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Russell Kletzing

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INTRODUCTION

Underground water resources have two important functions. Groundwater in storage provides a semirenewable source of water that can be used for a variety of purposes. Storage in groundwater basins also affords opportunities for economical use and distribution of surface water.

Groundwater has been defined[1] as all usable water that is subject to control and which flows to wells. Forty percent of California is underlain by groundwater basins.[2] Groundwater basins are beneath much of the populated areas and most irrigated lands. These basins store about 850 million acre-feet of water; by comparison, surface reservoirs store only 43 million acre-feet. Average annual pumping is 16.6 million acre-feet, which exceeds recharge by 2.0 million acre-feet.[3] There is also in the vicinity of 143 million acre-feet of empty storage space in the State's groundwater basins.[4]

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* Russell Kletzing is a graduate of the University of California, Boalt Hall. He is in private practice in Sacramento, California. Previously he was Assistant Chief Counsel for the California Department of Water Resources and staff attorney for the United States Bureau of Reclamation.

1. Hutchins, *Ground Water Legislation*, 30 ROCKY MTN. L. REV. 416 (1958) [hereinafter Hutchins].

2. CAL. DEP'T OF WATER RESOURCES, Bull. 118, California's Ground Water 3 (Sept. 1975).

3. CAL. DEP'T OF WATER RESOURCES, Bull. 160-87, California Water: Looking to the Future 31 (Nov. 1987) [hereinafter Bull. 160-87].

4. CAL. DEP'T OF WATER RESOURCES, Bull. 118, California's Ground Water 3 (Sept. 1975).

Using groundwater and surface water to meet needs is termed "conjunctive use" of groundwater basins and surface supplies.[5] Conjunctive use covers a broad range of *alternatives*. Some examples of conjunctive use involve limited planning and little regulatory control, such as pumping groundwater in dry years and using surface water when it is available in wetter periods[6] or the spreading of flood waters for recharge in dry river channels. Conjunctive use also encompasses elaborately planned management of groundwater basins such as programs for purchasing imported water and adjusting rates and taxes.[7] It embraces plans for storing imported water underground for later use by the State Water Project. People often think of the latter elaborately planned management of basins when using the term "conjunctive use," but this is imprecise. Proposals under consideration for the State Water Project contemplate storing or "banking" imported water in groundwater basins for later withdrawal—hence, the term imported groundwater banking.

The Kern Water Bank, at an estimated cost of $78 million, is the State Water Project's[8] most promising effort to date at imported groundwater banking. The proposed "bank" would utilize the aquifer underlying the lower Kern River Valley at the extreme southern end of the San Joaquin Valley. The basin would be recharged with water diverted from the Sacramento-San Joaquin River Delta through the California Aqueduct. Water would be withdrawn in dry years to satisfy part of the contract entitlement of the Kern County Water Agency, one of the project's largest contractors. The "bank" would add about 150,000 acre-feet to the yield of the project.[9]

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5. "Conjunctive use is the coordinated operation of surface water reservoirs and underground reservoirs so that total yield over a period of years may exceed uncoordinated yields." Smith, *Rewriting California Groundwater Law: Past Attempts and Prerequisites to Reform*, 20 CAL. W.L. REV. 223, 234 (1984).

6. CAL. DEP'T OF WATER RESOURCES, Bull. 118, California's Ground Water, 121 (1975).

7. Smith, *Coercion and Groundwater Management: Three Case Studies and a "Market" Approach*, 16 ENVTL. L. 797, 823-24, 832-38 (1986).

8. The State Water Project is the popular name for the State Water Resources Development System authorized by the California Water Resources Development Bond Act. CAL. WATER CODE §§ 12930-12944 (West 1971). It includes large reservoirs impounded by Oroville and San Luis dams and aqueducts to deliver water to the San Francisco Bay area, the San Joaquin Valley and Southern California.

9. CAL. DEP'T OF WATER RESOURCES, final Environmental Impact Report, Artificial Recharge, Storage and Overdraft Correction Program, Kern County, California, Kern Water Bank 17, 22 (Dec. 1986).

A basic premise of the Kern Water Bank is that its operation will not impair the rights of those who use or could use the native groundwater.[10] There are three kinds of rights to native groundwater—overlying, appropriative and prescriptive. The owners of land overlying a groundwater basin have the right to pump water for reasonable uses on their land. The rights of overlying owners are correlative; that is, when a basin is being overdrafted, they share the reduction in pumping necessary to bring use into balance with supply. Water that is surplus to the needs of overlying land can be appropriated for use on nonoverlying land or for public purposes.[11] Appropriative rights are subordinate to overlying rights unless the appropriations have been continued during a period of overdraft and have ripened into prescriptive rights.

Before initiating an imported groundwater banking project, it is desirable to know the extent of the rights to the native water. This determination has often been made by a court adjudication. Adjudication has been considered an essential prerequisite to groundwater banking,[12] and would undoubtedly reduce the risks of this project.

For about twenty-five years, the rules for adjudicating groundwater basins were clear. Under conditions of overdraft, which made adjudication propitious, all of the overlying users and appropriators were held to have acquired prescriptive rights against one another; this was the doctrine of mutual prescription.[13] The lowering of water levels in wells constituted notice of overdraft. In the adjudication proceedings, the major users typically stipulated to the other elements of prescription and to the quantities that each had pumped. Each user acquired a prescriptive right to the amount pumped in a series of five years. Total pumping was reduced proportionately to bring it into line with the safe yield of the basin. A number of basins were adjudicated under these ground rules.

In 1975 adjudication proceedings drastically changed as a result of *City of Los Angeles* v. *City of San Fernando*.[14] Mutual prescription was dealt a mortal blow. The case held that Civil Code section 1007 protects public agencies and public utilities from loss of rights by prescription. Many of the basins that might be ripe for adjudication

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10. *Id.* at 103.
11. *See* City of San Bernardino v. City of Riverside, 186 Cal. 7, 24, 29, 198 P. 784 (1921); Katz v. Walkinshaw, 141 Cal. 116, 74 P. 766 (1903).
12. Krieger & Banks, *Ground Water Basin Management*, 50 CALIF. L. REV. 56, 61 (1962).
13. City of Pasadena v. City of Alhambra, 33 Cal. 2d 908, 928-33, 207 P.2d 17 (1949).
14. 14 Cal. 3d 199, 537 P.2d 1250, 123 Cal. Rptr. 1 (1975).

include public users. The court indicated that the requirement of notice that starts the running of the prescriptive period would be scrutinized more strictly. In place of a pro rata pumping reduction, the courts have to apportion the available water supply equitably. These new rules allow the trial court to fashion an equitable judgment instead of ordering an automatic reduction of pumping determined by formula. These rules are likely to make it more difficult for the parties to stipulate to a judgment.

When fashioning judgments in groundwater cases, the courts have limited extractions to the basin's safe yield.[15] The concept of safe yield is that pumping should not exceed recharge. High-technology groundwater models now indicate that it is optimal in some basins to allow pumping to exceed safe yield for some period.[16] Agriculture and municipalities in the greater part of California could not have developed to their present extent if safe yields had not been exceeded for many years. Many of these areas now have the economic base to finance importation of water or other remedial measures. Safe yield is just one factor that should be considered by water planners and the courts in managing groundwater basins.

A number of factors militate against the adjudication of the Kern County basin as a prerequisite to the Kern Water Bank. All of the authorities agree that adjudication is expensive and time-consuming.[17] The delay is a particular deterrent, since the State Water Project needs additional yield at an early date.[18] The near demise of mutual prescription makes the process still more cumbersome. Taking these factors into consideration, the State has agreed with the Kern County Water Agency not to initiate a basin adjudication.[19]

The California Department of Water Resources has several sources of authority to carry out imported groundwater banking in Kern

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15. City of Pasadena v. City of Alhambra, 33 Cal. 2d 908, 924, 929, 207 P.2d 17, 28, 30 (1949).

16. CAL DEP'T OF WATER RESOURCES, Bull. 214, The Hydrologic-Economic Model of the San Joaquin Valley, 135-36 (Dec. 1982).

17. Trelease, *Legal Solutions to Groundwater Problems—A General Overview*, 11 PAC. L.J. 863, 867-68 (1980).

18. The contractual deliveries of the State Water Project are building up gradually as the needs of its contractors increase. However, the additional surface storage contemplated when the project was authorized has not been constructed. Also, larger quantities of water must be released into San Francisco Bay to protect the Sacramento-San Joaquin River Delta than had been originally anticipated. As a result, the project will soon be unable to deliver full contractual entitlements in drier years.

19. Memorandum of Understanding Between the Department of Water Resources and the Kern County Water Agency for Developing and Operating the Kern Water Bank 6 (March 25, 1987) [hereinafter *Memorandum of Understanding*] (copy on file at the *Pacific Law Journal*).

County. *Niles Sand and Gravel Co.* v. *Alameda County Water District*[20] upheld the right of a district, one of the State's contractors, to store imported groundwater although doing so injured an overlying owner. The holding was based in part on the police power granted to the district by the legislature. The Department of Water Resources has been granted similar police power authority by Water Code section 11258: "The project shall include facilities south of the Sacramento-San Joaquin Delta for utilizing groundwater storage space, determined by the director to be feasible for the purpose of providing yield for the State Water Resources Development System."[21] *Niles* is good authority for the Department to carry out imported groundwater banking. The *San Fernando* case[22] reaffirmed the rights of Los Angeles to store imported water in the basin in much the same way as the state is proposing to store water in Kern County.

Even before the enactment of Water Code section 11258 in 1985, groundwater authorities were in general agreement that a public agency had the ability to implement imported groundwater storage. As one commentator stated, "*In City of Los Angeles* v. *City of San Fernando* and *Niles Sand & Gravel Co. v. Alameda County Water District*, California courts affirmed the public's right to store imported water in natural underground basins and to protect and recover the stored water for later use." [23]

The express authority of Water Code section 11258 appears to eliminate any question as to the Department's authority for groundwater banking. The problem is that, although the risks may seem small, the stakes are high. If the Department's authority were challenged in court and a preliminary injunction obtained after a $78 million investment in the Kern Water Bank was made, it could be paying out interest of $6 to $8 million a year during possibly protracted litigation. An early court challenge might delay the availability of needed new yield for the project. Prudence dictates minimizing these risks. Various options are available for risk reduction.

The State proposes to buy 24,000 acres of overlying land to function as a buffer to mediate well fluctuations on adjacent land. Will the acquisition of such land improve the State's legal position? In my opinion the answer is no. Neither the courts nor the com-

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20. 37 Cal. App. 3d 924, 112 Cal. Rptr. 846 (1974).
21. CAL. WATER CODE § 11258 (West 1971).
22. City of Los Angeles v. City of San Fernando, 14 Cal. 3d 199, 537 P.2d 1250, 123 Cal. Rptr. 1 (1975).
23. Gleason, *Water Projects Go Underground*, 5 ECOLOGY L.Q. 625 (1976).

mentators have suggested that overlying land beyond what is needed for access is necessary for groundwater banking.[24] The acquisition of land may be desirable, however, for policy or public relations reasons.

