District Management for California's Groundwater

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INTRODUCTION

Groundwater is an invaluable natural resource in California, supplying about 40 percent of the state’s water needs each year. According to the state’s Department of Water Resources (DWR), it is “the most important single resource contributing to the present development of the State’s economy.” Yet despite its importance, California’s groundwater is poorly managed. Efforts toward successful groundwater management have been hindered by several factors. Most importantly, political obstacles have blocked the implementation of an effective administrative groundwater management scheme. Consequently, groundwater management, where it exists, is a product of ad hoc basin-by-basin judicial allocations. Private lawsuits, brought by pumpers, are typically used to initiate these judicial allocations. Pumpers often fail to undertake legal action until their basins are overdrafted, however. Serious environmental consequences may result from such overdraft, including land subsidence, saltwater intrusion into basins, the drying-up of wells, and the death of vegetation that draws its water supply directly from groundwater. Furthermore, litigation, once commenced, fails to alleviate

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1. The term groundwater refers to percolating subsurface waters in the zone of saturation, but not to subsurface waters in underwater streams which flow in known and defined channels. Underground streams are governed by the law of surface streams. Cal. Water Code §§ 2500-2866 (Deering 1977).


3. Id.

4. The physical characteristics of groundwater itself present another important obstacle to management. However, the difficult problems of identifying basins, defining their boundaries, and understanding the interrelationship of surface geology and basin hydrology are currently being tackled by the DWR. See California Dep’t of Water Resources, Bull. No. 118-80, Ground Water Basins in California (1980) [hereinafter cited as DWR Bulletin 118-80].

5. Overdraft, as defined by the DWR, is “the temporary condition of a groundwater basin where the amount of water withdrawn by pumping exceeds the amount of water replenishing the basin over a period of time.” DWR Bulletin 118, supra note 2, at 4.
overdraft promptly,\textsuperscript{6} is time consuming, expensive, and may not bind all pumpers.\textsuperscript{7} Litigation is also an inefficient means of acquiring the groundwater geology and hydrology information which is necessary for proper management.\textsuperscript{8}

Despite the shortcomings of local allocation litigation, the California legislature has to date failed to develop a better legal or administrative allocation system. The legislature has enacted an elaborate statutory scheme to determine riparian rights\textsuperscript{9} and manage surface waters and known underground stream systems, but groundwater rights were deliberately excluded from this statutory permit and adjudication process.\textsuperscript{10}

Nonetheless, the courts have looked to these statutory riparian rights while attempting to develop groundwater law. Yet, the analogy between surface water and groundwater is far from perfect. For example, surface flows are easily identifiable and quantifiable, while the boundaries of underground basins are difficult to define and the amount of water in them is often unknown. Moreover, overuse is not immediately evident in a groundwater basin, as it is in an overdrafted surface stream. In fact, pumpers are often not aware that their basins are overdrafted until serious environmental damage has occurred.

The local litigation approach, and the resulting lack of comprehensive statewide planning and management of groundwater resources, also exacerbates California's other water problems. Because parts of the state experience surplus in most years, while other parts suffer water shortages, huge amounts of water are transferred across the state. And since some local water districts receive inexpensive water, they are able to deliver water to their constituents at artificially low prices, providing little incentive to conserve.\textsuperscript{11} These water transfers and uneven water

\begin{footnotes}
\item[6] An injunction may be obtained immediately, but usually limits pumping to current levels, thus continuing the condition leading to overdraft.
\item[7] Identification and notification of the proper parties is often difficult as the number of pumpers in a basin may reach into the thousands. Without proper notification, a pumper will not be bound by any court ordered or stipulated judgment, thereby frustrating the delicate balance struck in these allocations.
\item[8] Gathering of geological and hydrological information and presenting expert witnesses at trial is expensive and time-consuming. Requiring judges to sift through and understand this type of technical data is an inefficient use of judicial resources because allocation orders are issued basin by basin.
\item[9] Riparian rights are the "rights of the owners of lands on the banks of watercourses, relating to the water, its use, ownership of soil under the stream, accretions, etc." \textsc{Black's Law Dictionary} 1992 (5th ed. 1979). Riparian rights apply only to surface water; a landowner's rights to groundwater are termed "overlying rights." See infra note 20.
\end{footnotes}
prices have heightened regional tensions; northern Californians resent the shipment of northern water to areas that appear to inadequately manage existing water supplies.

This Comment recommends the creation of a statewide program of local groundwater management authorities to regulate California groundwater. Such a solution was urged by the 1978 Report of the Governor’s Commission to Review Water Rights Law, but has not been enacted by the Legislature. Part I discusses the development and current status of groundwater law. Part II analyzes the options available for managing groundwater resources. Part III argues for the adoption of the proposals of the Governor’s Commission to Review Water Rights Law, while Part IV concludes by rebutting the objections that have been raised against the Commission’s proposals.

I

HISTORY AND DEVELOPMENT OF GROUNDWATER RIGHTS LAW

A. Riparian Analogies and Correlative Rights

Until 1903 California courts allocated groundwater resources according to the English common law. Percolating waters were deemed the property of the overlying landowner. As the absolute owner, a landowner was free to withdraw water and put it to any use, without restraint. The English rule, fashioned in a country in which water is plentiful, soon proved unsuitable to California, where water is often scarce. Thus, in Katz v. Walkinshaw, the California Supreme Court in 1903 rejected the common law regime and began applying riparian principles to groundwater.

Katz established the doctrine of “correlative rights,” governed by a rule of reasonable use. The doctrine entitles overlying owners to only as much water “as may be necessary for some useful purpose in

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12. The first English case establishing groundwater rights was Acton v. Blundell, 12 Mees. & W. 324, 152 Eng. Rep. 1223, Ex. Chqr. (1843). The court there applied the maxim “cujus est solum, ejus est usque ad infernos.” (The owner of... land owns everything... below it to an indefinite extent. BLACK’S LAW DICTIONARY 341 (5th ed. 1979)).
14. 141 Cal. 116, 74 P. 766 (1903).
15. Then, as now, there was no statutory framework for groundwater. See id. at 134-135, 74 P. at 772.
16. Id. at 136, 74 P. at 772.
17. Id. at 134, 74 P. at 771-72.
connection with the land from which it is taken."\textsuperscript{18} Where supplies are insufficient to meet the demands of several overlying owners, disputes "are to be settled by giving each a fair and just proportion."\textsuperscript{19} The facts of Katz, however, required the court to allocate an insufficient supply among an overlying owner and an appropriator.\textsuperscript{20} The court consequently held that an overlying owner's groundwater rights are paramount to those of an appropriator, but only to the extent of "the quantity of water that is necessary for use on his land."\textsuperscript{21} Appropria-
tors were entitled to take any unused water.\textsuperscript{22} Thus, an injunction to prevent an appropriative use would issue only where an appropriator took more than surplus water.\textsuperscript{23} This new rule laid the foundation for most of the controversies surrounding groundwater management in later years.

After five years of adversely pumping more than surplus water, an appropriator gains a prescriptive right to continue.\textsuperscript{24} To preserve the priority rights of currently underutilizing overlying owners to future use of appropriated groundwater, while allowing the state's resources to be used to their fullest,\textsuperscript{25} the court, a few years after Katz, instructed overlying owners to seek judicial assistance, such as declaratory relief, against appropriators within the prescriptive period.\textsuperscript{26}

Despite the shortcomings of using riparian analogies in ground-

\textsuperscript{18} Id.
\textsuperscript{19} Id. at 136, 74 P. at 772.
\textsuperscript{20} An overlying owner is one who pumps groundwater from beneath his or her own land and uses that water on the overlying land. An appropriator, on the other hand, is one who puts groundwater to use on non-overlying land. Any municipal use is appropriative unless the water is used on city owned land. \textit{See} 62 CAL. JUR. 3D Water § 407 (1981).

In Katz, the defendant owned the overlying land but sold the water for use on non-overlying land. Thus, the controversy was between an overlying owner and an appropriator. 141 Cal. at 135, 74 P. at 772.

\textsuperscript{21} 141 Cal. at 135, 74 P. at 772.
\textsuperscript{22} Id. The court restricted this part of its holding to cases where the overlying owner was making use of the groundwater before the appropriation began, declining to state a rule as to overlying owners whose use began after that of the appropriators. When the issue arose a few years later, however, the court held that overlying owners do not lose their priority rights through nonuse. Burr v. Maclay Rancho Water Co. 154 Cal. 428, 435-36, 98 P. 260, 263-64 (1908).

