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California's Groundwater Management Since the Governor's Commission Review: The Consolidation of Local Control

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I. INTRODUCTION

The Governor's Commission to Review California Water Rights Law ("Commission") issued its Final Report reviewing California water law and policy twenty-five years ago.¹ The Final Report included a comprehensive analysis of groundwater conditions, and the law and institutions that regulated groundwater.² The Commission recognized that groundwater resources were essential to meeting water supply demands.³ Despite its importance, groundwater was being managed in some regions of the state in an unsustainable manner.⁴ These areas of the state were withdrawing significantly more water from the groundwater basins than was being recharged, resulting in significant overdraft.⁵ This problem prompted the Commission to conclude that overdraft problems were critical, and immediate comprehensive management reforms were needed.⁶

In response, the Commission made several recommendations to solve the overdraft and other groundwater problems through changes in the law.⁷ The Commission, noting that because groundwater conditions varied according to region and that some regions already had significant local groundwater management programs in place, recommended that local control of groundwater be encouraged and expanded.⁸ The Commission specifically did not endorse a statewide regulatory approach, which is common in most of the western states.⁹

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1. GOVERNOR'S COMMISSION TO REVIEW CALIFORNIA WATER RIGHTS LAW, FINAL REPORT (Dec. 1978) [hereinafter FINAL REPORT].

2. *Id.* at 136-48.

3. See ANNE J. SCHNEIDER, GOVERNOR'S COMMISSION TO REVIEW CALIFORNIA WATER RIGHTS LAW, GROUNDWATER RIGHTS IN CALIFORNIA 1 (Staff Paper No. 2, July 1977). At the time, groundwater provided approximately 15 million acre-feet of California's water needs, accounting for forty percent of the total state supply. *Id.*

4. See FINAL REPORT, *supra* note 1, at 136.

5. See *id.* at 137. The Commission estimated in 1978 that average annual overdraft amounted to 2.2 million acre-feet per year. *Id.* at 140. The regions with significant overdraft included the San Joaquin and Tulare groundwater basins. *Id.* at 137.

6. See *id.* at 135; see also *id.* at 165-69.

7. See generally *id.* at 165-250.

8. See *id.* at 145-46.

9. See *id.* at 146. Most western states follow the appropriative doctrine implemented with a state administrative permit system. *Id.* at 166. Arizona and Montana have state administrative systems but do not

The Commission reasoned that groundwater management required a flexible response and that local agencies were best able to provide this.¹⁰

Since publication of the Final Report, the California Legislature and courts have followed the Commission's recommendations, if not intentionally, then certainly in spirit, by giving local agencies significantly enhanced authority to manage groundwater.¹¹ In addition, large financial assistance programs to provide funding for locals seeking to implement groundwater improvement programs have been enacted, further transferring control over groundwater basins to local agencies.¹² Even with these new regulations and programs in place, significant overdraft, the fundamental problem relating to groundwater that existed twenty-five years ago, still exists in certain groundwater basins in the state and the problem does not appear to be diminishing. Indeed, the problem is arguably even more acute given the cumulative effects of twenty-five years of overdraft and the increased demand on water supplies due to a rapidly increasing statewide population. Related to overdraft in some areas, groundwater quality has also deteriorated in ways that were not fully anticipated by the Commission.

This article begins by describing the current status of groundwater resources in California and the legal, financial, and institutional changes that have been made to groundwater management since the Commission completed its work.¹³ It continues by documenting the continuing movement toward local control, the principal recommendation made by the Commission.¹⁴ The article will explain that although progress has been made to address problems discussed in the Final Report, the measures have been insufficient to stop or even slow overdraft in certain basins in the state.¹⁵ In addition, the decrease in groundwater quality in some basins has emerged as another difficult challenge.¹⁶ This article concludes with some recommendations to address the continuing overdraft problem.¹⁷

follow appropriate rules. 3 WATERS AND WATER RIGHTS § 24.02, at 405-14 (Robert E. Beck ed., rev. ed. 1991). California follows the correlative rights doctrine, which incorporates appropriate rules for non-overlying land. *See infra* notes 46-53 and accompanying text.

10. FINAL REPORT, *supra* note 1, at 166.

11. *See infra* notes 86-124 and accompanying text.

12. *See infra* notes 125-31 and accompanying text.

13. *See infra* Part II and III.

14. *See infra* Part IV. In 1994, fifteen years after the Final Report, several groundwater experts recommended state control of groundwater because of the failures of local control to address the overdraft problem. *See, e.g.,* Eric L. Garner et al., *Institutional Reforms in California Groundwater Law*, 25 PAC. L.J. 1021, 1051-52 (1994). Despite their recommendation, locals have further consolidated control on groundwater management as discussed in this article.

15. *See infra* Part V.

16. *See infra* Part IV.G.

17. *See infra* Part V.

II. STATUS OF CALIFORNIA'S GROUNDWATER RESOURCES

California's groundwater supply has been described as California's "hidden resource."¹⁸ As with anything that is out of sight, it can be argued that groundwater is out of mind as well. The importance of these resources to meeting California's water demand is probably not fully appreciated by the average water user and state policy maker. The amount of groundwater in an area depends on recharge from rainfall, surface runoff from streams, and local underground geology. Recharge can be increased by importing surface water for groundwater storage, by developing recharge basins or "ground water banks," and by pumping water into the aquifer through injection wells.

At the time of the Final Report, the Commission recognized that annual demand for surface and groundwater in California was 31 million acre-feet.¹⁹ Groundwater met twenty-four percent of the state's total demand.²⁰ The Final Report recognized that California was also overdrafting several groundwater basins in the state, eleven of which were in critical condition.²¹ Overdraft refers to the condition of a groundwater basin in which the amount withdrawn by pumping over a long-term period exceeds the amount of water recharged in the basin. The Final Report estimated the total overdraft amount at 2.2 million-acre feet per year.²²

Since the Final Report was issued, California has experienced a spectrum of hydrological conditions; with serious droughts from 1987-1992, very wet years in 1983, 1986, and 1993, and average rainfall in other years.²³ The importance of groundwater in meeting California's enormous water demands, however, has not generally changed since the time of the Final Report. Californians currently meet about thirty percent of their urban and agricultural demands from groundwater.²⁴

18. DEP'T OF WATER RES., CALIFORNIA'S GROUNDWATER UPDATE 2003, at 20 (Bulletin 118) [hereinafter BULLETIN 118-2003].

19. FINAL REPORT, *supra* note 1, at 136. An acre-foot is the amount of water that will cover one acre of land, one-foot deep. An acre-foot of water on average can supply water for two households for an entire year.

20. *Id.*

21. *See id.* at 137. Contemporaneously with the Commission's work, the Legislature directed the California Department of Water Resources ("DWR"), the agency responsible for collecting groundwater data, to develop a definition of critical overdraft and identify those groundwater basins in the state in a critical overdraft condition. In response, the DWR held public workshops around the state and ultimately developed a definition of "critical overdraft": "A basin is subject to critical conditions of overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." DEP'T OF WATER RES., GROUND WATER BASINS IN CALIFORNIA 3 (Bulletin 118-80) (1980). Using this definition, the DWR identified eleven groundwater basins that were in conditions of critical overdraft. *Id.* This definition is still currently used. The DWR has indicated that due to funding constraints these basins have not been reevaluated since then, although there is a reasonable basis to presume that serious conditions continue to exist in many, if not all, of these basins. BULLETIN 118-2003, *supra* note 18, at 98.

22. FINAL REPORT, *supra* note 1, at 137.

23. DEP'T OF WATER RES., PREPARING FOR CALIFORNIA'S NEXT DROUGHT: CHANGES SINCE 1987-92, at 14 (2000).

24. BULLETIN 118-2003, *supra* note 18, at 24.

This amount increases to forty percent during dry periods.²⁵ During dry periods, the construction of groundwater wells increases, as can be expected with a reduction in surface supply.²⁶ The total amount of groundwater extracted in 1995 was approximately 14.5 million acre-feet, representing almost twenty percent of the groundwater extracted in the entire United States.²⁷

The groundwater overdraft problem continues today at roughly the same level that existed at the time of the Final Report. The California Department of Water Resources ("DWR") concluded, in its most recent bulletin on groundwater, that overdraft is continuing at a rate of one million to two million acre-feet annually.²⁸ Although this number is imprecise, certain basins within the state are still showing a growing decline of groundwater levels.²⁹ There is also concern that the basins that have not overdrafted may show evidence of overdraft in the future.³⁰ Overdraft is not sustainable over time. If it is allowed to continue, there is a strong potential for adverse impacts, including increased extraction and well deepening costs,³¹ land subsidence, water quality degradation, and environmental impacts, such as loss of habitat due to lack of water.³²

Land subsidence has already occurred in some parts of the state, and is well documented in the San Joaquin Valley.³³ Subsidence began when groundwater pumping started in the 1920s and appears correlated with groundwater extractions and surface water supplies.³⁴ Subsidence declined as surface water supplies were brought into the Valley in the 1970s through the State Water Project, but increased again when those supplies declined during the droughts.³⁵ Although

25. *Id.*

26. *Id.* at 27-28. The DWR determined that nearly 128,000 new wells were constructed from 1987-2000, about 9,100 annually. *Id.* The DWR also found that well construction increased significantly during the 1987-1992 drought, but then dropped when hydrological conditions improved. *Id.*

27. *Id.* at 20.

