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REDUCING OVERDRAFT AND RESPECTING WATER RIGHTS UNDER CALIFORNIA'S 2014 SUSTAINABLE GROUNDWATER MANAGEMENT ACT: A VIEW FROM THE KERN COUNTY FARMING SECTOR

*ASHLEY METTLER**

I. INTRODUCTION

California groundwater is an invaluable drought reserve for agricultural farmers. With historically dry conditions affecting the annual water supply, precious groundwater has become one of the last water resources available to growers in the Central Valley. The devastating drought effects have necessitated the use of groundwater to help offset the surface water deprivation, and the increase in groundwater usage has become a source of growing conflict among water users and environmentalists across the state.[1]

In 2014, the California Legislature introduced the Sustainable Groundwater Management Act (SGMA), opening the door to a new era of water management and new challenges for California agriculture.[2] Though the law holds great promise for managing future droughts and

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[1] Richard Howitt, *et al*., *Economic Analysis of The 2015 Drought for California Agriculture*, CTR. FOR WATERSHED SCIS., UNIV. OF CAL., DAVIS, at ES-2 (Aug. 17, 2015), https://watershed.ucdavis.edu/files/biblio/Final_Drought%20Report_08182015_Full_Report_WithAppendices.pdf (indicating that the dry conditions in 2015 resulted in an 8.7 million acre-foot decline in surface water, which was partially offset by a 6 million acre-foot increase in groundwater pumping).

[2] Sustainable Groundwater Management Act, CAL. WATER CODE § 10721 et seq.

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preserving the groundwater supply, the new policy lacks thoroughness and direction for many water users and overlying landowners. With the advancement of new monumental groundwater reform comes several much-anticipated hurdles, however, SGMA's ambiguous language and arbitrary scope of authority will likely create more harm than good for agriculturally-rich areas such as Kern County.

Many Americans fail to recognize the great importance the California farming industry embodies, and the harmful effects of limiting a farmer's access to water. The farming industry is virtually as fundamental to California's economic success as the diminishing water supply itself. However, as it stands, several of SGMA's provisions pose a substantial threat to landowners with traditional overlying water rights. Therefore, as the Legislature seeks to preserve the diminishing groundwater supply, it is imperative that the new water policy restores balance to the environmental protection laws while continuing to respect the longstanding common law water rights that many Central Valley farmers have come to greatly depend upon.

In order for California to successfully reduce its groundwater dependence and keep its successful farming industry alive, the contradictory provisions embedded within SGMA need to be clarified and the systematic problems addressed. In an effort to examine the detrimental effects the 2014 Act may have on California's agricultural industry, this Comment will explore the following: the various criticisms of the Act, the contradictory tensions in the law, and the adverse impacts the regulation may have on Kern County farmers and our nation's economy. To be effective, the Legislature should modify the current law to encompass a better defined water policy while providing clear legal assurances to individuals with historic water rights. By clarifying the authority of sustainability agencies, prioritizing water rights that apply to conjunctive groundwater basins, and re-defining the outdated basin boundaries, the Legislature may be able to successfully overcome the potential barriers that may derail the great sustainability efforts the Act has to offer.

Part II of this Comment provides an overview of the various components contributing to California's water crisis and illustrates the inherent flaws in today's water management system. Part III highlights the common law water principles that are in conflict with SGMA, while summarizing California water law. Part IV argues that SGMA should not be enforced until it is reformed, because doing so would infringe California water rights and expose overlying water users to legal liability. Part V presents an economic analysis of the 2015 drought effects for California agriculture and forecasts the damaging impacts that SGMA's water restrictions will have on the State's economy and farming sector. Part VI

concludes with a summary of how the Act can be revised and implemented in a way that is consistent with California's traditional common law water principles.

II. The Many Faces of the California Water Crisis

California has endured numerous serious droughts,[3] but for the first time in its history the Legislature has ordered mandatory water use reductions statewide.[4] In 2014, Governor Jerry Brown declared a state of emergency due to the record-breaking dry conditions tainting the Golden State's glowing abundance.[5] This call to arms encouraged federal, state, and local water associations to significantly reduce water allocations, and triggered the creation and implementation of a monumental water regime that aims to reform one of the most complex water systems in the nation.[6]

California's complex water system has impressive assets and significant vulnerabilities. While the State has managed to create a sophisticated water conveyance system to help compensate for its unfavorable seasonal disparities, its fragile water supply in the Sacramento-San Joaquin Delta is becoming a significant weakness in the system's infrastructure. California's economy is continuing to expand despite the growing water scarcity; however, the structural flaws in the water system, in addition to the growing environmental concerns, are exacerbating California's mounting groundwater dependence.

During an average year, California's 515 groundwater basins[7] provide nearly 38 percent of the State's annual water supply and up to as

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[3] Cal. Dep't of Water Res., Drought Background, http://www.water.ca.gov/waterconditions/background.cfm (last visited Feb. 16, 2016) (indicating that California's most significant droughts occurred in 1928–34, 1976–77, 1987–92, 2007–09); *see also* Ellen Hanak et al., *Just the Facts: California's Latest Drought,* Pub. Policy Inst. of Cal. (Jan. 2015), http://www.ppic.org/main/publication_show.asp?i=1087 ("Droughts are a recurring feature of California's climate, and the three-year period between fall 2011 and fall 2014 was the driest since recordkeeping began in 1895.").

[4] *See* Press Release, Edmund G. Brown Jr., Governor, State of Cal., Governor Brown Directs First Ever Statewide Mandatory Water Reductions (Apr. 1, 2015), https://www.gov.ca.gov/news.php?id=18913.

[5] *See* Press Release, Edmund G. Brown Jr., Governor, State of Cal., Governor Brown Declares Drought State of Emergency (Jan. 17, 2014), https://www.gov.ca.gov/news.php?id=18368.

[6] *Id.*

[7] *See* Cal. Water Code § 10721(b) ("'Basin" means a groundwater basin or subbasin identified and defined in Bulletin 118 or as modified pursuant to Chapter 3 (commencing with Section 10722)'); *see generally Groundwater Basins,* Mojave Water Agency, http://mojavewater.org/groundwater-basins.html (last visited Dec. 11, 2015) ("A groundwater basin is defined as an area underlain by permeable materials capable of furnishing a significant supply of groundwater to wells or storing a significant amount of water.").

much as 46 percent during dry years.[8] In normal years of greater precipitation, ample surface water is typically available to replenish these groundwater basins. However, as dry conditions continue, California farmers are feverishly searching for new sources of water and groundwater tables are dropping to historic lows as more farmers tap into the precious groundwater supply.[9] While the demand for groundwater pumping is inevitably rising, resilient farmers are struggling to keep their productive industry afloat.[10] Therefore, in an effort to help put California on a path to water shortage resilience, Governor Brown signed historic legislation on September 16, 2014 to bring forth an element of regulatory consistency to the State's threatened groundwater system and provide water security for years to come.[11]

A. The Historic Drought is Taking a Toll on California's Agriculture Sector

Home to one of the world's largest thriving agricultural economies, in a normal year the Central Valley produces over one-third of the nation's vegetables and two-thirds of the nation's fruits and nuts.[12] However, an element fundamental to California's success is water. Since the start of 2012, the ongoing drought's oppressive conditions have continued to reduce the Central Valley's agricultural water supply.[13] As of December 2015, over 95 percent of California's $43 billion agriculture industry was reported to be experiencing "severe, extreme, or excep-

[8] Cal. Dep't of Water Res., Groundwater Introduction, http://www.water.ca.gov/groundwater/ (indicating that during extensively dry years, groundwater serves as a critical buffer against the harsh impacts of drought and climate change).

[9] *See* Howitt, *supra* note 1.

[10] *See* Caitrin Chappelle et al., *Just the Facts: Reforming California's Groundwater Management*, Pub. Policy Inst. of Cal. (June 2015), http://www.ppic.org/main/publication_show.asp?i=1106 (explaining how vital groundwater is to the State's water supply, and that the regulatory gap in groundwater use has resulted in excessive pumping and overdraft).

[11] *See* Press Release, Edmund G. Brown Jr., Governor, State of Cal., Governor Brown Signs Historic Groundwater Legislation (Sept. 16, 2014), https://www.gov.ca.gov/news.php?id=18701.

[12] *See* Cal. Dep't of Food and Agric., California Agricultural Statistics Review 2014-2015, at 1–2 (2015), https://www.cdfa.ca.gov/statistics/PDFs/2015Report.pdf; *see also California Almond Growers to Expand Orchards, Despite Drought,* The Sacramento Bee, April 16, 2015, http://www.sacbee.com/news/state/california/water-and-drought/article18716937.html.