The best way to minimize the risks of an imported groundwater banking program is by passing legislation. In 1955, during the formulation of the California Water Plan, the predecessor agency of the Department of Water Resources recommended legislation and a constitutional amendment to authorize planned utilization of groundwater basins, to establish a permit and license system for pumping and to improve the adjudication procedures.[25] Since then, State agencies and groundwater lawyers have steadily but unsuccessfully pressed for this type of legislation. The laws that have been passed with statewide application have been mostly voluntary. They have been long on policy statements and short on substance. What has been successful is legislation tailored to meet local needs. A pump tax—a tax on the amount of groundwater pumped—has been authorized in a number of agencies that wanted that authority. Water replenishment districts have been authorized and one was formed. The Mendocino area and the Fox Canyon area in Ventura County have recently obtained substantial authority for groundwater management.

The record indicates that the prospects for statewide legislation to strengthen the Department's hand in groundwater banking are not good. Contrary to the conventional wisdom, the way to obtain groundwater legislation in California is on a case by case approach. A bill could be negotiated with Kern County interests that would protect the State as far as possible against the enjoining of operation of the Kern Water Bank and also address local needs. Kern County landowners may have concerns about items such as prescriptive rights and the method and criteria for recovery of damages. Such a bill might have a good chance for success.[26]

The Kern Water Bank

The Kern Water Bank would store water in the Kern River Valley basin—also called Kern County Basin—at the southern tip of the

24. *Id.* at 647.

25. Holsinger, *Some Legal Aspects of Groundwater and the California Water Plan*, 47 J. Am. Water Works A. 374, 381 (1955).

26. I highly commend the excellent paper prepared by Anne Schneider discussing all phases of California groundwater law. Schneider, Ground Water Rights in California, Background and Issues, Governor's Commission to Review California Water Rights Law (1977).

San Joaquin Valley, California. The basin is surrounded on three sides by mountains that are impermeable to groundwater flow. The northern boundary, at the Kern County line, is also relatively impermeable to groundwater due to lake bed clays and roughly equal groundwater levels. Although the entire San Joaquin Valley can be considered to be a single basin, the Kern County basin is a closed basin with no outflow of surface or groundwater.[27] The basin has been subject to overdraft for many years. The annual overdraft has declined from 600,000 acre-feet in the 1960s, before deliveries of State project water began, to a current figure of 250,000 acre-feet. Unless additional yield can be developed for the State Water Project, the overdraft can be expected to rise again to about 500,000 acre-feet.[28] In 1981, there were about 21 million acre-feet of empty storage in the Kern County Basin.[29]

The plan for the Kern Water Bank provides for the acquisition of 24,000 acres in the Kern County basin. The bank would use 1600 acres for recharge and extraction facilities in conjunction with 2800 acres now being used by the city of Bakersfield, subject to the City's agreement. In addition to wells and recharge areas, a conveyance system would be constructed to bring water from the California Aqueduct to the place of use. The capital cost would be $78 million of which $40 million would be for land purchase and relocation of utilities and roads. The annual operating cost would be $2.4 million.[30]

The State would store water in two ways—by direct recharge and by in lieu storage. In lieu storage would occur when a farmer takes surface deliveries from the project *in lieu* of pumping, and the State would acquire title to the water in storage that was not pumped. Water would be withdrawn at times of low surface runoff for use by the project's contractor in the area, the Kern County Water Agency. The Agency, in turn, would have its deliveries reduced by an equal amount, making that quantity available for other contractors. Up to one million acre-feet would be stored in the basin, and the firm yield of the State Water Project would be increased by about 150,000 acre-feet annually. The cost of the increased yield would be $80 per acre-foot as compared with $150 per acre-foot for

27. CAL. DEP'T OF WATER RESOURCES, Final Environmental Impact Report, Artificial Recharge, Storage and Overdraft Correction Program, Kern County, California, (Kern Water Bank) 42-43 (1986).

28. CAL. DEP'T OF WATER RESOURCES, Kern Fan Element, Kern Water Bank, Preliminary Technical Report, 43-44 (Apr. 1987).

29. CAL. DEP'T OF WATER RESOURCES, Statewide Planning, Bull. 160-82 Studies, Study Area 2, Tulare Basin, 63-64 (1981).

30. *Id.* at 2-4.

water from the Los Banos Grandes Reservoir, the next likely increment of surface storage under consideration for the State Water Project. The cost of all water furnished to all of the state's contractors would be increased by $1.46 per acre-foot. The benefit/cost ratio would be 2.0.[31]

The land to be purchased that is not needed for facilities would be taken out of agricultural production and held as a buffer to minimize fluctuations in adjacent wells during recharge and pumping. The 50,000 acre-feet now being pumped to irrigate the land would not be used by the project, but would benefit local water users by reducing the overdraft. They would also benefit from reduced pump lifts. The quality of project water is comparable to that of groundwater in the basin.[32]

The Kern Water Bank will be operated by the Kern County Water Agency or a member unit, although the Department will have responsibility for management and scheduling. Only water that has previously been put into storage can be withdrawn for the project—there would be no lowering of water levels. To further protect local prerogatives, the Agency would have the option to buy the land instead of the State or to purchase it from the State for a period of ten years, provided there would be no interference with Water Bank uses.[33]

Rights to Native Groundwater

The Kern Water Bank would be operated to avoid or minimize interference with those holding rights in the basin's native groundwater. Indeed, protection of local rights is a prerequisite that a public agency must meet before storing water in a groundwater basin.[34] Rights to native groundwater can be correlative, appropriative or prescriptive.[35]

Groundwater can occur either as an underground stream or as percolating water. Riparian owners have rights to water in underground streams and it can be appropriated by filing an application

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31. *Id.* at 1-2, 5, 84-85.
32. *Id.* 2, 32, 84.
33. *Memorandum of Understanding*, *supra* note 19, at 5.
34. Gleason, *supra* note 23, at 646.
35. Paramount pueblo rights also attach to groundwater, but there are no pueblos in the Kern County basin. *See* City of Los Angeles v. City of San Fernando, 14 Cal. 3d 199, 537 P.2d 1250, 123 Cal. Rptr. 1 (1975); City of Los Angeles v. City of Glendale, 23 Cal. 2d 68, 142 P.2d 289 (1943).

with the State Water Resources Control Board, just as is the case with surface streams.[36] Water of this class almost always constitutes the underflow of a flowing or intermittant stream and is quite rare. The courts recognized early on that the great preponderance of groundwater is percolating water and thus created a rebuttable presumption in that direction.[37]

The common law of England, as enunciated in *Acton* v. *Blundell,*[38] proclaimed that the owner of the surface had exclusive rights to water under the land. The fee owner could dispose of groundwater without regard to the effect on a neighbor's well. The loss was *damnuum absque injuria,* damage without legal injury. The decision was based in part on the need to drain marshy areas, and relied on Roman law. It exemplified the maxim: "*Cujus est solum, ejus est usque ad coelum et ad inferos,*" he who owns the ground possesses also to the sky and to the depths.[39] Many American jurisdictions and some California cases adopted this doctrine.[40] *Forbell* v. *City of New York*[41] was the leading case that established the "American" rule that the overlying owner has the right to all of the percolating water he can put to reasonable use on his land without regard to the effect on other land.[42]

As with surface waters, the California groundwater doctrine is idiosyncratic. In the landmark case of *Katz v. Walkinshaw,*[43] the court discarded both the English and American rules and established the correlative rights doctrine. Owners of land overlying a groundwater basin have the right to the reasonable use of water on their land. Their rights are analogous to the rights of riparian owners—they are correlative and will be reduced in case of shortage by a "just proportion."[44] Factors such as acreage, type of use, soils, practicability of irrigation, crops, profitability, expense and the avail-

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36. CAL. WATER CODE § 1201 (West 1971). *See also id.* § 1375 (issuance of a permit).

37. "Subterranean water is presumed to be percolating, and therefore one who claims rights in a flowing stream has the burden of showing its existence." Arroyo Ditch & Water Co. v. Baldwin, 155 Cal. 280, 284, 100 P. 874, 875 (1909).

38. 12 Mees. & W. 324 (Exch. Chamber 1848).

39. 1 W. BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND 733 (W. Jones ed. 1915).

40. Painter v. Pasadena L. & W. Co., 91 Cal. 74, 82 (1891). Justice Shaw characterized these cases as embodying a rule of might. Katz v. Walkinshaw, 141 Cal. 116, 128-33, 74 P. 766, 769-71 (1903).

41. 164 N.Y. 522, 58 N.E. 644 (1900).

42. Most Western states, not including California, have supplanted judicial administration of groundwater by statutory systems of appropriation. Trelease, *supra* note 17, at 865 n.5-6.

43. 141 Cal. 116, 74 P. 766 (1903).

44. 141 Cal. at 135-36, 74 P. at 772.

able supply will be considered.[45] The overlying user's rights are superior to the rights of an appropriator for nonoverlying uses. The doctrine was summarized concisely by Justice Shaw, author of the *Katz* opinion, in *Burr* v. *Maclay Rancho Water Co.*,[46] as follows:

> Two owners of separate tracts of land, situated over common strata of percolating water, may each upon his own land, take by means of wells and pumps from the common strata, such quantity of water as may be reasonably necessary for beneficial use upon his land, or his reasonable proportion of such water, if there is not enough for all, but that one cannot, to the injury of the other, take such waters from the strata and conduct the same to distant lands not situated over the same water-bearing strata.

A cogent argument has been made that the *Katz* case unintentionally established principles that were prone to produce overdrafted groundwater basins.[47] Justice Shaw created the correlative rights doctrine that was more enlightened than either the English rule of absolute ownership or the American rule of reasonable use. The essence of the doctrine was the sharing of available supplies fairly among overlying users. Its weakness was that the only method for limiting withdrawals was by court action. The court could have hardly anticipated that, because of the time and expense, law suits would prove to be impractical for the individual user; only eight basins would be adjudicated in the succeeding eighty-five years.[48] Many of the remaining basins would continue in overdraft. But even if the court had been prescient, it had no authority to establish a simplified administrative procedure for allocating rights or a State-regulated permit system for extractions. The most it might have done was to proclaim the need for legislation and thus focus public attention on the problem.

Katz also established that appropriators could use water that is surplus to the reasonable needs of overlying owners for nonoverlying uses.[49] In the absence of prescriptive rights, appropriative rights must yield when the needs of the overlying owners increase and the surplus is reduced. The purpose of these rules is to maximize beneficial use—between them, overlying owners and appropriators can utilize the

45. Tehachapi-Cummings County Water Dist. v. Armstrong, 43 Cal. App. 3d 992, 1001-02, 122 Cal. Rptr. 918, 925 (1975).
46. 154 Cal. 428, 434-35, 98 P. 260, 263 (1908).
47. Trelease, *supra* note 17, at 873.
48. Bull. 160-87, *supra* note 3, at 34.
49. 141 Cal. 116, 135-36, 74 P. 766, 772 (1903).

full supply.[50] Use by a public agency such as a city is appropriative even where the use is on overlying land.[51] As among themselves, the earlier appropriator has priority.

