal. Atty. Gen. 9, 17 (1955). "The limits of any watershed wherein water originates extend upstream from the point where the watercourse in question empties into a body of water or an area from which there is no further outlet or flow. In the case of rivers which flow into the ocean, the watershed is 'the whole region or area contributing to the supply of such a river.'" 29 Ops. Cal. Atty. Gen. 136, 138 (1957).

^{208/} Cal. Water Code, Section 11460 (West 1971).

^{209/} Fresno v. California, 372 U.S. 627, 628 (1962).

^{210/} Id. at 630.

and paramount vested water right" which "must be fully serviced before there can be any lawful 'export' of water from the Delta." 211/ The respondents have argued that the Act only entitles Delta water users to the natural flow of the watercourse plus any amount of water in excess of natural flow which they are willing to purchase from the State Water Project. 212/

The petitioners' position in this suit, if sustained, would appear seriously to jeopardize the potential for state-administered inter-basin transfers of water. That position seems to require that the State Water Project release sufficient stored water to meet all of the Delta water users' beneficial needs before any export and sale of water may occur. The Project would first be required to deliver stored water, water in excess of natural flow, for nonreimbursable uses. Only the remainder could then be marketed. Such an interpretation, if sustained, could seriously harm the capacity of the State Water Project to supply its water contractors as well as impair the Project's financial integrity.

5. Restrictions on Export of Groundwater from the Basin

The adoption of local groundwater ordinances might also hinder the development of a water transfer market. Imperial County has adopted an ordinance which requires any person who intends to export water outside of a designated "area of influence" to obtain a permit from the County Department

211/ Petitioners' Points and Authorities in Reply to Respondent's Memorandum in Support of its Demurrer to the Petition for Writ of Mandate at 55, Contra Costa County Water Agency v. State Water Resources Control Board, Civil No. 172975, Cal. Super. Ct., Contra Costa County (complaint filed March 10, 1977).

212/ Respondent's Memorandum of Points and Authorities in Support of Demurrer to Petition for Writ of Mandate at 44-46, Contra Costa County Water Agency v. State Water Resources Control Board, Civil No. 172975, Cal. Super. Ct., Contra Costa County (complaint filed March 10, 1977).

of Public Works. ^{213/} Butte and Glenn counties have adopted similar legislation which requires groundwater users to obtain a permit from the county board of supervisors before using or selling groundwater outside of the area where the groundwater pumping would affect the natural available water supply. ^{214/} The Butte and Glenn county ordinances also prohibit any groundwater mining for use outside of the groundwater basin. ^{215/}

Under the Imperial County ordinance, the Director of the County Department of Public Works must consider all presented data relating to the basin's geology and hydrology, the effects of past and current groundwater appropriations on the basin, and zoning and land use regulations before issuing a permit. ^{216/} Under the Butte and Glenn county acts, the board of supervisors may only issue a groundwater permit where it finds that the permit will not bring about an overdraft, will not bring about salt water intrusion, will not adversely affect transmissivity within the aquifer, and will not adversely affect the water table. ^{217/} Under all three of the ordinances, the permit applicant bears the cost of any required geological studies. ^{218/} The validity of these ordinances may depend upon whether general law preempts the subject matter covered by the local acts.

^{213/} County of Imperial, Ordinance Section 56202. The ordinance defines "area of influence" as "that area within Imperial County in which either the production, diversion, or use of water affects, or is affected by, the natural available supply of said area." County of Imperial, Ordinance Section 56201(b).

^{214/} County of Butte, Ordinance 1859, Section 31-4; County of Glenn, Ordinance 672, Section 20.04.410.

^{215/} County of Butte, Ordinance 1859, Section 31-3; County of Glenn, Ordinance 672, Section 20.04.400. Mining is defined as "pumping from groundwater bodies greatly in excess of replenishment." County of Butte, Ordinance 1859, Section 31-2.12; County of Glenn, Ordinance 672, Section 20.04.140.

^{216/} County of Imperial, Ordinance Section 56204.

^{217/} County of Butte, Ordinance 1859, Section 3107; County of Glenn, Ordinance 672, Section 10.04.440.

^{218/} County of Imperial, Ordinance Section 56203; County of Butte, Ordinance 1859, Section 31-6; County of Glenn, Ordinance 672, Section 20.02.430.

A local ordinance is invalid if it attempts to impose additional requirements in a field that is preempted by general law. ^{219/} Article XI, Section 7 of the California Constitution provides that:

A county or city may make and enforce within its limits all local, police, sanitary, and other ordinances and regulations not in conflict with general laws. ^{220/}

Preemption occurs where the local ordinance duplicates or contradicts state law. ^{221/} It may also occur where the State has occupied the legislative area by implication. ^{222/}

In Galvan v. Superior Court, the California Supreme Court reviewed the requirements for implicit preemption of local ordinances. ^{223/} The court observed that:

In re Hubbard, supra, 62 Cal.2d 119, 128 established three tests to determine whether a subject has been preempted by the legislature. '(1) the subject matter has been so fully and completely covered by general law as to clearly indicate that it has become exclusively a matter of state concern; (2) the subject matter has been partially covered by general law couched in such terms as to indicate clearly that a paramount state concern will not tolerate further or additional local action, or (3) the subject matter has been partially

^{219/} Galvan v. Superior Court, 70 Cal.2d 851, 859, 452 P.2d 930, 76 Cal. Rptr. 642 (1969).

^{220/} Cal. Const. Art. XI, Section 7.

^{221/} Chavez v. Sargent, 52 Cal.2d 162, 176, 339 P.2d 801 (1959); Ex Parte Daniels, 183 Cal. 636, 647 192 P. 442 (1920); In re Partney, 21 Cal.2d 237, 241, 131 P. 23 1, 2 (1942).

^{222/} In re Lane, 58 Cal.2d 99, 102, 372 P.2d 897, 22 Cal. Rptr. 857 (1912); Galvan v. Superior Court, 70 Cal.2d 851, 859, 452 P.2d 930, 76 Cal. Rptr. 642 (1969); Davis v. Justice Court, 10 Cal. App.3d 1002, 1009-10, 89 Cal. Rptr. 409 (1970).

^{223/} Galvan v. Superior Court, 70 Cal.2d 851, 859-60, 452 P.2d 930, 76 Cal. Rptr. 642 (1969). Charter cities have greater independence than other local entities in adopting local ordinances. Article XI, Section 5(a) of the California Constitution grants such cities the authority to "make and enforce all ordinances and regulations in respect to municipal affairs, subject only to restrictions and limitations provided in their several charters." Cal. Const., Art. XI, Section 5(a). This constitutional delegation of authority to charter cities over "municipal affairs" restricts the Legislature from determining what constitutes a municipal affair or changing such an affair into a matter of state-wide concern. Bishop v. City of San Jose, 1 Cal.3d 56, 63, 60 P.2d 137, 81 Cal. Rptr. 465 (1969).

covered by general law, and the subject is of such a nature that the adverse effect of a local ordinance on the transient citizens of the state outweighs the possible benefit to the municipality.'224/

The court then concluded that state statutes regarding firearms did not show a general scheme for the regulation of the subject of gun restriction sufficient to preempt a city ordinance requiring the local registration of weapons. 225/ At issue, therefore, is whether the Legislature has adopted a general scheme regarding water resource management which would preempt these local groundwater ordinances.

