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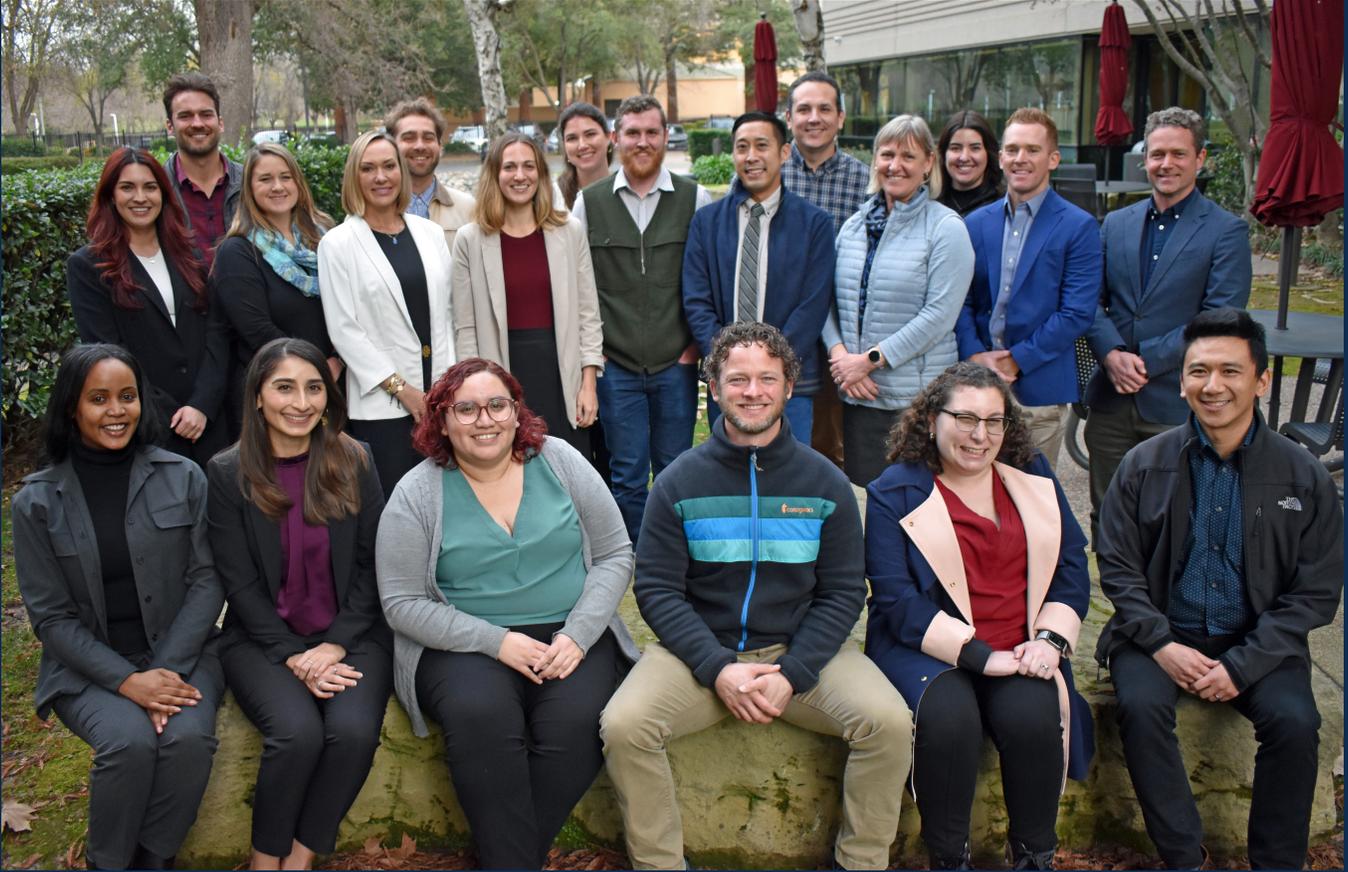


Photo Credit: Self-Help Enterprises

Recommendations for Implementation of the Sustainable Groundwater Management Act

A report by the 2024 California Water Leaders

Disclaimer & Acknowledgements



2024 Water Leaders Cohort

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Acronyms and Abbreviations

CDFW	California Department of Fish and Wildlife
CHW	Community Health Worker
CHR	Community Health Representative
CV-SALTS	Central Valley Salinity Alternatives for Long-Term Sustainability
DAC	Disadvantaged Community
DWR	California Department of Water Resources
EDF	Environmental Defense Fund
FONAG	Quito Water Fund
Foundation	Water Education Foundation
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
ILRP	Irrigated Lands Regulatory Program
ISW	Interconnected Surface Water
LCI	Office of Land Use and Climate Innovation
LI	Leadership Institute
PPIC	Public Policy Institute of California
NGO	Non-Governmental Organization
RCAC	Rural Community Assistance Corporation
SAFER	Safe and Affordable Funding for Equity and Resilience
SGMA	Sustainable Groundwater Management Act
SHE	Self-Help Enterprises
SMC	Sustainable Management Criteria
SWRCB	State Water Resources Control Board

Executive Summary

California's Sustainable Groundwater Management Act (SGMA), enacted in 2014, was a tectonic shift in statewide groundwater management. Prior to SGMA, California's groundwater basins were largely unmanaged.