The *Katz* court specifically declined to answer the question as to whether unexercised overlying rights have priority over appropriative rights.[52] Overlying rights are not lost by nonuse.[53] *Wright* v. *Goleta Water District* may have put this issue to rest.[54] The trial court had determined that unexercised overlying rights had a lower priority than the rights of the appropriators from the basin. It based its decision on a similar holding regarding unused riparian rights[55] under an adjudication procedure established by statute for surface waters.[56] The Court of Appeals reversed on the grounds that the court could not make such a determination in the absence of legislative authority for the adjudication of groundwater.

Since they are not inferior to appropriative rights, the implication is that unused overlying rights have higher priority. We are left with no way to adjudicate these unexercised rights. One authority cites a number of advantages that could be obtained by such a determination in a groundwater adjudication. One advantage from an adjudication of unexercised rights would be the decreased uncertainty relating to possible cutbacks that existing users might have to make in the future. Existing users could evaluate the risks of using the surplus on an interim basis.[57] The point is especially important where there is considerable overlying land with a potential for future use of water. The disadvantage of an adjudication is that joining all possible users could further complicate an already complicated procedure. Also, the owners of the land could incur major legal expenses to defend their rights to uses that are only speculative.

Most of the water in the Kern County Basin is pumped by farmers for use on their overlying land. Land not in agricultural production would potentially have overlying rights as well. Since the basin has

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50. Alpaugh Irrigation Dist. v. County of Kern, 113 Cal. App. 2d 286, 292, 248 P.2d 117, 120 (1952).

51. City of San Bernardino v. City of Riverside, 186 Cal. 7, 24, 29, 198 P. 784, 791, 793-94 (1921).

52. 141 Cal. at 135-36, 74 P. at 772.

53. Orange County Water Dist. v. City of Riverside, 173 Cal App. 2d 137, 183-84, 343 P.2d 450, 476 (1959).

54. 174 Cal. App. 3d 74, 83-89, 219 Cal. Rptr. 740, 746-51 (1985).

55. *In re* Waters of Long Valley Creek, 25 Cal. 3d 339, 158 Cal. Rptr. 350, 599 P.2d 636 (1979).

56. CAL. WATER CODE §§ 2500-2863 (West 1971 & Supp. 1988).

57. Trelease, *supra* note 17, at 869-70.

been in overdraft for many years, there are no appropriative rights unless they have ripened into prescriptive rights. Bakersfield and perhaps other public agencies may have acquired rights by the prescriptive process.

One of the benefits of the Kern Water Bank would be the elimination of pumping on land purchased by the State. Under the terms of the Memorandum of Understanding that the Department and the Kern County Water Agency have executed,[58] this roughly 50,000 acre-feet would go to reducing the existing overdraft. If it were to use that water for the State Water Project, the State would be acting as an appropriator, but there is no water available for appropriation. The native water belongs to the local users. Such a benefit, however, need not be furnished without charge. Indeed, both State policy[59] and law[60] require that State water contractors pay for services provided by the project.

The operation of the Kern Water Bank must respect the rights to native water. Knowing exactly who has rights and to what quantities would certainly make it easier to do so.

The Adjudication of Rights

Unquestionably, adjudication by a court is the only reliable way to determine the rights of users from a groundwater basin. Two eminent authorities have contended that adjudication is essential to imported groundwater banking. "The use of underground storage for imported water cannot be completely successful unless the natural local water supply has been fully adjudicated so that extractions can be controlled and the basin fully managed."[61]

The first major basin-wide adjudication did not take place until the 1940s. In *City of Pasadena v. City of Alhambra*,[62] the court upheld the decree adjudicating the Raymond Basin. The proceedings established a pattern that was followed in several later adjudications. The major pumpers were joined and, after fact finding by the predecessor of the State Water Resources Control Board, all but one of the major pumpers stipulated to the judgment.

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58. *See Memorandum of Understanding, supra* note 19.
59. Contracting Principles For Water Service Contracts Under the California Water Resources Development System (Jan. 20, 1960).
60. Cal. Water Code §§ 12937(b), 11254. (West 1971).
61. Krieger & Banks, *supra* note 12, at 69.
62. 33 Cal. 2d 908, 207 P.2d 17 (1949).

The *Pasadena* case introduced the concept of mutual prescription. The basin had been in a state of overdraft for many years before the action was filed, and groundwater levels had been falling. The court held that each of the overlying users and appropriators had acquired prescriptive rights against the others:

> We hold, therefore, that prescriptive rights were established by appropriation subsequent to the commencement of the overdraft, that such rights were acquired against both overlying owners and prior appropriators, that the overlying owners and prior appropriators also obtained, or preserved, rights by reason of the water which they pumped, and that the trial court properly concluded that the production of water in the unit should be limited by a proportionate reduction in the amount which each party had taken throughout the statutory period.[63]

The parties had stipulated that the pumping of water had been open, notorious and under a claim of right. The lowering of water levels in the wells constituted notice to all users. The necessary element of adversity was supplied because total extractions had been exceeding safe yield, producing continuing injury to all of the parties. Each user's prescriptive rights were set at the highest use for each of five consecutive years less any later reduction in use for a five-year period. The court approved pro rata reduction in extractions so that they would not exceed the safe yield. It concluded that this solution was more appropriate than complete elimination of use by the junior appropriators since none of the parties had taken action while the prescriptive period was running. It was in the public interest to spread the burden of the reduction among all of the parties (most were public agencies or public utilities) rather than eliminate pumping and therefore service by some of them.

Several additional basins were adjudicated following the *Pasadena* mutual prescription precedent. The highest use for each user was administratively determined during any five-year period after the beginning of the overdraft. A decree was fashioned that reduced each users' rights proportionately so that the total equaled the safe yield. All, or nearly all, of the substantial users stipulated to the judgment. A water master or basin committee was appointed to administer the decree. To increase flexibility, several of the judgments included provisions for leasing or selling water rights and for shifting entitle-

63. *Id.* at 933, 207 P.2d at 32-33.

ments from year to year.[64] The west coast basin in Los Angeles County was adjudicated in this way.[65]

Twenty-six years after the *Pasadena* decision the court decided *City of Los Angeles v. City of San Fernando*.[66] *San Fernando* created problems for the use of the mutual prescription approach to groundwater adjudication that may well be insuperable. The use of mutual prescription in the future seems unlikely.

The aspect of the opinion that wreaked most havoc with the doctrine of mutual prescription was the court's application of Civil Code section 1007.[67] The court held that cities, public utilities, and other public agencies could not lose their rights by prescription. Because of stipulations to the judgment by the public agencies, section 1007 was not an issue in the *Pasadena* case. The clear language of the section, however, left the *San Fernando* court little alternative. The court's holding puts private users at a substantial disadvantage. They cannot acquire prescriptive rights against public users, but public agencies and public utilities can gain prescriptive rights against them.[68]

There are not many groundwater basins that do not have some public users. The City of Bakersfield is a user in the Kern County Basin. There may be other municipalities that extract groundwater for municipal use and public agencies or public utilities that pump irrigation water from the basin.

San Fernando also held that overlying users retain their rights by using them during the prescriptive period. Their overlying rights are not replaced by a prescriptive right.[69] The court also formulated new rules for determining overdraft in a groundwater basin.[70] It held that the likelihood of waste of water during a wet cycle must be taken

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64. SCHNEIDER, GROUNDWATER RIGHTS IN CALIFORNIA, BACKGROUND AND ISSUES, GOVERNOR'S COMMISSION TO REVIEW CALIFORNIA WATER RIGHTS LAW, 22-29 (1977).

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

66. 14 Cal. 3d 199, 537 P.2d 1250, 123 Cal. Rptr. 1 (1975).

67. Occupancy for the period prescribed by the Code of Civil Procedure as sufficient to bar any action for the recovery of the property confers a title thereto, denominated a title by prescription, which is sufficient against all, but no possession by any person, firm or corporation no matter how long continued of any land, water, water right, easement, or other property whatsoever dedicated to a public use by a public utility, or dedicated to or owned by the state or any public entity, shall ever ripen into any title, interest or right against the owner thereof.

Id. at 270 n.66, 537 P.2d at 1301-02 n.66, 123 Cal. Rptr. at 52-53 n.66.

68. *Id.* at 270-77, 537 P.2d at 1301-07, 123 Cal. Rptr. at 52-58.

69. *Id.* at 293, 537 P.2d at 1318, 123 Cal. Rptr. at 69.

70. *Id.* at 277-80, 537 P.2d at 1306-09, 123 Cal. Rptr. at 57-60.

into account. The trial court had determined the safe yield of the San Fernando Basin using a twenty-nine year average. During wet portions of the cycle, however, the basin could fill to a point where available water could not be stored and would be wasted. To avoid this waste, the court held that Los Angeles could draw the basin down to provide adequate basin storage for use during wetter periods. The draw-down was termed the use of "temporary surplus":

> . . .if a ground basin's lack of storage space will cause a limitation of extractions to safe yield to result in a probable waste of water, the amount of water which if withdrawn would create the storage space necessary to avoid the waste and not adversely affect the basin's safe yield is a temporary surplus available for appropriation to beneficial use. Accordingly, overdraft occurs only if extractions from the basin exceed its safe yield plus any such temporary surplus.[71]

Pasadena was reconciled by the fact that the basin had been in overdraft for many years. There was adequate storage for any possible wet year recharge, so no withdrawals of temporary surplus were needed to avoid waste. Near the beginning of the basin draw down, however, the Raymond Basin would have had the same wet cycle problem as the San Fernando Basin. Had a concept of temporary surplus been applied, the prescriptive period might have begun to run at a later date.

The need to consider temporary surpluses complicated the determination as to when the prescriptive period begins to run. Lowering of the water level in wells would not necessarily mean the basin was being overdrafted, for the lowering could be a result of withdrawing the temporary surplus. The *San Fernando* court held, therefore, that the lowering of groundwater levels did not necessarily constitute the notice that is required for prescription.[72] The court remanded the case to the trial court and therefore did not make a definitive statement concerning the notice requirement. To start the prescriptive period running in some basins, it might be necessary to collect and analyze substantial data in order to give actual legal notice to the users that overdraft is occurring.

With regard to notice, the Kern County Basin would be governed by the rule in the *Pasadena* case. With 21 million acre-feet of vacant

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71. *Id.* at 280, 537 P.2d at 1309, 123 Cal. Rptr. at 60.
72. *Id.* at 281, 537 P.2d at 1309-10, 123 Cal. Rptr. at 60.

storage space, there is no possibility that recharge could not be stored. Falling groundwater levels would be adequate notice.