\textsuperscript{23} 141 Cal. at 136, 74 P. at 772.
\textsuperscript{24} Id. For a use to ripen into a prescriptive right, it must be adverse. An appropriator thus must take more than surplus water, with the knowledge of and injury to the overlying owner, before a prescriptive groundwater right obtains. It follows that taking surplus water will not result in prescription. \textit{See} City of Pasadena v. City of Alhambra, 33 Cal. 2d 908, 926-27, 207 P.2d 17, 29 (1949) [hereinafter cited as Pasadena]; City of San Bernardino v. City of Riverside, 186 Cal. 7, 22-23, 198 P. 784, 790-91 (1921).

\textsuperscript{25} For the proposition that state policy discourages waste and encourages beneficial use of water, see Peabody v. City of Vallejo, 2 Cal. 2d 351, 368-72, 40 P.2d 486, 491-94 (1935), and Pasadena, 33 Cal. 2d at 926, 207 P.2d at 28.

water law, California courts quickly adopted the Katz rationale as the basis for groundwater management. For close to fifty years the courts adjudicated groundwater rights by applying the correlative rights doctrine and allocating surplus water to the first appropriators. As competition for water increased and litigation became more complex, however, the Katz doctrine proved inadequate. For example, while public utilities and municipalities appropriated groundwater to supply their customers, strict adherence to Katz failed to consider the “public benefit” nature of that use.

B. Mutual Prescription Doctrine

Finding continued application of the Katz rules disruptive and inequitable, the California Supreme Court in 1949 formulated the “mutual prescription” doctrine in the case of City of Pasadena v. City of Alhambra. The parties in Pasadena included private and public overlying owners in the Raymond groundwater basin, some of whom were extracting water for subsequent sale, an appropriative use. From 1913 until 1937, when the complaint was filed, the basin was in a state of overdraft. The court easily recognized that extractions would need to be reduced, but faced the problem of determining who should “bear the burden of curtailing the overdraft, and in what proportion.”

In deciding this issue, the court departed from Katz, which would have dictated that overlying owners lose their priority rights through prescription. The court instead held that, since each pumper had pumped ad-

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27. See supra text accompanying notes 9-10.
29. Where supplies were insufficient, early appropriators had priority rights over subsequent appropriators. City of Lodi v. East Bay Municipal Utilities Dist., 7 Cal. 2d 316, 339, 60 P.2d 439, 450-51 (1936); Katz, 141 Cal. 116, 135, 74 P. 766, 772 (1903).
31. The Raymond Basin area comprises about 40 square miles and underlies parts of several cities. Id. at 921, 207 P.2d at 25-26.
32. Id. at 927, 207 P.2d at 29.
33. The annual average safe yield of the Raymond Basin was found to be 18,000 acre feet per year. The average annual overdraft since 1913 was 6,000 acre feet per year. Id. at 922, 207 P.2d at 26. Safe yield is defined as the maximum quantity of water that can be continuously drawn from a groundwater basin without adverse effect. DWR BULLETIN 118, supra note 2, at 5.
34. 33 Cal. 2d at 925, 207 P.2d at 28.
35. 141 Cal. at 135-36, 74 P. at 772.
versely to the others for twenty-two years, appropriators and overlying owners either acquired prescriptive rights against each other or retained a portion of their original rights. Rather than curtailing extractions by allocating the groundwater on a priority basis, the supreme court affirmed the trial court's pro rata reductions across the board. Thus, each pumper's allocative right was adjudged to be a certain proportion of the greatest amount it had pumped and put to beneficial use in any continuous five year period between the beginning of the overdraft and the filing of the complaint.

The Pasadena decision had a significant impact on the handling of subsequent cases. Because the outcome of a mutual prescription allocation could be fairly easily predicted, pumpers avoided lengthy adversarial proceedings by negotiating a mutual prescription settlement and filing a stipulated judgment. The courts enforced the stipulated judgments and reserved jurisdiction for future modifications.

The management system established by Pasadena had several problems. First, the mutual prescription doctrine contributed to a "race to the pumphouse." Rather than encouraging users to seek determination of their rights early in the prescriptive period, each party had an incentive to pump as much as possible because proportionate

36. 33 Cal. 2d at 931-32, 207 P.2d at 31-32. The court refused to say whether overlying owners had acquired new prescriptive rights or merely retained a portion of their original rights by continuing to pump throughout the prescriptive period. The proper characterization of rights under the new doctrine of "mutual prescription" could have been more than merely academic. To acquire new prescriptive rights, overlying owners would have had to pump adversely for five years after the appropriators had obtained their prescriptive rights. Thus, if the appropriators had brought an action for declaratory judgment before the running of the five year period, they would have had priority rights against the overlying owners, who would then, presumably, be in the position of appropriators. If, conversely, the overlying owners had retained a portion of their original rights, their rights would not be prescriptive. Either way the term "mutual prescription" seems to be misleading if not inaccurate.

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

38. Id. at 922-23, 933, 207 P.2d at 26, 32-33. The court also reserved jurisdiction in order to modify the judgment or make further orders to ensure adequate enforcement and protection of the groundwater. Id. at 936-37, 207 P.2d at 35.


Even so, obtaining a stipulated judgment can often be as cumbersome and unsuccessful as adjudication. See, e.g., A. Schneider, supra, at 26-29, discussing Mojave Water Agency v. Abbey, Civil Nos. 130759 and 152413, Cal. Super. Ct., San Bernardino County (dismissed June 7, 1976). The case was filed in March 1966 and finally dismissed, without a settlement, in June of 1976.

40. San Fernando, 14 Cal. 3d at 267, 537 P.2d at 1299, 123 Cal. Rptr. at 50. See Kreiger & Banks, Ground Water Basin Management, 50 Calif. L. Rev. 56, 60 (1962).
shares would be allocated based on the volume of past extractions.\textsuperscript{41} Thus, overdraft of basins occurred at a much faster rate.

Second, difficulty arose in defining overdraft and the onset of a prescriptive period. In \textit{Pasadena}, overdraft was held to exist when the amount of water pumped exceeded the average annual natural recharge of the basin,\textsuperscript{42} even though overdraft can exist for some time without causing immediate injury or being otherwise apparent.\textsuperscript{43} Nevertheless, the court held that the statute of limitations begins to run when a basin is first overdrafted.\textsuperscript{44} The court reasoned that the lowering of the water table should put overlying owners on notice of adverse use, even if they do not have actual notice.\textsuperscript{45}

The mutual prescription approach is also limited in its applicability because it can only bind parties brought before the court in an adversarial proceeding, even when a stipulated judgment is negotiated.\textsuperscript{46} A court has no jurisdiction to oversee the activities of other pumpers.

In response to some of the problems left by \textit{Pasadena}, the legislature took action. Under \textit{Pasadena}, the volume of past use was to be the measure for future allocations. The wise use of supplemental surface waters could result in the forfeiture by a pumper of his future groundwater rights. Legislation was passed releasing pumpers from this bind and encouraging the use of supplemental water, especially in Southern California.\textsuperscript{47} The statutes maintain a pumper's right to extract groundwater to the extent that supplemental supplies are used in lieu of it.

The legislature further responded to \textit{Pasadena} by requiring pumpers in four Southern California counties to file notices of extraction with the State Water Resources Control Board (SWRCB).\textsuperscript{48} Recording serves two main purposes. First, it allows the SWRCB to monitor extractions and give warning of impending overdraft. Second, and perhaps more importantly, pumpers must file notices of extraction before

\begin{itemize}
\item \textsuperscript{41} See supra note 38 and accompanying text.
\item \textsuperscript{42} 33 Cal. 2d at 929, 207 P.2d at 30.
\item \textsuperscript{43} See id. at 929, 931-32, 207 P.2d at 30, 31-32. For the proposition that a basin can withstand some amount of overdraft without serious adverse effects, see DWR \textit{Bulletin} 118, supra note 2, at 119, 124-25.
\item \textsuperscript{44} 33 Cal. 2d at 929, 930, 207 P.2d at 30, 31. \textit{Pasadena} thus requires an owner to take action to protect his or her rights from loss through prescription even though he or she does not know that those rights have been invaded. In contrast, a prescriptive period normally begins to run only when an owner is put on notice of the adverse use. \textit{Restatement of Property} § 458 comments h and i (1944).
\item \textsuperscript{45} 33 Cal. 2d at 930, 207 P.2d at 31.
\item \textsuperscript{46} \textit{Pasadena} involved a stipulated agreement in which the only basin user not to enter the agreement was before the court as plaintiff challenging the solution. \textit{Id.} at 916, 207 P.2d at 23.
\item \textsuperscript{48} \textit{Cal. Water Code} §§ 4999-5008 (Deering 1977). The legislature found that overdraft was most likely to occur in Riverside, San Bernardino, Los Angeles, and Ventura Counties, and therefore restricted application of the statute to those counties. \textit{Id.} § 4999.
\end{itemize}
acquiring prescriptive rights to groundwater. The relative rights of pumpers in these four counties are thereby made more certain.