In Baldwin Park Water District v. County of Los Angeles, the District Court of Appeal faced an analogous situation regarding a county ordinance. 226/ Los Angeles County adopted an ordinance that required anyone planning to construct a water system first to obtain a "Water Utility Certificate of Registration." 227/ The county engineer would only issue the certificate if the applicant had agreed to comply with certain construction requirements designed to ensure the availability of an adequate water supply for county fire protection purposes. 228/ Nine county water districts, four irrigation districts, and one California water district sought declaratory relief, arguing that the State had occupied the legislative field of regulating water and irrigation districts and that the ordinance was therefore in conflict with general state law. 229/

224/ Galvan v. Superior Court, 70 Cal.2d 851, 859-60, 452 P.2d 930, 76 Cal. Rptr. 642 (1969); Davis v. Justice Court, 10 Cal. App.3d 1002, 1009-10, 89 Cal. Rptr. 409 (1970); Eckl v. Davis, 51 Cal. App.3d 831, 838, 124 Cal. Rptr. 685 (1975); Tuen v. Municipal Court, 52 Cal. App.3d 351, 354, 125 Cal. Rptr. 87 (1975).

225/ Galvan v. Superior Court, 70 Cal.2d 851, 860, 452 P.2d 930, 76 Cal. Rptr. 642 (1969).

226/ Baldwin Park Water Dist. v. County of Los Angeles, 208 Cal. App.2d 87, 25 Cal. Rptr. 167 (1962).

227/ Id. at 93.

228/ Id.

229/ Id. at 88.

The court, in Baldwin Park, concluded that the Legislature had not intended that irrigation or water districts should be subject to legislation by counties. 230/ The court observed:

It is apparent that the legislature did not intend that a county enact legislation controlling activities of a district which extended into another county. If each county, in which there is a portion of a district, should enact legislation purporting to control the activities of the district, it is obvious there would be confusion as to rules and regulations. 231/

The court then concluded that:

The Water Code shows an intention by the legislature to adopt a general and complete scheme and plan for conserving water, and regulating the production, control, distribution, and use of water by such water districts as those involved herein. The trial court properly concluded that the state had occupied the legislative field with respect to the subject of water conservation and regulation by irrigation districts, and by county and California water districts, and properly concluded that Ordinance 7834 is not applicable to plaintiffs. 232/

Thus, where the Legislature has granted broad powers to a water supply agency with respect to the control and distribution of water, such legislation may preempt local county ordinances related to water resource management. 233/

230/ Id. at 96.

231/ Id.

232/ Id. at 97.

233/ Id. In California Water & Telephone Co. v. County of Los Angeles, the public utility challenged the same Los Angeles County fire protection ordinance. The court held that the local ordinance conflicted with the Public Utility Code and that the construction and operation of public water utilities was a matter of statewide concern. California Water & Telephone Co. v. County of Los Angeles, 253 Cal. App.2d 16, 30-31, 61 Cal. Rptr. 618 (1967).

While state legislation may prohibit the application of local groundwater ordinances to certain water supply agencies, the preemption doctrine does not appear to apply to the private individual. The State does not regulate private groundwater allocation, therefore, there does not appear to be any general statutory scheme which might preempt the local ordinance.

Most general district acts provide the water agency with broad authority to purchase, convey, and distribute water within the agency's boundaries. ^{234/} In some acts, a district is authorized to sell or convey water to buyers who are outside of the district's boundaries. ^{235/} Other acts contain specific procedures for the allocation of water in time of shortage. ^{236/} Numerous special district acts grant similar broad

^{234/} Irrigation districts, Cal. Water Code, Sections 22225-22264 (West 1956); county water districts, Cal. Water Code, Sections 31020-31034 (West 1956); California water districts, Cal. Water Code, Sections 35420-35428 (West 1956); water storage districts, Cal. Water Code, Sections 43000-43007 (West 1966); reclamation districts, Cal. Water Code, Sections 50910-50914 (West 1966); county water works districts, Cal. Water Code, Sections 55330-55336 (West 1966); water replenishment districts, Cal. Water Code, Sections 60220-60223 (West 1966); municipal water districts, Cal. Water Code, Sections 71610-71617 (West 1966); water conservation districts, Cal. Water Code, Sections 74520-74527 (West 1966).

^{235/} Irrigation districts, Cal. Water Code, Section 22259 (West 1956); county water districts, Cal. Water Code, Section 31023 (West 1956); California water districts, Cal. Water Code, Section 35425 (West 1956); water storage districts, Cal. Water Code, Section 43001 (West 1966); reclamation districts, Cal. Water Code, Section 50912 (West 1966); county waterworks districts, Cal. Water Code, Section 55336 (West 1966); municipal water districts, Cal. Water Code, Section 71612 (West 1966); water conservation districts, Cal. Water Code, Section 74526 (West 1966).

^{236/} California water districts, Cal. Water Code, Sections 35453 and 35454 (West 1956); water storage districts, Cal. Water Code, Section 43304 (West 1966); municipal water districts, Cal. Water Code, Sections 71640-71644 (West 1966).

authority as to the control and distribution of water within their boundaries. ^{237/} A county ordinance which restricted the sale or use of water outside of the groundwater basin would appear to "impose additional requirements in a field that is preempted by general law." ^{238/} Thus, counties that adopt groundwater ordinances similar to those adopted