[13] Matt Stevens, *California Drought Most Severe in 1,200 Years, Study Says,* L.A. Times (Dec. 5, 2014), http://www.latimes.com/local/lanow/la-me-ln-california-drought-worst-20141205-story.html; *see* Press Release, Fran Pavley, Senator, State of Cal., Senate Committee Approves Two Bills in Package to Modernize California's Water System (Apr. 29, 2014), http://sd27.senate.ca.gov/news/2014-04-29-senate-committee-approves-two-bills-package-modernize-california-s-water-system (characterizing the current landscape as a "water crisis" and quoting Senator Fran Pavley, "California is pushing up against the limits of our finite water supply.").

tional" drought effects.[14] These effects pose a substantial threat to the agriculture sector considering several of California's leading crops are water-intensive crops. For example, California-grown almonds are the State's second most valuable crop and its top agricultural export.[15] However, almonds also require up to 10 percent of the annual water supply.[16] Despite the damaging drought conditions, California nut growers are managing to persevere. Local growers are doing their best to harvest what water-intensive crops they can, as California continues to lead the industry as the sole producer of walnuts and the leading global producer of almonds and pistachios.[17] However, this current state of perseverance is simply not sustainable.

As mother nature drives on, local farmers are becoming increasingly vulnerable to the dry conditions and several factors are affecting their ability to produce an abundant harvest. Irrigation technology, surface water quantity, and groundwater availability all affect a farmer's vulnerability to the current weather conditions.[18] Local farmers are trying to adapt by advancing irrigation efficiency and producing crops that generate higher revenue for the amount of water used.[19] However, as the State enters its fifth year of severe drought, the irrigation efforts are simply not enough to offset the loss in surface water that is necessary to satisfy the demand.[20] Therefore, as 76,400 farms compete to produce more than 400 different commodities,[21] groundwater has become California agriculture's most valuable drought reserve.

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[14] U.S. DEP'T OF AGRIC., CALIFORNIA DROUGHT: FARMS (last updated Feb. 3, 2016), http://www.ers.usda.gov/topics/in-the-news/california-drought-farm-and-food-impacts/california-drought-farms.aspx.

[15] *See* CALIFORNIA AGRICULTURAL STATISTICS REVIEW 2014-2015, *supra* note 12, at 2,7.

[16] Eric Holthaus, *Thirsty West:10 Percent of California's Water Goes to Almond Farming,* SLATE (May 14, 2014), http://www.slate.com/articles/technology/future_tense/2014/05/_10_percent_of_california_s_water_goes_to_almond_farming.html.

[17] *See* U.S. DEP'T OF AGRIC., CALIFORNIA AGRICULTURAL STATISTICS 2013 CROP YEAR, at 43 (2015), http://www.nass.usda.gov/Statistics_by_State/California/Publications/California_Ag_Statistics/2013cas-all.pdf.

[18] *See* CALIFORNIA DROUGHT: FARMS, *supra* note 14.

[19] Ellen Hanak et al., *What if California's Drought Continues*, PUB. POLICY INST. OF CAL. (Aug. 2015), http://www.ppic.org/main/publication_quick.asp?i=1160.

[20] *See* Ellen Hanak et al., *Managing California's Water: From Conflict to Reconciliation,* PUB. POLICY INST. OF CAL. 89–95 (Feb. 2011), http://www.ppic.org/content/pubs/report/R_211EHR.pdf.

[21] CAL. DEP'T OF FOOD AND AGRIC., CALIFORNIA. AGRICULTURAL PRODUCTION STATISTICS, at 1 (2015), https://www.cdfa.ca.gov/statistics/.

B. An Era of Environmental Conflict Exposes Vulnerabilities in California's Complex Water Management System

While the ongoing drought has been especially hard on California's agriculture industry, to think that the lack of precipitation is the only element affecting farmers across the state does not fully capture the dire circumstances that are burdening the farming community. California's groundwater crisis can be as much attributed to the drought as it can to the uneven distribution of its water resources. Due to the State's seasonal disparity and variable climate, more than 75 percent of California's water originates North of Sacramento when nearly 80 percent of the demand for water is found far South of this hydrologic divide.[22] Therefore, in an effort to deliver water from the Northern California watershed to Southern California, the government built an impressive system of canals, aqueducts, and reservoirs, which the Central Valley has become largely dependent upon.[23]

The Sacramento-San Joaquin Delta is also one of the largest natural estuaries in the state.[24] The region alone irrigates over 2.5 million acres of farmland and provides water to 25 million Californians, including a significant portion of Los Angeles.[25] However, considering much of the Northern California water flow is mandated under the Clean Water Act and the Endangered Species Act,[26] the water management landscape in the Delta is slowly transforming, giving rise to an era of conflict between human water use and water needed to support endangered fish popula-

[22] *See A Guide to California's Drought and Water Crisis,* The Sacramento Bee (May 28, 2015), http://www.sacbee.com/news/state/california/article22552740.html.

[23] *See generally* Cal. Dep't of Water Res., California State Water Project Overview, http://www.water.ca.gov/swp/; *see also* Water Association of Kern County, *Sources of Water* (last visited Mar 23, 2016), http://www.wakc.com/index.php/water-overview/sources-of-water [hereinafter Sources of Kern County Water] ("[T]he California State Water Project is a water storage and delivery system of reservoirs, aqueducts, power plants and pumping plants. Designed to provide water for 29 urban and agricultural water suppliers in Northern California, San Francisco Bay Area, San Joaquin Valley, Central Coast, and Southern California, the SWP allocates 70 percent of its supply for urban use and 30 percent for agriculture."); *see generally* U.S. Dep.t. of Int. Bureau of Reclamation, About The Central Valley Project (last updated Dec. 28, 2015), http://www.usbr.gov/mp/cvp/about-cvp.html (explaining that the CVP was built to provide irrigation and municipal water to the Central Valley region).

[24] *See* Water Association of Kern County, *Frequently Asked Questions* (last visited Feb. 16, 2016), http://www.wakc.com/index.php/faqs.

[25] *Id*.

[26] *See* Ellen Hanak et al., *Managing California's Water: From Conflict to Reconciliation,* Pub. Policy Inst. of Cal. 56–60 (Feb. 2011), http://www.ppic.org/content/pubs/report/R_211EHR.pdf.

tions.[27] As a result of the increasing environmental restrictions in the Delta region,[28] in 2015 the Central Valley's main water providers – the State Water Project (SWP)[29] and the Central Valley Project (CVP)[30] – significantly curtailed their water deliveries to Southern California for the second straight year in a row.[31]

As California farmers struggle to recover from the drought, the Government's environmental protection laws are further reducing the agricultural water supply by forcing precious water out to the ocean as runoff. The problem described by farmers as "reverse flow," is a process in which the state and federal water pumping plants are periodically shut down to relieve the Delta's natural estuary flow and protect native fish from upstream predators and other perils.[32] As a result of these environmental restrictions, in 2014 and 2015, the CVP made zero water deliveries to farmers South of the the Delta,[33] and in 2015 the State Water Project delivered a mere 20 percent of its promised water allocation to the Central Valley.[34]

When the pumps are shut down, the water that was originally allocated for the South-of-the-Delta customers and farmers, instead flows directly out of the Delta and into the ocean as runoff.[35] From January to March an estimated 2.8 million acre-feet of water flowed through the Delta, while only 627,000 acre-feet were pumped out due to the ratcheting down of state and federal water pumping levels.[36] These reductions in pumping levels during the 2016 winter storms resulted in an estimated

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[27] Ellen Hanak et al., *California's Future: Water,* PUB. POLICY INST. OF CAL. (Jan. 2016), http://www.ppic.org/content/pubs/report/R_116EHR.pdf (stating in section titled "Sacramento-San Joaquin Delta Instability is a Major Challenge" that even though the Delta supplies water to more than 25 million people and approximately 3 million acres of farmland, the water management efforts to help declining native fish species disrupt these water exports).

[28] *See* Hanak*, supra* note 26, at 56–65.

[29] *See* CALIFORNIA STATE WATER PROJECT OVERVIEW*, supra* note 23.

[30] *See* ABOUT THE CENTRAL VALLEY PROJECT, *supra* note 23 (explaining how the Federal Central Valley Water Project decides where and when to release what water is left in California's reservoirs, via the man-made water delivery system).

[31] *See* Jeffrey Mount et al., *Policy Priorities for Managing Drought,* PUB. POLICY INST. OF CAL. (Mar. 2015), http://www.ppic.org/main/publication_quick.asp?i=114; Dale Kasler & Ryan Sabalow, *Price, Risk Weigh Heavily on Farmers Who Would Draw from Delta Water Tunnels,* THE SACRAMENTO BEE, Aug. 8, 2015, http://www.sacbee.com/news/state/california/water-and-drought/article30511836.html.

[32] Kasler, *supra* note 31 (indicating that in 2012 alone, the shutting down of pumps due to reverse flow problems deprived Southern California of 800,000 acre-feet of water).

[33] *Id.*

[34] *Id.*

[35] *Id.*

[36] Press Release, Dianne Feinstein, Senator, House of Representatives, Feinstein Calls for Increased Pumping to Capture Water from Storms (Mar. 11, 2016), http://www.feinstein.senate.gov/public/index.cfm/press-releases?ID=5121D013-CB60-4245-84F1-5142093BDE03.

180,000 to 200,000 acre-feet of water to be lost to sea, which is enough water to supply 360,000 homes with water for a year.[37] Even though the 2016 river flows have already more than doubled what they were in 2015,[38] the reverse-flow water curtailments continue to limit the amount of water diverted for agricultural use.[39] As a result of these added constraints, farmers are being forced to further rely on groundwater withdrawal and extraction to help keep their industry alive.