28. *Id.* at 2.

29. *See id.*

30. *See id.*

31. Deeper wells require longer pump lifts. This, in turn, requires increased electricity to pump the water. Some wells in the Central Valley are now installed to a depth of over 2,000 feet to reach water. For agricultural water use, if pumping costs exceeds the economic benefit of the crop, then those irrigation wells are ultimately abandoned.

32. BULLETIN 118-2003, *supra* note 18, at 2. The most famous groundwater overdrafted basin involving habitat loss is the Edwards Basin in Texas. As groundwater pumping increased for urban use in San Antonio, springs connected to the basins started to go dry, impacting species protected by the federal Endangered Species Act. *See Sierra Club v. City of San Antonio*, 112 F.3d 789 (5th Cir. 1997). After a series of federal court cases, Texas adopted a basin-wide groundwater management authority in response. S.B. 1477, 73d Leg., Reg. Sess. (Tex. 1993).

33. *See* DEP'T OF WATER RES., 1 THE CALIFORNIA WATER PLAN UPDATE 3-52 (Bulletin 160-98) (1998) [hereinafter BULLETIN 160-98].

34. *Id.* A maximum of twenty-eight feet of subsidence was measured at one point in the San Joaquin Valley. *Id.*

35. *Id.* Operated by the DWR, the State Water Project delivers on average 2.3 million acre-feet per year. Deliveries depend in part on hydrological conditions. During the height of the 1987-1992 drought, the State Water Project made severely limited deliveries to agricultural water users in 1991. DEP'T OF WATER RES.,

some subsidence is elastic, meaning that ground levels can recover if water is recharged, at a certain point the subsidence may become inelastic, permanently losing part of the recharge and storage capacity of the land.³⁶ When the resource is damaged permanently, the groundwater extraction can no longer be merely called overdraft, but would be more accurately described as “groundwater mining.”

Concerns about groundwater quality have greatly expanded since the Final Report. These concerns include groundwater pollution caused by organic contaminants or by saline intrusion. The link between groundwater quality and quantity is now recognized by the state as a significant groundwater management issue that needs more study.³⁷ As levels drop, groundwater quality problems are exacerbated in certain contaminated aquifers. If groundwater contamination is localized at a limited number of well sites, it seldom has an impact on regional supplies, as those wells may be taken out of production.³⁸ However, region-wide pollution problems “such as organics in the San Gabriel Valley or nitrates in parts of the San Joaquin Valley” require more coordinated management.³⁹

III. LEGAL FRAMEWORK FOR GROUNDWATER MANAGEMENT IN CALIFORNIA

At the time the Final Report was issued, the Commission observed that California did not have a statewide groundwater regulatory system;⁴⁰ this is an anomaly among western states.⁴¹ The lack of comprehensive statewide regulations of groundwater continues today.⁴² Indeed, all western states except

MANAGEMENT OF THE CALIFORNIA STATE WATER PROJECT 31 (Bulletin 132-92) (1992). This resulted in those users relying extensively on groundwater resources to make up the difference.

36. BULLETIN 118-2003, *supra* note 18, at 100. The amount of lost recharge capacity is a function of the level of subsidence. For large-scale groundwater withdrawals, the lost capacity can range from ten to thirty percent. WILLIAM M. ALLEY ET AL., SUSTAINABILITY OF GROUND-WATER RESOURCES 55 (U.S. Geological Survey Circular 1186) (1999). For aquifers with large capacity, it is arguable that a loss of capacity in this range will not be missed, because there is still plenty of remaining capacity available for use.

37. See BULLETIN 118-2003, *supra* note 18, at 3.

38. BULLETIN 160-98, *supra* note 33, at 3-71.

39. *Id.*

40. FINAL REPORT, *supra* note 1, at 145.

41. Most western states have a groundwater administrative permit system regulated by the state. The administrative permit system usually requires an application be submitted to the state agency before a new well is constructed. The permitting agency has discretionary authority over the application and usually issuance rests in part on whether the proposed use is beneficial. The permit is usually conditional. See WATERS AND WATER RIGHTS, *supra* note 9, at 414-21.

42. The California State Water Resources Control Board (“SWRCB”) regulates the limited amount of groundwater that exists as “subterranean streams flowing through known and definite channels.” CAL. WATER CODE § 1200 (West 1971). This term is ambiguous to say the least and has been the subject of contention. In 2002, the SWRCB completed a report that analyzed the scope of the authority of the SWRCB over this type of groundwater. The report generated significant controversy because it recommended expanding the state’s role in regulating groundwater where connected to surface water. See generally JOSEPH L. SAX, REVIEW OF THE LAWS ESTABLISHING THE SWRCB’S PERMITTING AUTHORITY OVER APPROPRIATIONS OF GROUNDWATER

Texas, have a state administrative permit system. Groundwater users in California are permitted to use groundwater consistent with the common law rules unless they were governed by special local rules.

California has developed a set of common law principles establishing and allocating rights among groundwater users. Unchanged from the time of the Final Report, California follows the correlative rights doctrine to allocate rights among competing groundwater users.⁴³ This correlative rights doctrine establishes a priority system among California groundwater users based on whether the land on which the water is used overlies the basin.⁴⁴ The doctrine recognizes two types of users: overlying users whose property lies above the groundwater basin and appropriators who take water outside the basin to use on non-overlying property.⁴⁵

Overlying groundwater users have priority in this system.⁴⁶ Appropriators may only take water that is surplus to the needs of overlayers.⁴⁷ They are junior to all overlying users, and if there is insufficient supply to satisfy both overlying users and appropriators, appropriators must curtail their use first.⁴⁸ If there is insufficient supply to meet the demands of all the appropriators, prior appropriation principles apply.⁴⁹ Under these principles, an appropriator that started groundwater use first has superior rights, known as “senior rights,” to appropriators that begin their use later and have “junior rights.”⁵⁰ Junior appropriators must curtail their use, with the last appropriators on the system curtailing first, until there is a sufficient supply to meet the needs of the remaining appropriators.⁵¹ After all appropriators are curtailed and there is still

CLASSIFIED AS SUBTERRANEAN STREAMS AND THE SWRCB'S IMPLEMENTATION OF THOSE LAWS, FINAL REPORT (Jan. 19, 2002), available at [http://www.waterrights.ca.gov/hearings/saxreport/SubStreamRpt\(2002-01-20\).pdf](http://www.waterrights.ca.gov/hearings/saxreport/SubStreamRpt(2002-01-20).pdf) (copy on file with the *McGeorge Law Review*). Ultimately, the SWRCB decided not to implement the recommendations in the report. The fact that SWRCB did not attempt to exercise its jurisdiction to regulate groundwater connected to surface water (albeit only a limited share of the state's total groundwater resources) further supports the proposition that local control remains the preferred vehicle to manage California's groundwater.

43. See *Katz v. Walkinshaw*, 74 P. 766 (Cal. 1903). There are three other major groundwater rights systems in the United States: absolute ownership, reasonable use, and appropriators. Under absolute ownership, a property owner may use water both on overlying and non-overlying property, even to the point of causing harm to neighboring users. The reasonable use doctrine requires that water be used on overlying property. The owner may use the water to the point of harming other users in the basin. Appropriators may use water on both overlying and non-overlying property. When there is insufficient supply to meet all appropriators' needs, use is restricted based on a priority system. WATERS AND WATER RIGHTS, *supra* note 9, at 115-287, 393-462.

44. See *Katz*, 74 P. at 772.

45. Municipalities that operate their own water system within their boundaries do not exercise overlying rights except on their property such as parks and schools. *City of San Bernardino v. City of Riverside*, 198 P. 784, 792 (Cal. 1921). Except for their properties, municipalities thus act as an appropriator and would be junior to all overlying users.