^{237/} Cal. Water Code App., Sections 33-10 and 33-10a (West 1968); Cal. Water Code App., Section 40-1 et seq. (West 1968); Cal. Water Code App., Section 44-5(11) (West Supp. 1977); Cal. Water Code App., Section 51-4 et seq. (West 1968); Cal. Water Code App., Section 52-5 (West Supp. 1977); Cal. Water Code App., Section 53-3 (West Supp. 1977); Cal. Water Code App., Section 55-5 (West Supp. 1977); Cal. Water Code App., Section 59-26 (West Supp. 1977); Cal. Water Code App., Section 60-5 (West Supp. 1977); Cal. Water Code App., Section 61-5 (West Supp. 1977); Cal. Water Code App., Section 63-5 (West Supp. 1977); Cal. Water Code App., Section 64-4 et seq. (West 1968); Cal. Water Code App., Sections 65-4.1 through 65-4.16 (West 1968) and Section 65-3 (West Supp. 1977); Cal. Water Code App., Section 66-4 et seq. (West 1968); Cal. Water Code App., Section 68-5 (West Supp. 1977); Cal. Water Code App., Section 72-6 (West Supp. 1977); Cal. Water Code App., Section 74-5 (West Supp. 1977); Cal. Water Code App., Sections 77-29 through 77-36 and 77-573 through 77-574 (West 1968); Cal. Water Code App., Section 79-5 (West Supp. 1977); Cal. Water Code App., Section 80-11 (West 1968); Cal. Water Code App., Sections 81-4.3 and 81-5 et seq. (West 1968); Cal. Water Code App., Section 82-3 (West Supp. 1977); Cal. Water Code App. Sections 84-4 through 84-4.4 and 84-5 through 84-5.1 (West 1968); Cal. Water Code App., Section 86-4 through 86-4.4 and 86-5 through 86-5.1 (West 1968); Cal. Water Code App., Section 87-3 (West Supp. 1977); Cal. Water Code App., Sections 90-10 through 90-14 and 90-24 through 90-26 (West 1968); Cal. Water Code App., Section 91-3 (West Supp. 1977); Cal. Water Code App., Section 92-3 (West Supp. 1977); Cal. Water Code App., Sections 93-13 and 93-23 through 93-26 (West 1968); Cal. Water Code App., Sections 95-4 through 95-4.4 and 95-5 through 95-5.2 (West 1968); Cal. Water Code App., Sections 96-11 through 96-15 and 96-23 through 96-25 (West 1968); Cal. Water Code App., Sections 97-15 and 97-34 (West Supp. 1977); Cal. Water Code App., Section 98-61 (West Supp. 1977); Cal. Water Code App., Sections 99-4.3 and 99-5 through 99-5.2 (West 1968); Cal. Water Code App., Section 100-15 (West Supp. 1977); Cal. Water Code App., Sections 101-15 (West Supp. 1977); Cal. Water Code App., Sections 102-10 through 102-14 and 102-24 through 102-26 (West 1968); Cal. Water Code App., Section 103-15 (West Supp. 1977); Cal. Water Code App., Section 104-11 (West Supp. 1977); Cal. Water Code App., Sections 109-130 through 109-138 (West Supp. 1977); Cal. Water Code App., Section 110-255 and 110-262 (West Supp. 1977); Cal. Water Code App., Section 112-15 (West Supp. 1977); Cal. Water Code App., Sections 113-11 through 113-15 and 113-23 through 113-25 (West Supp. 1977).

^{238/} Galvan v. Superior Court, 70 Cal.2d 851, 854, 452 P.2d 930 76 Cal. Rptr. 642 (1969).

by Imperial, Glenn and Butte counties may not be able to enforce them against general or special districts.

6. The Impact of General District Law on Transfers

The Legislature has adopted at least thirty-four general district acts which authorize the control and distribution of water through public agencies. 239/ These acts regulate the districts' administrative, allocative and fiscal activities. They also define the character of water rights transfers that may occur within and without the district. 240/

239/ Cal. Health & Safety Code, Section 4600 et seq. (West 1970); Cal. Gov't Code, Section 61000 et seq. (West 1966); Cal. Water Code, Section 56000 et seq. (West 1966); Cal. Water Code App., Section 45-1 et seq. (West 1968); Cal. Water Code, Section 30000 et seq. (West 1956); Cal. Water Code, Section 55000 et seq. (West 1966); Cal. Water Code App., Section 5-1 et seq. (West 1968); Cal. Water Code App., Section 8-1 et seq. (West 1968); Cal. Water Code App., Section 31-1 et seq. (West 1968); Cal. Water Code App., Section 38-1 et seq. (West 1968); Cal. Water Code, Section 20500 et seq. (West 1956); Cal. Water Code App., Section 9-1 et seq. (West 1968); Cal. Water Code, Section 70000 et seq. (West 1966); Cal. Water Code App., Section 109-1 et seq. (West Supp. 1977); Cal. Pub. Util. Code, Section 10001 et seq. (West 1965); Cal. Water Code, Section 71000 et seq. (West 1966); Cal. Water Code App., Section 41-1 et seq. (West 1968); Cal. Water Code App., Section 4.1 et seq. (West 1968); Cal. Water Code App., Section 6-1 et seq. (West 1968); Cal. Water Code App., Section 11-1 et seq. (West 1968); Cal. Pub. Util. Code, Sections 15501 et seq. (West 1965); Cal. Water Code, Section 50000 et seq. (West 1966); Cal. Pub. Res. Code, Section 5780.13 et seq. (West Supp. 1977); Cal. Pub. Res. Code, Section 5500 et seq. (West 1972); Cal. Pub. Res. Code, Section 13000 et seq. (West 1977); Cal. Pub. Res. Code, Section 9000 et seq. (West 1977); Cal. Health & Safety Code, Section 6400 et seq. (West 1970); Cal. Health & Safety Code, Section 4860 et seq. (West 1970); Cal. Water Code App., Section 42-1 et seq. (West 1968); Cal. Water Code App., Section 13-1 et seq. (West 1968); Cal. Water Code App., Section 26-1 et seq. (West 1968); Cal. Water Code, Section 26-1 et seq. (West 1968); Cal. Water Code, Section 34000 et seq. (West 1956); Cal. Water Code, Section 60000 et seq. (West 1966); Cal. Water Code, Section 39000 et seq. (West 1966).

240/ The following review will be limited to the enabling statutes of five of the more prominent public water agencies: the irrigation district, the county water district, the California irrigation district, the municipal water district and the Metropolitan Water District. As of 1973 there were 105 irrigation districts, 194 county water districts, 160 California water districts, 49 municipal water districts and one Metropolitan Water District. See Cal. Dept. of Water Resources, General Comparison of California Water District Acts (1973).

a. Individual Transfers

General district acts commonly authorize districts to apportion water under an assessed valuation formula. Irrigation districts apportion their water by using a ratio of the last assessed value of the individual landowner's land for district purposes over the total assessed value of the district. ^{241/} California water districts use a similar formula to allocate their water. ^{242/} The Metropolitan Water District allocates its water based upon a ratio of the accumulated amounts paid by each member agency to the district on certain tax assessments over the total amount of payments received by the district on such assessments. ^{243/} These individual ratios, when applied to the total water supply of the district, determine the legal entitlement held by each district member.

Only the irrigation district act expressly authorizes the assignment of these legal entitlements. ^{244/} Any such assignments are restricted to use within the district. ^{245/} Neither the use of water nor the assignment of a right may result in the delivery of water outside of the district. ^{246/} The California Supreme Court, in denying an irrigation district landowner the use of district water outside of the district's boundary, observed that:

The ultimate purpose of a district organized under the Irrigation Act is the improvement, by irrigation, of the lands within the district. It can, under the law, be organized and exist and acquire property only for such purpose. This we think is so clearly apparent as not to require further discussion here. Such a district holds all property acquired by it solely in trust for such ultimate purpose, and can divert it to no other use. (citation) ^{247/}

^{241/} Cal. Water Code, Section 22250 (West 1956).

^{242/} Cal. Water Code, Section 35420 (West 1956).

^{243/} Cal. Water Code App., Section 109-135 (West Supp. 1977).

^{244/} Cal. Water Code, Section 22251 (West 1956); see Fallbrook Irrigation Dist. v. Bradley, 164 U.S. 112, 162 (1896).

^{245/} Cal. Water Code, Section 22251 (West 1956).

^{246/} Jenison v. Redfield, 149 Cal. 500, 502-03, 87 P. 62 (1906).

^{247/} Id. at 503 (emphasis in the original).