The *San Fernando* court also held that a year of surplus in which recharge exceeded extractions could break the chain required for prescription. The court held as follows: "Moreover, since adverse taking is impossible during surplus years their occurrence breaks the continuity required for running of a prescriptive period. [Citations omitted.] Accordingly, the prescriptive period for ground basin water rights must consist of five consecutive years of overdraft."[73] This rule will further complicate the process of determining prescriptive rights. Even in the Kern County Basin there have been a number of wet years when ground water levels have risen.[74]

In another major departure, the *San Fernando* court held that rather than imposing a pro rata reduction on extractions, which was a hallmark of the mutual prescription cases, the court's duty was to apportion use of ground water equitably.[75] It is hard to fault the court's view that in some cases a rigid proration would not be fair.[76] In the *San Fernando* case, a pro rata cutback would have largely nullified the court's other holdings reaffirming Los Angeles' Pueblo rights to groundwater in the basin.

The mutual prescription formula made it easier to negotiate stipulations in groundwater adjudications. Once the extent of uses had been ascertained and the commencement of overdraft determined, the rest was largely mechanical. Because of the difficulty of agreeing on what is equitable, the equitable apportionment rule makes stipulations more difficult.[77] Although it was already in serious trouble, the Mojave River groundwater adjudication, which was commenced before the *San Fernando* decision and had achieved a stipulation signed by many of the parties under the standard mutual prescription formula, sustained its *coup de grace* from the equitable apportionment rule and other modifications in the mutual prescription concept.

The *San Fernando* court was not unmindful that mutual prescription had proven to be a valuable tool in adjudicating water rights.[78] In view of its holding, it salvaged what it could of the items that

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73. *Id.* at 283, 537 P.2d at 1311, 123 Cal. Rptr. at 62.
74. Bull. 160-87, *supra* note 3, at 37.
75. *City of Los Angeles*, 14 Cal. 3d at 265, 537 P.2d at 1298, 123 Cal Rptr. at 49.
76. Gleason, Los Angeles v. San Fernando: *Groundwater Management in the Grand Tradition*, 4 HASTINGS CONST. L.Q. 703, 709 (1977).
77. *Comment*, de Lambert, *District Management for California's Groundwater*, 11 ECOLOGY L.Q. 373, 389 (1984).
78. *City of Los Angeles*, 14 Cal. 3d at 264, 537 P.2d 1297, 123 Cal. Rptr. at 48.

had been valuable in other adjudications. It approved the practice of the court retaining jurisdiction after judgment and the appointment of a water master to administer a decree.[79]

One of the arguments that the court made against the mutual prescription doctrine was that it encouraged excessive pumping to increase the pumper's water rights the "race to the pump house."[80] Other authorities have made the same contention.[81] The impact of mutual prescription on pumping, however, may have been overstated. The argument is made that pumpers continued using groundwater supplies instead of switching to substitute supplies in order to increase their rights. However, the cost of pumping was substantially less than the cost of water from substitute supplies. Moreover, after the enactment of Water Code sections 1005.1 and 1005.2 in 1951, a water user could receive the same credit for utilizing a supply from outside the basin as he could for pumping. It seems very likely, though, that mutual prescription did little to aid the cause of water conservation.

The court in *San Fernando* also stressed the broad authority of the trial court to instigate a physical solution.[82] Together with equitable apportionment, a physical solution can insure a decree that would maximize the beneficial use of water.

Tehachapi-Cummings County Water District v. Armstrong[83] decided shortly after *San Fernando*, deviated from the doctrine of mutual prescription. The court held that all of the users of the basin were overlying owners and that therefore rights should be apportioned under the correlative rights doctrine rather than mutual prescription.[84] That case might be a precedent for an adjudication in the Kern County Basin. Most of the water there is pumped by farmers for use on their overlying land; nonoverlying use by public agencies is probably quite small in proportion. If there were an adjudication, the basin could be apportioned to the owners of correlative overlying rights with a small adjustment for prescriptive rights of the public agencies.

It seems clear, however, that there will be no adjudication of the Kern County Basin to facilitate the Kern Water Bank. Adjudications

79. *Id.* at 265, 537 P.2d at 1298, 123 Cal. Rptr. at 49.
80. *Id.* at 267, 537 P.2d at 1299, 123 Cal. Rptr. at 50.
81. Gleason, *supra* note 76, at 709; Krieger & Banks, *supra* note 12, at 61-62.
82. *City of Los Angeles*, 14 Cal. 3d at 290, 537 P.2d at 1316, 123 Cal. Rptr. at 67 (1975).
83. 49 Cal. App. 3d 992, 122 Cal. Rptr. 918 (1975).
84. *Id.* at 1001, 122 Cal. Rptr. at 924.

are expensive and take a long time.[85] The Kern County Basin is much larger than any that have been adjudicated to date. It may have several thousand substantial water users. Compilation of their record of use and of the other hydrologic and geologic data involved would take many years and be very expensive. With mutual prescription no longer a useful tool, the procedure would be more complex than in the past. Apportionment in accordance with correlative rights would require additional consideration such as crops grown, profitability, duty of water and more. The time that would be required in particular would be a major deterrent to adjudicating the basin for the Kern Water Bank. The State Water Project needs to start putting water into storage in the Kern Water Bank as soon as it can to bolster its yield against dry year shortages. There is understandably strong local opposition to an adjudication since it would do little for the water users or for the economy of the county unless a supplemental supply becomes available to make up the overdraft. Reducing extractions to the safe yield would require that land be retired from production. For all of these reasons, the Department of Water Resources has agreed not to institute an adjudication of the Kern County Basin.[86] Instead, the Department of Water Resources proposes to keep track of the water it puts into storage. The agreement with the Kern County Water Agency must specify that, after adjustment for losses, the project will have the right to recapture the water that it put into storage. Since in the Kern County Basin there is a large amount of empty storage and a very large amount of groundwater in storage, the accounting procedure should work and the plan seems feasible.

THE SAFE YIELD SHIBBOLETH

A premise that has come to be accepted by the courts and many water planners is that extractions from a groundwater basin should be limited to the safe yield. Safe yield is usually defined as the amount of withdrawal that will equal the recharge to the basin over a period of years.[87] The concept, although not the terminology, was adopted by the courts at an early stage."The judgment should. . . limit the amount taken by all the consumers to a quantity, as near

85. Trelease, *supra* note 17, at 868.

86. *Memorandum of Understanding*, *supra* note 19.

87. "The so-called "safe yield" of a groundwater reservoir is the quantity of water that can be extracted annually from the reservoir year after year without significantly impairing the continued usefulness of the water supply." Hutchins, *supra* note 1, at 435.

as may be, equal to the average constant supply from the rainfall."[88]

Safe yield became a central concept in the mutual prescription cases. *Pasadena* held that overdraft commenced when extractions exceeded the safe yield of the basin.[89] The court approved the proportionate reduction of pumping by all users so that extractions would correspond with the safe yield.[90] The principle of limiting extractions to the safe yield was adopted in the subsequent mutual prescription cases by stipulation of the parties.[91] There is no indication in the cases that the parties ever challenged the principle of limiting pumping to the safe yield of a basin, although the finding as to the amount of safe yield was sometimes challenged.[92]

The safe yield concept also seems to be accepted by the commentators without questioning it.[93] The words themselves encourage uncritical acceptance. "Safe yield" is a positively loaded phrase. The clear implication is that withdrawals in excess of the safe yield would be unsafe. At the same time it is recognized that overdrafting of groundwater basins is not bad *per se*. The common pattern has been to allow overdraft in a basin in order to permit the building of an economy that could finance the purchase of supplemental imported water supplies.[94]

As the techniques for modeling groundwater basins became more sophisticated, water planners began to express doubts about the safe yield principle. In 1975, the Department of Water Resources asserted that "[r]ecent studies of groundwater basins have indicated that the dangers of permanent damage from overproduction have been oversold to the courts."[95] Modeling of the San Joaquin Valley groundwater basins provided more definitive information as to safe yield. The Department developed the hydrologic-economic model, an interrelated set of four models that consider groundwater hydrology and the economics of agricultural production based on the cost of pumping. The model can optimize the level of groundwater pumping in relation to recharge. It considers the social costs of pumping which are the private costs (the costs of pumping at a particular time) plus

88. Burr v. Maclay Rancho Water Co., 154 Cal. 428, 438, 98 P. 260 (1908).
89. City of Pasadena v. City of Alhambra, 33 Cal. 2d 908, 929 207 P.2d 17 (1949).
90. *Id.* at 924, 932, 207 P.2d at 33, 39.
91. *E.g.*, California Water Serv. Co. v. Sidebotham, 224 Cal. App. 2d 715, 723, 37 Cal. Rptr. 1 (1964).
92. Wright v. Goleta Water Dist., 174 Cal. App. 3d 74, 89, 219 Cal. Rptr. 746 (1985).
93. Krieger & Banks, *supra* note 12, at 57.
94. Hutchins *supra* note 87, at 436.
95. CAL. DEP'T OF WATER RESOURCES, Bull. 118, California's Ground Water, 124 (1975).

the public costs (the future increase in the cost of pumping throughout the basin).[96] The model results indicated that: "in certain cases a degree of overdraft is socially optimal."[97] The model can also predict the extent of overdraft under various water supply assumptions.[98]

Safe yield is only one factor that the courts should consider in establishing pumping rates in future adjudications. It may be economically desirable to exceed safe yield for a time. Since the tools are available, the courts should consider the optimal level at which a basin should be stabilized. Where there is a large amount of groundwater in storage and little recharge, groundwater mining may be justified.[99] Lowering groundwater levels may have consequences other than increased pumping costs such as sea water intrusion, contamination from connate or other poor quality subsurface water, and subsidence. A result of subsidence may be the compacting of the aquifer and the permanent loss of storage capacity.[100] The courts should consider all of these factors.

San Fernando made some progress in liberalizing the definition of safe yield. It allowed water to be pumped which it termed "temporary surplus" to make storage space available so that water would not be wasted in wet years.[101] Since safe yield is such a well established concept, progress might best be made by redefining it more liberally. One suitable definition of safe yield that has been proposed is: "The maximum quantity of water that can be continuously withdrawn from a groundwater basin without adverse effect."[102]

Ability of Public Agencies to Engage in Groundwater Banking

While judicial precedents and statutes support the right of public agencies to undertake imported groundwater banking projects, it must be asked whether these precedents are sufficient, given the

96. Cal. Dep't of Water Resources, Bull. 214, The Hydrologic-Economic Model of the San Joaquin Valley, XIX-XXVI (1982).

97. *Id.* at 135-36.

98. Cal. Dep't of Water Resources, Groundwater Studies, San Joaquin Valley, Third Progress Report 93-95 (1985).

99. Trelease, *supra* note 17, at 870.

100. *Id.* at 872. 5200 square miles of the San Joaquin Valley have subsided to a maximum of 28 feet. Cal. Dep't of Water Resources, Bull. 118, California's Ground Water, 65 (1975).