46. *Katz*, 74 P. at 772.

47. *Id.*

48. *Id.*

49. *Id.*

50. *Id.*

51. *Id.*

an insufficient supply for all overlying users within a basin, water is shared proportionally among overlying users.⁵² This may require pumping curtailment to protect the basin if groundwater levels drop too low.

With its overlying and non-overlying distinction, the correlative rights doctrine does not recognize the value of the particular use. For instance, a more valuable non-overlying use, even if it started first, would have to be curtailed in favor of a less valuable overlying use. Because of these inequities, the Commission recommended that the legislature modify the correlative rights doctrine in favor of equitable principles to allow flexibility for the courts in resolving groundwater disputes.⁵³ The Legislature has not followed this recommendation.

Similarly, the courts have refused to significantly depart from the correlative rights doctrine. One court found that, unlike certain surface water users, overlying owners with unexercised water rights cannot have their rights be made junior to appropriators through groundwater adjudications, lawsuits filed to settle all water rights within a basin.⁵⁴ Recently, the California Supreme Court reviewed the application of the correlative rights doctrine in *City of Barstow v. Mojave Water Agency*.⁵⁵ One of the appropriators in the basin had argued that the court could allocate water within the basin using equitable principles.⁵⁶ The court rejected this argument, finding that courts may not deviate from the correlative rights doctrine without first expressly considering the application of the doctrine when solving an overdraft dispute.⁵⁷

Although the correlative rights doctrine sets forth a priority system among groundwater users, the reality is that this system plays a small role in groundwater management within the state. This doctrine only comes into effect when there is a dispute among groundwater users and one of the users attempts to resolve the dispute through an adjudication. Even in a situation where a basin is in a condition of overdraft, this doctrine will not apply until a lawsuit is filed by one of the competing users.⁵⁸ Without such a lawsuit, all users can continue their use unabated.⁵⁹

52. *Id.*

53. FINAL REPORT, *supra* note 1, at 169, 237-39.

54. See *Wright v. Goleta Water Dist.*, 219 Cal. Rptr. 740 (Ct. App. 1985). The California Supreme Court has ruled that riparian users for surface streams may have their water rights priority reduced if it has not been exercised in a statutory adjudication. *In re Waters of Long Valley Creek Stream System*, 599 P.2d 656 (Cal. 1979). Riparian users are similar to overlying users to the extent their water rights are based on land ownership near the water resource and are not subject to an administrative permit system. Distinguishing *Long Valley*, the *Wright* court reasoned that the Legislature, unlike for surface water, had not adopted a statewide scheme regulating groundwater. *Wright*, 219 Cal. Rptr. at 748-49. Consequently, the court followed a strict interpretation of the correlative rights doctrine to protect common law priorities. *Id.* at 750.

55. 5 P.3d 853 (Cal. 2000).

56. *Id.* at 865.

57. *Id.* at 869-70. The court did not expressly state under what circumstances, if any, courts may deviate from the correlative rights doctrine. This subject will likely be the focus of the next, yet to be filed groundwater adjudication.

58. In some states, there are specific statutory prohibitions against overdraft. California does not have such statutes. However, overdraft could potentially run contrary to Article X, Section 2 of the California Constitution, which requires that all water use in the state, including groundwater, be reasonable and beneficial.

There are currently nineteen adjudicated basins in California, most of which are located in Southern California.⁶⁰ Six of these adjudicated basins have been added since the publication of the Final Report. The goal of all groundwater adjudications is to resolve disputes among competing users within the basin by establishing a set of rules that will allow sustainable use of the basin. The adjudicated basins all operate according to unique rules developed through the adjudication. Typically, the judgment resulting from an adjudication establishes priority among users with specifically defined pumping limits and creates user committees or appoints a water master to monitor compliance and resolve disputes.⁶¹ Although adjudications have proven to be useful in managing groundwater for a sizable population in Southern California, they have limited use statewide. The nineteen adjudicated basins account for a small percentage of California's groundwater resources. The limiting factor for adjudication continues to be the cost and delay associated with groundwater litigation, which is adversarial rather than collaborative and often involves numerous parties and complex groundwater science.⁶²

The State Water Resources Control Board ("SWRCB") has authority to initiate groundwater adjudications on behalf of the state to protect groundwater quality,⁶³ but this authority has never been used. Such action by the SWRCB would be contrary to the movement towards consolidating local groundwater control and it is probably because of local resistance that the SWRCB has yet to use this authority.

CAL. CONST. art. X, § 2. It can be argued that groundwater use that is causing overdraft at some point becomes unreasonable, particularly when the overdraft causes permanent damage to the aquifer.

59. As the Commission reported, "California's groundwater is usually available to any pumper, public or private, who wants to extract it, regardless of the impact of extraction on neighborhood groundwater pumpers or on the general community." FINAL REPORT, *supra* note 1, at 136.

60. BULLETIN 118-2003, *supra* note 18, at 42-43. These basins are the Scott River Stream System, Santa Paula Basin, Central Basin, West Coast Basin, Upper Los Angeles River Basin, Raymond Basin, Main San Gabriel Basin, Puente, Cummings Basin, Tehachapi Basin, Brite Basin, Mojave Basin Area Adjudication, Warren Valley Basin, Chino Basin, Cucamonga Basin, San Bernardino Basin Area, Six Basins, Santa Margarita River Watershed, and Goleta. *Id.*

61. For an example of the tools used to manage a groundwater basin, see the Mojave Water Agency website at www.mojavewater.org. The Mojave River Basin was the subject of the California Supreme Court's decision in *City of Barstow v. Mojave Water Agency*, 5 P.3d 853 (Cal. 2000).

62. The first basin-wide adjudication was in the Raymond Basin in Southern California. It took thirteen years to resolve, and ultimately ended in the California Supreme Court. See *City of Pasadena v. City of Alhambra*, 207 P.2d 17 (Cal. 1949). The Supreme Court ruled in *City of Pasadena*, applying the prescriptive rights doctrine, that strict rules of the correlative rights doctrine need not be followed where there were numerous users in the basin, all pumping adverse to each other for a period of time. *Id.* at 32-33. The prescriptive rights doctrine allows for the acquisition of water rights based on use that is adverse to other legal users. Several decades later, the Supreme Court retreated from this holding in *City of Los Angeles v. City of San Fernando* holding that California Civil Code section 1007 precluded the application of the prescriptive rights doctrine. 537 P.2d 1250 (Cal. 1975). The court also indicated in a footnote that an equitable apportionment of water, rather than a strict following of the correlative rights doctrine, may be appropriate. *Id.* at 1298 n.61.

63. CAL. WATER CODE §§ 2100-2102 (West 1971). Before the SWRCB may initiate the adjudication, the DWR or local government agency must perform an investigation to provide the factual basis for the lawsuit. *Id.* § 2101.

Because of the limited usefulness of groundwater adjudications and the lack of a statewide groundwater regulatory scheme, the Commission recommended that local control of groundwater be encouraged and expanded.⁶⁴ Consistent with this recommendation, local agency groundwater management, as opposed to state management or no management, has been the choice in California since the Final Report was issued, albeit with varying degrees of success. The two primary methods of local groundwater control are the county groundwater management ordinance and local water agency regulation.

Although local groundwater ordinances existed before publication of the Final Report, the impetus for creation of such ordinances greatly expanded after the California Court of Appeal decided in *Baldwin v. County of Tehama*⁶⁵ that local governments have the authority, pursuant to its police power, to regulate groundwater users.⁶⁶ Operating under the theory that groundwater management, as well as nature, abhors a vacuum, the *Baldwin* court concluded that because the state had not adopted a statewide system to regulate groundwater use, local governments with police powers had authority to regulate groundwater users within their boundaries.⁶⁷

There are currently twenty-seven counties that have adopted groundwater ordinances within the state.⁶⁸ Three counties, including Glenn County, aim to manage their groundwater basin to account for users needs both inside and outside the county. However, the remaining counties have not attempted to restrict overdraft or establish management objectives for the basins. Instead, their ordinances only serve to restrict the exportation of groundwater from the basin.⁶⁹ In such counties, it is unlawful to export groundwater outside of the county or use groundwater in lieu of exported surface water without an extraction permit issued by the county Board of Supervisors (“Board”) and without first complying with the California Environmental Quality Act.⁷⁰ The Board typically has

64. FINAL REPORT, *supra* note 1, at 166-69.

65. 36 Cal. Rptr. 2d 886 (Ct. App. 1994).