The court then concluded that:

We are satisfied that plaintiff was not entitled, either as owner or assignee of Burke, to have any water distributed to him by the defendants for use upon land without the limits of the district. 248/

Thus, assignment of individual water entitlements may only occur between landowners within the district.

b. District Transfers

Most general district acts restrict the transfer of district water outside of the district to water "surplus" to district needs. 249/ Judicial definition of "surplus" water has not been comprehensive or precise. Courts have characterized abandoned water 250/ and water in excess of the amount

248/ Id. at 504 (emphasis added).

249/ "If its board deems it to be for the best interests of the district, a district may enter into a contract for the lease or sale of any surplus water or use of surplus not then necessary for use within the district, for use either within or without the district." Cal. Water Code, Section 22259 (West 1956) (irrigation districts). "A district may sell water or the use thereof for any useful purpose and whenever there is a surplus, dispose of the surplus to municipalities, public agencies, or consumers located without the district." Cal. Water Code, Section 31023 (West 1956) (county water districts). "If its board deems it to be for the best interests of the district, a district may enter into a contract for the lease, sale, or use of any surplus water not then necessary for use within the district, for use either within or without the district." Cal. Water Code, Section 35425 (West 1956) (California water districts). "Whenever the board finds that there is a surplus of water above that which may be required by consumers within the district, the district may sell or otherwise dispose of such surplus water to any persons, public corporations or agencies, or other consumers." Cal. Water Code, Section 71612 (West 1966) (municipal water districts). "A district may provide, sell and deliver surplus water not needed or required for domestic or municipal uses within the district for beneficial purposes, but shall in every case be subject to the paramount right of the district to discontinue such supply in whole or in part, and to take and hold, or to provide, sell and deliver, such water for domestic or municipal uses within the district, upon one year's written notice to the purchaser or user of such surplus water. Such notice shall be given by the board whenever it shall be determined and declared by resolution adopted by a two-third vote of the board that such water is needed or required for domestic or municipal uses within the district." Cal. Water Code App. 109-132 (West Supp. 1977) (Metropolitan Water District).

250/ Haun v. DeVours, 97 Cal. App.2d 841, 844, 218 P.2d 996 (1950).

reasonably and beneficially required under Article 10, Section 2 of the California Constitution as surplus. ^{251/} On the other hand, water which the district is compelled to deliver outside of its boundaries due to prior agreements ^{252/} or to satisfaction of prior rights ^{253/} is not surplus. In addition, Article 10, Section 9(a) of the California Constitution prohibits a municipal corporation from serving water within the service area of another municipal corporation without that agency's consent. ^{254/}

Individual district acts contain additional restrictions as to district sale of surplus water. Irrigation districts and California water districts are not granted authority to sell water rights. ^{255/} They may lease or contract their surplus water, but the State Treasurer must first approve all irrigation district agreements of more than three years ^{256/} and all California water district agreements of more than one year. ^{257/} In approving or disapproving the agreement, the State Treasurer will consider whether surplus water, in fact, exists in the district. ^{258/}

These restrictions on the district's transfer of water outside of the district's boundaries are consistent with the trust relationship that the California courts have held exists between the water district and its landowners. An irrigation district is trustee for the landowners within the district and limited in its trust to receive and distribute water to them. ^{259/}

^{251/} Stevinson Water Dist. v. Roduner, 36 Cal.2d 264, 270, 223 P.2d 209 (1950).

^{252/} South Pasadena v. Pasadena Land and Water Co., 152 Cal. 579, 593-94, 93 P. 490 (1908).

^{253/} Central Basin Municipal Water Dist. v. Fossette, 235 Cal. App.2d 689, 701, 45 Cal. Rptr. 651 (1965).

^{254/} Cal. Const. Art. 10, Section 9(a).

^{255/} Cal. Water Code, Sections 22262 and 35427 (West 1956).

^{256/} Cal. Water Code, Section 22260 (West 1956).

^{257/} Cal. Water Code, Section 35426 (West Supp. 1977).

^{258/} 10 Cal. Admin. Code, Sections 1858 and 1878.

^{259/} Ivanhoe Irrigation Dist. v. All Parties and Persons, 47 Cal.2d 597, 624, 306 P.2d 824 (1957), reversed on other grounds, 357 U.S. 275, rehearing denied, 358 U.S. 805 (1958).

Thus, district landowners retain a preferential right to all district water.

7. Private and Mutual Water Companies

Land developers will commonly create private or mutual water companies as a method of distributing water. Typically, a private water company will transfer shares of stock in the company to purchasers of land within the development. ^{260/} Mutual water companies usually obtain water rights from landowners and then issue securities to the landowners representing the right to the water. ^{261/} Existing law may create substantial barriers to a mutual or private water company's entry into water transfer markets.

a. Appurtenant Stock

Shareholders of a water company may choose to adopt articles of incorporation or bylaws that require water rights to be appurtenant to the land. ^{262/} Thus, where the articles and bylaws of the company stated that the stock was appurtenant to the land described in the stock certificate, the California Supreme Court held that the loss of the land through foreclosure imposed a duty upon the holders of the stock certificates to transfer the documents along with the land. ^{263/} On the other hand, where there is a failure to present evidence of an appurtenancy provision in the articles or bylaws, the court will not presume that the shares of stock are appurtenant. ^{264/}

^{260/} 2 H. Rogers and A. Nichols, Water for California: Planning Law and Practice Finance 253 (1967).

^{261/} Id. at 255.

^{262/} Cal. Civil Code, Section 330.24 (West Supp. 1977).

^{263/} Riverside Land Co. v. Jarvis, 174 Cal. 316, 325-29, 163 P. 54 (1917).

^{264/} Bank of Visalia v. Smith, 146 Cal. 398, 400-01, 81 P. 542 (1905). The mere statement in the articles of incorporation that "such stock shall be located only upon the land owned by ... the person desiring to purchase said stock" has been held to be insufficient to impose an appurtenancy requirement on the stock. Palo Verde Land and Water Co. v. Edwards, 82 Cal. App. 52, 59, 254 P. 922 (1927).

Such appurtenancy provisions reduce the water right's flexibility. They fail to treat the water right as a separate resource from the land, capable of separate investment. The possibility of transfer is therefore reduced.

b. Public Utility Regulation

The threat of public utility regulation is a major impediment to the entry of private and mutual water companies into the water transfer market. ^{265/} In California, any water corporation performing a service or delivering a commodity to the public for compensation is subject to regulation by the Public Utilities Commission. ^{266/} The Commission may impose its authority even if the corporation performs the service or delivers the commodity to the public through an intermediary. ^{267/} A water company may devote its property to public use by implication. The test of implied dedication is whether or not those offering the service have expressly or impliedly held themselves out as engaging in the business of supplying the water to the public as a class. ^{268/}

Corporations or associations organized for the delivery of water to stockholders or members have obtained a partial exemption from Commission regulation. Public Utility Code Section 2705 prevents the Commission from regulating mutual water companies which deliver water to their stockholders and members, the State, any city, county, school district, or other public district, or to any other mutual water company at cost. ^{269/} In addition, the mutual water companies may perform the following acts without becoming subject to Commission regulation:

^{265/} J. Bain, R. Caves, and J. Margolis, supra note 16 at 87.