101. City of Los Angeles v. City of San Fernando, 14 Cal. 3d 199, 280, 537 P.2d 1250, 1309, 123 Cal. Rptr. 1, 60 (1975).

102. Cal. Dep't of Water Resources, Bull. 118-80 Groundwater Basins in California: A Report to the Legislature in Response to Water Code Section 11924, 60 (1980) [hereinafter Bull. 118-80].

substantial investment[103] and the risks involved. Before addressing this issue, however, it is appropriate to review the sources of authority of public agencies.

Groundwater reservoirs have a number of advantages as compared with their counterparts on the surface. They reduce the dislocation of existing land uses, avoid evaporation losses and provide a distribution system to some or all of the land. Where the imported water has been brought in by aqueduct, the stored water in the underground reservoir provides a reserve against failure of the aqueduct. Such projects can provide benefits to local users by reducing the overdraft and decreasing pump-lifts while water is stored in the basin. Where recharge is carried out by an in lieu procedure (Water is delivered on the surface in exchange for water that is not pumped) there is a net energy saving. Further, the costs of construction and operation are much less for a ground water reservoir than for a surface reservoir.[104]

In *City of Los Angeles v. City of Glendale*[105] the court emphasized the cost-savings aspect in upholding the right of Los Angeles to use the San Fernando Valley for imported groundwater banking. It relied on Civil Code section 1413[106] and the reasoning in the cases that prompted enactment of section 1413 (now Water Code section 7075). This Statute provided that a natural channel could be used as a conduit as long as the vested rights to the native water were not impaired. The court said:

> Plaintiff had a prior right to the use of the water brought to the San Fernando Valley. It did not abandon that right when it spread the water for the purpose of economical transportation and storage. It used a similar storage system at the source of this supply in the Owens River Valley. By availing itself of these natural reservoirs, it spared its citizens the cost of financing the construction of additional dams, if, indeed, appropriate sites were available at the lower end of the aqueduct. Early in the history of the state, this court recognized the advantage of permitting the use of natural surface facilities, stream beds, dry canyons and the like, for the transportation of water (citations omitted) for 'It would be a harsh rule. . . to require those engaged in these enterprises to construct an actual ditch along the whole route through which the waters

103. In the case of the Kern Water Bank, the investment is $78 million.

104. Robie & Donavan, *Water Management of the Future: The Groundwater Storage Program in the California State Water Project*, 11 PAC. L.J. 41, 44-45 (1979).

105. 23 Cal. 2d 68, 142 P.2d 289 (1943).

106. CAL. WATER CODE § 7075 (West 1972).

> were carried, and to refuse them the economy that nature occasionally afforded in the shape of a dry ravine, gulch, or canyon.' (*Hoffman v. Stone*, 7 Cal. at 49.) The rule of these cases was incorporated into section 1413 of the Civil Code. In codifying this rule, designed to encourage the use of natural facilities, the Legislature could hardly have intended to abrogate the right to use other natural facilities for similar purposes.[107]

In *San Fernando*[108] the court reaffirmed and expanded the holding in the *Glendale* case. The most significant rulings were: 1) Los Angeles had the right to return flow from water used in the San Fernando Valley. It was not necessary to show that it had an intent to recapture the water at the time it was furnished;[109] 2) it was not necessary to trace the particular water that is put into underground storage. It is, in effect, a fungible commodity. As in the case of Water Code section 7075, the water put into storage can be accounted for and withdrawn;[110] 3) each of the agencies that imported water was given a right to an undivided share of the return flow from all of the imported water in proportion to the water it imported. In this way each was assured the fruits of its expenditures for importing the water;[111] 4) Los Angeles had the right to store imported water in the basin by artificial recharge and recapture it later;[112] 5) as a result of Civil Code section 1007, public agencies cannot lose water rights by prescription.[113]

There are three rights that are necessary for an imported groundwater banking project: the right to place water in storage, the right to protect the water while it is being stored, and the right to withdraw the water for use.[114] The *Glendale* and *San Fernando* cases sustained all three of these rights. They held that a public agency could put water into storage by artificial recharge or by return flow from users on overlying land. A public agency cannot lose the rights to the water it has stored by prescription. It can withdraw the water for use outside the basin.

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107. City of Los Angeles v. City of Glendale, 23 Cal. 2d 68, 76-77, 142 P.2d 284, 286 (1943).
108. City of Los Angeles v. City of San Fernando, 14 Cal. 3d 199, 537 P.2d 1250 (1975).
109. *Id.* at 257, 537 P.2d 1292, 123 Cal. Rptr. at 43.
110. *Id.* at 260-61, 537 P.2d at 1295, 123 Cal. Rptr. at 46.
111. *Id.* at 261-62, 537 P.2d at 1295-96, 123 Cal. Rptr. at 46-47.
112. *Id.* at 264-65, 537 P.2d at 1297-98, 123 Cal. Rptr. at 48-49.
113. *Id.* at 270-76, 537 P.2d at 1301-02, 123 Cal. Rptr. at 52-53.
114. Thorson, *Storing Water Underground: What's the Aqui-Fer?*, 57 NEB. L. REV. 581 (1978).

Niles Sand & Gravel, Co. v. Alameda County Water District[115] is especially relevant to the State Water Project. The district, a contractor for state project water, was storing imported water underground in order to replenish its groundwater basin. The high groundwater levels that resulted interfered with the company's gravel production. The district sued to prevent the company from discharging water from the gravel pits into the San Francisco Bay and the company claimed damage in inverse condemnation to its property. The court was aware that its decision would have a statewide impact. The Department of Water Resources filed an *amicus curiae* brief in support of the district and pointed out that the decision would be a precedent for the State Water Project.[116]

Niles was decided while the *San Fernando* case was pending before the supreme court. The lower court decisions had gone against Los Angeles with regard to its right to use the San Fernando Valley for imported groundwater banking. The holding in the *Glendale* case, therefore, which could have supported the district's right to store water underground, was at risk.[117] The court used two bases for its decision that were independent of the *Glendale* holding—a public servitude in favor of the district and the use of the district's police powers.

Niles held that the district was acting as trustee for the overlying landowners it served. As trustee, it exercised the correlative rights created in *Katz v. Walkinshaw*[118] that limited an overlying user to the water reasonably required for use on his land. The district had a public servitude against overlying owners to raise the groundwater level to what it would have been in a state of nature, before extractions began.

The second ground for the holding was that the district's imported groundwater banking was an exercise of the police power under the mandate of article 10, section 2 of the California Constitution requiring the maximum beneficial use of water. That section provides for implementation by the legislature. The legislative grant of authority to the district to replenish the groundwater basin was a grant of police power. The court relied on *Gin S. Chow v. Santa Barbara*,[119] which stated:

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115. 37 Cal. App. 3d 924, 112 Cal. Rptr. 846 (1974), *cert. denied*, 419 U.S. 869 (1975).
116. Gleason, *supra* note 23, at 652 n.158.
117. *Id.* at 653.
118. 141 Cal. 116, 74 P. 763 (1903).
119. 217 Cal. 673, 703, 22 P.2d 5 (1933).

> It has been long established that all property is held subject to the reasonable exercise of the police power. . . . The constitutional amendment of 1928 is an exercise of that power. This is especially true as applied to the facts of the present case, which is a controversy between the public, represented by the municipality and the water district, on the one hand, and the property owners asserting vested interests as against the exercise of the power on behalf of the public, on the other hand.

A number of authorities agree that the *Niles* and *San Fernando* cases, and presumably the *Glendale* case too, give public agencies in California the right to engage in imported groundwater banking.[120] Another commentator points out that no compensation to overlying owners is required.[121]

The *Glendale*, *San Fernando* and *Niles* cases provide impressive precedent for the operation of the Kern Water Bank. The intention to recapture the stored water would be clear from the outset, although the *San Fernando* court held that intent was not a necessary element in groundwater banking. *San Fernando* also explicitly authorized mingling of imported water with the native supply and withdrawing an equivalent quantity for subsequent use. In light of the provisions of Civil Code section 1007, the State's right to withdraw the water in storage could not be lost by prescription. Although the State proposes to acquire a substantial acreage, it would not be acting as trustee for overlying landowners. It would not, therefore, hold a public servitude of the type described in *Niles*. The legislature, however, has granted authority to the Department of Water Resources "for utilizing groundwater storage space."[122] This authority is similar to the authority of the Alameda County Water District which was held in *Niles* to be an exercise of the police power. The operation of the Kern Water Bank, therefore, would also be an exercise of the police power.

There are no cases that have examined the in lieu storage of groundwater. In lieu storage is only a small logical step beyond the storage of return flows from imported water that was sanctioned by the *Glendale* and *San Fernando* cases. It would be prudent, however, to include authority for in lieu storage of groundwater in any legislation for the Kern Water Bank.[123]

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120. Thorson, *supra* note 114, at 609; Gleason, *supra* note 23, at 652; *Comment*, *supra* note 77, at 385.
121. Robie & Donovan, *supra* note 104, at 54.
122. CAL. WATER CODE § 11258 (West 1971).
123. Gleason, *supra* note 23, at 664.

A basin could become full as a result of the storage of imported water with the result that native water would flow out of the basin which could otherwise be stored. The importer should bear the risk of such an occurrence; the imported water should be considered to be the water that was lost. This result flows from the reliance in the *Glendale* and *San Fernando* cases on the language of Water Code section 7075 and the cases that preceded it. In utilizing a groundwater basin, the importer must not impair the rights to the native water. One of these rights is to the storage of native inflows to the basin.[124] With 21 million acre-feet of vacant storage space and the continuing overdraft, it seems highly unlikely that the Kern County Basin will fill in the foreseeable future. There would be little risk of loss to the state.

The Reasonable Use of Storage Space in Ground Water Basins

Article 10, section 2 of the California Constitution establishes the principle of reasonable use for the state's water resources. It provides in part:

> It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the *water resources* of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare (emphasis added).

Existing case law suggests that vacant groundwater storage may be subject to reasonable use as prescribed by this section.

The reasonable use requirement was applied to overlying owners *vis-a-vis* appropriators much earlier than it was applied to riparian rights to surface water. *Katz v. Walkinshaw*[125] ruled that any water surplus to the reasonable needs of overlying land could be appropriated. In support of the decision, it cited the arid climate of California as compared with the much wetter climate in England.[126] When it refers to "conditions prevailing in this state," article 10, section 2 is making a similar climatic reference.

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124. Robie & Donovan, *supra* note 104, at 54-55.
125. 141 Cal. 116, 135, 74 P. 763 (1903).
126. *Id.* at 124-25, 74 P. at 770.