Although we recommend improvements in this report, SGMA has engaged more people than ever before in groundwater management and will continue to bring more diverse parties together under a common goal. To date, the law has resulted in the creation of more than 250 local Groundwater Sustainability Agencies (GSAs) across the state that have begun implementing over 100 Groundwater Sustainability Plans (GSPs). Achieving groundwater sustainability is a necessary and attainable goal. We acknowledge the path to sustainability will be difficult and will have serious implications and impacts to the people and economies of the agricultural community, cities and towns that rely on groundwater.

This report outlines a series of targeted recommendations on expanding education, engagement and employment opportunities; enhancing data availability and transparency; developing regional community networks; improving coordination around land use planning; and ensuring sustainable and equitable funding.

Members of the Foundation's 2024 California Water Leaders cohort spoke with experts in the field, attended Foundation tours and considered the pillars of equity, funding, trust and transparency while developing recommendations to address the challenges of SGMA implementation. The 2024 cohort suggests that decision-makers consider implementing the following recommendations, which are described in more detail throughout this report.

We believe our recommendations would assist in making progress towards groundwater sustainability, support continued local control and build resilience through the leveraged strength of many diverse parties. Protecting and sustaining the valuable groundwater resources of the state will necessitate novel partnerships, trust and adaptive management in the face of a changing climate. Our recommendations are as follows:

Recommendation 1: Enhance Education, Engagement and Employment Opportunities

Expand existing education and leadership development programs for communities, develop job opportunities for water industry professionals at all levels and create a support system for existing water industry professionals to address gaps and challenges for those working towards groundwater sustainability.

Recommendation 2: Enhance Data Availability and Transparency

Increase the availability, transparency and frequency of water resource data, which is key to achieving sustainability and building trust across diverse parties. This would necessitate an increase in groundwater collection and monitoring funding for GSAs and state agencies. Under this recommendation, the California Department of Water Resources (DWR) would provide guidance on direct and indirect methods for groundwater extraction measurement.

Recommendation 3: Develop Regional Community Networks

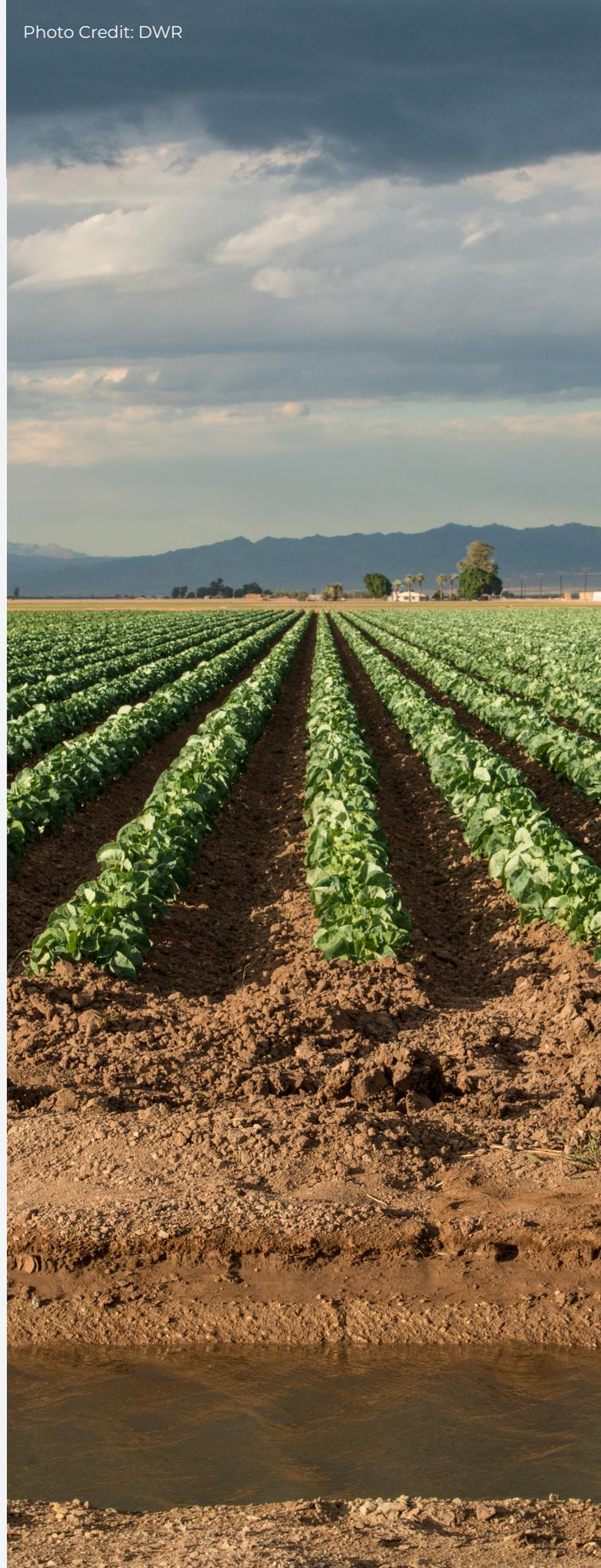
DWR, as a centralized support entity, should establish the structure and facilitate the formation of regional community networks. These networks would provide an avenue for all beneficial users to fully integrate regulatory changes and updates. Under this recommendation, DWR would convene an annual summit of the regional community networks to inform DWR on criteria to consider when reviewing and approving each GSP's five-year update.

Recommendation 4: Improve Coordination Around Land Use Planning

The Office of Land Use and Climate Innovation (LCI) should develop guidance for local governments to incorporate GSPs into the local planning process to better align groundwater management with land use planning. Additionally, efforts at strategic land repurposing and groundwater quality management should be coordinated regionally to meet broader state, regional, and local goals such as climate adaptation, flood management, habitat restoration, environmental quality, and economic development.

