

SGMA and Underrepresented Farmers

Impact of Groundwater Sustainability Plans on Underrepresented Farmers



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Cover Photo: Source: Community Alliance with Family Farmers. Photo by Joan Cusick.

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List of Acronyms

- BIPOC – Black and Indigenous People of Color
- CDFA – California Department of Food and Agriculture
- CNRA – California Natural Resources Agency
- DWR – California Department of Water Resources
- GSA – Groundwater Sustainability Agency
- GSP – Groundwater Sustainability Plan
- MO – Measurable Objective
- MT – Minimum Threshold
- SDFRs – Socially Disadvantaged Farmers and Ranchers
- SECP – Stakeholder Engagement and Communication Plan
- SGMA – Sustainable Groundwater Management Act
- SMC – Sustainable Management Criteria
- PMA – Projects and Management Actions
- USDA – United States Department of Agriculture
- UR – Undesirable Results

1. Introduction

Groundwater resources play a vital role in maintaining environmental sustainability in California. During a typical year, approximately 40 percent of the state's total water supply comes from groundwater. During dry years, groundwater contributes 60 percent (or more) of the state's total supply, and serves as a critical buffer against the impacts of drought and climate change.¹

This paper responds to concerns expressed by groundwater sustainability advocates that underrepresented farmers have not been included in the development and implementation of Groundwater Sustainability Plans (GSPs) under the Sustainable Groundwater Management Act (SGMA) of 2014. It contains results from the evaluation of 14 Groundwater Sustainability Plans (12 from the San Joaquin Valley and 2 from the Central Coast) with a focus on stakeholder engagement and projected impacts of groundwater decline on underrepresented farmers.



Source: Community Alliance with Family Farmers. Photo by Loren Hansen

2. Policy Background

2.1 Sustainable Groundwater Management Act

Decades of unsustainable groundwater pumping combined with severe drought conditions led to the historic passage of three pieces of legislation by the California state legislature in 2014, which collectively formed the Sustainable Groundwater Management Act. The landmark legislation for the first time sought to regulate how California water users utilize groundwater resources. Eight years later, Groundwater Sustainability Agencies (GSAs) have submitted over one hundred Groundwater Sustainability Plans that address local groundwater management. The development of these plans highlights some strengths and shortcomings of how groundwater is managed and how stakeholders are considered.

The goal of SGMA is to ensure long-term groundwater sustainability by managing basins to avoid six undesirable results: chronic lowering of groundwater levels, reduction of groundwater storage, seawater intrusion, land subsidence, water quality degradation, and depletions of interconnected surface water.² A key feature of SGMA is its requirement to “identify and consider the interests of all beneficial uses and users of groundwater.” The statute identifies “agricultural users” as one group of beneficial users, but does not specify subgroups such as small-scale agricultural users and underrepresented farmers within that category.

2.2 Farmer Equity Act

The Farmer Equity Act of 2017 sought to “call attention to the plight of Socially Disadvantaged Farmers and Ranchers (SDFRs) including farmers of color who have historically not had equitable access to land and other resources necessary to conduct farming in California. SDFRs in California tend to farm fewer acres but have a greater diversity of crops. Additionally, existing federal agricultural policies have failed to provide sufficient and appropriate technical assistance and financial support, including farmer cooperative creation, for Socially Disadvantaged Farmers and Ranchers”.³ The Farmer Equity Act required the California Department of Food and Agriculture (CDFA) to:

- Ensure the inclusion of SDFRs in the development, adoption, implementation, and enforcement of food and agriculture laws, regulations, and policies and programs;
- Consult with the Secretaries of the California Environmental Protection Agency, the Natural Resources Agency, the Business, Consumer Services, and Housing Agency, and the California Health and Human Services Agency, and all other interested members of the public and private sectors of the state on opportunities for SDFRs and to coordinate state programs.

To date, CDFA has hired a Farmer Equity Advisor who has produced a report⁴ to the legislature identifying key gaps and strengths in CDFA programs that serve SDFRs.