Five years after *Katz*, the reasonable use limitation to overlying rights was reaffirmed based on the policy of making maximum use of water resources.[127] Riparian owners were not required to make reasonable use of the water with respect to an appropriator until the adoption in 1928 of the constitutional amendment that became article 10, section 2. Prior to the amendment, a riparian could enjoin an upstream appropriation even though the riparian use was wasteful.[128] The constitutional amendment was adopted in response to this case.[129]

Article 10, section 2 does not refer to groundwater. It has been held, however, that its provisions apply to percolating water.[130] In the *San Fernando* case, the court said:

> No water right, regardless of exemption from prescription, affords entitlement to water in excess of the constitutional limitation. Each kind of water right or claimed water right against which prescription is asserted in the present case is limited in scope to the amount of water which the holder of the right reasonably requires for the beneficial uses that the right authorizes, and no such right entitles the holder to prevent others from using water not so required.[131]

Article 10, section 2 itself goes beyond requiring reasonable use of water; it "requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable."

Empty storage space in groundwater basins is one of our valuable water resources. A holding that it is subject to reasonable use and to the requirement that maximum beneficial use be made of it would be a logical extension of existing judicial decisions. The significance of having groundwater storage space included within the ambit of article 10, section 2, is that it would preclude injunctions by overlying owners against a public agency that was storing imported water.[132] Overlying owners would, of course, still have a remedy for damages. If injunctive relief is not available, the risks for a groundwater storage project would be greatly reduced.

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127. Burr v. Maclay Rancho Water Co., 154 Cal. 428, 436 98 P. 260 (1908).

128. Herminghaus v. Southern Cal. Edison Co., 200 Cal. 81, 252 P. 177 (1926).

129. Groundwater cases decided since the adoption of the constitutional amendment have continued to emphasize the importance of making maximum use of groundwater. "Public interest requires that there be the greatest number of beneficial uses which the supply can yield." City of Pasadena v. City of Alhambra, 33 Cal. 2d 908, 925 207 P.2d 17 (1949); *See also* Allen v. California Water and Tel. Co., 29 Cal. 2d 466, 488, 176 P.2d 8 (1946).

130. Joslin v. Marin Mun. Water Dist., 67 Cal. 2d 132, 138, 60 Cal. Rptr. 377, 381 (1967).

131. City of Los Angeles v. City of San Fernando, 14 Cal. 3d 199, 272, 537 P.2d 1250, 123 Cal. Rptr. 1 (1975).

132. Peabody v. City of Vallejo, 2 Cal. 2d 351, 40 P.2d 486 (1935).

Another basis for assuring uninterrupted use of groundwater storage space by a public agency is the application of the public trust doctrine to such storage space. The line of cases culminating in *National Audubon Society v. Superior Court*[133] held that streams, lakes, marshlands and tidelands were part of the "common heritage" and therefore subject to the public trust. It has been suggested that as groundwater assumes increasing importance, it could be considered part of the common heritage and therefore protected by the public trust.[134]

The Kern Water Bank contemplates storing water in the basin before any is withdrawn, and the Department has agreed to that element with the Kern County Water Agency. In imported groundwater banking however, it could be desirable to withdraw water first if a dry period comes early and replenish it during subsequent wet years. This could be the most reasonable use of the groundwater basin. It could have some adverse effects on the overlying users by increasing pump lifts and requiring the deepening of some wells. This possibility was considered at the time the California water plan was adopted.[135] It has been held that overlying owners need not incur substantial expense such as deepening wells in order to make water available for nonoverlying uses.[136] If the importer had an established program to pay for increased pumping costs or deepening of wells, the result might be different. If the importer's initial extractions are relatively small compared with the amount of water in storage and there is a high degree of assurance that the water will be replaced, the overlying owners would not be deprived of water and could be compensated fully by money payments.

The Authority of the Department of Water Resources for Imported Groundwater Banking

Since its inception, the California Water Plan has emphasized the importance of groundwater banking.[137] The plan was accepted by the Legislature as "the guide" for the orderly development of the State's

133. 33 Cal. 3d 419, 658 P.2d 709, 189 Cal. Rptr. 346 (1983).
134. Dunning, *The Mono Lake Decision: Protecting a Common Heritage Resource from Death by Diversion*, 13 ENVTL L. REP. 10144, 10150 (1983).
135. CAL. DEP'T OF WATER RESOURCES, Bull. 3, The California Water Plan, 219 (1957) [hereinafter Bull. 3].
136. Allen v. California Water & Tel. Co., 29 Cal. 2d 466, 176 P.2d 8 (1946).
137. Bull. 3, *supra* note 135, at 206.

water resources.[138] The legislative approval did not give the Department any authority—or funding—to carry out any groundwater project, but it did make the plan part of the public policy of the State.

The California Water Resources Development Bond Act,[139] which authorized the State Water Project, gave the Department of Water Resources broad authority to carry out the Act.[140] Although groundwater was not referred to in the bond act, the Act included provisions allowing the Department to add facilities to the project.[141] The Department viewed this authority as adequate to proceed with imported groundwater banking.[142] This authority seems adequate, but the provisions are sufficiently complicated that a court challenge from one opposed to a groundwater project could be expected.

The Department carried out two pilot projects in imported groundwater banking with contractors using flood waters that were available in 1978. Under a contract with the Mojave Water Agency, the Mojave River Basin was recharged with 24,000 acre-feet and under a similar contract with the San Bernardino Municipal Water District, 20,000 acre-feet were added to the Bunker Hill basins. Title to the water was later transferred to both agencies as part of their contractual entitlements.[143] Because these were pilot projects and, since they were not challenged in court, they shed no light on the authority of the Department.

The Department also studied the possibility of storing imported water from the State Water Project in the San Fernando Basin. The groundwater model used for the study assumed available vacant storage space of 320,000 acre-feet and indicated an added yield for the project of 48,000 acre-feet.[144] The study concluded that such a project was feasible under then existing law.[145] Although some negotiations with local interests took place, the project was not pursued.

The Department's authority to proceed with groundwater projects was assured by the enactment of Water Code section 11258 in 1985. It authorizes the inclusion of facilities south of the Sacramento-San

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138. CAL. WATER CODE § 10005 (West 1971).
139. *Id.* §§ 12930-12944 (West 1971).
140. *See* Metropolitan Water Dist. v. Marquardt, 59 Cal. 2d 159, 28 Cal. Rptr. 724 (1963).
141. CAL. WATER CODE § 12931 (West 1971).
142. CAL. DEP'T OF WATER RESOURCES, Bull. 186, A Ground Water Storage Program for the State Water Project: San Fernando Basin Theoretical Model, 55 (1979) [hereinafter Bull. 186].
143. Bull. 160-87, *supra* note 3, at 36.
144. Bull. 186, *supra* note 142, at 9.
145. *Id.* at 16.

Joaquin Delta "for utilization of groundwater storage space . . . for the purpose of providing yield" for the project. If the facility is located within the boundaries of one of the State's water contractors, it requires that a contract be executed before construction begins. The memorandum of understanding that the Department has entered into with the Kern County Water Agency provides for such an agreement before construction of the Kern Water Bank.[146] From a practical point of view, a contract with the county water agency would be necessary even in the absence of the requirement in section 11258.

Minimizing the Risks

The court decisions and statutes provide the Department with a high degree of assurance that it has authority to proceed with the Kern Water Bank. There is, of course, no single definitive ruling giving the Department the necessary authority. If the project were challenged in court, it could be delayed for several years pursuant to a preliminary injunction. If the operation of the Kern Water Bank were enjoined after the acquisition of land and the construction of facilities, interest would accrue. The State's water contractors would have to pay the interest since they will be required to pay all of the costs of the Kern Water Bank. Prudence dictates following any course that would significantly reduce the risk of delay or failure.

Purchasing Overlying Land

The Department proposes to purchase 24,000 acres of overlying land, while only 1,600 acres would be needed for transportation recharge and extraction facilities. The balance of the land will be withdrawn from cultivation and used as a buffer to prevent fluctuations in wells of adjacent landowners. The elimination of pumping for irrigation will benefit local landowners by reducing the overdraft in the Kern County Basin.[147] Of the estimated $78 million cost of the Kern Water Bank, $40 million would be spent on land acquisition and relocation of roads and utilities.

The need for a large buffer area has not been documented. Case law does not suggest that it is necessary to acquire overlying land to

146. *Memorandum of Understanding*, *supra* note 19.

147. Cal. Dep't of Water Resources, Kern River Fan Element, Kern Water Bank, Preliminary Technical Report 5 (1987).

engage in imported groundwater banking. One authority points out that the *San Fernando* decision indicates it is not necessary to have overlying water service jurisdiction to operate a groundwater bank.[148] There does not seem to be any legal necessity for buying such a large acreage. It may be justified, however, from a policy or public relations viewpoint. The legislature, by a non-binding resolution, has requested the department to proceed with implementation of the Kern Water Bank and to proceed with the acquisition of the land.[149]

General Legislation

One method of risk reduction is to obtain additional legislative authority. California is unusual among the western states in its reluctance to adopt groundwater legislation. Nearly all of the other states in the west have adopted statutory systems for the appropriation of groundwater.[150] The history of legislative efforts in California reveals a pattern of successful local legislation and very little progress in enacting legislation to establish statewide controls of groundwater.

Water leaders have been advocating legislation to provide for state management of groundwater basins since the beginning of the twentieth century.[151] The California Conservation Commission that formulated the Water Commission Act of 1913, establishing the permit and license system for surface waters, recommended similar treatment for groundwater. It felt, however, that the undertaking was "so vast" that the available time and money were inadequate to do the job.[152] In 1917 and 1923, bills were unsuccessful in the legislature that would have brought groundwater under state regulation.[153] Thirty years later, efforts to bring groundwater under state control came to life as water planners crafted the California Water Plan. They laid out an ambitious program that included a constitutional amendment to authorize imported groundwater banking, a permit and license

148. "It appears to require only physical access, rather than an overlying water service jurisdiction. Indeed, the underlying concept of the Water Code section 7075 right is the use of natural facilities that lie outside the users' jurisdiction." Gleason, *supra* note 23, at 647.

149. ASSEMBLY CON. RES. 80, 1987 Cal. Stat. ch. 131.

150. Trelease, *supra* note 17, at 865 n.5-6.

151. Rossmann & Steel, *Forging the New Water Law: Public Regulation of Proprietary Ground Water Rights*, 33 HASTINGS L.J. 903, 926 n.132 (1982); Comment, *Ground Water: A Call for a Comprehensive Management Program*, 14 PAC. L.J. 1279, 1281 (1983).

152. Robie & Donovan, *supra* note 104, at 51. Perhaps the California Conservation Commission was being less than candid. Its excuse sounds bureaucratic for it is not significantly more complicated to draft a law for the appropriation of groundwater than its surface water equivalent.