C. Equitable Allocation

In City of Los Angeles v. City of San Fernando, the California Supreme Court in 1975 attempted to address many of the problems Pasadena left unresolved. Los Angeles brought suit against several cities and private parties to quiet title in water underlying the Upper Los Angeles River Area (ULARA). In reversing the trial court's decision denying Los Angeles' claim, the supreme court first rejected the use of the mutual prescription doctrine. It held that overlying owners retained a portion of their original rights by pumping throughout the prescriptive period, rather than by obtaining new prescriptive rights. Second, the court held that the commencement of overdraft does not start the statute of limitations running. Rather, the prescriptive period begins only when overlying owners have actual notice of an adverse use. Third, the court stated that a basin must be overdrafted during the entire prescriptive period for a prescriptive right to ripen. Finally, the court indicated that prescriptive overdraft periods would not be tolled during periods of "temporary surplus."

49. Id. § 5003. Persons extracting less than 25 acre-feet per year are exempt from these requirements. Id. § 5001.
51. 14 Cal. 3d at 207-11, 537 P.2d at 1258-61, 123 Cal. Rptr. at 9-12. Los Angeles claimed to have priority rights to native groundwater based on pueblo rights and to return flows from imported water. Id.

Pueblo rights originated in Spanish and Mexican law. The pueblos established in California were given priority rights in the rivers and streams running through them to the extent of the needs of the inhabitants. Although to date courts have recognized the pueblo rights of only two cities, Los Angeles and San Diego, other coastal cities may also qualify as successors to the pueblos. H. Dunning, Water Allocation in California: Legal Rights and Reform Needs 23-24 (1982). Pueblo rights are of minor importance in the total water allocation scheme and will not be discussed in this Comment.

Imported water enters the basin either by deliberate means (artificial recharge) or after use on overlying land. 14 Cal. 3d at 210, 537 P.2d at 1260, 123 Cal. Rptr. at 11. Los Angeles used its imported water both for recharge operations and for direct delivery to customers. Id.

52. 14 Cal. 3d at 292, 537 P.2d at 1318, 123 Cal. Rptr. at 69.
53. Id. at 293, 537 P.2d at 1318, 123 Cal. Rptr. at 69. Pasadena had suggested otherwise. See supra note 36.
54. 14 Cal. 3d at 282, 537 P.2d at 1310-11, 123 Cal. Rptr. at 61-62.
55. The court held that overlying owners must be "on notice of adversity in fact" before the prescriptive period may begin. Id. at 283, 537 P.2d at 1311, 123 Cal. Rptr. at 62 (emphasis in the original). That the use had been "continuously asserted to be adverse" was not sufficient to put the overlying owners on notice. Id. (emphasis in the original).
56. Id. at 284, 537 P.2d at 1312, 123 Cal. Rptr. at 63.
57. Id. at 280, 537 P.2d at 1309, 123 Cal. Rptr. at 60. Temporary surplus occurs when the safe yield limitation on extractions during a particularly wet period results in waste.
The San Fernando court also faced the question, not at issue in Pasadena, of whether prescriptive rights could be obtained against a public entity or utility. California Civil Code Section 1007 provides that no person or entity may acquire a prescriptive right to "any land, water, water right, easement, or other property whatsoever dedicated to a public use by a public utility . . . or any public entity." In holding that section 1007 was applicable to groundwater, the court dealt a stunning blow to the mutual prescription doctrine. While public utilities and entities may acquire prescriptive rights against private parties, after San Fernando no person or entity (private or public) may obtain a prescriptive right against a public entity or utility. Hence, the court held that mutual prescription can never solve a groundwater dispute in which one of the parties is a public entity or utility.

The court also upheld the right of Los Angeles to recapture water that it delivered from outside the basin and which entered the basin either through "spreading" or after use. The court granted this recapture right priority over overlying and appropriative rights because importers should receive credit for their efforts in importing water which add to the overall supply of groundwater. Returns from use of native water, on the other hand, merely "lessen the diminution occasioned by the extractions" and are therefore undeserving of priority.

The court in San Fernando, after rewriting California groundwater law, concluded by instructing the trial court that nothing in its opinion should restrict that court's equitable discretion on remand to arrive at a solution that is "fair and just to all parties and interests concerned." The court suggested that the trial court consider the possibility of a physical solution, in which surface rights of one party could be exchanged for the groundwater rights of another. Thus, while settling certain areas of groundwater law, the court in fact left much of the management and allocation decisions to the equitable discretion of future.

During wet periods, additional withdrawals create more storage space in which to capture water which would otherwise run off. Withdrawal above safe yield in these circumstances is a use of surplus water, and, therefore, is not adverse.

58. CAL. CIV. CODE § 1007 (Deering 1977) did not apply to public utilities until amended in 1968. See A. Schneider, supra note 39, at 31.
60. 14 Cal. 3d at 270-77, 537 P.2d at 1301-07, 123 Cal. Rptr. at 52-58.
61. Spreading is a technique whereby a groundwater basin is artificially recharged with imported water. Id. at 210, 537 P.2d at 1260, 123 Cal. Rptr. at 11.
62. Id. at 286, 537 P.2d at 1313, 123 Cal. Rptr. at 64.
63. Id. at 287, 537 P.2d at 1314, 123 Cal. Rptr. at 65.
64. Id. at 261, 537 P.2d at 1295, 123 Cal. Rptr. at 46.
65. Id.
66. Id. (footnote omitted). To the extent that imported water may displace returning native water, the court's distinction appears strained.
67. Id. at 261, 537 P.2d at 1295, 123 Cal. Rptr. at 46.
ture trial courts.69

D. Current Framework for Groundwater Management

One would hope that more than seventy years of judicial development could have produced a groundwater management law which equitably allocates groundwater without subjecting a basin to critical overdraft, that allows for the most efficient use of surface and groundwater, that assures rights within a basin, and that resolves disputes quickly and smoothly. Unfortunately, these goals have not been achieved. The San Fernando case was litigated for 20 years before the court determined that groundwater in the critically overdrafted ULARA basin should be “equitably apportioned.” Even so, the equitable apportionment doctrine will continue to require slow moving case by case analysis and solutions.70 Individualized basin allocations remain the rule, necessarily leaving rights in unadjudicated or unmanaged basins uncertain.

Four issues, in particular, currently pose unresolved problems for effective groundwater management: unexercised groundwater rights, interbasin transfers of water, conjunctive use, and resolution of interbasin conflicts.

1. Unexercised Groundwater Rights

The status of unexercised overlying rights will hamper efficient basin management. A footnote in San Fernando indicated that overlying owners who have not yet exercised groundwater rights may be able to prevent an appropriator from acquiring a prescriptive right to that water through traditional self-help remedies.71 Thus, overlying owners could retain rights to groundwater which they are not currently using

69. Tehachapi-Cummings County Water Dist. v. Armstrong, 49 Cal. App. 3d 992, 1001, 122 Cal. Rptr. 918, 925 (1975), lists some of the factors to be considered in apportioning groundwater among overlying landowners: 1) the amount of water available, 2) the extent of the party's ownership in the basin, and 3) the nature of the use. Furthermore, Tehachapi-Cummings held that current reasonable and beneficial need, not past use, is the appropriate measure where only overlying owners are involved. Id. at 1000, 122 Cal. Rptr. at 924. Whether this notion of "equitable apportionment" will effectively curtail the "race to the pumphouse" remains to be seen, though one might expect that it would. When rights are no longer based on the past volume of extractions, but rather on a current and beneficial need, there should be more incentive to use water properly and efficiently to preserve one's future use.

70. E.g., the San Fernando court found that mutual prescription was proper on the facts in Pasadena but that mechanical application in San Fernando would not be equitable. 14 Cal. 3d at 265-66, 537 P.2d at 1298-99, 123 Cal. Rptr. at 49-50.

71. Id. at 293 nn.100 & 101, 537 P.2d at 1318-19 nn.100 & 101, 123 Cal. Rptr. at 69-70 nn.100 & 101. For example, one could prevent a prescriptive right from ripening by exercising one's own rights or by seeking a declaratory judgment recognizing one's unexercised rights.
and which is beneficially used by an appropriator, even if the appropriator is a public utility or entity.