^{266/} Cal. Pub. Util. Code, Section 216(b) (West 1975).

^{267/} Cal. Pub. Util. Code, Section 216(c) (West 1975).

^{268/} Yucaipa Water Co. No. 1 v. Public Utilities Com., 54 Cal.2d 823, 827, 357 P.2d 295, 9 Cal. Rptr. 239 (1960).

^{269/} Cal. Water Code, Section 2705 (West 1975).

(a) May deliver water at cost to any lessee of its stock or shares or other evidence of membership where such lease is in writing signed by the owner of such stock or shares or other evidence of membership and the lessee thereof and approved by such mutual water company.

(b) May deliver water at cost to any land leased by a stockholder, shareholder or member of such mutual water company to a person not a stockholder, shareholder or member thereof, provided such lease is in writing signed by such stockholder, shareholder or member and such lessee of such land and approved by such mutual water company.

(c) In a bona fide water emergency, but for no longer than the existence of such emergency, may deliver water at cost to any person owning or leasing real property located within or adjacent to the service area of such mutual water company, provided that such water is delivered pursuant to a written contract signed by such mutual water company and the person to whom such water is delivered.

(d) May deliver water pursuant to any contract for water service made prior to October 1, 1961, (1) in settlement of litigation involving disputed water rights or any judgment in such litigation or (2) in consideration of the conveyance of a well, water right, or easement for water distribution purposes.

All such leases and contracts shall be preserved for a period of 10 years by a mutual water company and shall be subject to inspection by the commission. 270/

Where a mutual water company chooses to market its water for a profit to the public 271/ or where none of the specified exemptions apply, 272/ the Commission may be able to impose its regulatory authority. The cost of such public regulation to a water company is quite substantial. 273/

270/ Id.

271/ "The term cost as used in this section shall be construed to mean without profit." Id.

272/ The mere sale of stock by a water company to a shareholder does not insure the application of the exemption. Where the shareholder is not independent of the water company from which it purchased the stock, the California Supreme Court has refused to apply the exemption and has imposed Commission regulation. Corona City Water Co. v. Public Utilities Co., 54 Cal.2d 834, 838-40, 357 P.2d 301, 9 Cal. Rptr. 245 (1960).

273/ Rogers and Nichols have described the impact of Commission regulation as follows:

The Commission then has power to regulate and control almost every aspect of the company's expanded operation ranging from the price it can charge for water to the manner in which it must keep its books. The change can be dramatic - from relatively informal water operation run by a subdivider to a formal and technical procedure requiring the assistance of lawyers and accountants skilled in the rules and regulations of the Commission. 2 Rogers and Nichols, supra note 260 at 352.

A public utility must obtain a certificate of public convenience and necessity from the Commission before it can construct a plant, system or extension. 274/ The Commission has broad authority to require detailed reporting by public utilities. 275/ The Commission also has authority over the issuance of stocks and bonds, 276/ the establishment of rates and services 277/ and other business practices. 278/ The threat of such regulations can substantially discourage the sale and transfer of water rights held by water companies.

274/ Cal. Pub. Util. Code, Section 1001 et seq. (West 1975).
275/ Cal. Pub. Util. Code, Section 581 et seq. (West 1975).
276/ Cal. Pub. Util. Code, Section 816 et seq. (West 1975).
277/ Cal. Pub. Util. Code, Section 451 et seq. (West 1975).
278/ Cal. Pub. Util. Code, Section 770 (West 1975).

III. A Selective Review of Recent Water Rights Transfers in California

There appears to be little empirical work available regarding the actual impact of water rights law on transfers in California. ^{279/} Critics of the existing system have strenuously argued that legal impediments to water rights transfer prevent the efficient use of the resource. ^{280/} The following will review some recent successful and unsuccessful transfer efforts in California.

A. City of Redding Transfer

On March 17, 1977, the City of Redding signed agreements with four local water districts for the sale of 2,626 acre-feet of its Central Valley Project entitlement water for one year. ^{281/} Mountain Gate Community Services District received 100 acre-feet at \$9 per acre-foot, Summit City Public Utility District received 26 acre-feet at \$20 per acre-foot, Bella Vista Water District received 2,000 acre-feet at \$9 per acre-foot and Shasta Dam Public Utility District received 500 acre-feet at \$20 per acre-foot. ^{282/}

Redding was able to avoid some of the problems facing other transferors because it claimed water under federal Central Valley Project appropriations.

^{279/} The singular exception appears to be the research conducted by Mason Gaffney on the Kaweah River system. M. Gaffney, "Diseconomies Inherent in Western Water Law: A California Case Study", Conference Proceedings, Committee on the Economics of Water Resources Development and Committee on the Economics of Range Use and Development of the Western Agricultural Economics Research Council 55 (Rept. No. 9, 1961).

^{280/} M. Gaffney, supra note 14 at 80; J. Hirshleifer, supra note 15 at 234-42.

^{281/} City of Redding and Bella Vista Water District, Agreement for Sale of Water (two agreements) (March 21, 1977); City of Redding and Shasta Dam Area Public Utility District, Agreement for Sale of Water (March 21, 1977); City of Redding and Mountain Gate Community Services District, Agreement for Sale of Water (March 21, 1977); City of Redding and Summit City Public Utility District, Agreement for Sale of Water (March 21, 1977).

^{282/} Id.

The terms of federal rights to appropriate water contain broad place of use provisions which allow use of project water throughout the Central Valley. Thus, the City of Redding and the U.S. Bureau of Reclamation did not need to obtain a change of place of use order from the State Water Resources Control Board before selling water to the local districts. ^{283/} The city avoided return flow challenges to the sale because the original use by the city did not create return flow claimed by any parties. ^{284/} The Bureau, which has the authority to disapprove all sales of Bureau water outside of the boundaries of its contractors, encouraged and approved this transaction. ^{285/}

B. Paradise Irrigation District Transfer

In May, 1977, Butte County, the Pacific Gas and Electric Company (P.G.&E.), and the California Water Service (C.W.S.) negotiated an exchange agreement with the Paradise Irrigation District (P.I.D.) involving an exchange of up to 540 acre-feet of water. ^{286/} C.W.S. holds appropriative rights to water from P.G.&E.'s Miocene Canal. ^{287/} For this year, P.G.&E. agreed to divert the C.W.S. entitlement to P.I.D. ^{288/} C.W.S. obtained replacement water through the purchase of a portion of Butte County's 1977 State Water Project entitlement. ^{289/} P.I.D. agreed to pay \$11,205 to P.G.&E. for the loss of water that could have been used for power purposes. ^{290/} C.W.S. received \$10,800

^{283/} Cal. Water Code, Sections 1700-1706 (West 1971).

^{284/} Telephone conversation of November 17, 1977, with Carl Arness, Director of Public Works, City of Redding.

^{285/} Id.

^{286/} County of Butte, California Water Service, Pacific Gas and Electric Co. and Paradise Irrigation Dist., Water Diversion and Purchase Agreement (May, 1977); Cal. Department of Water Resources, supra note 8 at 89.

^{287/} Id.

^{288/} Id.

^{289/} Id.