Source: Community Alliance with Family Farmers. Photo by Monika Elena, Valley Farm

3. Overview of Small-Scale Farmers in California

3.1 Definition of Small-Scale Farmers

The USDA defines small farms as farms with an operation that produces gross cash farm income between \$1,000 and \$350,000.⁵ By this definition, roughly 80% of farms in California can be categorized as small-scale farms according to the most recent Census of Agriculture. However, this definition insufficiently reflects the complexity of small-scale farms in California. Other definitions include that of the San Diego Farm Bureau, which classifies small-scale farms as farming operations of less than 10 acres. There are examples of farms in the Central Valley growing crops on less than 50 acres of land; these too are classified as small-scale farms. Within UC Cooperative Extension at University of California Agricultural and Natural Resources (UCANR) the term “small farms” is used more broadly to describe farming operations whose needs for research and extension are outside of traditional commodity-based extension programs, including highly diversified farms, farms with value-added products or directly marketed produce, and limited-resource, beginning, and underrepresented farmers.⁶

A major challenge in developing this report is the lack of consistent definition for small-scale farmers within the state of California. Therefore, for the purpose of this analysis, this report uses the term “Underrepresented farmer” to encompass both the USDA small farms definition — which is broadly based on income — and the CDFA Farmer Equity Act definition of socially disadvantaged farmer, which is based on race, ethnicity and gender. Additionally, this report categorizes refugee farmers, immigrant farmers, tenant farmers, Black and Indigenous People of Color (BIPOC) farmers and other disadvantaged farmers⁷ in the state who depend on or rent significantly small acres of land to grow their produce as “Underrepresented farmers”. Most of these farmers depend on shallow irrigation wells for their production and may lack the means to dig deeper wells during periods of drought.



Source: Community Alliance with Family Farmers. Photo by Monika Elena, GeMoua on Mouvua Farm

3.2 Diversity Among Small-Scale Farmers

Small-scale farms are diverse in the range of products grown, sizes of farms and number of farms. According to USDA farm characteristics by race within California, there are 1,530 small-scale farms where producers identify as American Indian or Alaska Native; 2,891 where producers identify as Asian; 451 farms where producers identify as Black or African American; 418 farms where producers identify as Native Hawaiian or Pacific Islander; 7,976 where producers identify as Latino, Hispanic, Spanish and 42,682 small-scale farms where producers identify as white (Table 1).

Table 1. Farm Characteristics by Race within California (USDA, 2017)⁸

| | American Indian or Alaska Native | Asian | Black or African American | Native Hawaiian or Pacific Islander | Latino, Hispanic, Spanish | White |
|--|----------------------------------|-------|---------------------------|-------------------------------------|---------------------------|--------|
| Number of small farms (less than 50 acres) | 1,530 | 2,891 | 451 | 418 | 7,976 | 42,682 |
| Percentage of small farms | 2.7% | 5.2% | 0.8% | 0.7% | 14.3% | 76.3% |



Source: Community Alliance with Family Farmers. Photo by Joan Cusick

Despite making up a significant percentage of farmers in California, farmers of color receive proportionately fewer government resources such as grant funding and technical assistance than their white counterparts.⁹ Farmers of color tend to earn less money on average and receive 36% less in government funding than their white counterparts.¹⁰

Based on data provided by the USDA 2017 Census of Agriculture, some of the most prevalent commodities among small-scale commercial farms in California are grains, oilseeds, dry beans, and dry peas; corn, wheat, and rice; vegetables, melons, potatoes, and sweet potatoes; fruits, tree nuts, and berries. However, the range of produce can vary depending on the region. For underrepresented farmers in the Central Valley, some of the more common commodities are eggplants and specialty items like ginger, lemongrass, water spinach, asparagus, taro, mint, and broccoli. In the Fresno and Tulare counties, some small farms are known for their Asian specialty vegetables and herbs, as well as fruits like jujubes, moringa, blueberries, strawberries, and blackberries.¹¹