This issue of inchoate water rights has not yet reached the California Supreme Court in a groundwater adjudication, but has arisen in the context of future riparian rights to surface water. In *In re Long Valley Creek Stream System,* the court reviewed a State Water Resources Control Board (SWRCB) stream adjudication in which the Board extinguished a riparian's rights to future use of water. The court held that the Board could not extinguish these rights, at least in the absence of a showing that reasonable and beneficial use of water could not be promoted in some less drastic way.

The court proceeded, however, to hold that the SWRCB may define and limit a riparian's future rights in determining rights to a stream system. If the riparian's intended use is unreasonable or not beneficial to the public welfare, it may be prohibited on the ground that it is a constitutionally impermissible use. To the extent that uncertainty as to future rights may cause appropriators to refrain from putting unused water to a reasonable and beneficial use, the court found these unexercised riparian rights wasteful and not in the public interest. Thus, the SWRCB may grant unexercised riparian rights lower priority than that given previously authorized uses. In an over-appropriated stream, this allocation has the same effect as extinguishing those rights.

Because the courts have attempted to formulate doctrines for groundwater management based on riparian analogies in the past, they might apply the *Long Valley Creek* reasoning to groundwater. Reasonable and beneficial use of groundwater requires the same degree of certainty as is required in determining rights to surface water. Overlying owners could thus lose their priority rights through nonuse, and

73. 25 Cal. 3d at 345, 358, 599 P.2d at 659, 668, 158 Cal. Rptr. at 353, 361-62. As a rule of statutory construction, the court will presume that the legislature does not intend a statute to raise substantial constitutional issues. *Id.* at 344, 599 P.2d at 659, 158 Cal. Rptr. at 352. Since extinction of a landowner's riparian rights does raise such constitutional issues, the court felt compelled to rule that the Board could not extinguish future riparian rights. *Id.* at 350, 599 P.2d at 662, 158 Cal. Rptr. at 356.
74. *Id.* at 348-49, 599 P.2d at 661, 158 Cal. Rptr. at 355, *construing* CAL. WATER CODE § 2501 (Deering 1977).
75. 25 Cal. 3d at 358-59, 599 P.2d at 668-69, 158 Cal. Rptr. at 362. The constitutional issues arise because of the mandate of CAL. CONST art. X, §2, that the state's water resources be put to their fullest beneficial use "in the interest of the people and for the public welfare."
76. 25 Cal. 3d at 358-59, 599 P.2d at 668-69, 158 Cal. Rptr. at 362.
77. *Id.*
78. *See, e.g., supra* note 28 and cases cited therein.
79. This reasoning could not apply to overlying landowners who had complied with the requirements of CAL. WATER CODE § 1005.1 (Deering 1977), as discussed *supra* text accompanying note 47.
appropriators could acquire priority rights against overlying owners who have not exercised their groundwater rights.

2. Interbasin Transfers

Transfers of groundwater from one basin to another, an appropriative use, represent a second area in which case law is inadequate. Such transfers often supply the supplemental water necessary to alleviate the hardship caused by allocation solutions that require curtailed pumping. Allocating an insufficient supply where no supplemental water is available is difficult. In fact, no comprehensive management program has ever been undertaken in an area where supplemental supplies were unavailable. A lack of such supplies, therefore, is likely to pose significant problems in future attempts at management.

Yet the state lacks a responsible decisionmaking body to oversee groundwater transfers. While the SWRCB has jurisdiction over surface water, and may grant permits to transfer surface water from one area to another, it has no such jurisdiction over groundwater. Courts may prohibit interbasin groundwater transfers where the appropriation involves taking more than surplus water, but cannot order transfers from basins outside the court's jurisdiction. Moreover, some counties have enacted local ordinances restricting groundwater transfers.

3. Conjunctive Use

The San Fernando decision has increased the viability of conjunctive use. 


81. See Krieger & Banks, supra note 40, at 61. The cost of imported or surface water may impose hardships of its own, however.

82. This situation exists in the city of Goleta, California. The city's water comes from two sources, groundwater and the Cachuma Reservoir. Goleta's water supply is stable, but its population has been growing rapidly. By 1972 Goleta's need exceeded the available supply from Cachuma and the safe yield of the groundwater basin. The Goleta Water District is currently seeking to have its rights to the groundwater declared paramount to those of the overlying landowners. Trial to Decide Water Rights, Santa Barbara News-Press, Apr. 30, 1979, at A1, col. 5. Many overlying landowners, however, are dependent upon their groundwater as their only water supply because Goleta has imposed a moratorium on new water meter hookups since December 1972. Water District Wins Round in Goleta Hookup Ban Suit, Santa Barbara News-Press, Apr. 16, 1974, at A1, col. 1.

83. A. Schneider, supra note 39, at 61.

84. Transfers of groundwater supplies may be less objectionable than diversion of surface water. Areas in which groundwater basins are full and surface water is plentiful could transfer some of that groundwater to areas experiencing overdraft. This water could be used to recharge those overdrafted basins. Additionally, extracting some groundwater from full basins provides a natural storage facility for excess surface waters.

85. Glenn and Butte Counties have ordinances requiring potential exporters to obtain a permit for export from the county. This permit may be denied if the extraction would "adversely affect" the water table. Final Report, supra note 80, at 165.
tive use programs. This management technique involves the coordinated use of ground and surface waters, including the recharging of groundwater basins with excess surface water in wet years so that additional groundwater may be withdrawn during dry years.\footnote{86} San Fernando and Niles Sand & Gravel Co. v. Alameda County Water District\footnote{87} established for the first time the right to store underground and later recapture imported water. Case law now entitles importers to use groundwater basins underlying another's land for storage,\footnote{88} to gain priority rights to recapture the stored water,\footnote{89} and to protect the imported water from expropriation by other users, including overlying owners.\footnote{90} Assurance of those rights is essential to the success of conjunctive use programs.

The possibility of claims by overlying owners against importers for damages arising from storage of imported water may pose a significant deterrent to the adoption of conjunctive use programs. Artificial recharge may displace native groundwater, reducing a basin's capacity to hold native groundwater, thereby increasing runoff. The overlying owner is injured because the importer has priority rights to recapture the stored water which displaced the native water to which the overlying owner would have had priority. In addition, injury may result if stored water raises groundwater levels and causes seepage on overlying lands. Nonetheless, in Niles, the court of appeal denied relief to a gravel company whose quarry was flooded as a result of the recharge program undertaken by a local water district.

Although many of the legal uncertainties connected with conjunctive use have been resolved, non-legal impediments may prevent its widespread use. Importing water and operating artificial recharge programs are costly endeavors. Furthermore, unless public management authorities in a basin have the necessary powers\footnote{91} to implement these programs, they fall on the initiative of private water companies, which lack the taxing and management authority, and possibly the motivation, to carry out successful conjunctive use programs.\footnote{92} Finally, if private water companies are allowed to displace native groundwater to the

\footnote{86}{ Conjunctive use may also involve increased pumping from a basin to create storage space. \textit{See} DWR \textit{BULLETIN} 118, supra note 2, at 128. \textit{See generally} Gleason, \textit{Water Projects Go Underground}, 5 \textit{ECOLOGY L.Q.} 625 (1976).}
\footnote{87}{ 37 Cal. App. 3d 924, 112 Cal. Rptr. 846 (1974), cert. denied, 419 U.S. 869 (1975).}
\footnote{88}{ \textit{San Fernando}, 14 Cal. 3d at 264, 537 P.2d at 1297, 123 Cal. Rptr. at 48; \textit{Niles}, 37 Cal. App. 3d at 932-35, 112 Cal. Rptr. at 852-54.}
\footnote{89}{ 14 Cal. 3d at 262-63, 537 P.2d at 1296, 123 Cal. Rptr. at 47.}
\footnote{90}{ \textit{Id.}}
\footnote{91}{ \textit{E.g.,} the taxing powers needed to fund extensive recharge programs, the power to buy supplemental water, the power to allocate and manage all the water supplies within the basin. \textit{For further illustration, see} the discussion of the Orange County Water District, \textit{infra} notes 116-135 and accompanying text.}
\footnote{92}{ \textit{Cf.} Orange County Water District, \textit{id.}}
detriment of overlying owners, without being liable for damages, the costs and benefits of these programs are not being fairly distributed in the basin. A publicly authorized management authority within a basin thus would be necessary to carry out effectively conjunctive use and replenishment programs. Besides allowing for greater statewide coordination of these programs, such an authority would possess the necessary financial and political powers and could more equitably distribute costs and benefits throughout the basin.