^{290/} Id.

for the standard State Water Project charge, the administrative charge and any additional pumping cost imposed by the exchange. ^{291/} Butte County obtained \$5,211 for the loss of its State Water Project entitlement. ^{292/} As with the City of Redding transfer, the absence of return flow from the original uses reduced the potential challenges to the agreement. ^{293/}

C. City of Roseville Transfer

On August 10, 1977, the City of Roseville executed an agreement with four water users along Dry Creek for the sale of 8 acre-feet per day of treated effluent discharged into the creek between April 1 and October 31 of each year. ^{294/} The city's water supply is imported water, purchased from the U.S. Bureau of Reclamation. ^{295/} Under a one-year agreement, the city would sell the water to downstream users for fifty cents an acre-foot with the option for annual renewal. ^{296/}

The State Water Resources Control Board obtained a temporary restraining order enjoining the downstream users from using the water of Dry Creek under this agreement. ^{297/} The Board noted that the city has discharged effluent into the creek since 1925 and that 32 downstream users currently hold licenses to appropriate the effluent. ^{298/} The Board contended that the agreement would

^{291/} Id.

^{292/} Id.

^{293/} Telephone conversation of November 17, 1977, with Don Blackstock, County Counsel for the County of Butte.

^{294/} Complaint for Injunction at 4, California v. City of Roseville, Civil No. 49608, Cal. Super. Ct., Placer County, September 30, 1977.

^{295/} U.S. Bureau of Reclamation, Contract Between the United States and the City of Roseville Providing for Water Service (R.O. Draft, July 21, 1967).

^{296/} Complaint for Injunction, Exhibit B, California v. City of Roseville, Civil No. 49608, Cal. Super. Ct., Placer County, September 30, 1977.

^{297/} Order to Show Cause and Temporary Restraining Order, California v. City of Roseville, Civil No. 49608, Cal. Super. Ct., Placer County, September 30, 1977.

^{298/} Complaint for Injunction at 3, California v. City of Roseville, Civil No. 49608, Cal. Super. Ct., Placer County, September 30, 1977.

sell water that the city cannot properly claim given that the water "has been discharged and abandoned into Dry Creek beyond defendant City's boundaries." ^{299/} The Placer County Superior Court extended the temporary restraining order until December 10, 1977, to allow all parties to reach a private settlement. On November 30, 1977, all parties to the sale mutually agreed to terminate the agreement. ^{300/}

This litigation indicates the difficulties facing water rights holders who seek to sell their return flow. Clarity as to the property rights in return flow could ensure a more efficient use of the resource.

D. Transfers in Adjudicated Groundwater Basins

The adjudication of groundwater basins in Southern California have provided the basis for the development of an extensive groundwater transfer market. Basin adjudication involves a negotiated agreement, spurred by litigation, which results in the allocation of pumping rights. Sellers transfer their rights by reducing pumping to the extent of the transferred amount, thus allowing the transferee correspondingly to increase his pumping production.

In 1965 the users of the Central Basin of Los Angeles County reached agreement as to the distribution of "Allowed Pumping Allocations" from the basin. ^{301/} In 1975, groundwater users executed 245 transfers, primarily involving sales or leases, totaling 27,208 acre-feet. ^{302/} Such transfers accounted

^{299/} Complaint for Injunction at 4, California v. City of Roseville, Civil No. 49608, Cal. Super. Ct., Placer County, September 30, 1977.

^{300/} City of Roseville, Virgil M. Zumalt, Ross Riolo, Ciro Matranga, and Antone Riolo, Agreement to Terminate Contract Between City of Roseville and Western Placer County Farmers for a Water Supply, November 30, 1977.

^{301/} Central and West Basin Water Replenishment Dist. v. Adams, Civil No. 786656, Cal. Super. Ct., Los Angeles County, October 11, 1965.

^{302/} Cal. Department of Water Resources, Bull. No. 180-75, Watermaster Service in the West Coast Basin 42 (1975).

for over ten percent of the 217,367 acre-feet Allowed Pumping Allocation of the basin. 303/

Groundwater users of the West Basin of Los Angeles County reached a similar agreement in 1961. 304/ Transfers within this basin have also been extensive. In 1975 groundwater users executed 38 transfers. 305/ These transfers accounted for 24,177 acre-feet of water out of a total adjudicated right of 64,468.25 acre-feet within the basin. 306/ As noted earlier, the San Fernando decision may have seriously threatened the transferability of adjudicated groundwater rights by restricting the use of the mutual prescription formula for determining pumping rights and by characterizing the rights retained by overlying users through prescription as overlying rights, rather than new, prescriptive rights. 307/

Unrestricted transfer of adjudicated rights may create some third party costs which would not be internalized in the private transfer. Where one pumper purchases a large amount of the pumping rights in an adjudicated basin, the increased pumping might interfere with neighboring pumping operations. A basin may contain some areas which are less susceptible to recharge or replenishment than others, therefore increased pumping by a transferee might not be desirable. Finally, some coastal basins face the constant problem of salt water intrusion. Concentration of pumping rights on land near the coast might harm other wells in the coastal area. 308/ Parties to basin

303/ Id. at 89.

304/ California Water Service Co. v. Sidebotham & Son, 224 Cal. App.2d 715, 37 Cal. Rptr. 1 (1964).

305/ Cal. Department of Water Resources, Bull. No. 179-75, Watermaster Service in the West Coast Basin 42 (1975).

306/ Id. at 42 and 55.

307/ See earlier discussion of overlying rights at pages 29-31 supra.

308/ Telephone conversation of December 7, 1977, with Martin Whelan, attorney.

adjudication might resolve these problems by requiring watermaster review and approval of all transfers.

E. The Federal Water Banking Program in California

The federal Central Valley Project represents a \$1.6 billion federal investment in California water supply development. ^{309/} The project consists of a series of power plants, pumping plants, storage facilities, and distribution systems affecting twenty-seven counties within the State. ^{310/} This interconnected system provides the conveyance capacity necessary to transfer water throughout much of the Central Valley.

The Emergency Drought Act of 1977 granted the Secretary of the Interior the authority to establish a temporary water transfer program for the purpose of minimizing losses resulting from the 1976-1977 drought. ^{311/} The Act directed the Secretary, through the U.S. Bureau of Reclamation, to:

assist willing buyers in their purchases of available water supplies from willing sellers and to redistribute such water to irrigators based upon priorities to be determined by the Secretary within the constraints of state water laws, with the objective of minimizing losses and damages resulting from the drought ^{312/}

The Act, adopted April 7, 1977, restricted the operation of the program to a seven-month period with a termination date of September 30, 1977. ^{313/}

In California, the administration of this program has primarily involved the purchase of water by the Bureau from Bureau water contractors along the

^{309/} Public Works for Water and Power Development and Energy Research Appropriation Bill, 1978; Hearings Before the Subcommittee on Public Works of the House Committee on Appropriations, 95th Cong., 1st Sess. 350-51 (1977) (Statement of Acting Commissioner D. D. Anderson).

^{310/} Id.

^{311/} Act of April 7, 1977, Pub. L. No. 95-18 (to be codified in 43 U.S.C. Sec. 615v-615x).