Recommendation 5: Ensure Sustainable and Equitable Funding

SGMA implementation requires funding sources that are substantial, timely, consistent, sustainable and equitably distributed. We recommend that GSAs leverage alternative and innovative funding mechanisms to create sustainable SGMA funding. Additionally, funding application processes should be streamlined to improve access to funding. Under this recommendation, state funds should be based on a transparent assessment of need to ensure an equitable distribution of funds.



Introduction & Topic

California's Sustainable Groundwater Management Act (SGMA), enacted in 2014, created a statewide framework to help protect groundwater resources over the long term and halt overdraft by achieving locally defined sustainability goals. Acknowledging that groundwater is best managed by the people who most depend on it, SGMA was crafted with local control at its heart with state backstops should those local efforts be insufficient. Prior to SGMA, California's groundwater basins were largely unmanaged. This long overdue, landmark legislation was passed in the middle of a multi-year drought (2012-2016) that saw impacts across the state, solidifying the importance of protecting the state's groundwater resources.

SGMA mandated the formation of local groundwater sustainability agencies (GSAs) to cover the state's high- and medium-priority groundwater basins. These GSAs are charged with developing and implementing local groundwater sustainability plans (GSPs) to reach sustainability in their basins. To date, SGMA has resulted in the creation of more than 250 local GSAs across the state that have begun implementing over 100 GSPs. These GSPs were due in 2020/2022 and must achieve sustainability by 2040/2042. The overarching goal of SGMA is to ensure the long-term sustainability of the state's groundwater resources by promoting responsible management practices and preventing significant and unreasonable impacts to beneficial uses and users. To do so at the local level, GSAs have defined sustainability goals, embarked on a wide variety of projects and management actions outlined in their GSPs, submitted annual reports on groundwater conditions and continue to refine and adapt their approaches as they move through implementation. Though much planning has been done and implementation has begun, there is much more to do by 2040/2042 when sustainability must be achieved.

As California grapples with the increasing pressures of climate change, prolonged droughts and the demands of a growing and diverse population, the need to keep up the momentum of SGMA implementation has never been more urgent. Groundwater is too important a resource to be forgotten about beneath our feet; groundwater supplies 41 percent of the state's total supply in years of normal precipitation, and up to 60 percent during drought years. We recognize that all water sources are inextricably linked, and that the effective management of surface water and other alternative supplies will be crucial to the success of SGMA. These interconnections are important and not to be undervalued, especially in the era of climate change. Our recommendations, however, are specifically focused on groundwater as it relates to SGMA implementation.

SGMA is the most significant piece of water legislation in California in nearly 100 years. As such, its implementation will have extensive impacts on groundwater-dependent communities, both economically and individually. Historic practices of over-pumping are not sufficient to ensure a truly sustainable future in which these supplies can be relied upon during drought years without significant impacts to the beneficial uses and users. However, the road to sustainability is a difficult one and we acknowledge that an immense amount of effort has been made at the state and local level to get to this point in SGMA implementation.

Despite the progress made since the passage of SGMA, significant challenges remain. Many GSAs face hurdles due to limited human resources, community engagement gaps and fragmented information systems, land use planning and constrained funding.

This report provides a series of targeted recommendations on SGMA implementation for policy makers and enacting agencies to consider. We address key issues such as education and training, data transparency, interested party involvement, inter-agency coordination and funding. These recommendations are intended to foster a more equitable and transparent approach to groundwater sustainability for California.

Recommendation 1: Enhance Education, Engagement, and Employment Opportunities

SGMA affects a variety of users, whether they be residents of municipalities or disadvantaged communities (DACs), private well users, board members of water agencies, or staff working for GSAs or other water-related organizations. An education gap exists between GSAs and members of the public who are not directly involved in SGMA. The implementation of SGMA also draws on an already stressed pool of water industry professionals, and water industry jobs are not always on the radar of young professionals or those looking for new opportunities. The following recommendations are intended to address the current engagement, education and employment challenges.

A. Expand existing education and leadership development programs.

Non-Governmental Organizations (NGOs) working in the San Joaquin Valley have provided a variety of educational and leadership development programs for DAC residents and private well owners. Since 2019, Self-Help Enterprises, Environmental Defense Fund and Rural Community Assistance Corporation have held Leadership Institutes (LIs) that include a series of workshops and skill-building activities that help to address educational gaps around water issues and solutions as well as provide opportunities to foster relationships with GSAs and other partners. In addition to formal training programs like the LI, these NGOs and others have provided evening and full-day workshops or educational tours for residents that cover similar topics. These types of programs increase data literacy and build trust. Unfortunately, the LI and other educational opportunities are not available across all areas where SGMA is required due in part to funding restraints. To expand these opportunities, we recommend that GSAs provide these beneficial educational opportunities for residents within their boundaries. As funding can be an issue with these types of programs, GSAs can consider working with neighboring GSAs and potentially the NGOs to co-fund these efforts.