66. *Id.* at 891. Under the California Constitution, counties and cities have police power authority to make laws to regulate the health, safety, and welfare of their residents. CAL. CONST. art. XI, § 7. Counties and cities are prohibited from enacting ordinances that are in conflict with general state law. *Id.*

67. *Baldwin*, 36 Cal. Rptr. 2d at 890-91.

68. BULLETIN 118-2003, *supra* note 18, at 39. The counties are Butte, Calaveras, Colusa, Fresno, Glenn, Imperial, Inyo, Kern, Lake, Lassen, Madera, Mendocino, Modoc, Mono, Monterey, Napa, Sacramento, San Benito, San Bernardino, San Diego, San Joaquin, Shasta, Sierra, Siskiyou, Tehama, Tuolumne, and Yolo.

69. Many of these counties have similar language in their ordinances and it appears that the ordinances derive from similar sources. See Ellen Hanak, *Who Should be Allowed to Sell Water in California? Third-Party Issues and the Water Market*, PUB. POL’Y INSTITUTE OF CAL., at 25-30 (2003).

70. See *id.* at 29-30. The California Environmental Quality Act (“CEQA”), CAL. PUB. RES. CODE §§ 21000-21177 (West 1996 & Supp. 2004), requires any state or local agency carrying out a project impacting the environment to review and mitigate where possible the environmental impacts associated with the project. *Id.* § 21001. “Project” is defined broadly in CEQA to include the issuance of permits. *Id.* § 21065. A groundwater export permit thus would be subject to the CEQA process. The county would act as the lead agency, meaning it would be responsible for creating the appropriate environmental document, either an environmental impact report, a negative declaration, or an exemption reviewing the environmental impacts of the export. The county also has the responsibility to adopt appropriate mitigation measures.

discretionary authority over the issuance of the permit and the permit may be issued only if the Board first determines that the export will not cause overdraft, will not affect safe yield, and will not injure water users within the county.⁷¹

These export ordinances have been adopted by both rural and groundwater rich counties, many in Northern California, out of concern that their groundwater resources will be exported to meet the growing demands of the Bay Area and Southern California. The concerns about out-of-county exports are typified by the scenario that someone could purchase land within a county with groundwater resources for purposes of obtaining groundwater rights, and then, transfer water outside of the county for a fee to the detriment of users within the county.⁷² Alternatively, an overlying landowner may simply decide to transfer the groundwater supplies out of the basin through a contract with an export user. Based on the correlative rights doctrine, such exporters would be considered appropriators and thus could only use water that was surplus to all overlying users within the county. However, the ability to restrict out-of-county use by relying on the appropriative doctrine through adjudication is perceived to be limited.⁷³

There are problems with this approach to groundwater management, especially if it is the only management tool used in that basin. Because of the enormous political pressure on the boards of supervisors to keep all groundwater within their respective counties, an export permit application may be denied even if the exports do not adversely affect local water needs. This could interfere with groundwater exports that would enhance the statewide water supply without causing local effects. This is of special concern because of California's growing population and increasing water demands. Moreover, export-restricting ordinances do not attempt to regulate in-county use even if it is causing overdraft or groundwater quality problems.

Groundwater exports have also been restricted by an area of origin law known as the "protected areas law," adopted by the California Legislature in 1984.⁷⁴ Area of origin laws, several of which existed prior to 1984, are intended to protect water rich regions from exports.⁷⁵ Previously enacted area of origin laws protect against *surface* water exports from watersheds or counties with surplus water. The protected areas law applies to both *surface and* groundwater resources within defined watersheds. It protects important groundwater basins in

71. See, e.g., YOLO, CAL., CODE tit. 10, ch. 7, § 10-7.305 (1996).

72. For example, in Yolo County, the Board of Supervisors has authorized the filing of an eminent domain action against a large agricultural landowner out of concern the owner may export water outside of the county. Elisabeth Sherwin, *County OKs Eminent Domain*, THE DAVIS ENTERPRISE, July 9, 2004, at 1. This concern is part and parcel of California's history of water exports outside a region. It started with the City of Los Angeles' acquisition and export of water within the Owens Valley in the early part of the twentieth century and is still prevalent today. See NORRIS HUNDLEY, JR., THE GREAT THIRST 531-32 (rev. ed. 2001).

73. See *supra* note 62 and accompanying text.

74. CAL. WATER CODE §§ 1215-1222 (West Supp. 2004).

75. There are several types of area of origin laws for surface water. For a comparison of area of origin laws, see David A. Sandino, *Protecting Local Water Supplies from Export: Comparison and Analysis of California's Area of Origin Laws*, 2000 CAL. ENVTL. L. RPTR. 349 (Dec. 2000).

the Central Valley, specifically those found in the Sacramento, Mokelumne, Calaveras, and San Joaquin River watersheds, as well as the Sacramento-San Joaquin Bay-Delta.⁷⁶

Under the protected areas law, groundwater appropriations exported out of the protected area initiated after January 1, 1985 may not deprive groundwater users of “the prior right to all the water reasonably required to adequately supply the beneficial needs of the protected area.”⁷⁷ The full scope of this statute is uncertain because terms like “prior rights,” “reasonably required,” and “adequately supply the beneficial needs” are ambiguous and have not been analyzed in a reported case. However, similar wording is used in another area of origin law known as the “watershed protection statute.”⁷⁸

The watershed protection statute applies specifically to surface water diversions by the two major water projects: the State Water Project and the federal Central Valley Project.⁷⁹ The meaning of this area of origin statute has not been analyzed by a reported court decision, but it was analyzed in an influential 1955 California Attorney General opinion.⁸⁰ According to the Attorney General, when a water user within the area of origin makes an application for a surface water appropriative right, the water user is assigned a higher priority than the two major projects, even if the projects had perfected their water rights earlier.⁸¹ This interpretation, if applied to the protected areas law, would modify the correlative rights doctrine by limiting appropriators to water that is not only surplus to the overlying users in the basin, but to water that is surplus to the reasonable water needs of the entire watershed.

The groundwater area of origin laws also grant water users within a protected area the right to contract for a water supply from the exporter, provided they pay adequate compensation to the exporter.⁸² The exporter is required to negotiate contract terms in good faith with the water users within the protected area, and this good faith obligation is enforceable in court.⁸³

76. CAL. WATER CODE § 1215.5. Outside of the Central Valley, the protected areas law protects the Mono Lake, Truckee, Walker, Carson, and Russian River systems. *Id.* The effect of the protected areas law on surface water appropriations is limited, because it only applies to appropriations after January 1, 1985. *Id.* § 1215. For most of these systems, significant exports out of the watershed occurred before that date, and thus would not be affected by the law.

77. *Id.* § 1216.

78. *Id.* § 11460 (West 1992). In language that parallels Water Code section 1216, section 11460 provides: In the construction and operation by the department of any project under the provisions of this part a watershed or area wherein water originates, or an area immediately adjacent thereto which can conveniently be supplied with water therefrom, shall not be deprived by the department directly or indirectly of the prior right to all of the water reasonably required to adequately supply the beneficial needs of the watershed, area, or any of the inhabitants or property owners therein.

Id.

79. *Id.* § 11128.

80. 25 Op. Cal. Att’y Gen. 8, 24 (1955).

81. *Id.*

82. CAL. WATER CODE §§ 1217(a), 1219.5 (West Supp. 2004). No reported contract has yet been completed pursuant to these sections.

83. *Id.* § 1217(b)-(c).

While the Commission did not mention it directly, the protected areas law represents another example of increased local groundwater control. Although this law does not require express approval of local agencies for exports outside the area, like county export ordinances, the practical effect is similar. This law makes it difficult for appropriators outside the area to start new pumping within a protected basin without first demonstrating that the water supply needs of the protected area are being met. In overdrafted basins, the ability to start a new appropriation for export and still “adequately supply the beneficial needs”⁸⁴ would appear impossible, because overdrafted basins are, by definition, in danger of being unable to provide an inadequate supply to water users in the basin.⁸⁵

IV. EXPANSION OF LOCAL AGENCY GROUNDWATER MANAGEMENT AUTHORITY

Since the adoption of the Final Report, and consistent with its recommendation, the real improvement concerning groundwater management in California has occurred through a significant expansion of the express authority granted to local agencies over groundwater management. In the last twenty-five years, the Legislature has enacted a host of laws giving local agencies more authority to manage groundwater and, in some cases, requiring them to take specific action. In addition, the Legislature and the voters have provided financial incentives to improve groundwater management.