4. Resolution of Interbasin Conflict

Case law has also failed adequately to resolve interbasin conflicts. Because several groundwater basins may be fed by the same stream system, activities in one basin can have a significant impact on other basins. Even if not connected by the same stream system, mismanagement of groundwater resources may have repercussions outside the basin. Additionally, basin storage space which is not utilized may cause waste because of excess runoff.

Several problems may arise in attempting to resolve these conflicts. Initially, in-depth studies of basin configuration, surface geology, groundwater movement, and surface water may be required to understand the nature of problems and formulate solutions. In addition, because basin boundaries do not necessarily coincide with political boundaries, enforcing interbasin agreements may be difficult.

Problems of standing may prevent an interbasin adjudication. A party must be able to show actual injury in order to establish standing to sue. Unlike intrabasin disputes, where rights are clearly connected, it may be more difficult to convince a court that activities in another basin have caused direct injury in an unconnected basin. This is especially true where the claim is that unused storage space in one basin has caused waste through runoff in another basin.

To ensure the most efficient and beneficial use of groundwater statewide, a system must be established which can resolve groundwater issues in a timely manner and adequately address the issues highlighted in this section. Recent judicial decisions have demonstrated a capability to resolve a few of these issues. Nevertheless, even a successful adjudicative allocation of rights, as in San Fernando or Pasadena,
depends on a fairly stable safe yield.\textsuperscript{96} Constant revision of these allocations because of continually diminishing supplies requires potentially enormous judicial resources, is discouraging for users in those basins, and provides little incentive for other basins to follow suit. An alternative to the slowly moving judicial machinery, which currently must create groundwater law on an \textit{ad hoc} basis, may be preferrable for solving many of the serious immediate groundwater problems.

II

ALTERNATIVES FOR GROUNDWATER MANAGEMENT

Three alternatives for groundwater management exist: no action, adjudication, and district management.\textsuperscript{97} The first two have been the general rule in California. Users pump without restraint until overdraft occurs and then resort to the courts for allocation of an insufficient resource. In fact, until overdraft begins there is little else that can be done because there are generally no entities with pre-litigation management authority. The third option, district management, has been the subject of intense political controversy and has met with strong opposition. Yet it is probably the most sensible solution for long range planning and resource allocation. The remainder of this Comment examines the three management alternatives and argues for adoption of district management of groundwater resources in California.

\textbf{A. No Action}

The "no action" alternative relies on the self-interest of users to allocate groundwater efficiently. Overlying users, however, rarely take voluntary action to apportion insufficient groundwater supplies or enjoin appropriations causing overdraft. Instead, users depend on economic restraints to allocate the scarce resource, at least until overdraft reaches the critical stage.

The "no action" alternative is expensive and wasteful. Because groundwater is a common pool resource, the costs to an individual user of additional withdrawals are spread among all the users of a basin. As overdraft worsens and water tables drop, pumpers must incur the direct costs of sinking deeper or new wells and must pay for the increased energy needed to withdraw water from greater depths.\textsuperscript{98} Furthermore, excessive pumping often results in both salt water intrusion, making wellwater unusable, and land subsidence, causing permanent loss of

\textsuperscript{96} See generally supra note 33.
\textsuperscript{97} See Final Report, supra note 80, at 140-41; A. Schneider, supra note 39, at 18-19.
\textsuperscript{98} See Final Report, supra note 80, at 140-41; A. Schneider, supra note 39, at 18-19.
storage capacity and severe property damage.\textsuperscript{99} The economies of many communities are dependent upon a constant level of groundwater pumping. When the water finally runs out, becomes unusable, or is allocated pursuant to an adjudication, severe hardship may result, especially where supplemental supplies are not available.\textsuperscript{100} Finally, because the private costs faced by each pumper may not reflect the true social and environmental costs of his or her withdrawals, a free market approach will not provide an efficient management system.

\textbf{B. Management through Adjudication}

Eventually, the "no action" form of basin management results in severe overdraft. At this point pumpers may attempt informal resolution through negotiation or turn to the courts for an adjudicated solution.\textsuperscript{101} To avoid much of the burden of groundwater adjudication, courts, especially since \textit{Pasadena}, have encouraged parties to enter stipulated judgments. After approving these judgments, the courts generally reserve jurisdiction and appoint watermasters to oversee their enforcement.\textsuperscript{102} This management technique has several problems as

\textsuperscript{99} See \textit{Final Report}, \textit{supra} note 80, at 140-41; \textit{DWR Bulletin 118}, \textit{supra} note 2, at 115-19.

\textsuperscript{100} Even when supplemental water supplies are available, pumpers often have little economic incentive to use them, despite the costs of overdraft. Where pump taxes have not been assessed, the short range costs of pumping can be quite low when compared to the cost of imported water. For example, in 1979 the cost of water in Southern California, dependent on imported water, averaged $90.00 per acre-foot, while in the San Joaquin Valley, where groundwater serves most water needs, it was $20.00 per acre-foot. \textit{Developing a New Water Plan for California, Hearings Before the California Assembly Comm. on Water, Parks and Wildlife, pt. 1 (Agricultural Production) 21} (1979) (testimony of Ronald Robie, Director, Dep't of Water Resources). San Diego County urban consumers pay about $220.00 per acre-foot. \textit{Id., pt. 4 (Water Rights) 56} (testimony of Paul D. Engstrand, General Counsel, San Diego County).

Groundwater costs vary in direct proportion to the depth of the well and are determined to a great extent by energy costs. \textit{California's Water Future, Interim Hearings Before the California Assembly Comm. on Water, Parks and Wildlife 19-21} (1982) (testimony of Mike Chrisman, Chairman, Water Comm., California Cattlemen's Association).

\textsuperscript{101} Some overlying owners may find at this point that their inaction has enabled appropriators to obtain prescriptive rights in the basin. If mutual prescription is not applied, these owners' groundwater rights will be secondary to those of the prescriptive users.

\textsuperscript{102} See A. \textit{SCHNEIDER}, \textit{supra} note 39, at 22-25, 53-58 for a detailed account of some of these judgments and watermaster arrangements. Upper San Gabriel Valley Municipal Water Dist. v. City of Alhambra, Civil No. 924128, (Cal. Super. Ct., Los Angeles County Jan. 4, 1973) is indicative of the watermaster approach. \textit{See \textit{Final Report}, \textit{supra} note 80, at 147. The \textit{San Gabriel} watermaster is made up of nine members appointed by the court—six of whom are nominated by pumpers and three by the two main water districts involved. A. \textit{SCHNEIDER}, \textit{supra} note 39, at 54. The decree gave the watermaster broad discretion to determine the operating safe yield each year, power to levy assessments, purchase supplemental water and recharge the basin, and to control the use of basin storage space. \textit{Id. at 55.}

Other watermaster arrangements have differed. For example, in Central and West Basin Water Replenishment Dist. v. Adams, Civil No. 786656, (Cal. Super. Ct., Los Angeles County, October 11, 1965), the court appointed the DWR as watermaster. In that case the
well.

First, parties are generally not spurred to action until basin overdraft becomes a problem. By that time the parties, and frequently entire local economies, are dependent upon receiving more water than safe yield will allow. Equitably reducing allocations by adjudication is extremely difficult because economic damage is likely to be substantial. For the same reasons, it may be difficult to obtain voluntary agreements calling for reduced allocations. 103

Second, the great number of necessary parties makes consensus difficult to obtain. Parties who do not sign the stipulated agreement are not bound by it and remain free to continue litigating their claims. 104 Challenges to the stipulation may prevent it from being implemented, and the often considerable delay before a judgment is entered may prompt parties to withdraw from the stipulation. 105

A third hindrance to reaching stipulated judgments is the current inability to predict accurately the outcome of an adjudication. The mutual prescription doctrine gave pumpers a clear idea of the likely result of an adjudication. They were encouraged to enter into stipulated judgments which allocated groundwater using that doctrine and thus avoid time-consuming, expensive litigation. However, the current equitable apportionment doctrine necessarily leaves the result of litigation less certain. Pumpers are not likely to agree among themselves as to an equitable allocation, and many more of these cases will end in trial.

Groundwater management through trial judgment raises further problems. The usual rules of civil procedure are particularly ill-suited to groundwater adjudications. Overdraft presents the probability of immediate and irreparable harm, yet the complexity of groundwater litigation makes adjudication lengthy, cumbersome and expensive. 106 Injunctions can prevent pumpers from increasing their extractions, but the current rate of pumping, which is the cause of the overdraft at issue, cannot be curtailed until after trial.

watermaster had primarily a record collecting and accounting function. The Replenishment District, which has replenishment and pump tax powers, works with the watermaster. A. Schneider, supra note 39, at 50-52.