^{312/} Id.

^{313/} Id.

Sacramento River for resale to water users in the San Joaquin Valley. During the program's operation period the Bureau purchased 46,438 acre-feet of water from seven sellers at prices ranging from \$15 an acre-foot to \$87 an acre-foot. ^{314/} The Bureau resold 42,533 acre-feet of water to twenty-six buyers at a price of \$53 an acre-foot plus conveyance charges. ^{315/}

The program administratively determined both buyers and prices of water. The Act authorized the Secretary to establish the "priority of need" for the transferred water by considering "state law, national need, and the effect of losing perennial crops due to the drought." ^{316/} Water users requiring water for the preservation of perennial crops received first priority under the transfer program. ^{317/} Dairy and cattle operators held a second priority to purchase water. Irrigation uses "determined to be in the best interests of the contracting entity and the United States" received a third and last priority. ^{318/} Thus, the program did not authorize private bidding for water among all potential users.

The Bureau also administratively determined the purchase and sale prices of the water. Under the Act the purchase price could "not confer any undue benefit or profit to any person or persons compared to what would have been realized if the water had been used in the normal irrigation of crops adapted to the area." ^{319/} In California, the Bureau negotiated the purchase

^{314/} Phone conversation of November 18, 1977, with Ken Maxey, Repayment Specialist, Division of Water and Land, U.S. Bureau of Reclamation, Mid-Pacific Region.

^{315/} Id.

^{316/} Act of April 7, 1977, Pub. L. No. 95-18 (to be codified in 43 U.S.C. Sec. 615v-615x).

^{317/} 42 Fed. Reg. 19611 (1977).

^{318/} Id.

^{319/} Act of April 7, 1977, Pub. L. No. 95-18 (to be codified in 43 U.S.C. Sec. 615v-615x).

price by considering the seller's net income adjusted by certain costs already incurred. ^{320/} The transfer program similarly restricted the Bureau's sale price for the purchased water. The Bureau's sale price could only cover the actual expenditures involved in acquiring and re-distributing the water. ^{321/} Thus, the program rationed water allocation through a buyer preference system and marketed water simply at cost.

F. The Metropolitan Water District Exchange

During the 1977 year, the State Water Project contractors were required to take deficiencies in entitlement water deliveries of 60 percent for agricultural water users and 10 percent for municipal and industrial users. ^{322/} In order to alleviate the hardship caused by these curtailments in delivery, the Department of Water Resources negotiated agreements with several of its contractors to reduce deliveries in order that the saved water could be administratively transferred to areas of deficiency. ^{323/} The Metropolitan Water District exchange agreement involved the largest administrative transfer of water among these agreements.

The Metropolitan Water District (M.W.D.) is the largest water contractor with the State Water Project. It had a 1977 entitlement to Project water of 755,900 acre-feet. ^{324/} Under an agreement executed on February 10, 1977,

^{320/} 42 Fed. Reg. 19611 (1977).

^{321/} Id.

^{322/} Cal. Department of Water Resources, supra note 8 at 22.

^{323/} Letter of February 24, 1977, to Metropolitan Water District from Ronald B. Robie, Director of the Department of Water Resources; letter of March 18, 1977, to Jack A. Beaver, General Manager, San Bernardino Valley Water District from Ronald B. Robie, Director of the Department of Water Resources; letter of March 18, 1977, to Lowell O. Weeks, General Manager-Chief Engineer of Coachella Valley County Water District from Ronald B. Robie, Director of the Department of Water Resources; letter of March 18, 1977, to Paul G. Payne, General Manager of the Desert Water Agency from Ronald B. Robie, Director of the Department of Water Resources.

^{324/} Cal. Department of Water Resources, supra note 8 at 23.

M.W.D. agreed to reduce by 300,000 to 400,000 acre-feet the amount of water it would take from the State Water Project for the year. 325/ M.W.D. further agreed to allow the State Water Project to stop all deliveries over the Tehachapis for the District by March 1, 1977. 326/ M.W.D. would compensate for the reduction in project deliveries by increasing pumping from the Colorado River. 327/ Areas of deficiency, such as the San Joaquin Valley and the Marin Municipal Water District, received some of this exchange water. 328/ These purchasers paid the Department of Water Resources the charges for the exchange water plus any additional conveyance costs. The exchange payments were then credited to M.W.D.'s account. 329/

The exchange agreements were clearly a response to a crisis drought situation. It is unlikely that such an administered transfer would occur during normal water supply years.

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- 325/ Memorandum of Understanding of February 10, 1977, signed by representatives of the Metropolitan Water District, the Department of Water Resources, U.S. Bureau of Reclamation, State Water Resources Control Board, East Bay Municipal Utility District, Contra Costa County Water District and Marin Municipal Water District.
- 326/ Letter of February 24, 1977, to Metropolitan Water District from Ronald B. Robie, Director of the Department of Water Resources.
- 327/ Id.
- 328/ Cal. Department of Water Resources, supra note 8 at 85.
- 329/ Memorandum of Understanding, supra note 325 at 2.

G. Transfers Within the Kings River Service Area

The Kings River Service Area encompasses approximately twenty-eight water agencies within Tulare, Kings, and Fresno counties. The area has had a substantial history of water rights conflict. Appropriative or riparian claimants filed at least 150 lawsuits between 1880 and 1910 over rights to the river system. ^{330/}

In 1927, the water users entered into an agreement to allocate the natural flow of the stream. ^{331/} This agreement, modified in 1949 and 1963, established a diversion schedule for all the parties. ^{332/} The schedule sets the quantity, time, and manner of diversion for each party. ^{333/} The certainty of this agreement provides a framework for a water transfers market.

The 1963 supplement to the original agreement contained provisions authorizing transfers between parties. ^{334/} The agreement requires the prospective transferor to notify all parties of the contemplated transfer. ^{335/} In the event that the transfer "would result in any increase of river channel losses adversely affecting" any of the remaining parties, the transferor must reach agreement with the harmed parties before the watermaster will administer the transfer. ^{336/}

^{330/} J. Bain, R. Caves, & J. Margolis, *supra* note 16 at 422.

^{331/} Agreement Supplementing and Amending Water Right Indenture Dated May 3, 1927, and Administrative Agreement Dated May 3, 1927, Each as Amended and Supplemented June 1, 1949, Relating to Kings River Water Association 1-11 (September 10, 1963).

^{332/} *Id.* at 10.

^{333/} *Id.*

^{334/} *Id.* at 19. Transfers outside of the service area are prohibited.

Id. at 18.

^{335/} *Id.* at 19.

^{336/} *Id.* at 19-20.

On July 7, 1977, Consolidated Irrigation District and Alta Irrigation District executed a transfer pursuant to the transfer provisions of the 1963 supplemental agreement resulting in the exchange of 17,000 acre-feet of water. ^{337/} Consolidated Irrigation District agreed to loan Alta Irrigation District the water in exchange for Alta's first entitlement from the Kings River following the end of Alta's 1977 water run. ^{338/} Member units of the Kings River Water Association executed at least two other transfers during the 1977 water year.