3.3 Potential impacts of SGMA on Underrepresented Farmers

SGMA regulations require consideration and engagement of all beneficial uses and users of groundwater. Both the establishment of Groundwater Sustainability Agencies and the development and implementation of Groundwater Sustainability Plans require inclusion and engagement of “agricultural users.” Given that underrepresented farmers make up a part of agricultural users, it is reasonable to assume that GSAs would make efforts to incorporate and address their concerns. Further, the implementation of this Act has the potential to either benefit or harm underrepresented farmers, depending upon how plans are implemented. If SGMA can stabilize groundwater levels and avoid dewatering shallow irrigation wells, these farmers will benefit in the long term. If GSPs do not proactively address groundwater level problems in the basin and consider all beneficial users, underrepresented farmers risk being disproportionately affected by lowering groundwater levels because of their dependence on shallow irrigation wells and their limited

resources to pay for and operate deeper wells. Whether or not the outcome of SGMA is beneficial, the long term manner of implementation can impact underrepresented farmers.

Drought Impacts. Rising temperatures due to climate change are exacerbating drought conditions. During dry periods, groundwater pumping increases to compensate for reduced surface water, lowering groundwater levels. Underrepresented farmers dependent on groundwater are left to deal with the consequences of their shallow wells going dry, while larger farms can tap into their resources and access alternative ways to sustain production (e.g., drilling deeper wells or purchasing water). Proper implementation of SGMA should address disproportionate impacts of drought on these farmers.

Groundwater pumping Fees. Many GSPs are considering the adoption of groundwater fees to fund SGMA implementation. In addition, basins declared probationary by the State Water Board will be required to pay fees. How those fees are assessed may disproportionately impact underrepresented farmers; first because fees are another expense that many of these farmers are ill-equipped to pay and second because some fees are proportionately higher for underrepresented farmers; this is particularly true when flat fees are instituted, or where farmers with large acreages receive a per acre discount.

Water Allocations. Water supply allocations may pose another threat to underrepresented farmers. Most GSAs in critically overdrafted basins are considering demand management actions such as water allocations, where baseline withdrawals are established as an effective means to limit groundwater pumping. GSAs must set a limit or “cap” on the overall amount of groundwater that is removed from the subbasin, assigning portions of this capped amount to groundwater pumpers in the form of a pumping allocation.¹² Water allocations that provide every acre the same amount of water can put these farms at a disadvantage



Source: Community Alliance with Family Farmers_ Singing Frogs Farm, Sebastopol, CA. Photo by Loren Hansen

because they operate on significantly smaller acreages and may lack access to alternative water supplies or to funding that would allow them to reduce their water use, for example by installing and maintaining drip irrigation lines.

Water trading/markets. Tenant farmers are at risk of losing their leaseholds if landlords decide to sell the water rights from leased property on a water market. Tenant farmers may be unable to compete in these markets if the water market structure limits participation to existing water rights holders. Lack of resources could also restrict access to water markets. It is critical that underrepresented farmers be included in the design phase of groundwater markets to ensure their needs and concerns are addressed, and that a framework is established to protect them in the long term. The Fox Canyon model is an example of a groundwater market designed to support the participation and engagement from all stakeholders. Through a set of parameters such as neutral third-party administration, adaptive management, anonymous users and trades, as well as setting limits on trading, the Fox Canyon model provides a series of best practices that could help protect small farms (Dahlquist-Willard, 2021).¹³

Land Fallowing. Land fallowing is being considered by some agencies to address overdraft and meet sustainability requirements. With land fallowing, lower value crops such as alfalfa will likely be the first to be taken out of production. Land fallowing incentive programs are more likely to benefit larger farms that have the flexibility to take land out of production without significant economic impact. Smaller farms that already operate on smaller acreage are less equipped to weather the impacts of mass land fallowing.

To identify whether and how these potential impacts to underrepresented farmers are identified in the implementation of SGMA, this paper seeks to analyze how underrepresented farmers were considered in the submitted 2020 GSPs. The analysis and results below are based on 5 key categories from SGMA regulations.