The unregulated groundwater withdrawal is a source of conflict among water users in many parts of California. As the oppressive farming conditions intensify, concerns are building among Central Valley farmers who are worried about the extent to which they will be able to offset their shortfalls in surface water deliveries under SGMA.[40] However, considering groundwater remains one of the last viable resources for farmers, the resulting surge in groundwater withdrawal is beginning to strain several groundwater basins throughout the state, causing severe and chronic overdraft conditions.[41]

To no surprise, some of the most critical overdraft[42] is occurring in areas of California that generate substantial economic value, such as the Central Valley.[43] The Department of Water Resources (DWR) has esti-

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[37] *Id.* (quoting Senator Dianne Feinstein, "It's inexcusable that pumping levels have been reduced without sufficient evidence of fish mortality, even while biological opinions would allow more pumping.").

[38] *See Id.*

[39] *See* Eric Holthaus, *Thirsty West: Lose-Lose Situation,* SLATE (May 21, 2014), http://www.slate.com/articles/technology/future_tense/2014/05/delta_smelt_tulare_lake_environmental_regulation_is_ruining_california_agriculture.html.

[40] Claudia C. Faunt, *Groundwater Availability of the Central Valley Aquifer: U.S. Geological Survey Professional Paper* 1766, 225 (2009), http://pubs.usgs.gov/fs/2009/3057/pdf/fs20093057.pdf.

[41] *See* CAL. DEP'T OF WATER RES., CALIFORNIA'S GROUNDWATER—BULL. NO. 118, UPDATE 2003, at 29 (Oct. 2003), http://www.water.ca.gov/pubs/groundwater/bulletin_118/california's_groundwater__bulletin_118_-_update_2003_/bulletin118_entire.pdf [hereinafter BULLETIN 118] (defining overdraft under Chapter 1- Groundwater California's Hidden Resource, "Overdraft is the condition of a groundwater basin in which the amount of water withdrawn by pumping over the long term exceeds the amount of water that recharges the basin. Overdraft is characterized by groundwater levels that decline over a period of years and never fully recover, even in wet years."); CAL. DEP'T OF WATER RES., CALIFORNIA STATEWIDE ELEVATION MONITORING (CASGEM), GROUNDWATER BASIN PRIORITIZATION RESULTS (June 2014), http://www.water.ca.gov/groundwater/casgem/basin_prioritization.cfm (stating that of California's 515 groundwater basins, 127 have been categorized as "high" or "medium" priority. These high and medium priority basins account for 96% of California's annual groundwater pumping, while supplying water to 88% of the overlying population).

[42] BULLETIN 118, *supra* note 41, at 98; *see also* CAL. DEP'T OF WATER RES., CALIFORNIA STATEWIDE ELEVATION MONITORING (CASGEM), GROUNDWATER BASIN PRIORITIZATION RESULTS: SOUTH CENTRAL REGION (June 2014), http://www.water.ca.gov/groundwater/casgem/pdfs/lists/StatewidePriority_Abridged_05262014.pdf [hereinafter BASIN PRIORITIZATION RESULTS: SOUTH CENTRAL REGION].

[43] According to the U.S. Geological Survey, the Central Valley generates an estimated $17 billion of crop revenue per year. *See* Faunt, *supra* note 40.

mated that groundwater in the San Joaquin Valley has fallen more than 100 feet below historic levels,[44] partially resulting from the groundwater withdrawal rate that is faster than the rate of natural basin recharge.[45] Though groundwater withdrawal may serve as a temporary solution to the reduction in state and federal water deliveries, the current withdrawal rate is unsustainable and the diminishing supply must be maintained for the future health and welfare of the state.

If the Legislature is unwilling to relax the environmental restrictions aiming to restore the Delta ecosystem,[46] then California must consider expanding its above-ground surface water storage capacity in order to provide a reliable future water supply. Additional above-ground water storage will create a comprehensive conservation and management plan that can reinstate the agricultural surface water supplies recently allocated to the environment, while also continuing to provide ample water for the Delta's threatened aquatic ecosystems.

C. Structural Flaws in the State Water System Intensify California's Groundwater Dependence

Lost water is a lost opportunity in California, and a significant flaw in California's water system is its insufficient amount of surface water storage. In reality, California's landscape is evolving with or without government regulations in place. As the harsh effects of possible global warming further complicate California's seasonal disparity and variable climate, the State is battling against rising weather temperatures,[47] saltwater intrusion in the Delta,[48] and continued snowpack loss.[49] Much

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[44] Cal. Dep't of Water Res., Public Update for Drought Response Groundwater Basins with Potential Water Shortages and Gaps in Groundwater Monitoring, http://www.water.ca.gov/waterconditions/docs/Drought_Response-Groundwater_Basins_April30_Final_BC.pdf.

[45] *See generally* Cal. Water Code § 10721(i) ("'Groundwater recharge' is the augmentation of groundwater, by natural or artificial means.').

[46] State and federal water plant pumping restrictions need to be based on better science and monitoring. As of March 2016, only three smelt have actually been caught in the water pumps this year, and since January an estimated 180,000 to 200,000 acre-feet of water has flowed out to the ocean as runoff. *See* Press Release, Dianne Feinstein, *supra* note 36.

[47] Henry Fountain, *California Drought is Worsened by Global Warming, Scientists Say,* N.Y. Times (Apr. 1, 2015), http://www.nytimes.com/2015/04/02/science/california-drought-is-worsened-by-global-warming-scientists-say.html?action=click&contentCollection=U.S.&module=RelatedCoverage&region=Marginalia&pgtype=article (explaining how the warming trend intensifies the drought's impact because the warmer temperatures cause more water to evaporate from reservoirs, rivers, and the soil).

[48] *See* Cal. Dep't of Water Res., Emergency Drought Barrier, http://www.water.ca.gov/waterconditions/emergencybarriers.cfm.

[49] Nicholas St. Fleur, *Study Finds Snowpack in California's Sierra Nevada to Be Lowest in 500 Years*, N.Y. Times (Nov. 15, 2015), http://www.nytimes.com/2015/09/15/science/california-

of the past winter precipitation is transforming from snow to rain due to the warmer temperatures, which is causing a substantial shift in the timing of mountain streamflow.[50] Aside from the much anticipated 2016 El Niño season, scientific projections suggest that dry conditions may continue more regularly into the future.[51] This projected weather pattern demonstrates the crucial importance of capturing surface water that materializes during the wetter years, for preservation and use during the drier years.

Without enough above-ground surface water storage, a significant portion of California's annual rainfall is not captured in years of greater precipitation. Instead, the necessary rainfall flows through rivers and out to the ocean as runoff.[52] This structural flaw in the water management system further stresses the groundwater reserve in the following years of drought. With recent storms providing ample rain and snow during the 2016 El Niño year,[53] the winter snowpack in the Sierra Nevada mountain range has been critical to the revival of the State's depleting water supply. However, due to the insufficient amount of surface water storage across the state, over 75 percent of that El Niño water has flushed out to the ocean instead of being captured for a future beneficial use.[54] This structural flaw highlights a major weakness in the State's water system that further reduces the amount of water available for agricultural use and amplifies the need for groundwater withdrawal.[55]

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snow-report.html?_r=0 (indicating that "[t]he snow that blanketed the Sierra Nevada in California last winter, which was supposed to serve as an essential source of fresh water for the state, was at its lowest levels in the last 500 years. As of April 1, the snowpack levels were just 5% of their 50-year historical average").

[50] *See* Frank Ackerman & Elizabeth A. Stanton, *The Last Drop: Climate Change and the Southwest Water Crisis*, Stockholm Env't Inst., 10 (Feb. 2011), http://sei-us.org/Publications_PDF/SEI-WesternWater-0211.pdf.

[51] *See* Press Release, Edmund G. Brown Jr., *supra* note 5.

[52] UCLA geologist explains how the largest reservoirs are concentrated in the Northern part of California. California does not have the capacity to capture large amounts of water and really put them to use, and Southern California is not set up to handle the total volume of water it is expected to receive during this El Niño season. For example, a 1-inch rainstorm in L.A. can produce 10 billion gallons of runoff, however, most of that water will ultimately end up flowing down the L.A. River and out to the ocean as runoff. Ryan Sabalow, *Will El Niño 'Solve' Drought? Not if the Rain Falls in Southern California*, The Sacramento Bee, Oct. 4, 2015, http://www.sacbee.com/news/state/california/water-and-drought/article37743690.html.

[53] *See* Bettina Boxall, *To Save Water, An Underground Movement to Bank El Niño Rainfall,* L.A. Times (Nov. 9, 2015), http://www.latimes.com/local/california/la-me-water-storage-20151109-story.html ("With El Niño promising a wet winter, water districts across the state are working feverishly to be prepared to capture as much rain as possible to recharge depleted aquifers.").