A. *Districts With Groundwater Management Authority Created Under General Enabling Statutes*

Over twenty different types of local agencies have been granted authority to manage groundwater.⁸⁶ These agencies, numbering more than two thousand, include irrigation districts, water conservation districts, water districts, county service areas, community services districts, and water storage districts.⁸⁷ The scope of authority of a particular local agency depends on the general district

84. *Id.* § 1216.

85. Several of the critical overdrafted basins are within watersheds protected by the area of origin laws: Eastern San Joaquin County Basin, Chowchilla Basin, Madera Basin, and possibly the Kaweaha, Tulare, and Tule basins. *See supra* note 5 and accompanying text. Certain exports from the Eastern San Joaquin Basin are not subject to the area of origin requirements provided the exports are made consistent with San Joaquin County ordinances regulating groundwater. CAL. WATER CODE § 1220(d).

86. BULLETIN 118-2003, *supra* note 18, at 33. Local district law in general is a complicated maze of rules, including those pertaining to the purposes of the district, formation requirements, voting requirements, size and qualification of the governing board, eminent domain authorities, and assessment powers. For an analysis of the local agencies with authority relating to water, including groundwater management, see generally DEPARTMENT OF WATER RESOURCES, GENERAL COMPARISON OF WATER DISTRICT ACTS (Bulletin 155-94) (1994).

87. BULLETIN 118-2003, *supra* note 18, at 34.

enabling legislation under which the agency was created.⁸⁸ For instance, water replenishment districts are authorized to establish groundwater replenishment programs to both address overdraft and to collect fees for that service.⁸⁹ Water conservation districts are authorized to levy groundwater extraction fees.⁹⁰

Since the adoption of the Final Report, the Legislature has expanded the power of these districts. In the case of water replenishment districts, the Legislature has given them specific powers to protect groundwater quality.⁹¹

B. Special Districts Created for Groundwater Management

Since the Final Report was adopted, the Legislature has embraced a new tool in managing groundwater. Consistent with the move to local management, the Legislature created seven special districts for groundwater management: Sierra Valley Water Management District,⁹² Honey Lake Valley Groundwater Management District,⁹³ Long Valley Groundwater Management District,⁹⁴ Mono County Tri-Valley Groundwater Management District,⁹⁵ Ojai Basin Groundwater Management Agency,⁹⁶ Fox Canyon Groundwater Management Agency,⁹⁷ and Willow Creek Valley Groundwater Management District.⁹⁸ This approach represents the state-of-the-art in local groundwater management. Because these districts are created by the Legislature, they do not have to go through the formation requirements, such as signature and voting requirements, of local agencies created through general district law. In addition, the Legislature has

88. Malaga County Water District, for instance, was created under the County Water District Act. CAL. WATER CODE §§ 30000-33901. It has been given specific powers pertaining to groundwater charges used for groundwater replenishment. *Id.* § 31144.76.

89. See CAL. WATER CODE §§ 60221, 60230 (West 2004). There is one water replenishment district in the state, the Central and West Basin Water Replenishment District. BULLETIN 118-2003, *supra* note 18, at 34. The district's authority to store groundwater was recently analyzed by a California Court of Appeal. See *Cent. & W. Basin Water Replenishment Dist. v. S. Cal. Water Co.* 135 Cal. Rptr. 2d 486 (Ct. App. 2003). The ability of the district to manage the groundwater basin was challenged by entities with adjudicated groundwater rights within the basin. *Id.* at 489. Besides wanting their rights to natural groundwater, these entities wanted the right to make use of the storage space within the basin for conjunctive use programs. *Id.* at 492. The court rejected their request, finding that their adjudicated rights to the natural groundwater did not give them rights to the storage space. *Id.* at 499. Instead, the district has the authority to operate conjunctive use programs and to manage the storage space within the basin. *Id.* at 503-04.

90. CAL. WATER CODE § 74508 (West 2004). There are thirteen water conservation districts in the state. BULLETIN 118-2003, *supra* note 18, at 34.

91. CAL. WATER CODE § 60224 (West 2004).

92. *Id.* app. ch. 119 (West 1995).

93. *Id.* app. ch. 129.

94. *Id.* app. ch. 119. The Legislature has provided for the creation of a groundwater management district in the Long Valley Groundwater Basin by a joint exercise of power agreement between Sierra and Lassen counties. These counties may also enter in an agreement for the purposes of groundwater management with the state of Nevada, the county of Washoe, or both. *Id.* app. § 119-1301.

95. *Id.* app. ch. 128.

96. *Id.* app. ch. 131.

97. *Id.* app. ch. 121.

98. *Id.* app. ch. 135.

been able to design specific authority for these districts depending on the groundwater problems in each area.

Although each special district has different authorities, they have many similarities as well. Districts have been given the authority to control in-basin pumping upon evidence, or threat, of overdraft.⁹⁹ In the event of overdraft, the available water supply is equitably allocated, but based primarily on the number of acres owned by a particular user.¹⁰⁰ Similar to county export ordinances, districts have been given express authority to limit exports out of the district.¹⁰¹ Districts also have well spacing authority to minimize well interference, similar to the restrictions imposed on oil wells.¹⁰² They can also levy fees for groundwater management activities and for water supply replenishment.¹⁰³

These districts have been successful in addressing their groundwater problems, and are useful models to be considered for use in other parts of the state. However, the fact that their approach has only been used in a few regions suggests that it is difficult to achieve a political consensus within the Legislature to adopt such an aggressive management technique. This model thus remains only a remote possibility for some of the significantly overdrafted basins, such as those in the San Joaquin Valley, famous for its lack of political consensus on groundwater.

C. *Groundwater Management through Local Planning: AB 3030*

In 1991, the California Legislature authorized local agencies overlying basins subject to critical overdraft, as determined by the DWR, to establish groundwater management within their service areas.¹⁰⁴ These agencies were provided powers similar to those of water replenishment districts to manage the basins for the purposes of extraction, recharge, conveyance, and water quality control.¹⁰⁵ Seven local agencies have adopted plans under this authority.¹⁰⁶

This concept of proactive local management was expanded to all agencies through the adoption of Assembly Bill 3030 (“AB 3030”).¹⁰⁷ This is the most significant legislation consolidating local control over groundwater. It greatly expanded the number of local agencies that could write groundwater management

99. See, e.g., *id.* app. § 119-709. Most importantly, the failure to comply with restrictions imposed by the district may result in civil penalties in the amount of \$1000 per day. *Id.* app. § 119-603.

100. See, e.g., *id.* app. § 119-709.5.

101. See, e.g., *id.* app. § 119-706.

102. See, e.g., *id.* app. § 119-703.

103. See, e.g., *id.* app. §§ 119-802 to 119-803.

104. A.B. 255, 1991 Cal. Stat. ch. 903.

105. BULLETIN 118-2003, *supra* note 18, at 35.

106. *Id.*

107. 1992 Cal. Stat. ch. 947 (enacting the Groundwater Management Act codified at CAL. WATER CODE §§10750-10755.4 (West Supp. 2004)).

plans, which are known by those in the field as “AB 3030 plans.”¹⁰⁸ The purpose of this legislation was to encourage local agencies to take more active roles in groundwater management.¹⁰⁹ The implicit threat by the Legislature at the time AB 3030 was adopted was that if local agencies did not adequately manage local resources, the state, through another round of legislation, would force them to do so.

Except for the adjudicated basins, all basins within the state could be subject to AB 3030 plans.¹¹⁰ Furthermore, “local agency” is broadly defined as an agency that provides some type of water service within the area.¹¹¹ This has been interpreted to include cities, counties, irrigation districts, water districts, and water storage districts. If a district providing water service, including reclamation and water replenishment districts, does not act, then any district providing flood control, groundwater management, or groundwater replenishment can adopt a plan.¹¹² By not naming a specific local agency to be responsible for preparing the plan, the Legislature gave latitude to local areas to find a willing agency.

The Legislature encouraged, but did not mandate, local agencies within the same groundwater basin to prepare coordinated plans.¹¹³ Since local agency boundaries do not parallel groundwater basins, a lack of coordination could be a serious problem. AB 3030 sets forth a public procedure for the preparation and adoption of the plan.¹¹⁴ It outlines twelve components, including mitigation of overdraft, groundwater replenishment, groundwater level monitoring, and control of the migration of contaminated groundwater.¹¹⁵

Once a plan is adopted, the local agency may enact regulations to implement the plan, but the authority to curtail overdraft by limiting extraction has been restricted.¹¹⁶ Upon adoption of the plan, the local agency is given the same authority as a water replenishment district—to fix and collect fees and assessments for groundwater management.¹¹⁷ Before a local agency may limit or suspend extractions, it must first determine, through an investigation, that alternative sources of water are infeasible to lessen the demand for groundwater.¹¹⁸ Any restriction imposed is

108. CAL. WATER CODE § 10750.

109. *Id.*

110. *Id.* § 10750.2.