B. Develop employment opportunities for water industry professionals of all levels.

To attract more individuals to work on SGMA implementation and raise awareness of SGMA-related jobs, GSAs should consider the following three strategies:

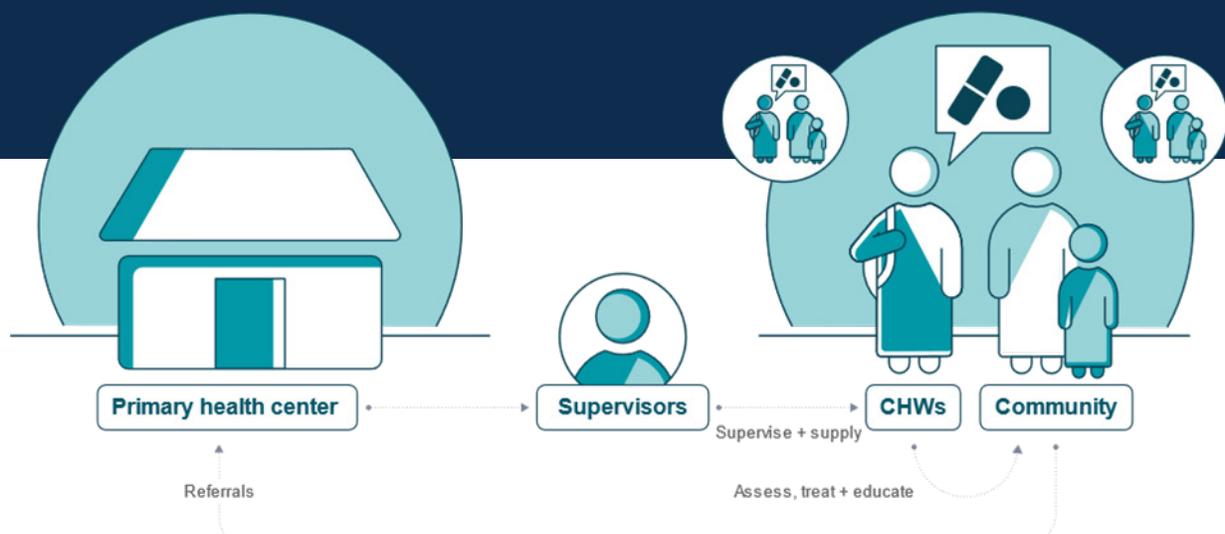
- **Employ community leaders** – As GSAs invest in formal educational programs like the Leadership Institute, they can build opportunities to employ program graduates. Part-time or full-time opportunities can be developed following models from other industries (See Case Study: Community Health Workers). Community leaders could support outreach in rural communities of which they are a trusted member and could assist with other tasks, such as data collection, private well owner needs (well-sounding and sampling). If a GSA's capacity to hire staff is limited, they can work with neighboring GSAs to develop a regional program and share costs for the community workers.
- **Partner with local universities to build internship programs** – Developing internship programs with local universities will enhance the workforce and ensure a steady pipeline of skilled professionals dedicated to sustainable groundwater management. University of California (UC), Merced, California State University (CSU) Fresno, and UC Davis have water management tracks that would make them a great fit as potential partnering universities for GSAs.
- **Develop AmeriCorps fellowships** – Working directly with AmeriCorps or through existing fellowship programs (CivicSpark or American Climate Corps), GSAs can host fellows who can work on sustainability projects that support the GSA's efforts. Although fellows receive a stipend and education award from AmeriCorps, GSAs should take additional measures to ensure that pay for participants is on par with other entry-level climate jobs to provide an equitable opportunity.

C. Develop support systems for existing water industry professionals.

Water industry professionals such as water agency managers, technical support consultants and policy specialists are often highly specialized and difficult to replace because of the institutional knowledge required for these roles. To increase retention of these highly specialized professionals and to prevent burnout and high turnover rates, GSAs and other agencies should develop mentorship programs for their early- to mid-career staff. Mentors could be recruited from professional organizations such as the Association of California Water Agencies, American Water Works Association and Groundwater Resources Agency. Research from Cornell University suggests that the seniority of a mentor and whether the mentor and mentee match in certain personality attributes are key success factors.¹ Group peer-to-peer mutual mentorship programs should also be developed through existing professional networks, the support of GSAs and other agencies, and/or partnerships with universities.

Case Study: Community Health Workers

Community Health Workers (CHWs) have supported the healthcare industry since the 1960s. Demand for their role grew in the early 2010s and again during the COVID-19 pandemic as there was a need for diverse public health outreach. CHWs help build trust and capacity within their communities or through cultural associations. Some CHWs work with specific communities, like Promotores/as which largely work with Latino/a or Spanish-speaking communities, or Community Health Representatives (CHRs) that work with American Indian or Alaska Native communities.² CHWs do not provide clinical care but bring “experience-based expertise” and an understanding of the community’s culture and social structure. CHWs can be viewed as peers, helping to overcome barriers related to power, status, and culture. Outside of outreach and educational tasks, CHWs are trained to translate/ interpret information, help patients understand instructions in plain language, assist with transportation needs, and provide direct health care services, such as first aid or health screenings.²



Graphic Credit: Exemplars in Global Health



Photo Credit: DWR

Recommendation 2: Enhance Data Availability and Transparency

In an era where data drives decision-making across various sectors, ensuring the accessibility, transparency, and reliability of water resource data is critical. The increasing complexity of data landscapes has made it challenging to interpret and utilize this information effectively, particularly in California where groundwater management is vital to sustainable agriculture, drinking water supplies, and the health of ecosystems.

A. Increase the availability, transparency and publicity of water resources data in California.

California has made significant strides in data availability over the past decade, particularly in groundwater management through user-friendly interfaces such as the SGMA Data Viewer and raw data accessed through the California Open Data Portal. To build on this progress, it is essential to continue prioritizing funding and resources to improve the accessibility and frequency of critical water data. Specifically, the state should consider more frequent updates to statewide datasets, such as land use and crop mapping. By doing so, decision-makers and interested parties will be better equipped to manage water resources sustainably.