[54] *See* Press Release, Kevin McCarthy, Congressman, House of Representatives, House Moves One Step Closer to California Water Solution (Apr. 19, 2016), http://kevinmccarthy.house.gov/media-center/press-releases/house-moves-one-step-closer-to-california-water-solution.

[55] *See* Ackerman, *supra* note 50.

In implementing a new water management scheme, it is imperative that the new water policy not only alleviates California's detrimental groundwater dependence, but also manages the State's impending water crisis by strengthening its water system for years to come. Although SGMA has a laudable purpose of aiming to preserve the groundwater supply,[56] the poorly crafted legislation is not devised to achieve true sustainability. The new water policy does not address some of the State's most fundamental water issues including capturing and storing water during the wetter years for use in the drier years. An effective sustainability plan must increase California's overall water availability, reduce its groundwater dependence, expand its surface water storage capacity, and find a common ground with the environmental protection laws that foster California's ecological habitats. As history often repeats itself, it is critical that a clear and effective statewide plan is put in place, with realistic sustainability objectives that can help California become more resilient to water shortages in the future.

III. California Water Law

For over half a century California groundwater rights have been established judicially.[57] Unlike surface water, groundwater has been largely unregulated under California law, allowing for the creation of a unique blend of water rights.[58] While a clear legal distinction has been made between water above ground and the native percolating water below ground, the State Legislature has predominantly followed a "hands-off" policy when it comes to the extraction and use of groundwater.[59] To warrant fairness among all groundwater users and to ensure that all water is put to a beneficial, non-wasteful use, the Legislature instituted the doc-

[56] *See* Cal. Water Code §10720.1.

[57] Wells A. Hutchins, *California Ground Water: Legal Problems*, 45 Calif. L. Rev. 688, 688 (1957).

[58] The two basic surface water rights are riparian and appropriative. Riparian rights arise when an individual owns land that is adjacent to a surface water source, entitling the landowner to use a correlative share of the water flowing past his or her property. The appropriative rights system allows other water users to divert available water from that same river or stream, for a reasonable or beneficial use. Riparian right holders generally have higher priority than appropriative right holders, as appropriative rights are governed by the hierarchy of priorities developed by the 49ers. For groundwater, overlying land owners may extract groundwater and put it to beneficial use without approval from the State Board, and while groundwater may be appropriated for use outside of the basin, appropriator's rights are subordinate to those with overlying rights. *See The Water Rights Process*, State Water Res. Control Bd., http://www.waterboards.ca.gov/waterrights/board_info/water_rights_process.shtml; *see also* City of Barstow v. Mojave Water Agency, 5 P.3d 853, 862–63, 869 (Cal. 2000).

[59] Hutchins, *supra* note 57.

trine of "reasonable use."[60] However, because groundwater in California has traditionally been viewed as a property right, the doctrine of reasonable use has historically remained one of the only water restrictions limiting California's longstanding hierarchy of water rights.[61]

A. Traditional Water Rights Unique to California and the Often Disregarded Adjudication Process

Prior to the most recent era of legislative water reform, California common law[62] and court adjudications[63] were the traditional principals governing groundwater management in California. Up until the early 1900's, California courts often applied the English common law rule affording a landowner with absolute ownership to all of the groundwater supply beneath his property.[64] However, in a landmark case decided in 1903, the California Supreme Court rejected the absolute ownership rule and instead implemented the reasonable use provision and the correlative rights doctrine, while also establishing the concept of overlying groundwater rights.[65]

In 1903, the State Legislature realized the essential relationship between artificial irrigation and agricultural production, and addressed the importance of creating a reasonable and correlative share of the State's groundwater supply.[66] With the newly established overlying water right came a priority system that made percolating water first available to overlying landowners, then to any appropriator who intended to use the groundwater on non-overlying lands.[67] As of today, this water scheme is still applicable in California and overlying water users, such as rural farmers, obtain rights that are superior to those who lack priority and

[60] Article X, Section 2 declares inter alia "that because of conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water is prevented, and that the conservation of such water is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare. The right to water or to the use or flow of water in or from any natural stream or water course in this State is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does and shall not extend to the waste or unreasonable method of diversion". Cal. Const. art. X, § 2.

[61] *See The Water Rights Process*, *supra* note 58.

[62] *Katz v. Walkinshaw,* 74 P. 766, 772 (Cal. 1903).

[63] *See generally* Cal. Water Code § 10721(a) ('"Adjudication action" means an action filed in the superior or federal district court to determine the rights to extract groundwater from a basin or store water within a basin, including, but not limited to, actions to quiet title respecting rights to extract or store groundwater or an action brought to impose a physical solution on a basin').

[64] *Katz,* 74 P. at 766–67.

[65] *Id.* at 772.

[66] *Id.* at 767–68.

[67] *See The Water Rights Process*, *supra* note 58.

possess the exclusive right to use and extract the groundwater underlying their property.[68] In the event of a water shortage, proper overlying use is considered to be "paramount" and appropriators must yield to any overlying owner.[69] Though the water scheme successfully prioritizes water use between overlying and non-overlying water users, it does not provide a solution for when competing demands arise between multiple water users overlying a common basin.

To help resolve disputes between multiple water users, the State Legislature provided an opportunity for the court to determine all groundwater rights of overliers and appropriators within a specific basin.[70] This groundwater management method is known as basin adjudication. The unpopular process is slowly advancing in California, and may be utilized when multiple water users begin competing for a common groundwater supply.[71] During this process claimants may file a lawsuit to formally adjudicate the water rights throughout the basin, at which point the court formulates a groundwater management plan and delivers a final binding determination of all the water rights.[72] This binding determination supersedes California's traditional water law principles and apportions water among the competing claimants.[73] In the end, the court retains jurisdiction and post-judgment oversight by appointing a "watermaster" to oversee the basin's established water rights and court-ordered pumping limits.[74]

Basin adjudications can be very costly and cumbersome. When adjudication is sought through adversarial litigation rather than a consensual agreement, the legal process can often take up to a decade or more, resulting in exorbitant litigation costs.[75] As a result, currently only 23 out of the 515 groundwater basins in California have been adjudicated.[76] Therefore, until this burdensome process is streamlined, a majority of

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[68] City of Barstow v. Mojave Water Agency, 5 P.3d 853, 862–63 (Cal. 2000).

[69] *Id; Katz,* 74 P. at 772.

[70] CAL. DEP'T OF WATER RES., GROUNDWATER MANAGEMENT, http://www.water.ca.gov/groundwater/groundwater_management.cfm.

[71] *Id.*

[72] *Id*.

[73] *Id*.

[74] *Id*.

[75] *See* Tara Moran and Dan Wendell, *California's Sustainable Groundwater Management Act of 2014: Recommendations for Preventing and Resolving Groundwater Conflicts*, STANFORD WOODS INST. FOR THE ENV'T, 17 (Apr. 2015), http://waterinthewest.stanford.edu/sites/default/files/SGMA_RecommendationsforGWConflicts_2.pdf; *see* Ryan Sabalow, *Tensions, Threats as California's New Groundwater Law Takes Shape,* THE SACRAMENTO BEE (Nov. 21, 2015), http://www.sacbee.com/news/state/california/water-and-drought/article45802360.html.

[76] GROUNDWATER MANAGEMENT, *supra* note 70.

critics will likely continue to disregard this water management method as a viable solution to groundwater disputes.

Though California's traditional common law principles and basin adjudications provide a predictable system and hierarchy for groundwater access, State lawmakers have come to realize that the arcane water system does nothing to preserve the dwindling resource. In response to this realization, a new era of groundwater management began when Governor Jerry Brown empowered local agencies to implement groundwater management plans that can restrict the amount of groundwater extractions from California's basins.[77] However, because SGMA's provisions are set to be enacted on top of existing historic water rights, this new water management scheme may prove to be just as inefficient, costly, and cumbersome as the often disregarded basin adjudication process itself.

B. The 2014 SGMA: Laying the Foundation for Sustainable Groundwater Management

California groundwater is currently helping to sustain thousands of farms, communities, and livelihoods across the state. The 2014 regime seeks to strengthen California's water management system by increasing statewide oversight and mandating new sustainable groundwater use practices.[78] Unfortunately however, the unrealistic timelines and underlying threats to California groundwater rights may substantially impede its implementation.

SGMA is comprised of three main bills: SB 1168,[79] AB 1739,[80] and SB 1319.[81] Together these bills aim to revive the State's most threatened groundwater basins,[82] while providing local agencies with the authority to tailor sustainable groundwater plans to their regional needs.[83] Though the law provides local agencies with the tools to ensure that basins are

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[77] Cal. Water Code § 10726.4(a)(2).

[78] *See generally* Cal. Water Code § 10720.1.

[79] 2014 Cal. Stat. ch. 346 (noting the Senate bill that instructs local agencies to create management plans).

[80] 2014 Cal. Stat. ch. 347, § 1(a)(9), (b)(2) (noting the Assembly bill that establishes when the State can intervene, if the local authorities do not comply with the legislative directives).

[81] 2014 Cal. Stat. ch. 348 (noting the Senate bill that works with AB 1739 to establish new authority for the State Water Board).