153. Holsinger, *supra* note 25, at 381.

system for the appropriation of groundwater under State administrative control, recordation of groundwater use, and improvements in the administrative procedure for adjudicating surface water rights and its extension to groundwater basins.[154] Almost identical recommendations were contained in the California Water Plan itself.[155] In addition, it asserted:

> . . . effective administration of the development and utilization of groundwater resources, either by the State or by local agencies, or by both, will become mandatory as the state of full water development is approached. When it becomes necessary to operate the major groundwater basins for import-export purposes, as envisioned under the California Water Plan, the requisite authority to do so must exist.[156]

The State Water Rights Board, predecessor of the State Water Resources Control Board, was the next to take up the cudgels for state control of groundwater, by recommending the establishment of a permit and license system for its appropriation.[157]

Although the legislature adopted the California Water Plan, it was highly unreceptive to the proposals for increased state control over groundwater.[158] Even a 1961 bill to facilitate court adjudication of groundwater basins met with staunch opposition and failed to win legislative approval.[159]

The most recent effort to bring some order into California's chaotic groundwater law was produced in 1978 by a blue ribbon commission to review California water rights law appointed by the governor. The commission proposed a number of changes in the law of surface water rights, but its proposals for changes in groundwater law were the most comprehensive. It recognized the prevailing sentiments favoring local control of groundwater. The legislation it recommended focused on critically overdrafted basins. It gave local agencies primary responsibility for dealing with groundwater problems and assigned the state a back-up role in case the local agency failed to adequately

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154. *Id.* Henry Holsinger was the principal attorney of the Division of Water Resources, predecessor of the Department of Water Resources and later chairman of the State Water Rights Board. Only the recordation act has been adopted for four southern California counties.

155. Bull. 3, *supra* note 135, at 219-21.

156. *Id.* at 221.

157. Krieger & Banks, *supra* note 12, at 68.

158. REPORT OF THE ASSEMBLY INTERIM COMM. ON WATER, CALIFORNIA LEGISLATURE, GROUND WATER PROBLEMS IN CALIFORNIA, 47-48 (Volume 26, Assembly Int. Com. Reps., No. 4, 12/62) [hereinafter REPORT OF THE ASSEMBLY INTERIM COMM.ON WATER].

159. Krieger & Banks, *supra* note 12, at 67-68.

deal with the problems.[160] Although nearly all of the recommendations for improvement in surface water law found their way into the water code, none of the groundwater proposals has been enacted. Nine bills were introduced to implement the program in the three years following the commission's report but all of them failed. The bills were opposed by a large part of the water community: the Farm Bureau, the Cattlemen's Association, the Chamber of Commerce, the Association of California Water Agencies and the Los Angeles Times.[161] One study claimed, however, that it was primarily San Joaquin Valley Agriculture that blocked the Water Rights Commission legislation.[162]

Despite serious overdraft and water quality problems in a number of basins, the opposition to state control of groundwater—or even to increased state participation in management is indeed widespread.[163] One commentator assigned the following five reasons as to why farmers are opposed to management of groundwater basins: (1) where there is no overdraft, they feel that regulation is unnecessary; (2) the full costs of continued overdraft are hidden; (3) they are afraid that they will lose control of the groundwater basin and that they risk losing their water supply to urban areas; (4) they fear that regulation could involve cutbacks in groundwater pumping for irrigation; (5) they believe that there will be imported surface supplies before pumping becomes unprofitable.[164] Former Senator John Nejedly characterized the reasons for opposition as "short-term personal greed, distrust of [their] neighboring county, or paranoia over any form of state oversight."[165] The San Joaquin Valley Agricultural Water Commission was formed to prevent intrusion by the state in groundwater management in that area. The Commission's report argued that local management of groundwater was adequate and that the only way to eliminate overdraft in the San Joaquin Valley is to take large acreage out of irrigation or to bring in imported water supplies.[166]

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160. GOVERNOR'S COMMISSION TO REVIEW CALIFORNIA WATER RIGHTS LAW, FINAL REPORT, 168 (1978); *See* Comment, *supra* note 151, at 1279.
161. Smith, *supra* note 5, at 247.
162. Andrews & Fairfax, *Ground Water and Intergovernmental Relations in the Southern San Joaquin Valley of California: What Are All These Cooks Doing to the Broth*, 55 U. COLO. L. REV. 149, 233 (1984).
163. Comment, *supra* note 77, at 398.
164. Smith, *supra* note 7, at 251.
165. Comment, *supra* note 77, at 398.
166. Andrews & Fairfax, *supra* note 162, at 232.

Importing water has certainly been the solution to groundwater problems in a number of areas. The imported supplies of the Metropolitan Water District of Southern California, the Federal Central Valley Project and the State Water Project have alleviated groundwater overdrafts in the areas they serve. As one authority described California's solution to water problems: "if you have a water problem, pour water on it and it will go away."[167] There are two problems, however, with the supplemental water approach. First, all three of the import projects afford some degree of subsidy to the water users, and the Federal Central Valley Project provides a large subsidy to agricultural users. Do the benefits of keeping farmland in production equal the amount of the subsidy? This question is especially cogent where the water is furnished for many crops that are in surplus. Second, the state and federal projects being considered for construction in the near future will not provide two million acre-feet of firm yield needed to eliminate the overdraft and much of what is provided will not go to alleviate overdraft.

Despite the longstanding opposition, some statewide legislation bearing on groundwater management has been enacted. Water Code sections 104 and 105 are often cited as important pronouncements on groundwater.[168] These general policy statements have little or no substantive value. A similar section[169] was held to apply only to water appurtenant to land owned by the State.[170] The general statements in the Porter-Dolwig Groundwater Basin Protection Act are in the same category. They have little or no substantive value except perhaps for an amicus curiae brief.[171] For example, the declaration of legislative intent that the Department carry on planning and design studies of groundwater programs in cooperation with the local agencies when money is appropriated adds nothing to the Department's authority.[172]

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167. Trelease, *supra* note 17, at 865.

168. CAL. WATER CODE § 104 (West 1971). "It is hereby declared that the people of the State have a paramount interest in the use of all water of the State and that the State shall determine what water of the State, surface and underground, can be converted to public use or controlled for public protection." *Id. See also id.* § 105 (West 1971).

Id. See also id. § 105 (West 1971).

> It is hereby declared that the protection of the public interest in the development of the water resources of the State is of vital concern to the people of the State and that the State shall determine in what way the water of the State, both surface and underground, should be developed for the greatest public benefit.

Id.

169. CAL. CIV. CODE § 1410 (1911).

170. City of San Bernardino v. City of Riverside, 186 Cal. 7, 29-30, 198 P. 784 (1921).

171. CAL. WATER CODE §§ 12920-12924.1 (West 1971).

172. *Id.* § 12923.

The statement in section 12922 that the people have a primary interest in preventing damage to groundwater basins due to overdraft and seawater intrusion can be contrasted with the legislature's failure to do much about either. One substantive provision[173] authorized the study of critical overdraft in California groundwater basins and resulted in the report that identified 11 such basins, eight of them in the San Joaquin Valley.[174]

There are, however, some statewide groundwater laws of substance on the books. The storage of water underground is declared to be a beneficial use if it will later be withdrawn and put to a beneficial use.[175] It is possible, therefore, to appropriate surface water for storage underground. The Department of Water Resources is authorized to construct and operate groundwater facilities south of the delta as part of the State Water Project with the agreement of the State Water Contractor that serves the area.[176] This provision specifically authorizes imported groundwater banking. The Department also administers a loan program for the construction of artificial recharge facilities by local agencies.[177] The loans, which cannot exceed $5 million for a project, are financed by bond funds and carry a subsidized interest rate.

In every county except San Luis Obispo, a groundwater user can switch to a supply from outside the basin and receive credit for using groundwater.[178] This law was enacted as a response to *City of Pasadena v. City of Alhambra*[179] and was designed to avoid the "race to the pumphouse." If a statement of use is filed with the State Water Resources Control Board, the user will be in as good a position in a future adjudication proceeding as if he were using groundwater. These provisions are not utilized much—only about 75 to 80 reports of use are filed each year with the Board.[180]

After receiving a report from the Department of Water Resources, the State Water Resources Control Board can file an action to protect a groundwater basin from irreparable injury. To date, the board has

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173. *Id.* § 12924.
174. Bull. 118-80, *supra* note 102.
175. CAL. WATER CODE § 1242 (West 1971).
176. *Id.* § 11258.
177. *Id.* §§ 12925-12928.6.
178. *Id.* §§ 1005.1-1005.4.
179. 33 Cal. 2d 908, 207 P.2d 17 (1949).
180. Interview with Koso Nodohara, Engineer, State Water Resources Control Board (March 24, 1988).

not utilized this 1969 Act.[181] However, consideration is being given to filing such an action in the San Gabriel Basin which has been heavily damaged by pollution of toxic chemicals.

The staunch opposition to statewide groundwater legislation has kept such legislation from being a significant tool in groundwater management. The authority of the Department of Water Resources for imported groundwater banking, in addition to the availability of loans for artificial recharge of groundwater basins, should improve this situation. Local legislation, on the other hand, has been quite successful in solving groundwater management problems.

Local Legislation

The most famous piece of local legislation in this field is the Orange County Water District Act.[182] It gives the Orange County Water District all of the powers needed to manage its groundwater basin.[183] It was the first district in the State to use a pump tax, termed a replenishment assessment,[184] a per acre-foot charge on water pumped. Proceeds are used to purchase water from the Metropolitan Water District of Southern California and for activities relating to the replenishment of the basin.[185] The validity of the pump tax was upheld in *Orange County Water District v. Farnsworth.*[186] The district also levies a basin equity assessment[187] to equalize the cost of pumped water and imported surface supplies, and an ad valorem tax on all property.[188]

The program of the Orange County Water District has been spectacularly successful. In 1956, three years after enactment of the pump tax provisions, water levels in the district were at or below sea level. By 1984, the basin was full. From 1949 to 1978 the district's purchases from the Metropolitan Water District of Southern California averaged about 76,000 acre-feet per year. From 1955 to 1982, water preduction rose from 148,000 acre feet to 244,000 acre-feet annually.[189] A wetter climatic cycle accounts for some of the im-

181. CAL. WATER CODE § 2100 (West 1971).
182. CAL. WATER CODE APP. §§ 40-1-40-78 (West 1968).
183. *Id.* § 40-2(6). *See generally* Schneider, *supra* note 64, at 43-49.
184. CAL. WATER CODE APP. §§ 40-27, 40-28.1 (West 1968 & Supp. 1988).
185. *Id.* § 40-23.
186. 138 Cal. App. 2d 548, 292 P.2d 927 (1956).
187. CAL. WATER CODE APP. § 40-31.5 (West 1968).
188. *Id.* § 40-18.
189. Smith, *supra* note 7, at 823-24.

provement. Although water rights have not been adjudicated, the district has managed the groundwater basin by manipulating the cost of water. The cost of imported water slightly exceeded the cost of pumping even with the basin equity adjustment.[190] But the advantages in surface supplies were apparently sufficient to bring about substantial pumping reductions. Reduced pumping plus artificial recharge by the district brought about the recovery in water levels in the basin.