103. See, e.g., A. Schneider, supra note 39, at 26-28, for an account of the problems encountered in Mojave Water Agency v. Abbey, Civil Nos. 130759 and 152413, (Cal. Super. Ct., San Bernadino County dismissed June 7, 1976). The case was pending for ten years before being dismissed.

104. See, e.g., Pasadena, 33 Cal. 2d at 920, 207 P.2d at 25.

105. This was a problem in the Mojave case. Final Report, supra note 80, at 160-61.

106. E.g., Pasadena was filed in 1937, but went to trial in 1944. The Court did not order dismissal for delay because it found that an earlier trial would have been “impracticable, if not futile.” 33 Cal. 2d at 917, 207 P.2d at 23. San Fernando was commenced in 1955 and decided in 1975; Tehachapi-Cummings, supra note 69, was commenced in 1966 and decided in 1975.
An additional problem encountered in groundwater adjudication is identification of parties. Hydrological studies may define the boundaries of a basin, but they take time and money.  Even when a basin has been defined, records of all the pumpers in a basin, often numbering into the hundreds or even thousands, may be incomplete or obsolete, making identification and service of process on the proper parties difficult. Parties who wish to be excluded or intervene must also be allowed to litigate their status. Finally, this unwieldy proceeding must meet a legal schedule which requires dismissal if the defendants are not served within three years or if trial does not start within five years of filing an action.

A final problem with reliance on piecemeal, adjudicatory management programs stems from the local nature of these solutions. Locally developed groundwater allocations may have long-term statewide impacts, yet reflect local interests in urban or agricultural development, rather than a concern for proper management of state resources. Admittedly, a fair and impartial state policy may be difficult to achieve, as these same local interests could be expected to engage in considerable lobbying. Parochial interests, however, are more likely to be tempered by counterbalancing lobbying efforts at the state level.

C. Management Districts

A third alternative for groundwater management is through the use of legislatively authorized management districts. To be effective, management districts need jurisdiction over all pumpers in a groundwater basin and must be empowered to control groundwater extractions, carry out replenishment programs, and raise the money necessary to fund these programs. Several groundwater districts have already been established on a local level through general and special district acts, but most of them do not possess authority adequate to manage

107. Final Report, supra note 80, at 159-60. The parties in Mojave spent three years after filing conducting studies to define the boundaries and the parties involved. Since the DWR has undertaken the task of identifying all groundwater basins in the state, such lengthy studies should no longer be necessary. For the results of this study, see DWR Bulletin 118-80, supra note 4.

108. Over 700 pumpers were involved in the Mojave case. Final Report, supra note 80, at 160.

109. Final Report, supra note 80, at 159-60. Problems also arose in connection with discovery compliance.

110. Nearly two years after defendants were served in Mojave, attempted interventions were still being litigated. Id.


112. In fact, local interest lobbying is undoubtedly one reason no consensus on groundwater management has yet to emerge from the state legislature.

113. A general district act does not create a specific local district. Instead, it is an en-
and control groundwater effectively. Those special districts which have the necessary management powers typically suffer from a different shortcoming. Their jurisdiction is usually defined by political boundaries rather than by groundwater basins. Conservation and management efforts in only a portion of a basin are futile when pumpers in the rest of the basin remain unrestrained. To aid in assessing the value of this type of management technique, an examination of the practices of one special district, whose boundaries do conform to a single basin, follows.

1. Orange County Water District — A Case Study

The Orange County Water District (OCWD) is often cited as a model for effective groundwater management in California. Created by a special district act, the OCWD has not needed to resort to adjudication to determine each pumper’s rights in the basin. As a result, it has been able to take a more flexible and comprehensive approach to groundwater management.

The OCWD possesses the broad powers necessary for effective groundwater management. The district’s express purposes are the protection, conservation, and management of the groundwater supply. Since all pumpers must register with the OCWD, the district is able to monitor the amount of groundwater pumped each year. Further, it is specifically authorized to levy four different types of assessments: ad valorem taxes on all property owners, replenishment assessments (pump taxes) on all water pumped when the basin is overdrafted,

abating statute that can be used to set up a local district. A special district act does create a specific local district and prescribes its powers. See generally Henley, The Evolution of Forms of Water Users Organizations in California, 45 CALIF. L. REV. 665 (1957). A 1978 DWR study lists 38 general and 100 special district acts. CALIFORNIA DEPT. OF WATER RESOURCES, BULL. NO. 155-77, GENERAL COMPARISONS OF WATER DISTRICTS ACTS (1978).

114. Only three of the 38 general district acts specifically authorize replenishment programs and the levying of a pump tax: The Water Replenishment District Act, CAL. WATER CODE §§ 60300-352 (Deering 1977); the Water Conservation District Act of 1931, id. §§ 74000-76501; and the Municipal Water District Law of 1911, id. §§ 71000-73001. A. SCHNEIDER, supra note 39, at 39-40. A pump tax, or replenishment assessment, is levied against groundwater extractors to pay the cost of importing supplemental supplies. See infra note 121.

115. See A. SCHNEIDER, supra note 39, at 40 n.162.

116. CAL. UNCOD. WATER ACTS, act 5683 (Deering 1970). The district was created in 1933. In 1953, the act was substantially amended to grant the OCWD far greater powers, including the right to levy replenishment assessments and carry out extensive replenishment programs. The constitutionality of the pump tax was upheld in Orange County Water Dist. v. Farnsworth, 138 Cal. App. 2d 518, 292 P.2d 927 (1956).

117. CAL. UNCOD. WATER ACTS, act 5683, §§ 2(6), (7), & (8) (Deering 1970).

118. Id. § 24.

119. Id. § 18.

120. Id. § 27 (Deering Supp. 1982). The amount collected through this pump tax may not exceed the cost of purchasing sufficient supplemental supplies to replenish the average
supplemental replenishment assessments on production of groundwater for all but irrigation purposes,\footnote{121} and basin equity assessments.\footnote{122} Because of its broad powers, the OCWD is able to carry out all programs and operations it deems necessary to protect the quality and supply of groundwater. Moreover, the OCWD’s jurisdiction corresponds roughly to the Orange County groundwater basin.

One of OCWD’s most effective management tools has been its extensive replenishment program. Supplemental water supplies\footnote{123} are purchased for basin recharge operations and for direct use by consumers. During the 1980-81 water year, over one-half of the total water consumed in the OCWD was imported; most was used directly rather than for replenishment.\footnote{124} The efficacy of this program is illustrated by the fact that the accumulated overdraft in the Orange County basin has declined from 700,000 acre-feet in 1956\footnote{125} to 120,634 acre-feet in 1980-81.\footnote{126}

The OCWD’s replenishment program depends in large part on the district’s basin equity assessments and pump taxes, which serve to equalize water costs among users. In 1980-81 the district spent $1,994,445, raised by pump taxes, to purchase supplemental water.\footnote{127} Because imported water is more expensive than groundwater for non-irrigation users,\footnote{128} incentives are necessary to encourage pumpers to

\begin{itemize}
  \item annual overdraft for the past five years, plus enough water to eliminate the accumulated overdraft over a period of not less than 10 nor more than 20 years. Different rates may be charged for irrigation and non-irrigation producers. The annual overdraft is the amount by which extraction exceeds natural replenishment. The accumulated overdraft is the amount of water that must be replaced to prevent saltwater intrusion.
  \item \footnote{121} Id. § 27.1.
  \item \footnote{122} Id. § 31.5. The proceeds of this tax are used to equalize the costs of groundwater and imported water. The district determines the amount of water which may be extracted each year. The ratio of this amount to the total amount of water needed is the “basin production percentage.” Each producer of groundwater is given a production limit based on the percentage, and must make up the difference through purchases of imported water. Producers who pump more than their production requirement must pay a per acre-foot assessment for the excess produced. Those who pump less than their allotment are then paid out of this fund. Thus, there is no economic incentive to pump rather than purchase water from supplemental sources. Producers of 25 acre-feet or less may be excluded from this assessment.
  \item \footnote{123} As a member of the Metropolitan Water District, OCWD receives Colorado River water and State Water Project water. Orange County Water District, Annual Report 2-4 (1982).
  \item \footnote{124} For the 1980-81 water year the district purchased 33,633 acre-feet for replenishment and 202,401 acre-feet for direct use. Id. at 27. The total groundwater production was 228,943 acre-feet. Id. at 28. An additional 118,290 acre-feet of natural inflow in the Santa Ana River raised the total non-local water supply to 354,325 acre-feet for the year. Id. at 33.
  \item \footnote{125} Id. at 4.
  \item \footnote{126} Id. at 39. The estimated overdraft for 1981-82 is 90,000 acre-feet. Id. at 35.
  \item \footnote{127} Id. at 4.
  \item \footnote{128} The cost in 1982-83 was projected to be $92.66 per acre-foot for groundwater and $148.92 per acre-foot for supplemental water. Id. at 54. Irrigation use is charged at different
use supplemental water in lieu of pumping. The basin equity assessments provide this incentive by taxing the consumers of groundwater in order to subsidize the users of imported water.