[82] SGMA is set to apply to 127 High and Medium priority groundwater basins, which account for approximately 96% of groundwater use in California. Cal. Dep't of Water Res., Initial Groundwater Basin Prioritization Under the SGM Act, http://www.water.ca.gov/groundwater/sgm/SGM_BasinPriority.cfm.

[83] *See* Press Release, Edmund G. Brown Jr., *supra* note 11.

operated within their sustainable yield,[84] the law does not address how sustainability plans will work in conjunction with historically established water rights. Therefore, opponents fear that the SGMA's expansive regulatory power will leave little control in the hands of overlying landowners and ultimately threaten California's longstanding water rights.[85]

To begin restoring the State's overdrafted groundwater basins, SGMA tasked the DWR with developing a basin prioritization process that can assess the varying degrees of basin overdraft, and evaluate the need for groundwater monitoring.[86] The prioritization framework seeks to categorize each basin as high, medium, low, or very low priority.[87] However, basin prioritizations are determined by boundaries defined in the DWR's Bulletin 118 report, which has not been updated since 2003.[88] Nonetheless, once basins are prioritized SGMA has delineated a fixed timeline for its implementation.[89] By 2017, local groundwater management agencies (GSAs) must be identified.[90] The objective of these local agencies is to evaluate the condition of their respective basin and develop a locally tailored plan that is consistent with SGMA's sustainability goals.[91] By 2020, all overdrafted basins must adopt a groundwater sustainability plan (GSP).[92] By 2022, all other high and medium priority basins, that are not currently in overdraft, must have sustainability plans formed,[93] and by 2040 all high and medium priority groundwater basins must achieve sustainability.[94] The DWR is tasked

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[84] CAL. WATER CODE § 10721(v) ('"Sustainable yield" means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without cause undesirable results.').

[85] *See* Melanie Mason, *Gov. Jerry Brown Signs Historic Groundwater Management Legislation*, L.A. TIMES (Sept. 16, 2014), http://www.latimes.com/local/political/la-me-pc-groundwater-regulation-bills-20140916-story.html (quoting California Assemblyman Jim Patterson, "[T]he legislation did not go far enough in protecting local interests because the state can step in to enforce regulation."); *see also* Dale Kasler, *More California Farmland Could Vanish as Water Shortages Loom Beyond Drought*, THE SACRAMENTO BEE (Nov. 26, 2015), http://www.sacbee.com/news/state/california/water-and-drought/article46665960.html (quoting one third-generation farmer saying, "I don't know if this groundwater law. . .is in my best interest or in any small grower's best interest.").

[86] CAL. WATER CODE §§ 10933 and 10722.4(a).

[87] CAL. WATER CODE § 10722.4(a); *see also* CAL. WATER CODE § 10933(b)(1)–(8).

[88] CAL. WATER CODE § 10722; *see also* BULLETIN 118, *supra* note 41, at 6.

[89] *See* Press Release, Edmund G. Brown Jr., *supra* note 11.

[90] CAL. WATER CODE §§ 10735.2(a)(1) and 10723.

[91] CAL. WATER CODE § 10727(a) ("A groundwater sustainability plan shall be developed and implemented for each medium- or high-priority basin by a groundwater sustainability agency to meet the sustainability goal established pursuant to this part. The groundwater sustainability plan may incorporate, extend, or be based on a plan adopted pursuant to Part 2.75 (commencing with Section 10750)"); CAL. WATER CODE § 10727.2 (listing the required elements for all sustainability plans).

[92] CAL. WATER CODE § 10720.7(a)(1).

[93] CAL. WATER CODE § 10720.7(a)(2).

[94] *See* Press Release, Edmund G. Brown Jr., *supra* note 11.

with evaluating the local GSAs and GSPs;[95] however, SGMA allows for state intervention in the event that local agencies fail to establish a GSA or management plans are deemed inadequate.[96]

Overall, if record-breaking conditions continue more regularly into the future, groundwater substitution will likely remain the main response to surface water storage. For sustainability plans to be successful, open communication and coordination among local stakeholders and governmental entities will be critical to SGMA's future success. However, if local agencies attempt to further limit a farmer's access to water, such restrictions will undoubtedly come at a high cost. The effects of the 2015 drought alone were estimated to cost the California farming industry $1.8 billion.[97] Invested Central Valley farmers will not let SGMA's additional water restrictions further infringe upon their struggling success. Although the 2014 Act seeks to lay the foundation for a sustainable future, sustainability will not be achieved until all water users can collectively work together to revive California's most threatened groundwater basins.

IV. SGMA's Shortcomings Provide Great Uncertainty for Overlying Landowners in Kern County

As the new water management system takes shape, concerns are building among Central Valley farmers who are fearful of SGMA's significant lack of clarity and expansive groundwater authority.[98] Sitting beneath nearly 2 million acres of land at the Southern end of the Central Valley, lies the Kern County subbasin.[99] The Kern County subbasin is an area in which groundwater rights may be threatened as a result of the vague, contradictory, and ineffective provisions mandated under the new groundwater law.

The Kern County subbasin is a subsection of the larger San Joaquin Valley basin in the Tulare Lake Hydrological Region.[100] The subbasin has been categorized by DWR as a "high priority" basin due to its subsi-

[95] Cal. Water Code § 10733.

[96] Cal. Water Code § 10735.2.

[97] Howitt, *supra* note 1, at 6–7 (noting the California Department of Food and Agriculture and the University of California, Davis, collaborative analysis of the estimated economic impacts of the drought on California's agriculture).

[98] *See generally* Agric. Council Of Cal, *Ag Council Comments on Safeguarding California Draft Plan* (last visited Mar. 20, 2016), http://www.agcouncil.org/water (noting the Agricultural Council of California's concerns over sections of the bill that need to be clarified or that may be too binding).

[99] Cal. Dep't of Water Res., California's Groundwater—Bull. No. 118 Basin Descriptions, at 2 (Jan. 2006), http://www.water.ca.gov/groundwater/bulletin118/basindescriptions/5-22.14.pdf [hereinafter Basin Descriptions].

[100] *See generally* Bulletin 118, *supra* note 41, at 177.

dence, overdraft, and water quality degradation.[101] Therefore, the local entity that elects to manage the subbasin will be required to create a groundwater management plan by January 31, 2020.[102] SGMA allows for Kern County's subbasin to be managed by several separate GSAs or one single GSA.[103] Under either scenario, the local entity must meet statewide standards and take into account the vast interests of local stakeholders and various groundwater users.[104]

For Kern County, agriculture has been at the heart of the local economy for decades. The area is often referred to as the "Golden Empire" due to its rich history of gold, oil, and agricultural production,[105] and it ranks among the top five most-productive agricultural counties in the nation.[106] For example, Kern County alone provides an estimated 16 percent of the entire California almond crop, ranking third in total almond production.[107] In 2014, the gross value of all agricultural commodities produced in the County was an estimated $7.5 billion.[108] In fact, for purposes of SGMA, the subbasin has been categorized as a basin of specific "agricultural importance"[109] due to the large number of farms throughout the area,[110] many of which utilize groundwater as as their main water resource.

The Central Valley farming sector has already suffered extensive economic hardship as a result of the dry conditions and staggering shortfalls in state (SWP) and federal (CVP) water deliveries. Therefore,

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[101] *See* BASIN PRIORITIZATION RESULTS: SOUTH CENTRAL REGION, *supra* note 42; *see also* CAL. WATER CODE § 10933(b)(1)–(8) (giving the Department of Water Resources authority to prioritize every basin and subbasin based on a variety of factors).

[102] CAL. WATER CODE § 10720.7(a)(1).

[103] CAL. WATER CODE § 10723(a).

[104] CAL. WATER CODE § 10723.2.

[105] CAL. DEP'T OF EMP. DEV., KERN COUNTY PROFILE, (2015), http://www.labormarketinfo.edd.ca.gov/cgi/dataBrowsing/localAreaProfileQSResults.asp?state=true&geogArea=0604000029&selectedArea=Kern%20County.

[106] WATER ASSOCIATION OF KERN COUNTY, *Urban and Agricultural Water Usage* (last visited Mar. 23, 2016), http://www.wakc.com/index.php/water-overview/water-usage/76-agricultural-water-use [hereinafter URBAN AND AGRICULTURAL WATER USAGE IN KERN COUNTY] (noting that over 250 crops are produced in Kern County, ranging from cotton to potatoes, pistachios to grapes, pomegranates, to roses); *see, e.g.,* CALIFORNIA AGRICULTURAL STATISTICS REVIEW 2014-2015, *supra* note 12, at 18.

[107] *See Kern County Facts,* ALMOND BD. OF CAL., (last visited Dec. 11, 2015). http://www.almonds.com/sites/default/files/content/attachments/almond_industry_-_kern_county.pdf.

[108] *See Value Added Agriculture,* KERN ECON. DEV. CORP. (last visited Dec. 11, 2015) http://kedc.com/site-selection/target-industries/value-added-agriculture/.

[109] *See* BASIN PRIORITIZATION RESULTS: SOUTH CENTRAL REGION, *supra* note 42.