B. Improve groundwater data collection and monitoring funding.

Insufficient monitoring networks intended for tracking groundwater levels and use, as well as subsidence, hamper effective management and decision-making. Currently, the data collected is fragmented and inconsistent, which undermines the overall effectiveness of SGMA. Inadequate groundwater data to comprehensively monitor local groundwater conditions can disproportionately affect vulnerable communities.

To address these issues, it is recommended that California continue funding programs like its existing Technical Support Services, and secure financial assistance for GSAs, especially those in under-resourced areas, to maintain and improve existing groundwater condition monitoring networks. Additionally, incentive programs should be introduced to encourage well owners to participate in the GSAs monitoring network.

C. Provide guidance on groundwater extraction measurement.

California lacks adequate requirements and guidance for monitoring and reporting groundwater extraction. While GSAs have the authority to regulate groundwater extraction, there are no established accuracy standards for measuring groundwater extraction at wells, which is inconsistent with the requirements for surface water. In addition, implementing direct measurement methods, such as flow meter requirements on private groundwater wells, poses financial, logistical, political and other challenges to well owners as well as GSAs. These gaps lead to reliance on indirect methods, such as satellite imagery, to estimate groundwater consumption, which presents its own set of challenges.

To improve trust and transparency in groundwater management, the state should provide comprehensive guidance on direct and indirect methods to monitor and enforce groundwater extraction. This should include promoting the use of both direct measurements through water-measuring devices, as well as indirect methods. This will ensure continuity across jurisdictional boundaries while maintaining that local GSAs can determine the most effective methodologies. Additional guidance and potentially prioritizing or providing funding for more stringent requirements in areas of severe overdraft will help ensure that the goals of SGMA are met.

To effectively manage California's groundwater resources, it is essential to address the challenges of data availability, monitoring and extraction reporting. By enhancing funding for monitoring, improving data collection standardization and providing comprehensive guidance, California can foster a more equitable and effective groundwater management system. These measures will ultimately contribute to the sustainable management of vital water resources in the face of ongoing challenges such as drought and climate variability and create a foundation of trust upon which to build a shared truth on the path towards sustainability.

Recommendation 3: Develop Regional Community Networks

SGMA states that GSAs shall consider the interests of all beneficial uses and users of groundwater but most GSPs fall short of protecting vulnerable users. For example, 91 percent of these plans do not comprehensively integrate interested parties, with only 9 percent of plans including a member of an underrepresented party in decision-making bodies. DACs are generally more susceptible to groundwater depletion and are even less integrated.³ This lack of inclusion stems from SGMA not mandating specific protection outcomes for all beneficial users, leaving many without formal access to decision-making processes. SGMA's emphasis on managing groundwater locally would be better served with the inclusion of these potentially vulnerable local groups.

Through a centralized support entity, regional community networks could be created to convene all beneficial users within regional basins. Such regional community networks could provide insight into current SGMA issues, propose new standards or guidance, and may be best positioned to connect smaller GSAs and DACs to technical services. Regional coordination amongst the GSAs is paramount for



Photo Credit: DWR



the success of this type of centralized support establishment. The following policy recommendations aim to promote collaboration and transparency amongst GSAs, beneficial users and DWR.

A. DWR should consider developing guidance documents on the formation of regional community networks. These community networks would have a set structure and defined deliverables.

Under this recommendation, DWR's Integrated Regional Water Management Division would act as the centralized support entity shepherding the formation of the regional community networks. DWR would develop a guide detailing the framework and the potential beneficial users involved in the committees. To ensure equitable representation and SGMA compliance, the development of these regionally driven community networks must encompass all beneficial users, including but not limited to Tribes, small farmers, local communities, the scientific community and non-governmental organizations. The networks would be formed on a regional scale based on basin locations appropriate to the topic.

To support facilitation, leveraging third-party entities such as the Association of California Water Agencies, California Department of Fish and Wildlife, and the State Water Resources Control Board could help provide more balanced discussions. To prevent symbolic participation and ensure these committees have a meaningful impact, they must be vested with concrete influence in the decision-making process rather than serving solely as advisory bodies.

The committees would be required to convene quarterly and update DWR on their activities. Alongside the GSA's Annual Report, these regional community networks would be empowered to summarize critical issues, decision points and success stories while identifying areas where DWR assistance is essential. Furthermore, their recommendations could carry weight in shaping amendments to GSPs during the GSPs five-year update and subsequent DWR review, ensuring the perspectives of underrepresented communities are fully integrated into regulatory changes and updates. To facilitate full and equitable participation, dedicated funding should be allocated to these regional community networks, ensuring that all members, regardless of economic barriers, have the resources necessary to engage effectively in the management and review process.

B. DWR should recommend certain topics for regional community networks to review.

When considering whether GSPs are likely to achieve sustainability, DWR must determine whether the GSP used the best available science and whether the plan will have regional impacts.

On the next page there are two sample topics, which regional community networks could focus on to illustrate how they could participate in SGMA implementation. The topics listed below do not illustrate a comprehensive list of topics that should be considered but are provided as examples. Regional community network topics should be based on the changing SGMA landscape.



Photo Credit: DWR

Topic 1: Identifying Best and Common Approaches, such as in Data Collection

A regional community network focused on data collection could be implemented to engage all beneficial users and enhance the overall process. Innovation and standardization of the type of data collected across all groundwater users, including the integration of Indigenous traditional knowledge, would create a more holistic and collaborative process. Trust and transparency in the data collected are the nexus to fostering relationships between the regulated and regulatory communities. By initiating these discussions at the local level, we can expand on the existing data set, create new ways of monitoring groundwater depletion, and determine how to allocate shared resources better. Similar regional community networks can identify the best science and methods to address climate change and subsidence.