Other factors besides the OCWD's activities have reduced the rate of overdraft in the Orange County basin. Changing trends in land use have allowed population growth\(^1\)\(^2\)\(^9\) without increasing the demand for water because urban uses require much less water than agricultural uses.\(^1\)\(^3\) Changes in agricultural practices may also have contributed to the declining overdraft. Drip and low-flow irrigation, currently used in Orange County,\(^1\)\(^3\)\(^1\) are more efficient than flood irrigation.\(^1\)\(^3\)\(^2\) Additionally, farmers have shifted from irrigated crops, such as deciduous fruits and nuts, to non-irrigated crops, such as pasture.\(^1\)\(^3\)\(^3\) Nonetheless, total groundwater extractions in Orange County actually increased by fifty percent between 1956 and 1981.\(^1\)\(^3\)\(^4\)

Thus, the OCWD's management of Orange County's groundwater has produced significant results. The groundwater level rose from 12 feet below sea level in the 1950's to 17 feet above sea level in 1971.\(^1\)\(^3\)\(^5\) The question remains whether this type of management would work on a statewide basis.

2. *The Governor's Commission's Report*

On May 11, 1977, the Governor's Commission to Review California Water Rights Law was created to study existing law, evaluate proposals for change, and recommend legislation.\(^1\)\(^3\)\(^6\) The Commission's Final Report,\(^1\)\(^3\)\(^7\) issued in December 1978, proposed major revisions in state water rights law, including groundwater law.\(^1\)\(^3\)\(^8\) Finding "severe rates causing groundwater to be more expensive than supplemental water: $91.24 and $84.80 per acre-foot respectively. *Id.*

129. Orange County's 1950 population was 216,224; its 1980 population 1,931,570. *Id.* at 2.

130. From 1970 to 1980 the total acreage devoted to urban use in Orange County increased by 28 percent while the total devoted to agriculture declined by 34 percent. At the same time, gross water service for urban land use increased by only eight percent. [California Dept of Water Resources, Orange County Land Use Study 9 (1981)](https://www.water.ca.gov/orc/studies/orc_land_use.pdf) [hereinafter cited as DWR Orange County Study]. In fact, irrigation accounts for about 85% of all water used in California. [Developing a New Water Plan for California, pt. 1, supra note 100, at 2 (testimony of Ronald Robie, Director, Dep't of Water Resources)].

131. DWR Orange County Study, supra note 130, at 17.


133. DWR Orange County Study, supra note 130, at 17.

134. Total groundwater produced in 1954-55 was 148,224 acre-feet as compared with 228,943 acre-feet in 1980-81. *Id.* at 35.


137. Final Report, supra note 80.

138. The other topics studies were appropriative water rights, legal aspects of water con-
and extensive groundwater problems,” the Commission recommended a strong state groundwater protection policy. The Commission favored local control and management of groundwater resources, subject to state review, and proposed legislation to reform groundwater management, adjudication, and conjunctive use.

The Commission proposed that the state be divided into “management areas” conforming to natural groundwater basins. Each area would be required to designate a management authority which would develop and adopt a management program within two years of designation. The proposed legislation grants broad powers to these management authorities—either an existing local entity or a newly formed management district—to allow effective implementation of management programs. Local management programs would need to conform to state groundwater resource management policies. However, the proposed legislation would authorize the consideration of local factors in drafting these programs, including existing management programs, present and future supplemental water supplies, and the economic consequences of alternative management programs.

The Commission recognized that resort to adjudication may still be necessary to determine the groundwater rights in a basin, and therefore proposed standards for determining these rights. The Commission, riparian water rights, the transfer of water rights, and the legal aspects of instream uses. Id. at 3. The commission decided against reviewing federal law aspects of California water law and statutory material on local water agencies and large scale water development projects. Id. at 3.

139. Id. at 165-66.
140. Id. at 166.
141. Id. at 179. Basin boundaries were initially identified in DWR BULLETIN 118, supra note 2. Some of those boundaries were later modified slightly to reflect consideration of political boundaries as well as geological and hydrological conditions. See DWR BULLETIN 118-80, supra note 4.

142. FINAL REPORT, supra note 80, at 183-84. A management authority may be 1) a local entity which is a public agency (provided the agency has authority over all, or substantially all, of the groundwater management area), 2) an entity organized under a joint powers act, or 3) a district organized in accordance with the provisions in the legislation. Id. at 184. If no local entity has authority over substantially all of a basin, e.g., if it underlies two or more counties, and if no joint powers authority is organized, a management district will be automatically formed and designated the management authority for the area. Id. at 187. The first board of directors of such a district would be appointed by the Boards of Supervisors of the counties affected. Id. If an area chooses to set up a district, the proposed legislation prescribes the necessary steps to be taken. Id. at 195-99.

143. Id. at 188. These programs must be submitted to the SWRCB for review. Id.
144. Id. at 231.
145. E.g., avoidance of waste and unreasonable use, longterm overdraft, and longterm environmental degradation. Id. at 171.

146. See id. at 88-89.
147. Id. at 189.
148. Id. at 237-39.
sion proposed different legal rights in basins experiencing longterm overdraft and in those not overdrafted.

In overdrafted basins, "rights to the use of available supply of the groundwater shall be allocated primarily on the basis of recent use." The courts could, however, consider other factors where a strict application of this rule would create inequitable burdens. The legislation thus would require all those with groundwater rights within a basin, including public utilities or entities, to share proportionately in the burden of any aggregate reduction in extractions. Both the San Fernando doctrine requiring consideration of "equitable factors" and Pasadena pro rata reductions across the board would be used to determine rights.

In basins not experiencing longterm overdraft, the Katz doctrine would generally apply. After allocating pueblo and recapture rights, groundwater would be allocated to overlying users according to the correlative rights doctrine. Appropriators would then be granted extraction rights "on a first in time, first in right basis, subject to any prescription which may have occurred." Overlying owners would need to preserve their rights to prospective use by seeking declaratory judgments.

To further facilitate groundwater rights adjudications, the Commission proposed streamlined procedural rules. All major pumpers within a groundwater basin would be necessary parties to the action. No judge residing in a county which is part of a "groundwater adjudication area" would be qualified to sit. Special venue, notice, and discovery rules are provided, taking account of the difficulties and expense involved in identifying and serving notice on the potentially thousands of parties involved. Finally, recognizing "the complexity of the issues in a groundwater adjudication and the costs of litigation," the Commission encouraged the use of stipulated judgments and would deny a party the right to withdraw from the stipulation once the party

149. *Id.* at 237. Pueblo and recapture rights, however, have priority over all other rights. *Id.* This is consistent with the holding of San Fernando and applies to those basins not experiencing longterm overdraft as well. *Id.* at 239. No right would be reserved for future use by overlying owners unless a declaratory judgment had been obtained prior to filing of the complaint in an adjudication. *Id.* at 237.

150. *Id.*

151. *Id.* at 238. Those with pueblo or recapture rights would be excluded. *Id.*

152. *Id.* at 239.

153. *Id.*

154. *Id.*

155. *Id.* at 239-50.

156. *Id.* at 239.

157. *Id.* at 240. The chairperson of the State Judicial Council would assign judges. *Id.*

158. *Id.* at 241-48.
had entered it. Many of the questions left unanswered by the recent case law are resolved by the Commission's recommendations.

III
THE CASE FOR ADOPTING THE COMMISSION'S RECOMMENDATIONS

The proposed legislation addresses the need for early management. Traditionally, no action has been taken to protect a basin until overdraft begins, and often not until overdraft reaches the critical stage. In contrast, the proposed legislation permits a managing authority to be designated and a management program implemented before overdraft occurs. Such early management will help prevent the serious environmental harm and economic loss that results from longterm overdraft.

The designation of a single basin management authority should ease the formulation and execution of groundwater policies. Proper management has been hindered by the great number and divergent organization of water agencies. Local water agencies are generally formed according to political boundaries. Thus a groundwater basin may underlie the jurisdiction of several different agencies, none of which has effective control over the basin. Conversely, several agencies with distinct and separate powers may be operating within one water district. Creation of a single managing authority with broad powers to oversee an entire basin would eliminate the nearly impossible task of integrating these myriad agencies.