[110] *See* U.S. DEP'T OF AGRIC., CENSUS OF AGRIC., at 1 (2012) http://www.agcensus.usda.gov/Publications/2012/Online_Resources/County_Profiles/California/cp06029.pdf (according to the 2012 census, Kern County has an estimated 1,938 farms which is an 8% decrease from the 2007 census).

as overlying farmers wrestle with SGMA's new expansive authority,[111] many feel that they should not have to withstand the additional groundwater restrictions or government oversight.[112] Under SGMA, local GSAs will be allowed to implement a variety of sustainability methods such as incorporating more conjunctive water use,[113] mandating new water user fees,[114] and imposing limitations on how much groundwater an overlying landowner may extract from the basin.[115] However, by implementing conjunctive water methods and limiting groundwater extractions, overlying landowners and farmers will be exposed to legal liability and forced to give up access to one of their last available water reserves. These sustainability methods will create additional undue burden for an industry that provides for countless communities across the nation.

For SGMA to be effective, every GSA will have to embody the diverging interests and economic objectives represented throughout the overlying area. Additionally, in order to craft a sustainability plan that all water users can collectively support, every basin must be adequately sized for sustainable groundwater management. Though it can be a slow process to create a plan that is mutually approved by farmers, cities, water districts, and other interest groups alike, it is critical that every GSA takes into account the differing interests existing throughout its respective area before adopting and implementing a new groundwater sustainability plan.

Although finding a solution to California's water management challenges is not an easy feat, placing additional restrictions on Central Valley farmers will disproportionately affect growers and potentially jeopardize countless generational family farms. Until the law's contradictory language is clarified and California water rights are better-de-

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[111] Eric Holthaus, *California's New Groundwater Legislation is Unfair. The Governor Should Sign It Anyway,* SLATE (Sept. 29, 2015), http://www.slate.com/blogs/future_tense/2014/09/03/california_s_new_groundwater_legislation_is_unfair_but_necessary.html (quoting Tulare County Deputy Agricultural Commissioner, "When you're legislated out of something that's been in your family for generations, it's hard to stomach when you have other people telling you what you can and can't do.").

[112] *See* Heesun Wee, *California Landowners Resist Efforts to Monitor Groundwater,* CNBC (May 13, 2015), http://www.cnbc.com/2015/05/12/the-growing-tension-over-california-water-metering-.html.

[113] CAL. WATER CODE § 10727.4(f); *see generally* BULLETIN 118, *supra* note 41, at 100 (defining conjunctive management as the "coordinated and combined use of surface water and groundwater" in an aquifer that is used as a storage facility, while seeking to increase a regional water supply).

[114] CAL. WATER CODE § 10730.

[115] CAL. WATER CODE §10726.4(a)(1) and (2).

fined, SGMA's anticipated regulations pose a significant threat to California's agriculture industry in addition to the State's economy.[116]

A. Kern County Faces Significant Challenges with GSA Formation

Forming a GSA for Kern County will be challenging due to the various water agencies existing throughout the County, and the expansive role that GSAs are expected to assume. Under SGMA, "any local agency or combination of local agencies overlying a groundwater basin may elect to be a GSA."[117] However, when multiple agencies are set to manage a single basin, the differing economic interests, sustainability views, and preservation goals will undoubtedly make governance complicated.

Over the past 50 years, various water storage districts have developed throughout Kern County, providing for several GSA candidates and a high likelihood that multiple agencies will ultimately assume the GSA role.[118] The main objective of these water districts is to capture and store surface water for distribution to specific growers throughout their area, and many have formulated their own groundwater management plans and water preservation goals specifically tailored to their district.[119] As of today, there are approximately 25 water districts and agencies coexisting in Kern County.[120] These local water agencies will make Kern County's GSA formation process challenging, as competing organizations are forced to address conflicting water plans, while protecting vested water rights, and balancing the social, economic, and environmental interests existing throughout the subbasin.

Under SGMA, local GSAs may be tasked with a wide-range of duties including: conducting investigations throughout the basin,[121] evaluating the basin conditions,[122] requesting for basin boundary

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[116] Devin Galloway, *U.S. Geological Survey, Circular* No. 1182*, Land Subsidence in the United States,* at 23 (2005), http://pubs.usgs.gov/circ/circ1182/pdf/06SanJoaquinValley.pdf (stating that approximately 25% of the nation's table food comes from just 1% of America's farmland, all of which is located within the Central Valley).

[117] Cal. Water Code § 10723(a).

[118] *See* Sources of Kern County Water, *supra* note 23.

[119] *See, e.g.*, Semitropic Water Storage Dist. of Kern Cnty., *2012 Groundwater Management Plan* (last visited Mar. 20, 2016), http://www.semitropic.com/pdfs/Semitropic%20Draft%20GW%20Management%20Plan_10%201%202012.pdf (demonstrating an adopted neighboring groundwater management plan in Kern county on pages 8–10).

[120] Water Association Of Kern County, *Who's Who in Kern County* (last visited Mar. 23, 2016), http://www.wakc.com/index.php/whos-who?sid=2&site=1.

[121] Cal. Water Code § 10725.4.

[122] Cal. Water Code § 10728.2.

adjustments,[123] crafting sustainability plans,[124] periodically evaluating the basin's sustainability plan,[125] coordinating with neighboring water districts or agencies,[126] regulating or controlling groundwater extractions,[127] imposing water user fees,[128] and submitting annual reports to the DWR.[129] The significant amount of responsibilities the GSAs are expected to assume may also create a significant hurdle for GSA formation in Kern County. The State's laundry list of GSA responsibilities is guaranteed to influence local debates as overlying areas determine which entities are best suited to assume the GSA role. This degree of accountability and oversight might even deter local agencies from participating in the GSA process entirely, leaving regulation and management in the hands of the county or state. Therefore, if the Legislature fails to clarify or limit the expansive power it has afforded GSAs, it will be difficult to unite local interests and formulate a comprehensive sustainability plan in diverse subbasins such as Kern County.

B. Outdated Basin Boundaries Will Lead to Impractical Sustainability Plans

Once GSAs have been formed, the agencies managing medium or high priority basins will be required to develop GSPs that are locally tailored to their respective basins.[130] As it stands, Kern County's basin prioritization delineated by the DWR[131] is inadequate.[132] The current basin boundaries that were delineated back in 2003 are outdated and far too expansive.[133] The DWR has categorized the Kern County subbasin as an overdrafted high priority basin,[134] when in actuality some areas within the basin are not at all in overdraft.[135] Areas in Kern County have dis-

[123] Cal. Water Code § 10722.2.
[124] Cal. Water Code § 10727.
[125] Cal. Water Code § 10728.2.
[126] Cal. Water Code § 10727.6.
[127] Cal. Water Code § 10746.4(a).
[128] Cal. Water Code § 10730.
[129] Cal. Water Code § 10728.
[130] Cal. Water Code §§ 10727 and 10727.2.
[131] Basin Prioritization Results: South Central Region, *supra* note 42.
[132] *See* U.S. Dept. Of Int. Bureau Of Reclamation, Assessment Of Potential Groundwater Impacts, at 1 (2014) http://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=22189 (indicating that several local water districts have produced local reports that assess groundwater impacts and propose subbasin boundary revisions, and the Buena Vista Water District is a district that has created a report proposing to divide the Kern County subbasin into multiple subbasins); *see also* Semitropic Water Storage Dist. of Kern Cnty., *supra* note 119.
[133] Basin Descriptions, *supra* note 99, at 1–2.
[134] Basin Prioritization Results: South Central Region, *supra* note 42; *see also* Basin Descriptions, *supra* note 99, at 1–2.
[135] *See* Assessment Of Potential Groundwater Impacts, *supra* note 132, at 4.

tinct topographic elements that create isolated hydrologic systems,[136] and lead to confined groundwater supplies that differ from other areas in the subbasin.[137] For example, in some areas the water demand is met by the delivery of surface water from the Kern River,[138] whereas other areas have zero access to the river's water deliveries.[139] Thus, to create a comprehensive and adequately tailored groundwater plan for Kern County, it is critical that the DWR identify the subbasin's complex makeup, and take into consideration an expansive basin boundary revision.[140]

In crafting either one single management plan or a coordinated management plan, GSP adoption for Kern County will be exceptionally challenging. SGMA provides that:

> A groundwater sustainability plan may be any one of the following: (1) [a] single plan covering the entire basin developed and implemented by one groundwater sustainability agency; (2) [a] single plan covering the entire basin developed and implemented by multiple groundwater sustainability agencies; [or] (3) [s]ubject to Section 10727.6, multiple plans implemented by multiple groundwater sustainability agencies and coordinated pursuant to a single coordination agreement that covers the entire basin.[141]

If Kern County is not granted a basin boundary revision, then it is unlikely that the basin will be able to adopt a single plan that can be implemented by one GSA, due to the high likelihood that multiple agencies will have to collectively assume the GSA role. Kern County may attempt to create one single plan for the subbasin that can be imple-

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[136] *See, e.g., Id.* (explaining local geology and groundwater conditions indicate that the Buena Vista Water District is substantially isolated, leading to a groundwater supply starkly different than other areas within Kern County).