Topic 2: Equitable Engagement in Implementing DWR’s Interconnected Surface Water Guidance

DWR is finalizing guidance for GSAs to consider when establishing interconnected surface water (ISW) sustainable management criteria (SMC) to manage ISW depletions in their groundwater basin. This will result in most GSPs being rewritten to incorporate this guidance into their basins. Developing the SMCs should also be transparent, allowing the public to comment and participate. This participation should extend to public workshops hosted between CDFW and the state water boards. The goal is to protect vulnerable groundwater users and the environment, and establish SGMA functional flows in groundwater-dependent ecosystems.

C. DWR should consider convening an annual statewide summit of the regional community networks.

To provide guidance throughout the state, DWR should establish an annual summit for the regional community networks to reflect on lessons learned and provide success stories from the previous year. The regional community networks attending could help DWR create guidance documents or standard operating procedures. Findings and recommendations from the summit will better inform DWR on holistic criteria to consider when approving GSP amendments.

Recommendation 4: Improve Coordination Around Land-Use Planning

Substantial reductions in groundwater extractions will be unavoidable in many areas in order to comply with SGMA’s mandates. The Public Policy Institute of California estimates these reductions may result in the fallowing of 500,000 to 900,000 acres of agricultural land in the San Joaquin Valley.⁴ Unprecedented levels of coordination and partnerships across jurisdictions are required to ensure the successful implementation of SGMA.

A. Align groundwater management and land use planning.

A notable gap exists between counties and GSAs at the planning level. Counties and cities are statutorily required to create and regularly update general plans, which outline the long-term vision for how a community should change over time with the resources and land base it maintains. General plans include specific required “elements,” such as land use, housing, conservation, open space, safety and environmental justice, among others.⁵ These elements alone do not sufficiently capture the holistic water management considerations needed for a changing climate.

Planning agencies are required to solicit and include information about water supplies in their general plans, including information from GSPs but the plans may not adequately incorporate groundwater data due to insufficient guidance or technical capacity.⁶

- **The Office of Land Use and Climate Innovation (LCI), in consultation with relevant state agencies and regional planning authorities, should consider developing guidance for local governments to incorporate GSPs and water supply documentation into general plans.** County planning agencies operate on a range of fiscal and staffing capacities, and some local governments may consider acting in their next general plan update, while others may need tangible guidelines. In developing guidance, LCI should consider the state's various land-use, climate and water management goals and planning documents to coordinate state initiatives with local government implementation.
- **Consider including a holistic stand-alone water resources element in general plans, incorporating surface water, groundwater and non-traditional water sources.** The hydrogeologic expertise and groundwater management plans of GSAs, as described in GSPs, periodic evaluations and annual reports could be incorporated into county and/or city general plans. This initiates an important additional step towards proper collaboration of governmental entities with jurisdiction over water resource management and land use planning.

Local land-use authorities could use GSPs and related information to make better-informed ministerial or discretionary decisions, such as permitting, zoning, investment and revitalization, environmental assessments, regulatory compliance and infrastructure planning. Local and regional leaders should incorporate water supply information into goals, policies and actions unique to the planning area, and better identify projects, streamline processes, and create financial and programmatic nexuses. Coordinated consideration of these elements may identify gaps in existing policies that may be complementary to, or in potential conflict with, current groundwater management plans. We recognize that implementing either of these recommendations contains inherent regulatory and institutional complexity and will require extensive consensus building and significant new resources to be successful.



Case Study: Sonoma County

Sonoma County was the first jurisdiction in the state to adopt a water resources element in its general plan, prior to the enactment of SGMA. The County summarizes the need for an element, stating: “As development has continued, the long-term adequacy of groundwater and surface water resources has become a major public concern. Water related issues include lowered groundwater levels, increased stormwater runoff, sediment and pollutants in runoff, water diversions into and out of the Russian River basin, summer rationing in dry years, the water needs of fish and wildlife, the rates of water usage, conservation methods, water storage limitations, the growing reuse of water and continuing changes in State and Federal regulations.”



Photo Credit: DWR

Case Study: Dos Rios State Park

The Water Blueprint for the San Joaquin Valley, a coalition of community, business, agricultural, water and local government leaders, has drafted strategic goals to address water scarcity while balancing the future goals and needs of their community. Likewise, the Central Valley Community Foundation leverages its role to promote public-private partnerships and economic resiliency and transition planning. The creation of Dos Rios State Park is a testament to the power of collaboration, borne from the largest public-private floodplain restoration project in California's history - this "park of the future" provides a blueprint for future opportunities. Nearly 1,600 acres of former agricultural land has been transformed, providing critical habitat and recreation benefits, among others, to the Central Valley.

B. Develop regional opportunities for efficiency.

Opportunities also exist for leveraging the power of regional-scale planning and action.

- **Coordinating planning efforts between municipalities, state agencies, federal agencies, GSAs, tribal partners and NGOs should be done in a manner that optimizes resources for transitioning historically groundwater-dependent farmland to other beneficial uses, such as habitat conservation, flood management, groundwater recharge, public access, renewable energy or less water-intensive agricultural uses.** The Department of Conservation's Multi-Benefit Land Repurposing Program has served as a successful model to incentivize landholders to coordinate with GSAs, water quality monitoring groups, flood managers, municipalities, community groups, Tribes and environmental NGOs to repurpose irrigated agricultural land for less water-intensive beneficial uses.⁷ This model should be scaled and regionally implemented for action.