H. The Proposed Anderson Farms Transfer

In a June 8, 1977, letter the Berrenda Mesa Water District sought the Department of Water Resources' consideration of a water rights transfer from Anderson Farms Company to Berrenda Mesa Water District using State Water Project storage and conveyance facilities. ^{339/} Anderson Farms Company owns or leases approximately 11,335 acres in eastern Yolo County. ^{340/} The Company claimed riparian and pre-1914 appropriative rights to the Toe Drain, a surface source west of the Sacramento River Deep Water Ship Channel. ^{341/} Berrenda Mesa Water District is a 53,000 acre member district of the Kern County Water Agency. ^{342/} The district relies totally on imported water supplies from the State Water Project. ^{343/}

^{337/} Letter of June 22, 1977, from Eugene Huckabay, President, Alta Irrigation District to Board of Directors, Consolidated Irrigation District.

^{338/} Id.

^{339/} Letter of August 1, 1977, from Ronald B. Robie, Director of the Department of Water Resources, to H. Ronald Lampson, Engineer-Manager, Berrenda Mesa Water District.

^{340/} Cal. State Water Resources Control Board Decision No. 1474 at 2 (September 22, 1977).

^{341/} Staff Summary for Hearing, In the Matter of Alleged Waste, Unreasonable Use, Unreasonable Method of Use or Unreasonable Method of Diversion of Water by Anderson Farms Company 2 (August 24, 1977).

^{342/} Id.

^{343/} Cal. State Water Resources Control Board Decision No. 1474 at 3 (September 22, 1977).

Under the proposed transfer, Anderson Farms would continuously pump groundwater which it would either discharge into the Sacramento River or use for irrigation on its land. ^{344/} Anderson Farms would reduce its surface withdrawals from the Toe Drain to the extent that it used groundwater to irrigate its land. ^{345/} The State Water Project would then either reduce its releases from Croville Reservoir or increase pumping from the Delta into the San Luis Reservoir to the amount Anderson Farms has pumped from the groundwater. ^{346/} This storage would then be credited to the Berrenda Mesa Water District. ^{347/}

The Department of Water Resources responded to the original proposal by requesting assurances from the State Water Resources Control Board that it would not object to the transfer or act to prevent its implementation. ^{348/} The Board would also have to provide further assurances that the transfer would not violate the Board's emergency regulations regarding exports from the Delta and that it would not reduce the State Water Project's export allotment under those regulations. ^{349/} The district responded to the Department's request by forwarding the proposal to the Board for its consideration. ^{350/}

The original proposal called for a twelve-month pumping period. The proposal, as modified at the Board hearing, called for a ninety-day

^{344/} Id. at 4.

^{345/} Id.

^{346/} Id. at 4-5.

^{347/} Id.

^{348/} Letter of August 1, 1977, from Ronald B. Robie, Director of the Department of Water Resources to H. Ronald Lampson, Engineer-Manager, Berrenda Mesa Water District.

^{349/} Id.

^{350/} Letter of August 5, 1977, from H. Ronald Lampson, Engineer-Manager, Berrenda Mesa Water District, to John Bryson, Chairman, State Water Resources Control Board.

experimental pumping period. The modified proposal further authorized the Board to halt or modify pumping activities if the temporary pumping caused adverse impacts within the basin. 351/

On September 2, 1977, the Board expressed disapproval of the proposed transfer. The proposal was found to violate the emergency regulations regarding export from the Delta, to be potentially contrary to the public interest and to constitute an unreasonable method of diversion under Article 10, Section 2 of the California Constitution. 352/ The Board made particularly broad findings with regard to Article 10, Section 2. It noted that:

Many factors considered by this Board lead to our conclusion that the proposal could result in an unreasonable method of diversion. These include the reasonable possibility that the proposal would seriously aggravate overdraft conditions, the water quality implications of the proposal, the probable adverse effects on surrounding wells, the potential effects on Sacramento River flows, and the fact that Andco has only correlative rights to the use of waters from the groundwater basin. While evidence sufficient to conclusively deal with many of these issues was lacking, the cumulative effect of the unknowns involved prevents us from saying that the method of diversion is reasonable. 353/

The actual impact of this decision on future transfers remains uncertain. On one hand the decision might only apply to the restricted category of transfers where the transferring parties require the use of State Water Project facilities and where the Department of Water Resources conditions the use of those facilities upon Board approval of the proposal. On the other hand, the decision contains broad language regarding Article 10, Section 2,

351/ Cal. State Water Resources Control Board Decision No. 1474 at 4-5 (September 22, 1977).

352/ Cal. State Water Resources Control Board Decision No. 1474 at 6-15 (September 22, 1977).

353/ Id. at 13-14. These findings were adopted October 20, 1977.

which could conceivably be used in any reasonable method of diversion case. In either case, though, the decision appears to increase the uncertainty of the groundwater rights of a landowner who desires to transfer his resource outside of the basin.

IV. ISSUES

- A. The Economics of Water Rights Transfers
 1. Will the encouragement of water rights transfers promote a more efficient use of the water resource?
 2. What third party effects may result from such transfers?
 3. How can those effects be internalized in the transfer process?
- B. Legal Impediments to Transfer in California
 1. To what extent is the uncertain character of the water right an obstacle to market transfers?
 - a. Does the unquantified character of riparian rights affect their marketability and the marketability of other rights?
 - b. What is the impact of unused riparian rights on water rights transfers?
 - c. What is the impact of the Los Angeles v. San Fernando decision on the development of secure property rights in groundwater?
 - d. What is the impact on transfers of the uncertain nature of pre-1914 appropriative rights? Of the fact many appropriative rights are measured in flows rather than quantities?
 - e. Do municipal appropriations for future use affect the certainty of other rights, thus discouraging transfers?
 - f. Does the exemption from due diligence for state filings affect the certainty of other rights, thus discouraging transfers?
 - g. To what extent does the uncertainty imposed by the reasonable beneficial use requirement affect the transfer of water rights?
 2. To what extent do inflexibilities in water rights discourage water rights transfers?
 - a. Are riparian limitations as to place of use a significant restraint on the development of a water transfer market?
 - b. Does the Los Angeles v. San Fernando decision restrict the flexibility of overlying groundwater rights, thus discouraging water rights transfers?

- c. Is the requirement that an appropriator receive approval for a change in point of diversion, place of use, or purpose of use from the State Water Resources Control Board a significant restraint on water rights transfers?
- d. Under what rules should property rights in return flow be allocated?
- e. What is the impact of the County of Origin, Watershed Protection Act, and Delta Protection Act on water rights transfers?
- f. Will local ordinances restricting groundwater exports from the basin have a significant impact on water rights transfers?
- g. What is the impact of general or special district acts on transfers?
 - 1. Should individual landowners within a district be allowed to transfer their legal entitlement to district water outside of the district?
 - 2. Should district transfers be restricted to water "surplus" to the needs of the district? If so, how should "surplus" be defined?
- h. Should mutual water companies be discouraged from adopting articles of incorporation or bylaws which require company stock to be appurtenant to land?
- i. Does the possibility of regulation by the Public Utilities Commission significantly restrict mutual water companies from marketing their water?