[137] *See* ASSESSMENT OF POTENTIAL GROUNDWATER IMPACTS, *supra* note 132, at 4 (indicating that the Buttonwillow area is not in overdraft because groundwater levels beneath the entire Buena Vista Water Storage District have risen approximately 6.8 feet since 1974).

[138] The Kern River is the most Southern located river in the San Joaquin Valley, spanning an estimated 165 miles, and the only major river in the Sierra Nevada mountain range that drains in a Southerly direction. The head waters of the Kern River can be found near the base of Mount Whitney and continue down through Bakersfield and into the Kern River Canyon. *See generally* SOURCES OF KERN COUNTY WATER, *supra* note 23; *see* WATER ASSOCIATION OF KERN COUNTY, *supra* note 24 (noting which entities obtain Kern River water rights).

[139] *See* ASSESSMENT OF POTENTIAL GROUNDWATER IMPACTS, *supra* note 132, at 5 (Figure 2: Groundwater Subbasins).

[140] CAL. WATER CODE § 10722.2 (describing how local agencies can request a basin boundary revision if there is supporting information demonstrating that the DWR's delineation is inadequate).

[141] CAL. WATER CODE § 10727(b); *see* CAL. WATER CODE § 10721(d) ("'Coordination agreement" means a legal agreement adopted between two or more groundwater sustainability agencies that provides the basis for coordinating multiple agencies or groundwater sustainability plans within a basin. . ..").

mented by multiple GSAs, however, that too will prove challenging. The subbasin's varying geologic structures are too distinct and complex, and the 13-year-old basin boundaries are not adequately drawn in a way for multiple agencies to adopt a comprehensive and effective groundwater management plan.[142]

As a final alternative to the adoption of one single GSP for the entire subbasin, Kern County may attempt to create a coordinated management plan. If various agencies with diverging interests elect to assume Kern County's GSA role, then multiple sustainability plans will likely be put forth to cover the subbasin's area. Under SGMA, such plans will be subject to a "coordination agreement" to ensure that the agencies utilize the same data and methodologies when developing coordinating groundwater plans.[143] However, due to the subbasin's complex makeup and the multifaceted aquifer system underlying Kern County, utilizing the same data and sustainability methodologies basin-wide would be ineffective.[144] A subbasin that is being critically overdrafted and concurrently benefitting from isolated hydrologic systems will not allow for the development of a coordination plan that can utilize the same sustainability methodologies basin-wide.[145]

Overall, if GSAs are forced to adhere to basin boundaries that do not account for the evolving geological intricacies critical to sustainability plans, then subbasins like Kern County will encounter extensive challenges with GSP creation and implementation. Kern County is just one of many areas that will be forced to confront issues such as boundary revisions and diverging interests before developing a successful sustainability plan. In order to develop GSPs that can ensure groundwater basins are operated within their sustainable yield, the Legislature must first properly categorize each individual basin and subbasin. To implement effective management decisions that can hold true to California's sustainability objectives, the Legislature must possess a thorough geological understanding of every basin area, and assure that each basin is adequately sized for sustainable groundwater management.

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[142] BASIN DESCRIPTIONS, *supra* note 99, at 1–2.

[143] CAL. WATER CODE §§ 10727(b)(3) and 10727.6.

[144] BASIN DESCRIPTIONS, *supra* note 99, at 1 (describing the Kern County subbasin as being bounded by marine sediments of the San Emigdio mountains and coastal ranges, in addition to granitic bedrock, active faults, principal rivers and stream).

[145] CAL. WATER CODE § 10727.6.

C. Tensions Between SGMA and Traditional California Water Rights

In California, the courts have declared water to be a property right since the early 1900s, and several of the provisions that SGMA is set to enforce are in direct conflict with California's judicially established groundwater rights.[146] Specifically, SGMA's contradictory language in Sections 10726.4(a)(2) and 10727.4(f) creates a clear tension between traditional overlying rights and the Legislature's commitment to protecting the precious groundwater supply.

SGMA makes clear that it is the intent of the Legislature to respect existing groundwater rights.[147] Additionally, the law provides that nothing in SGMA or in any groundwater management plan "determines or alters surface water rights or groundwater rights under common law or any provision of law that determines or grants surface water rights."[148] However, Section 10726.4(a)(2) explicitly contradicts the Legislature's intent by granting GSAs with the broad authority to limit and control all groundwater pumping and extractions.[149] Under California common law, holders of overlying groundwater rights have not been required to reduce extractions or incur any significant expense for the benefit of lower-priority water right holders.[150] Thus, allowing GSAs to impose restrictions on groundwater pumping would threaten those with overlying property rights. If pumping mandates are put in place by GSAs, the overlying landowners in Kern County who are accustomed to pumping-at-will will no longer be able to exercise their established legal right. This tension in the law may compel overlying farmers to pursue legal action, adding an undue burden to those who have already endured significant hardship due to the ongoing drought effects.

A second provision in the law that demonstrates SGMA's direct conflict with traditional groundwater rights is the implementation and expansion of conjunctive water management.[151] This section of SGMA provides that, "[i]n addition to the required GSP elements set out in section 10727.2, a [GSP] shall include, where appropriate and in collaboration with the appropriate local agencies. . .[a]ctivities implementing,

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[146] *Thayer v. California Dev. Co.,* 128 P. 21, 24 (Cal. 1912).

[147] Sustainable Groundwater Management Act, 2014 § (b)(4) (Uncodified Findings: noting that it is the intent of the legislature "To respect overlying and other proprietary rights to groundwater, consistent with Section 1200 of the Water Code.").

[148] Cal. Water Code § 10720.5(b).

[149] Cal. Water Code § 10726.4(a)(2).

[150] *Katz v. Walkinshaw,* 74 P. 766, 772 (Cal. 1903).

[151] *See* Cal. Water Code § 10727.4(f).

opportunities for, and removing impediments to, conjunctive use or underground storage."[152]

Due to the growing environmental regulations[153] curtailing water deliveries and impeding the expansion of additional surface water storage, conjunctive water management is set to play a pivotal role in SGMA's water management system.[154] To be put simply, conjunctive water management practices allow for depleted groundwater basins to function similarly to surface water reservoirs. Under this practice, an overdrafted basin's vacant storage may allow for the capture of surface water, which would typically be lost as runoff and not be put to a beneficial use.[155] At first glance, conjunctive water management appears to be a less expensive alternative to building new surface water storage; however, an increase in conjunctive water use may potentially result in overlying landowner disputes and costly litigation.

Today, several areas throughout California utilize conjunctive water management practices.[156] However, conjunctive practices are typically most effective in adjudicated basins where water rights have been defined and quantified. Adjudicated basins allow for court-order pumping limits and regulations, whereas, prior to SGMA no such limitations were allowed to be placed on water users in unadjudicated basins. When conjunctive water practices are used in a basin that has not yet been adjudicated, overlying water rights, imported water rights, and surface water rights all naturally conjoin. However, SGMA remains silent as to the what the prevailing relationship will be between each of these water rights. When various water rights conjoin in a single basin, overlying landowners will be exposed to legal liability the moment they attempt to

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[152] *Id; see also* CAL. WATER CODE §10726.2(b) (indicating that a groundwater sustainability agency has flexible authority to implement conjunctive use or storage programs, but that it "shall not alter another person's or agency's existing groundwater conjunctive use or storage program except upon a finding that the conjunctive use or storage program interferes with implementation of the agency's groundwater sustainability plan").

[153] Holthaus, *supra* note 39; *see also* Bettina Boxall, *Federal Appeals Court Upholds Delta Smelt Protections,* L.A. TIMES (Mar. 13, 2014), http://articles.latimes.com/2014/mar/13/local/la-me-delta-smelt-20140314.

[154] *See* Sustainable Groundwater Management Act, 2014 § (a)(11) (Uncodified Findings: "Sustainable groundwater management in California depends upon creating more opportunities for robust conjunctive management of surface water and groundwater resources. Climate change will intensify the need to recalibrate and reconcile surface water and groundwater management strategies.").

[155] *See* Tara Moran and Dan Wendell, *The Sustainable Groundwater Management Act of 2014: Challenges and Opportunities for Implementation,* STANFORD WOODS INST. FOR THE ENV'T, 18 http://waterinthewest.stanford.edu/sites/default/files/WitW_SGMA_Report_08242015.pdf.

[156] *Id.* (noting agencies that currently practice conjunctive water management in California: Orange County Water District, Santa Clara Valley Water District, and Sonoma County Water Agency).

pump or extract their historically entitled share. Kern County is a basin in California that has not yet been adjudicated, and incorporating conjunctive water management throughout the subbasin will likely give rise to a number of complex legal issues for overlying landowners and farmers.

The California Supreme Court has held that an entity which imports water has the exclusive right to recapture the water attributable to its deliveries; however, enforcing this right becomes complicated when overlying groundwater rights are threatened.[157] Conjunctive water management allows for multiple water entities to store and extract water within a single basin, yet SGMA does not provide any clarification as to how liability will be allocated when the water levels in the basin begin to fluctuate. For a majority of the basins throughout California the amount of native groundwater that is flowing throughout is unknown. Therefore, as water is simultaneously imported and extracted from the basin by various water users, questions and concerns are bound to arise concerning the ownership of the basin's water supply.