SGMA also directs GSAs to prevent significant and unreasonable impacts from the degradation of groundwater quality.

- **GSAs and state agencies should coordinate groundwater quality monitoring and management actions to optimize groundwater quality management.** For example, due to historical water quality exceedances in the Central Valley, growers, community groups and water managers may participate in the Irrigated Lands Regulatory Program (ILRP) and the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) program.^{8,9} GSAs should work with ILRP coalitions and CV-SALTS management zones to coordinate and identify opportunities for program efficiencies in data collection, communication and community benefits. Sampling efforts or data sharing can eliminate redundancies and reduce costs to program participants. Open communication of management strategies between agencies can achieve multiple programmatic goals. For instance, because groundwater recharge projects could result in the mobilization of shallow constituents into drinking water wells, GSAs should coordinate with ILRP coalitions and CV-SALTS management zones to optimize the locations of recharge projects and prevent unintentional impacts.

Recommendation 5: Ensure Sustainable and Equitable Funding

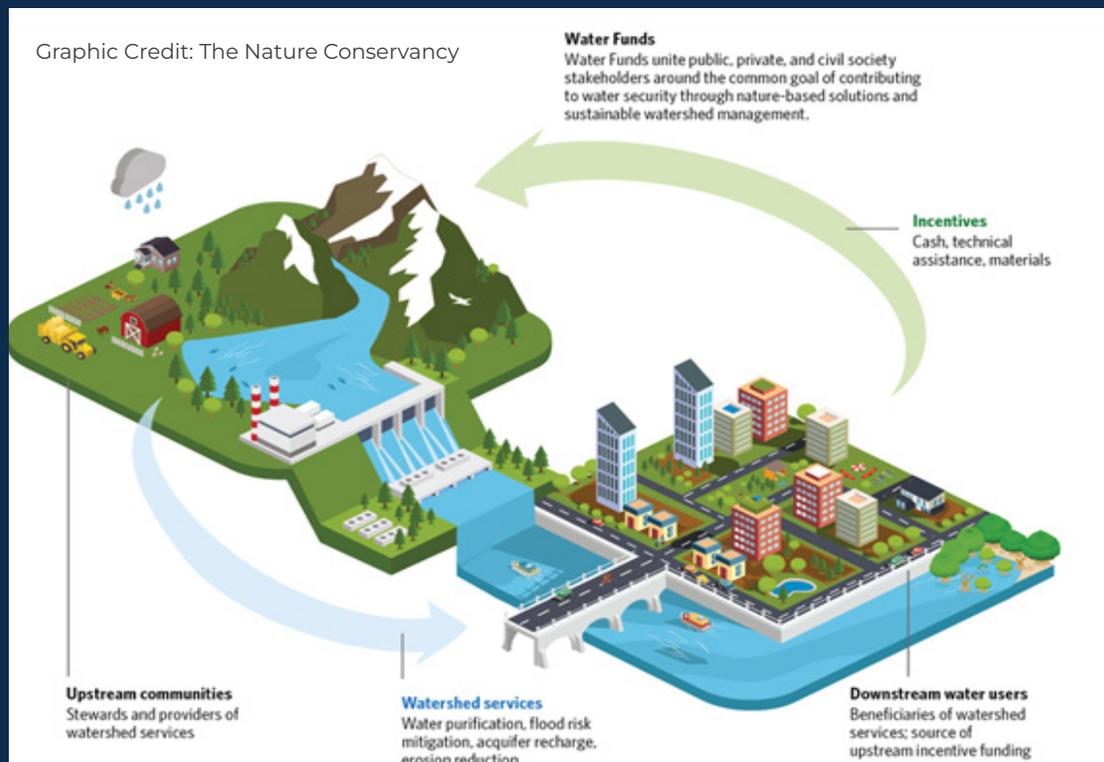
The recommendations below will help address the funding need to attain groundwater sustainability by 2040/2042. The goal is to increase access to funding sources that are substantial, timely, consistent, sustainable and equitably distributed.

A. Leverage alternative and innovative funding mechanisms to create sustainable SGMA funding.

Increased and more sustainable resources are needed to support projects proposed in GSPs. Non-traditional investment mechanisms, such as public-private partnerships,¹⁰ green bonds, and revolving or non-depleting funds can attract impact investors¹¹ who prioritize non-financial returns (e.g., social and environmental benefits) alongside financial returns. Investment mechanisms with the potential to provide large tranches of capital funding should be prioritized to help accelerate the implementation of capital-intensive groundwater sustainability projects. Whether through project-specific public-private partnerships, or SGMA-specific impact investment funds, opportunities to leverage private capital can also reduce debt coverage capacity requirements that can be a burden on small GSAs with limited resources and tax base. These funding mechanisms could help alleviate the financial burden on local agencies and expedite implementation.