The Commission's recommendations should also allow for maximum local flexibility combined with the greatest statewide coordination. Organization of management districts on a local level allows special problems within an area to be considered in developing management programs. The proposed legislation acknowledges that geological, hydrological, and political differences among basins may require different types of management programs. On the other hand, requiring state review of these locally developed programs should re-

159. *Id.* at 246-47.

160. Not all areas will be required to designate a management authority. If an area is being managed pursuant to an adjudication, if litigation is pending, if effective groundwater management already exists, or if the SWRCB decides management is not needed, the Board may classify the area inactive. *Id.* at 182. Inactive status may be revoked whenever the requirements for inactive status are no longer being met. *Id.* at 183.

161. In the Metropolitan Water District alone there are eleven municipal water districts, one county water authority, and 93 incorporated cities of which 13 are corporate member agencies of the master district. Overlying this web are flood control, sanitation, sewer, conservation and other agencies which impinge on water supply and disposal. State and federal agencies are involved in local policymaking as well. Krieger & Banks, *supra* note 40, at 74-75.
result in more and broader long-range planning and prevent local special interests from pursuing purely local biases. Conflicts may arise, however, if local agencies are unwilling or unable to adopt programs aimed at meeting state objectives, or if they insist on adopting programs inconsistent with state groundwater policy.

The proposed legislation would grant managing authorities broader powers than are currently available to most water agencies. As the Orange County experience demonstrates, a management district must have broad authority to manage a groundwater basin successfully. Under the Commission's proposal, management districts would be granted the power to levy pump taxes and basin equity assessments to alleviate the demand for groundwater and equalize the cost of surface and groundwater. Districts would also have authority to require registration of all wells in a basin to meter the amount of groundwater being pumped, to implement conjunctive use programs, to buy and sell water, to implement conservation and reclamation programs, and to "provide for the protection and enhancement of the environment within and without the groundwater management area." Thus, the proposed legislation would remove the current legal obstacles to a comprehensive management program.

A statewide program would also facilitate physical solutions which are currently not feasible. The absence of adequate resource management and conservation efforts in water poor areas of the state has been one factor causing water rich areas to resist water transfers; residents of water rich areas sense that better management and increased conservation efforts could forestall the need for expensive new water projects. A clear state policy requiring proper water use state-

162. Political pressure to approve local plans may, of course, result in less than ideal impartiality.
163. Final Report, supra note 80, at 216.
164. Id. at 220.
165. Id. at 211-14.
166. Id. at 231. The recommendations grant management authorities the right to recharge basins, store groundwater and recapture stored water. Id. at 236. Management authorities would not be required to pay compensation to overlying owners for basin storage. Id. at 233.
167. Id. at 209.
168. Id.
169. Id. at 207.
170. "Physical solution" is a term of art used to describe remedies fashioned as a result of a groundwater adjudication or management program. A physical solution entails reducing extractions and increasing use of surface water, especially imported water.
171. Id. at 146.
wide should ease concerns and prompt cooperation. Together with removal of legal obstacles to interbasin transfers, such cooperation could make supplemental supplies more widely available.

IV
OBJECTIONS TO THE COMMISSION’S RECOMMENDATIONS:
FEAR OF THE UNKNOWN

Despite the many advantages of the Commission’s recommendations, there is strong opposition to adoption of any legislation aimed at groundwater management.\(^{173}\) That opposition appears grounded more in fear than in objective economic or political factors. State Senator John A. Nejedly once suggested that opponents of regulation are driven by “short-term personal greed, distrust of [their] neighboring county, or paranoia over any form of state oversight.”\(^{174}\) Local user fears must therefore be overcome before the implementation of a district management program is politically feasible.

Pumpers in areas which are not experiencing overdraft or which already have effective management programs regard the proposals as both unnecessarily bureaucratic and as a direct threat to local autonomy and their ability to solve what are perceived as purely local problems. These objections are overstated. The Commission’s recommendations allow inactive classifications for appropriate basins, exempting them from the requirement of designating a managing authority.\(^{175}\) Pumpers in areas which are properly managing groundwater resources, therefore, have nothing to fear from the proposed legislation. Rather, a statewide program would assure that currently managed basins are not damaged by the overdrafting of neighboring unmanaged basins.

Opposition is also grounded in fears of the proposed legislation’s possible adverse effects on agriculture. Farmers are heavily dependent on groundwater\(^ {176}\) and often view any proposals for management as a

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\(^{173}\) The state legislature has so far failed to enact the Commission’s recommendations. See H. Dunning, supra note 51, at 38-41. A recent ballot measure, the Water Resources Conservation and Efficiency Act, reprinted in id. app. A, at 53-61, was defeated in November 1982 by a wide margin. In part, the initiative would have required management programs acceptable to the SWRCB to be adopted in eleven basins identified as being in a state of critical overdraft. Id. at 58-60. Not surprisingly, agricultural interests were major opponents of the initiative.


\(^{175}\) See supra note 160.

\(^{176}\) In normal years, about 40% of water used in the San Joaquin Valley is groundwater. In 1977, due to drought conditions, groundwater supplied about 80% of the valley’s agricultural needs. Hagan, Water Availability for Recharge v. Overdraft, in Groundwater
direct threat to their livelihood. Because urban uses require less water than agricultural uses, curtailment of groundwater pumping could result in conversion of some agricultural land to urban uses. Thus, groundwater management may be seen by farmers as a land use planning tool wielded by those in favor of urban development. Farmers argue that any increase in costs or decrease in water supply would jeopardize California's leading industry.

The fears of agricultural interests are also inflated. Orange County's experience is enlightening on this point. Although some agricultural land has been converted to urban use in Orange County, that conversion appears more closely related to general growth trends throughout Southern California than to groundwater management. Furthermore, despite increased water costs, Orange County has remained one of the leading agricultural counties in the state. Farmers must also recognize that longterm overdraft is costly to them and to the state as a whole. As both the depths to which wells must be drilled and drilling costs increase, farmers on the shallow rims of basins will lose their water completely, and many will be put out of business. Without supplemental supplies, moreover, their land will become virtually worthless.

The situation in the San Joaquin Valley illustrates the costs of longterm overdraft and overdependence on groundwater. Land subsidence there occurs at an alarming rate. As the land sinks, the basin is compressed, resulting in extensive damage on the surface and a permanent loss of storage capacity in the basin. Both the current water supply and the overall potential of the basin to provide groundwater are thereby diminished.

The San Joaquin farmers have pointed out that most of the water that they use returns to the basin from which it was drawn as it percolates into the soil. While this is technically true, it is hardly indica-
tive of effective resource management. The return of this groundwater, and its constant reuse, creates problems of its own. The percolating water contains fertilizers and leached salts. The minimal natural recharge and remaining permanent resources of the basin have become insufficient to dilute the amount of additives entering the basin. Thus, the groundwater becomes increasingly saline and unsuitable for agricultural uses. This situation is at least as big a threat to the agricultural industry as effective groundwater management is claimed to be.

Farmers also fear that state authorities will not be responsive to local needs. The Commission's recommendations, however, do anticipate a reflection of local peculiarities in local management programs. In fact, members of district authority boards of directors must be residents of the district, and thus should be sensitive to local concerns.

Essentially, opposition to groundwater management is based on a fear of losing local control. These fears stem from distrust of state authority, regional antagonism, and a misunderstanding of what has actually been proposed. Adoption of the proposed legislation will not be politically feasible until these local fears can be overcome.

CONCLUSION

California's current groundwater management law is woefully inadequate. Increased pumping of overdrafted basins, with its concomitant side effects, is an unsatisfactory means of allocating a scarce and valuable resource. Only a comprehensive statewide management program can effectively protect groundwater resources.

Pumpers currently depend on the courts to provide basin by basin solutions. Unfortunately, courts are not well equipped to allocate groundwater. Court resources are already overtaxed, and continuing jurisdiction merely adds to their burdens. Furthermore, overdraft requires immediate solutions to prevent environmental and economic havoc, while groundwater adjudications typically drag on for years.

Groundwater allocations ultimately require policy decisions better resolved by the legislature than the courts. Politics is the process of deciding who gets how much, when, and why. Without a doubt, the allocation of groundwater fits within this definition. Where too many are demanding too much of a scarce resource, political choices must be made.

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water percolates into the soil, a large amount ends up in sewage treatment plants and ultimately in the ocean or some other dumping site.

182. See, e.g., GROUNDWATER SYMPOSIUM, supra note 174 (statement of James F. Sor-enson, Consulting Engineer).

183. FINAL REPORT, supra note 80, at 200.