As conflicts develop over the right to extract the water stored within the basin, the monitoring of groundwater levels will be imperative to helping mitigate factual disputes. However, groundwater monitoring will not be enough to provide adequate legal assurances to those with established water rights.[158] To facilitate participation in basins that have not yet been adjudicated, the Legislature should reform SGMA to prioritize all water rights involved with conjunctive water use, in addition to creating a realistic metering approach throughout the groundwater basins.

The Legislature must limit the liability exposure for participating water users and revise the contradictory provisions in SGMA that are in direct conflict with California's judicially established groundwater rights. Until the Legislature better-defines the hierarchy of water rights and ensures that recognized property rights will not be unreasonably impaired, overlying landowners will likely resist any such GSA efforts to utilize conjunctive management or limit groundwater extractions, by resorting to courtroom litigation and ultimately hindering the advancement of groundwater sustainability.

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[157] *Los Angeles v. Glendale,* 142 P.2d 289, 294–95 (Cal. 1943).

[158] *See* CAL. WATER CODE §10727.2(d)(1) (providing that a required GSP element is for agencies to monitor and manage groundwater levels).

V. California Drought Effects and SGMA's Hostile Economic Forecast

The 2015 drought was among the driest and warmest years on record,[159] producing extreme drought effects and ultimately forcing California's farming sector into a state of peril. The 2015 drought forced nearly 542,000 acres to be fallowed, almost all of which (99.5 percent) were located in the Central Valley.[160] Even though Valley farmers demonstrated more resilience in 2015 than most anticipated, California's agriculture sector still suffered an total economic loss of $2.74 billion[161] and 21,000 jobs.[162] As these negative effects cultivate through 2016 and beyond, proper action must be taken before the current water crisis erodes California's agriculture and employment sectors entirely.

SGMA aims to improve California's drought conditions, however, if additional water restrictions are put into effect by GSAs, such restrictions will negatively impact a wide variety of industries, interests, and individuals nationwide.[163] For example, SGMA's anticipated pumping limitations in combination with the record-breaking dry conditions will further alter California's irrigated croplands, diminish crop varieties, and create a substantial ripple effect on the nation's exported commodities. In 2014, California's agricultural exports amounted to $21.59 billion, with almonds being the number one exported commodity.[164] However, curtailing a farmer's ability to extract groundwater will limit his ability to harvest agricultural commodities that are destined for nationwide and global markets.

SGMA's water restrictions have the potential to cultivate mega-drought conditions, forcing local farmers to choose between high-value water-intensive orchards or planting lower maintenance row crops that will last a mere couple of months. A reduction in water-intensive crops, such as almonds,[165] will adversely effect growers and their employees in

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[159] Howitt, *supra* note 1, at 1.

[160] *Id.* at 5.

[161] *Id.* at 9–10 (noting that the $2.74 billion economic impact includes: $902 million in gross revenue losses for crops, $350 million in revenue losses for dairies and livestock, and $587 million in farm income losses due to increased water pumping costs).

[162] *Id.* at ES-2.

[163] Farm economist Vernon Crowder estimates that under SGMA as much as 300,000 acres could permanently disappear from California agriculture, enough to grow an entire $1.2 billion tomato crop. Kasler, *supra* note 85.

[164] *See* California Agricultural Statistics Review 2014-2015, *supra* note 12, at 7.

[165] *See The Economic Impacts of the California Almond Industry*, California Almonds: The Almond Board of California, (Jan. 2015) http://www.almonds.com/sites/default/files/misc/media-center/images/pdfs/california-almonds-economic-impact-factsheet.pdf (noting that the California almond industry as a whole generates approximately 104,000 jobs statewide).

addition to the urban areas which are dependent on the transportation industry, and the ports that transport such commodities overseas.[166] Therefore, to continue producing an abundant almond crop, a critical coping mechanism for local farmers will be their ability to pump and extract groundwater. As one Central Valley farmer put it, "if they limit how much [groundwater] you can use, that will dictate what crops you can grow. It's going to lower property value[s], and potentially [the] ability to use the land."[167]

If SGMA's water restrictions compel Valley farmers to fallow additional acres, a substantial number of jobs will be lost, further increasing California's unemployment numbers. In Kern County, the agriculture industry employs nearly 20 percent of the total workforce and provides approximately 55,000 jobs.[168] However, by the end of 2016 an additional 288,000 irrigated acres are estimated to go fallow within the Tulare Lake Basin region, amounting to a projected $612 million in agricultural crop revenue losses.[169] When the Valley's expansive crop variety[170] is substantially reduced, the negative effects will reverberate as additional farm workers are left unemployed and local food prices are sent soaring.[171]

If the Legislature fails to reform its new water regime, SGMA's groundwater restrictions will ultimately dictate which crops can be grown, and which foods consumers will have access to in their local grocery stores. Furthermore, dictating which crops can be grown and harvested will also have a resulting impact on the nation's food security. California farmers are required to harvest food that is healthy and safe for consumers to eat.[172] However, that sense of security will be sacrificed when additional water restrictions are put in place and California is

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[166] *See Kern County Facts,* ALMOND BD. OF CAL. (last visited Dec. 11, 2015), http://www.almonds.com/sites/default/files/content/attachments/almond_industry_-_kern_county.pdf (indicating that California produces approximately 80% of the world's almonds, 100% of the U.S. commercial supply).

[167] Holthaus, *supra* note 111.

[168] *See Value Added Agriculture,* KERN ECON. DEV. CORP. (last visited Dec. 11, 2015) http://kedc.com/site-selection/target-industries/value-added-agriculture/; *see also* STATE OF CA. EMP'T DEV. DEP'T, *Employment by Industry (Not Seasonally Adjusted) in Kern County* (last visited Mar. 23, 2016), http://www.labormarketinfo.edd.ca.gov/cgi/databrowsing/localAreaProfileQSMoreResult.asp?menuChoice=localAreaPro&criteria=current+emmployment+statistics+%28ces%29&categoryType=employment&geogArea=0604000029&more=More.

[169] Howitt, *supra* note 1, at 6–7.

[170] *See* URBAN AND AGRICULTURAL WATER USAGE IN KERN COUNTY, supra note 106.

[171] *See* David Kesmodel, *California's Growers Bear Brunt of Drought Woes,* THE WALL STREET JOURNAL (Oct. 25, 2015), http://www.wsj.com/articles/californias-growers-bear-brunt-of-drought-woes-1445765403 (noting that industry executives say consumers could see higher produce prices if the California drought persists, causing greater crop damage and prompting farmers to leave more land unplanted).

[172] *See generally* CAL. DEP'T OF FOOD AND AGRIC., ANIMAL HEALTH AND FOOD SAFETY SERVICES (AHFSS), (2015), https://www.cdfa.ca.gov/ahfss/.

forced to begin importing its food from foreign markets because local farmers no longer have the water resources to produce an abundant harvest.

At first glance, SGMA's efforts to limit groundwater pumping seem well intended. The damaging economic impact that additional water-right curtailments will have on California farming communities and individuals nationwide may however outshine its advantageous objective. Therefore, as sustainability plans are carefully crafted and local objectives are distinctly defined, it is critical that GSAs protect the agriculture-rich Central Valley rather than stifle its success. In protecting the valuable groundwater reserve, the Legislature must also be committed to protecting the sector that brings substantial value to the state, and whose successes reverberate throughout the nation.

VI. Conclusion

Groundwater is an important component in California's water system, and vital to a variety of residents, farmers, and industries alike. From farmers fallowing fields to residents watching their wells go dry, the historic drought has unearthed the indisputable need for better statewide groundwater management. With an increase change in demands, climate, and environmental regulations, California's groundwater dependence is expected to continue to grow, and successful sustainability measures are an undeniable necessity. However, success must be determined by how effectively the groundwater can be managed without undermining existing historic California water rights or destroying the State's thriving agricultural economy.

Kern County is just one of California's 515 groundwater basins that will be regulated under SGMA. However, by implementing new pumping restrictions and neglecting legal assurances to Central Valley farmers and water users, local GSAs will be punishing one of California's most prosperous sectors. Although it is important for the Legislature to provide a greater sense of security for water users at a time of increasing water scarcity, it is critical that in preserving this finite resource policy makers do not thwart one of the largest and most profitable agricultural supply systems in the nation.[173]

There is no single answer to California's water woes. Imperative to the development of an effective statewide water policy is ensuring that sustainability agencies create local plans based on transparent information, and in a manner that promotes consensus between all water users.

[173] *See* California Agricultural Statistics Review 2014-2015, *supra* note 12, at 5.

The California Legislature must reform SGMA to create a sustainability strategy that adequately clarifies the authority of local agencies, prioritizes all California water rights, increases its surface water storage capacity and efficiently utilizes the State's existing water resources. Once SGMA's shortcomings are properly addressed, California may be able to finally reduce its unsustainable groundwater dependence and be better prepared for future droughts while ensuring that its prosperous farming industry continues to stay alive for years to come.