111. *Id.* § 10752(g).

112. *Id.* § 10753(b).

113. *Id.* § 10755.2.

114. After holding a public hearing, the local agency first adopts a resolution stating its intention to adopt a plan. *Id.* §§ 10753.2. The agency then has two years to complete the plan and public input is required during the process. *Id.* § 10753.4. After the plan is completed, a second hearing is held to determine whether to adopt the plan. *Id.* § 10753.5(a). Those who disagree with the plan may file a protest. *Id.* § 10753.5(b). If the local agency determines that fifty percent of the assessed value of the property protests the plan, it may not be adopted. *Id.* § 10753.6(c)(1)-(2).

115. *Id.* § 10738.

116. *Id.* § 10753.9.

117. *Id.* § 10754-10754.3.

118. *Id.* § 10753.9(c).

expressly not to be considered a modification of the water right.¹¹⁹ Thus, any cessation of extraction cannot be viewed as forfeiture or abandonment of the right.

About two hundred local agencies have completed AB 3030 plans.¹²⁰ AB 3030 serves the important purpose of encouraging local entities to be more active in their groundwater management while also increasing public awareness about the importance of groundwater resources.¹²¹ However, due to the lack of mandated implementation requirements and a state clearinghouse agency to review the plans,¹²² the actual improvement in groundwater management effectuated by AB 3030 is difficult to ascertain. Responding to this deficiency, the Legislature has requires all local agencies with AB 3030 plans have certain components in the plans when seeking financial assistance from the state after 2002.¹²³ However, this is a limited reform, and does not mandate that local agencies implement the plans, even in overdrafted basins.¹²⁴

D. State Programs Providing Funds to Local Agencies for Groundwater Projects

Another way to promote local management of groundwater is to offer financial incentives to local agencies to encourage them to implement specific groundwater management or improvement programs. Even though it was not contemplated by the Final Report, California has recently adopted several bond measures that include significant funding for groundwater improvement programs.¹²⁵ This approach represents the growing movement within the water community to move away from regulatory management or water rights disputes toward a cooperative approach with funds used as a carrot to achieve the desired results.¹²⁶

119. *Id.* § 10753.1.

120. Gary Pitzer, *California Groundwater: Managing a Hidden Resource*, W. WATER, July-Aug. 2003, at 4, 9.

121. *Id.*

122. CAL. WATER CODE § 10750.4. The DWR concluded that some of the plans have had little or no implementation. BULLETIN 118-2003, *supra* note 18, at 44.

123. CAL. WATER CODE §10753.7(a). Funds from the Groundwater Management Act of 2000 are excluded from this requirement. *Id.*

124. *Id.*

125. *See infra* text accompanying notes 127-131.

126. As an example, the SWRCB completed the recent iteration of the Sacramento-San Joaquin Bay-Delta hearings, which allocated responsibility to meet the water quality objectives in the Delta. *See* S.W.R.C.B., Revised Water Right Decision 1641 (2000). The ultimate phase of the hearing pertaining to the allocation of responsibility to meet the objectives was settled through provision of funding to Northern California water users to study and potentially provide newly developed supplies to the export users. In return, export water users agreed to fund the studies and to pay for any developed supplies. SHORT-TERM AGREEMENT TO GUIDE IMPLEMENTATION OF SHORT-TERM WATER MANAGEMENT ACTIONS TO MEET LOCAL WATER SUPPLY NEEDS AND TO MAKE WATER AVAILABLE TO THE SWP AND CVP TO ASSIST IN MEETING THE REQUIREMENTS OF THE 1995 WATER QUALITY CONTROL PLAN AND TO RESOLVE PHASE 8 ISSUES (2002) (copy on file with the *McGeorge Law Review*).

Assembly Bill 303, the Local Groundwater Management Assistance Act of 2000, provided \$21 million in grants to local entities for groundwater studies or management activities.¹²⁷ In 2000, the voters approved Proposition 13, the Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Act,¹²⁸ which authorized \$230 million for groundwater storage facilities and conjunctive management programs.¹²⁹ The DWR administers this program.¹³⁰ The DWR has awarded the grant money to local agencies to plan, design, and build conjunctive use facilities. The voters approved yet another bond measure, Proposition 50, in 2002, the Water Security, Clean Drinking Water, Coastal Beach Protection Act of 2002, for which \$500 million may be used for water management programs, including groundwater management and groundwater recharge projects.¹³¹

E. Expansion of Local Authority to Implement Conjunctive Use Projects

The Final Report recommended an expansion of local conjunctive use projects, projects that link groundwater and surface water together to provide maximum water supply.¹³² To help accomplish this, the Final Report recommended that the common law rules protecting groundwater storage be codified to better protect the water rights of those entities implementing these programs.¹³³ Although the Legislature did not adopt the specific statutory changes recommended by the Commission, it made statutory changes in 1992 that have benefited local conjunctive use programs.¹³⁴

The Legislature stated that it “was the policy of the state to encourage conjunctive use of surface water and groundwater supplies and to make surface water available for other beneficial uses.”¹³⁵ To implement this policy, the Legislature attempted to clarify that those participating in conjunctive use programs could not lose their rights through non-use.¹³⁶

California surface water appropriations, unlike groundwater, are regulated through a statewide permit system. California recognizes two major types of surface water rights, riparian and appropriative. Riparian rights are based on the ownership of property next to a river or lake. Appropriative rights, conversely, are based on

127. A.B. 303, 2000 Cal. Stat. ch. 708 (codified at CAL. WATER CODE §§ 10795-10795.20 (West 2004)).

128. CAL. WATER CODE §§ 79000-79221 (West 2004).

129. *Id.* §§ 79161, 79565. Thirty million was allocated to groundwater recharge programs and studies and two hundred million for conjunctive use projects. *Id.* § 79161. The proposition established a maximum of \$50 million for any conjunctive use program. *Id.*

130. *Id.*

131. CAL. WATER CODE §§ 79560-79565.

132. FINAL REPORT, *supra* note 1, at 155.

133. *Id.* at 169, 231-36.

134. *See* CAL. WATER CODE § 1011.5 (West Supp. 2004).

135. *Id.* § 1011.5(a).

136. *Id.* § 1011.5(b).

putting water to beneficial use and are regulated through a permit system. This permit system follows a priority system, similar to groundwater appropriators.¹³⁷ Surface water right holders who do not put water to beneficial use for a five-year period face the possibility of losing those water rights through forfeiture.¹³⁸ The rationale behind forfeiture is that water should be put to beneficial consumptive use. If a water user cannot make use of the water, then arguably the water right is unneeded and should be forfeited.¹³⁹

The possibility of losing water rights discouraged groundwater conjunctive use, because surface water users who stopped using water during periods when they were relying on groundwater risked forfeiting their surface water rights. To eliminate this concern, the Legislature enacted a law providing that decrease in surface water use as a result of substituting groundwater in a conjunctive use program would be considered a beneficial use and such change cannot be used as a basis for forfeiture.¹⁴⁰

To further encourage conjunctive use, the Legislature also made it possible to transfer water that had been saved as result of a conjunctive use program.¹⁴¹ This provision is consistent with the growing trend that has developed since the Final Report to treat water more like a freely transferable commodity.¹⁴² Conjunctive use programs have also been promoted through recent bond programs and through federal assistance. With these incentives, conjunctive water management have expanded significantly since the Final Report was issued. At least a dozen conjunctive use programs are in place throughout the state and more are in the works.¹⁴³ However, not all proposed conjunctive use programs are implemented. One of the more controversial conjunctive use programs, the Cadiz Water Storage and Dry-year Supply Program, in San Bernardino County, was ultimately rejected by Cadiz's partner and user of the water, Metropolitan Water District of Southern California.¹⁴⁴

137. For a discussion of the appropriative system, see MARYBELLE D. ARCHIBALD, GOVERNOR'S COMMISSION TO REVIEW CALIFORNIA WATER RIGHTS LAW, APPROPRIATIVE WATER RIGHTS IN CALIFORNIA 1-2 (Staff Paper No. 1, May 1977).