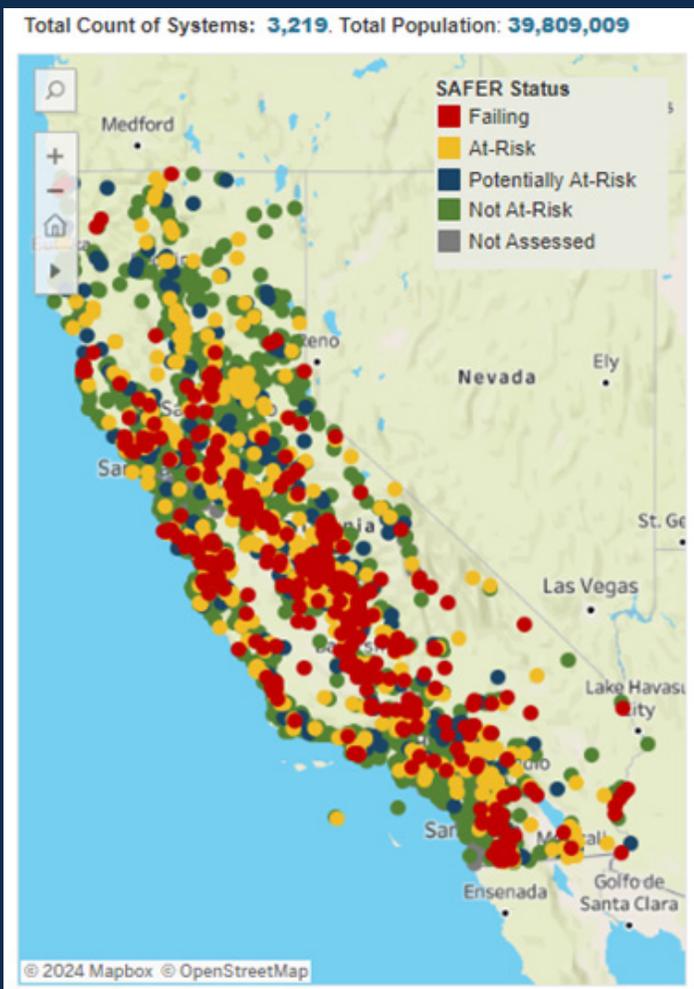
Case Study: Innovative Funding Mechanism - Quito Water Fund

A notable example of an innovative funding mechanism in practice is the Quito Water Fund (FONAG),¹² which demonstrates the power of the Watershed Investment Program model, which has been successfully demonstrated in over 50 watersheds globally. By pooling resources from downstream beneficiaries and creating a non-depleting endowment fund, FONAG ensures long-term funding for upstream ecosystem services investments. The success of this program highlights the potential for GSAs to explore similar strategies for funding their groundwater sustainability projects.



B. Distribute financial resources equitably to GSAs.

Providing equitable access to funds across GSAs and communities is a challenge. A comprehensive statewide Needs Assessment could support equitable funding allocation by prioritizing state funding based on a community's needs, which considers both financial means and required funding for the implementation of projects designed to meet groundwater sustainability. This analysis would help identify GSAs requiring the most assistance and facilitate direct funding of projects that advance GSPs objectives and/or address disproportionate equity and environmental justice impacts. Additionally, this type of assessment would provide additional transparency about GSA financial capacity and support local responsibility, to the extent possible, in consideration of historic and current resource capacity and management activity. A systematic need-based resource allocation would foster community support, build trust between local and state entities and increase transparency and accountability in distributing available state resources. Resource distribution should also prioritize support for the economic transition of historically groundwater-dependent communities, as specified in Recommendation 4. Such initiatives can include support for redevelopment planning, job training, and business grant and loan programs, to support impacted communities.



Case Study: California's SAFER Program Prioritizes Equitable Funding Distribution

The California State Water Resources Control Board's Safe and Affordable Funding for Equity and Resilience (SAFER) program uses a needs assessment to prioritize distribution of available funding for the program. The needs assessment evaluates public water systems based on risk indicators split into four categories: water quality, accessibility, affordability, and technical, managerial, and financial (TMF) capacity. Based on the risk assessment results, water systems are then categorized as failing, at-risk, potentially at-risk, and not-at-risk. The Needs Assessment is updated annually, and SWRCB staff use the data to inform funding priorities and draft the Fund Expenditure Plan. A summary of the data is also made publicly available on the SAFER Dashboard, pictured here.

Graphic Credit: SAFER

C. Streamline funding access and improve funding application processes.

To provide GSAs with timely access to funding, SGMA-specific funding applications and processes should be streamlined and more accessible, such that GSAs are able to reduce the time and effort required to obtain grant funding or debt financing for projects aligned with their GSPs. Additionally, modular applications that prefill agency data could significantly reduce the administrative burden on GSAs, enabling them to easily assess eligibility for state and federal grants, loans and partnership funding. There are already examples of this approach through a centralized listing of all state-related grant programs, a housing-related grant program coordination and consideration of a streamlined application for environmental and natural resources-related grant programs.¹³ To support knowledge at the local level, annual workshops should be organized by DWR or SWRCB to provide updates on upcoming funding opportunities, foster collaboration and knowledge transfer, and provide training on grant writing and the funding application process.

Conclusion

SGMA implementation is at a pivotal stage. How we choose to collectively act at this moment will have long-term consequences for agricultural and rural communities and the California economy. Enlisting a comprehensive approach to address the multifaceted challenges facing California's groundwater management is essential, particularly as we grapple with climate change and competing demands for finite water resources. It is our hope that by considering and potentially implementing the recommendations above, the state can realize the full potential of SGMA and bolster water supply reliability for all beneficial uses and users. We can make meaningful progress toward a sustainable future for our vital groundwater resources by enhancing education and employment opportunities, increasing data availability and transparency, implementing regional community networks, improving coordination around land use planning and ensuring sustainable equitable funding sources. California has the opportunity to lead the way in holistic, sustainable water management for all and groundwater is key to that pathway.



Photo Credit: DWR

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