The Water Replenishment District Act[191] applies in seven Southern California counties. Only one district, however, has been formed: the Central and West Basin Water Replenishment District. The act gives the district powers similar to those of the Orange County Water District. The district levies a pump tax, purchases imported water and equalizes the cost of surface and underground supplies.[192] It has been able to manage the basin successfully with these tools.

Many districts throughout the State followed the lead of the Orange County Water District and obtained authority to levy a pump tax. Many also have other powers that allow partial or complete management of the basin. A significant problem arises where there is no district with adequate powers that has the same boundaries as a groundwater basin.

The Kern County Water Agency has pump tax authority which can be exercised only after a favorable vote of its constituents.[193] The pump tax has been implemented only in the City of Bakersfield. The agency has other authority that would allow it to manage the basin, but it has proceeded in a cautious, conservative manner.[194]

The Fox Canyon Groundwater Agency is a recent addition to the ranks of groundwater basin management organizations.[195] Its mission is to deal with seawater intrusion in the Oxnard-Point Mugu area. It has authority for a pump tax of up to $.50 an acre-foot. Its other powers for basin management include the regulation of well spacing.[196]

The experience of the Mendocino City Community Services District in obtaining groundwater management authority is instructive. It

190. *Id.* at 833.
191. CAL. WATER CODE §§ 60000-65011 (West Supp. 1988).
192. Trelease, *Conjunctive Use of Ground Water and Surface Water*, 27 ROCK MTN. MIN. L. INST. 1853, 1887 (1982).
193. CAL. WATER CODE APP. §§ 99-14.3, 14.20 (West 1968 & Supp. 1988).
194. Andrews & Fairfax, *supra* note 162, at 224-29.
195. CAL. WATER CODE APP. § 121-102 (West Supp. 1988).
196. *Id.* § 121-701 (West Supp. 1988).

faced a critical groundwater overdraft in a very small basin. It arranged to be included in Assembly Bill 792 that was considered by the 1985 and 1986 sessions of the California Legislature. That bill would have allowed districts within the 11 critically overdrafted basins identified by the Department of Water Resources[197] to utilize the powers of water replenishment districts. The bill was entirely permissive. The bill passed even though it was opposed by Kings County and Tulare County farmers. It was, however, vetoed by the governor. In the next session of the legislature, the Mendocino District easily obtained passage of a bill giving it groundwater management authority including a pump tax after voter approval, but the bill was applicable only to the Mendicino District.[198] This history is a striking example of the failure of mild statewide legislation and the success of local legislation attuned to local needs.

Two State laws and four county ordinances that purport to be vehicles for groundwater management were enacted almost entirely to prevent the export of groundwater. One measure prohibits export of water from the Salinas Groundwater Basin and provides for limited steps to prevent seawater intrusion.[199] The second law applies to groundwater basins in Sierra and Long Valleys in Plumas and Sierra Counties. Export of groundwater can be prohibited when there is threatened or actual overdraft of the basins. There is also some authority for groundwater management.[200] Sierra and Long Valleys are near the Nevada border. The law was prompted by fears that major pumping on the Nevada side of the border would deplete the basins.[201]

The four counties that have adopted groundwater ordinances are Imperial, Butte, Glen and Inyo. The Imperial County ordinance was designed to prevent export of groundwater to Mexico.[202] The Butte and Glen County ordinances are almost identical. Their enactment took place only days apart at the height of the 1977 drought.[203] Both require that permits be obtained, after hearing, for export of groundwater from the basin. The ordinances seem to make obtaining such

197. Bull. 118-80, *supra* note 102.
198. 1987 Cal. Stat. ch. 472, sec. 1, at 320.
199. CAL. WATER CODE APP. § 52-1 (West Supp. 1988).
200. 1980 Cal. Stat. ch. 449, at 940 (amended by 1980 Cal. Stat. ch. 986, at 3126).
201. For a discussion of this law, see address by Gary G. Fry, Proceedings 13th Bi-Annual Conference on Groundwater, 12 (1981). Mr. Fry was Assistant County Counsel for Plumas County.
202. Imperial County, Cal., Ordinance 56200.
203. Butte County Code Chapter 31 (1977); Glen County Code title 29 (1977).

a permit unlikely. The Inyo County ordinance[204] contains elaborate due process procedures for obtaining a permit to pump groundwater, but it was unquestionably designed to limit or prevent export of groundwater by the City of Los Angeles through the Los Angeles Aqueduct. The city challenged the ordinance in superior court, but an agreement was reached between the city and Inyo County suspending the legal proceedings before a judgment adverse to the county was entered.[205]

The constitutionality of these statutes and ordinances under California law is questionable. They may conflict with the requirements of article 10, section 2 of the California Constitution requiring that water be put to reasonable use to the maximum extent of which it is capable. Reasonable use, however, is determined by the facts of each case,[206] so a decision will have to await county action on a requested permit. In the case of Sierra and Long Valleys, the law may run afoul of the interstate commerce clause.[207] It might be argued that the state had preempted the field and therefore precluded county action. The paucity of statewide legislation however strongly negates preemption.

Two other laws of limited application should be mentioned. Water Code sections 4999-5008 originally required the recordation of extractions in five Southern California counties, but Santa Barbara County was later eliminated. A notice must be filed with the State Water Resources Control Board for an annual extraction of more than 25 acre-feet. A prescriptive right will not accrue in favor of a pumper unless the notice is filed. The board will investigate the amount of the pumping declared in the notice at the user's expense and the determination of the board can be used as evidence in a court proceeding. Currently about 3,500 pumpers are making annual reports. The information reported is included in a computerized data base which is used from time to time by consulting engineers.[208]

An additional source of authority over groundwater is Water Code section 2020 which applies to four Southern California coastal counties. It authorizes the State Water Resources Control Board to seek

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204. Inyo County Code §§ 701- *et seq.* (1980).

205. *See* Rossmann & Steel, *supra* note 151, at 929 (discussion of Inyo County ordinance).

206. Joslin v. Marin Mun. Water Dist., 67 Cal. 2d 132, 60 Cal. Rptr. 377 (1967).

207. *See* Sporhase v. Nebraska, 458 U.S. 941 (1982); *see also* Kramer, *Lake Tahoe, The Truckee River and Pyramid Lake: The Past, Present, and Future of Interstate Water Issues*, 19 PAC. L.J. 1339 (1988).

208. Interview with Koso Nodohara, Engineer, State Water Resources Control Board (March 24, 1988).

a preliminary injunction where pumping is causing irreparable injury to a groundwater basin due to seawater intrusion. This provision has not yet been utilized by the State.

CONCLUSION

The problem that the Department of Water Resources faces in implementing the Kern Water Bank is determining how to minimize the risk to its investment of $78 million from lawsuits that might stop or delay the project for years. Particularly worrisome is the prospect that landowners who fear or oppose the project, or just oppose state activity in the groundwater field, might obtain a preliminary injunction. There are good legal precedents to support the project. The *Glendale*, *San Fernando* and *Niles* cases provide authority for the proposition that public agencies have the right to carry out imported groundwater banking. Water Code section 11258 gives the Department specific authority for these activities. Nevertheless, there is no specific holding that this particular project is authorized.

Adjudicating all of the rights to groundwater in the Kern County Basin would be one way of assuring that vested rights would not be impaired by operation of the water bank, but because the need for the project is much too urgent to wait for the many years that would be required, the Department has agreed with the Kern County Water Agency not to institute an adjudication.

Another option is to spell out the rights of the landowners and the State in an agreement. The law already requires an agreement between the Department and the Kern County Water Agency[209] and the Memorandum of Understanding between the two agencies provides that the agreement will be executed before the project proceeds. Although the agreement will eliminate any threat from the Kern County Water Agency, it cannot prevent a legal challenge from the landowners. The agency has no authority to bind its landowners with respect to their rights to the groundwater basin. The Kern County Water Agency Act provides: "Neither the formation of the agency nor this act shall impair the vested right of any person, association, corporation, municipality or public district in or to any water or the use thereof."[210] An agreement with the agency, therefore, cannot

209. CAL. WATER CODE § 11258 (West Supp. 1988).
210. CAL. WATER CODE APP. § 99-24 (West 1968).

protect against a landowner lawsuit, although it no doubt would reduce the risk.

Additional legislative authorization offers another avenue for minimizing the risk. Legislation to provide detailed authorization for imported groundwater banking has been recommended by the State since the period of gestation of the California Water Plan. In 1975, the department concluded: "However, it may still be prudent to seek specific legislative authority before proceeding with any major program for use of ground water basins in conjunction with imported surface supplies from the State Water Project or any other major surface water project."[211]

Others have reached the same conclusion.[212] Although the opposition to groundwater legislation has been formidable, the conventional wisdom has been that legislation addressing one issue at a time is doomed to failure in solving the State's groundwater problems.[213] But history has demonstrated quite the contrary. Time after time efforts to install an administrative permit and licensing system or to spell out authority for imported groundwater banking have failed. A series of measures addressing particular problems in particular areas however, have been very successful. Although it was greeted with skepticism by many at the time, the report of the Assembly Interim Committee on Water addressed the political realities when it said: "In general, the committee has found no clear need for major statewide legislation at this time, but finds instead there will be a continuing need for adjustment of statutes and correction of problems as experience indicates and specific difficulties can be defined and resolved."[214]

Acceptance of the unlikelihood of passage of general legislation and consideration of the feasibility of developing additional legislation to deal with particular problems could expedite solutions to the many serious overdraft and water quality situations.

Legislation tailored to the needs of the Kern Water Bank could minimize the risks and have an excellent chance of passage. It would have to be the result of negotiations between the State and the agencies and waterusers of the Kern County Basin. It could address some or all of the following areas.

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211. CAL. DEPT. OF WATER RESOURCES, Bull. 118, *supra* note 3 at 126.
212. Trelease, *supra* note 192, at 1883-84.
213. *See* Robie & Donovan, *supra* note 104.
214. REPORT OF THE ASSEMBLY INTERIM COMM. ON WATER, *supra* note 158, at 48.

An injunction of construction or operation of the Kern Water Bank should be precluded. Any infringement of water rights should be compensated by a substitute supply of water or money damages. Because legal theories of damages in groundwater cases are fuzzy,[215] procedures and remedies should be made specific.

Civil Code section 1007 precludes prescription by private landowners against public agencies but allows public agencies to acquire prescriptive rights against private overlying and appropriative users. Landowners in the Kern County Basin may feel that they need protection against loss of water rights by prescription.

Since the rights of the users of the native groundwater will not be quantified, the Department will have to keep track of the quantity of water it puts in storage and make adjustment for losses. It could be specified that the department has the right to withdraw this quantity for the project. The courts have not dealt with the process of in lieu storage of groundwater. It would be prudent to authorize this procedure for the Kern Water Bank.

The Kern Water Bank is a bold undertaking. The Bank's relatively low cost and minimal environmental impact make it attractive. It will be breaking new legal ground, but there seems to be no obstacles that cannot be overcome.

215. Thorson, *supra* note 114, at 626-28.