138. CAL. WATER CODE § 1241 (West 1971 & Supp. 2004).

139. Critics of forfeiture say it encourages waste of water and discourages water conservation through promoting a "use it or lose it" mentality. FINAL REPORT, *supra* note 1, at 12.

140. CAL. WATER CODE § 1011.5. The Legislature adopted a similar statute for recycled water and appropriative rights not exercised in the context of a conjunctive use program. *Id.* §§ 1010-1011.

141. *Id.* § 1011.5(d).

142. See generally Kevin M. O'Brien, *Water Marketing in California*, 19 PAC. L.J. 1165 (1988); Kevin M. O'Brien & Robert R. Gunning, *Water Marketing in California Revisited: The Legacy of the 1987-92 Drought*, 25 PAC. L.J. 1053 (1994).

143. DEP'T OF WATER RES., 1 CALIFORNIA WATER PLAN UPDATE 103-105 (Bulletin 160-93) (1994) [hereinafter BULLETIN 160-93]. Conjunctive use programs have been implemented by Alameda County Water District, Kern County, Metropolitan Water District of Southern California, Orange County Water District, Santa Clara Valley Water District, South Sutter Water District, United Water Conservation District, Westlands Water District, and Yolo County Flood Control and Water Conservation District. *Id.* For a detailed look at a conjunctive use program implemented by Arvin-Edison Water Storage District in Kern County, see Sue McClurg, *Maximizing Groundwater Supplies*, WESTERN WATER, May-June 1996, at 4,10.

144. The Cadiz project, located near the Mojave Desert, would have stored water from the Colorado

F. *Transfer of the Kern Water Bank from State to Local Control*

Groundwater institutional changes have also favored local control. No groundwater program in the last twenty-five years illustrates this more clearly than the Kern Water Bank.¹⁴⁵ In 1985, the Legislature authorized the DWR to add the southern Sacramento-San Joaquin Delta storage facilities to the State Water Project.¹⁴⁶ The DWR conceived the Kern Water Bank in 1987, and it was endorsed by the Legislature as a state solution to California's need for additional water storage.¹⁴⁷ As proposed by the DWR, the Kern Water Bank was to be a State Water Project conjunctive use facility consisting of 20,000 acres (about thirty-one square miles) in Kern County near Interstate Highway 5 for use as a groundwater storage and extraction facility. The DWR estimated that the Kern Water Bank could store as much as one million acre-feet of water, an amount equivalent to a large reservoir. The Bank was located near the Kern River and the California Aqueduct. The DWR considered this location ideal because it could receive surface water from both sources.

The state proposed to build basins used to recharge surface water during wet periods from the Kern River and the California Aqueduct. The water then would be extracted in dry years through a system of wells and canals connecting to the California Aqueduct. In 1988, the state purchased the property and began planning for the completion of the project. The state completed extraction wells and canals, and constructed some test storage facilities, but never completed the full project.

River during surplus periods and delivered it and native groundwater on the property to Southern California. The project was criticized on the basis that the chances the Colorado River would have surplus supplies were poor and the use of native groundwater could potentially harm the desert ecosystem.

145. For a detailed discussion of the status of the Kern Water Bank in 1988 and the legal underpinnings for the construction of the bank, see generally Russell Kletzing, *Imported Groundwater Banking: The Kern Water Bank—A Case Study*, 19 PAC. L.J. 1225 (1988). The term "water bank" comes from the view that conjunctive use programs function like financial institutions. Water is "saved" during wet periods and "withdrawn" during dry periods, much like financial institutions hold money for use at another time by their depositors. The Kern Water Bank consisted of several large areas or "elements" under control of different entities. The parcel under control of the DWR is known as the "Kern Fan Element." *It is that parcel that is the subject of this article, and not the other elements of the Kern Water Bank.* Planning & Conservation League v. Dept. of Water Res., 100 Cal. Rptr. 2d 173, 181 (Ct. App. 2000). The Kern Fan Element is commonly referred to as simply the Kern Water Bank, and this usage is adopted in this article.

146. CAL. WATER CODE § 11258 (West 1992). The State Water Project is the largest state funded water facility in the United States. It supplies water for over twenty million Californians. Its major features include Oroville Dam, San Luis Dam, and the California Aqueduct.

147. See Cal. Assembly Con. Res. No. 80 (1987); Ronald B. Robie & Patricia R. Donovan, *Water Management of the Future: A Ground Water Storage Program for the California State Water Project*, 11 PAC. L.J. 41, 54 (1979). The Kern Water Bank is especially valuable because it provides storage to the southern Sacramento-San Joaquin Delta. There are fewer storage sites south of the Delta than north and there are limited pumping windows, fall and winter, to divert water south of the Delta due to pumping limitations imposed on the State Water Project and Central Project. When these projects have these windows, they need to take advantage of that opportunity to pump water and move it south of the Delta for storage, to later meet customer's demands, which peak during the summer.

Before the full project could be built, DWR was required by a statute adopted in 1985 to enter into a contract with the local agency receiving State Water Project supply whose boundaries included the groundwater project, manifesting another example of the trend toward local control.¹⁴⁸ DWR is not required to enter into a contract with local agencies for its surface storage facilities. Although the Legislature did not clearly specify what was needed to be included in the contract, this requirement gave considerable control over the completion of the full project to the Kern County Water Agency (“KCWA”), the agency whose boundaries included the Bank, because its interests had to be satisfied in the contract. After years of negotiation, DWR and KCWA ultimately were unable to complete a contract.

The state elected in 1995 to transfer the Kern Water Bank to the Kern Water Bank Authority, a local joint power agency created to own and operate the water bank. This transfer was part of the Monterey Agreement, which significantly changed the water supply agreements between the DWR and the twenty-nine water agencies that receive water from the State Water Project.¹⁴⁹ After the transfer, the Kern Water Bank became operational and now provides conjunctive use benefits for water users in Kern County and around the state. Since operations began, groundwater levels in that area have improved significantly.

The transfer of the Kern Water Bank from the state to local agencies further represents movement to local control over groundwater resources through programmatic means and is consistent with the growing trend of local control over groundwater. As a result of the transfer, the Kern Water Bank Authority has been able to manage and deliver an average of fifty thousand acre-feet per year to water users in the area. This has significantly improved Kern County control over its local groundwater resources, while simultaneously diminishing state authority.

G. Groundwater Quality and Local Management

The Commission recognized groundwater quality as a problem in the Final Report, finding that groundwater quality problems were complex and varied from basin to basin.¹⁵⁰ Groundwater quality encompasses salinity, contamination from natural sources, and pollution from human activities.¹⁵¹ Often, many of these groundwater quality problems are the result of activities occurring on the surface that are unrelated to the exercise of groundwater rights. As a result, it is not surprising that the Commission did not make any recommendations relating to mitigating groundwater quality problems in a report devoted to reviewing California’s water rights.

148. CAL. WATER CODE § 11258 (West 1992).

149. *Planning & Conservation League*, 100 Cal. Rptr. 2d at 182.

150. FINAL REPORT, *supra* note 1, at 141.

151. *Id.*

Although groundwater quality problems may not be the result of groundwater management, they can be significant and place an additional burden on groundwater management. In the last twenty years, groundwater quality has become of equal concern to water quantity in some groundwater basins. The causes for decline in water quality vary from basin to basin, but it is more often than not still related to surface activities. These activities include industrial waste disposal operations, leaking underground storage tanks, and the agricultural application of fertilizers and pesticides.¹⁵²

At the time of the Final Report, groundwater pollution was largely unregulated. Since then, the Legislature has developed several regulatory approaches based on the source of the pollution to protect groundwater. Some of these approaches have required local control, whereas others have favored state involvement. Underground storage tanks are regulated through a “cradle to grave” permit system under local control.¹⁵³ The city or county where the tank is located manages this permit system.¹⁵⁴

Also consistent with the move to local control, the Legislature adopted the Local Groundwater Management Assistance Act of 2000.¹⁵⁵ Under this Act, DWR may appropriate funds to local agencies to carry out groundwater monitoring and management activities.¹⁵⁶ Priority for available funding is given to local agencies that have completed a local groundwater management plan.¹⁵⁷ The DWR collects the data obtained by this program.¹⁵⁸ AB 3030 plans also reflect an increased interest in groundwater quality. Plans may expressly contain references to control saline intrusion and mitigation of contaminated groundwater.¹⁵⁹

Agricultural pesticide application that is likely to affect groundwater quality is regulated under a statewide approach through the California Pesticide Contamination Prevention Act.¹⁶⁰ The Act’s primary focus requires that potential groundwater pollution be considered in registering for and renewal of the use of agricultural pesticides.¹⁶¹ This Act also provides for the creation of a list of pesticides that have the potential to cause groundwater pollution, known as the

152. 2 KENNETH A. MANASTER & DANIEL P. SELMI, CALIFORNIA ENVIRONMENTAL LAW AND LAND USE PRACTICE § 33.02, at 33-16.1 to 33-17 (2004).

153. See CAL. HEALTH & SAFETY CODE §§ 25280-25299.7 (West 1999 & Supp. 2004). One of the major groundwater quality problems over the last decade concerns the gasoline additive MTBE, methyl tertiary butyl ether, used to improve octane rating. Unlike other gasoline products, MTBE does not biodegrade quickly in soil. As a consequence, MTBE leaking from underground storage tanks pose a greater threat than similar chemicals that biodegrade more quickly. The Legislature has taken several measures to address the MTBE issue, including adding more stringent container requirements for tanks installed after July 31, 2003. *Id.* § 25290.1; MANASTER & SELMI, *supra* note 152, at § 33.04[7], at 33-43 to 33-49.

154. See CAL. HEALTH & SAFETY CODE § 25283 (West 1999).

155. CAL. WATER CODE §§ 10795-10795.20 (West Supp. 2004).

156. *Id.* § 10795.6.

157. *Id.* § 10795.6(a).

158. *Id.* § 10795.19.

159. *Id.* § 10753.8.

160. CAL. FOOD & AGRIC. CODE §§ 13141-13152 (West 2001).

161. *Id.* § 13141(f).

“Groundwater Protection List.”¹⁶² If a chemical is used in accordance with law, but its use still causes groundwater pollution, the registration of the pesticide for legal use is subject to cancellation.¹⁶³

Certain groundwater quality problems are not related to surface pollution, but instead arise from the exercise of groundwater rights. For instance, groundwater overdraft in a basin may induce the movement of poor quality water into higher quality water.¹⁶⁴ The resulting water quality degradation could reduce usable storage space within the basin.¹⁶⁵ In addition, groundwater pumping near the coast can draw saline water into coastal aquifers, making them unusable for consumptive purposes. As a result, groundwater supply and quality are increasingly viewed interdependently and are being managed in an integrated manner.¹⁶⁶

In *Jordan v. City of Santa Barbara*,¹⁶⁷ a significant case addressing groundwater quality, the court considered whether municipalities pumping groundwater as appropriators in a basin could be held liable to farmers and overlying users for a deterioration in water quality.¹⁶⁸ The overlying users had sued arguing that, due to excessive pumping, the municipalities had caused the groundwater basin to become excessively saline and degraded in quality.¹⁶⁹ The farmers postulated that groundwater pumping by the cities caused salts in the lower aquifer to migrate into the aquifer used by the farmers.¹⁷⁰ Under a correlative rights doctrine analysis, the overlying users have senior rights as appropriators for groundwater quantity purposes. What is uncertain is whether the correlative rights doctrine applies to groundwater quality as well, which would have given the farmers senior priority and an advantage in the case.¹⁷¹

The *Jordan* court, however, analyzed the dispute using a torts analysis, considering whether the appropriators were a substantial factor or legal cause of the injuries sustained by the farmers.¹⁷² The court concluded that factually the overdraft was not the cause of the salinity problem, but instead agricultural

162. *Id.* § 13145(d).

163. *Id.* § 13151. The registrant of the chemical has the opportunity for a hearing before any action changing or canceling a chemical's registration is taken. *Id.* § 13149(c).

164. BULLETIN 160-93, *supra* note 143, at 89.

165. *Id.*

166. BULLETIN 118-2003, *supra* note 18, at 3.

167. 54 Cal. Rptr. 2d 340 (Ct. App. 1996).

168. *Id.* at 343-44.

169. *Id.*

170. *Id.*

171. Courts have considered the applicability of surface water rights in the context of surface water quality problems. The California Supreme Court has held that Delta senior appropriators have no right to force junior appropriators upstream to cease diversion to hold back salt water incoming from the tides in the Delta. *Antioch v. Williams Irrigation*. Dist. 205 P. 688, 694-95 (Cal. 1922). In addition, Delta riparian users have no right to a certain salinity quality if to control salinity results in an unreasonable use of water. *United States v. State Water Res. Control Bd.*, 227 Cal. Rptr. 161, 174 (Ct. App. 1986).

172. *Jordan*, 54 Cal. Rptr. 2d at 343.

irrigation was the cause.¹⁷³ Thus, the court concluded the municipalities were not liable for the water quality degradation.¹⁷⁴ Because the court did not address the application of the correlative rights doctrine to resolve this water quality dispute, the argument remains open for use in the future.

V. CONCLUSION

Groundwater management programs have expanded significantly since the Final Report was adopted. Consistent with the recommendation of the Final Report, most of these innovations have occurred through authority or programs under local agency control and now groundwater management responsibility has been largely consolidated at the local level.

Despite these management tools, the fundamental problem discussed twenty-five years ago in the Final Report—overdraft—has not gone away or even diminished in certain regions. Overdraft remains the number one problem that needs to be addressed, although problems associated with water quality have grown over the last twenty-five years. No one would deny in many areas that sustained overdraft is not good resource management, but a real solution to the problem has not yet emerged. Perhaps what is lacking is a real commitment by state and local policy makers to address the problem.

Evidence that commitment is lacking on the state level is apparent. Despite the concerns expressed in the Final Report, the Legislature has not recently committed funding to study and understand the scope of the overdraft problem. For instance, the state has not fully re-examined critical groundwater basins in detail since 1980. Recent data is lacking about the full scope of the program. The Legislature, although it has had the opportunity, has never passed a statute eliminating overdraft in all basins to ensure groundwater resources are readily available for all future generations.¹⁷⁵

If the movement in the state is towards local control, then the solution to overdraft must also come primarily through local initiative. Several possibilities are feasible based on the models discussed earlier. Using AB 3030 plans as a model,¹⁷⁶ local agencies responsible for managing overdrafted basins could develop a scientifically supportable plan to eliminate overdraft within a reasonable time frame and then implement it. These plans would be developed with public input and review and in compliance with applicable environmental laws. Where possible, plans to eliminate overdraft should be integrated with regional water management, which includes surface water and land use management. Local agencies not in overdrafted basins would not be required to complete these plans. If more than one agency

173. *Id.* at 356.

174. *Id.* at 357.

175. Other states have specifically adopted groundwater mining statutes that prohibit overdraft. *See, e.g., Baker v. Ore-Ida*, 513 P.2d 627 (Idaho 1973).

176. *See supra* Part IV.C.

overlies a basin and those agencies are unable to develop a coordinated plan, another option is to adopt special groundwater districts.

Some may argue that since the water users in a particular area caused the overdraft, they should be primarily responsible for the cost associated with fixing it. However, the state, through the fiscal assistance model discussed earlier, has spent statewide funds to solve local problems. Consistent with this approach, the state could issue bonds or secure funding specifically to correct the overdraft problem.¹⁷⁷ As an alternative, the local agency could use a cost sharing approach, as is done in other parts of state water management encouraging local action.¹⁷⁸

These approaches are consistent with the Final Report's recommendation to move towards local control. If certain local agencies with overdrafted basins do not act, the Legislature could intervene and force local action by requiring the implementation of measures to reduce overdraft through the AB 3030 process. If the political consensus does not exist to take this action, at a minimum, the state should fund another special study to describe and better quantify the extent of the groundwater overdraft problem and to give an estimation of how much time is available before permanent harm is done to each basin. Action to remedy overdraft now may be costly and painful, but it would be better than letting the situation continue to decline to the point where a remedy is impossible. With these steps, California could finally solve the groundwater problems so plainly identified by the Commission twenty-five years ago.

177. Determining the role of state funding for projects primarily benefiting a local area is one of the major challenges facing state water officials today. The usual approach is to charge the water users directly within the area receiving the water supply benefits. However, state funding may be appropriate in some circumstances, because the benefits of groundwater management programs extend beyond the local area and help the entire groundwater basin. Furthermore, there are general benefits to other groundwater basins within the state when groundwater overdraft is reduced in a particular area. This puts less pressure on other basins to supply water to the previously overdrafted area.

178. For instance, flood control projects are cost shared by the federal government, state government, and the local government benefited from the project. CAL. WATER CODE § 12585.7 (West Supp. 2004). For flood control projects authorized after January 1, 2002, the local government pays between thirty to fifty percent of the non-federal costs of the project. *Id.*