Source: Community Alliance with Family Farmers. Photo by Caiti Hachmyer

4. GSP Review Methodology and Analysis

Analysis methods: The GSP review structure analyzed how underrepresented farmers were identified, engaged and included in the development and implementation of the 2020 GSPs for critically overdrafted basins. A total of 14 plans were reviewed from Kings, Kern, Kaweah, Madera, Merced, Eastern Tule, Cuyama and Paso Robles Subbasins. We identified 5 key criteria for our GSP review based on SGMA statutory requirements for consideration of beneficial users within a basin. The 5 review criteria include:

4.1 Plan Area

Each plan was evaluated for the identification of underrepresented farmers within the basin by farm size, socio-economic status, land ownership and race. The reason for this was to determine if underrepresented farmers were identified and considered in the description of beneficial users within the basin. The Plan Area section was also reviewed for inclusion of irrigation well density, well depth and types of crops grown by farmers within the basin. To be deemed adequate, the GSP had to include a description of how underrepresented farmers were identified as required by SGMA regulations:

- **§ 354.8. Description of Plan Area** — (a) (5) The density of wells per square mile, by dasymetric or similar mapping techniques, showing the general distribution of agricultural, industrial, and domestic water supply wells in the basin, including de minimis extractors, and the location and extent of communities dependent upon groundwater, utilizing data provided by the Department, as specified in Section 353.2, or the best available information. (f) (1) A summary of general plans and other land use plans governing the basin.
- **§ 354.10. Notice and Communication** — (a) A description of the beneficial uses and users of groundwater in the basin, including the land uses and property interests potentially affected by the use of groundwater in the basin, the types of parties representing those interests, and the nature of consultation with those parties.



Source: Community Alliance with Family Farmers. Photo by Loren Hansen

4.2 Notice and Communication

The Notice and Communication section of the GSP together with the Stakeholder Engagement and Communication Plan (SECP) was reviewed to determine if underrepresented farmers were specifically included in GSA outreach and engagement within the basin. The review focused on engagement during the GSP development process. It also reviewed whether underrepresented farmers were part of stakeholder advisory and technical committees and if they were explicitly mentioned in proposed stakeholder engagement during the GSP implementation phase. SGMA regulation highlighted below requires GSAs to include a diverse range of stakeholders in their planning processes:

- **§ 354.10. Notice and Communication** — (d) § 354.10. Notice and Communication (a) A description of the beneficial uses and users of groundwater in the basin, including the land uses and property interests potentially affected by the use of groundwater in the basin, the types of parties representing those interests, and the nature of consultation with those parties. (d) (2) Identification of opportunities for public engagement and a discussion of how public input and response will be used. (3) A description of how the Agency encourages the active involvement of diverse social, cultural, and economic elements of the population within the basin.



Source: Community Alliance with Family Farmers_Tierra Vegetable Farm, Santa Rosa. Photo by Kelsey Joy Murphey

4.3 Water Budget

The Water Budget section was reviewed and analyzed to determine if GSAs considered data and information from the 2012-2016 drought and if the water demands of shallow irrigation wells were included in future water budget analysis. We also looked at how GSPs considered changes in groundwater storage associated with different water year types:

- **§ 354.18. Water Budget** — (a) Each Plan shall include a water budget for the basin that provides an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin, including historical, current and projected water budget conditions, and the change in the volume of water stored. Water budget information shall be reported in tabular and graphical form.
- **§ 354.14. Hydrogeologic Conceptual Model** — (b) (E) Identification of the primary use or uses of each aquifer, such as domestic, irrigation, or municipal water supply.

4.4 Sustainable Management Criteria (SMC)

The Sustainable Management Criteria section of GSPs was reviewed to determine if impacts of selected Minimum Thresholds (MTs) and Measurable Objectives (MOs) on shallow irrigation wells were analyzed and considered in the plan. The review also looked at how GSPs plan to mitigate potential impacts of Undesirable Results (URs) such as groundwater level decline and groundwater quality degradation on underrepresented farmers. The proposed monitoring network for each GSP was also analyzed to determine if monitoring wells were representative of shallow irrigation wells within the basin. SGMA regulations under SMC state that:

- **§ 354.26. Undesirable Results** — (b) (3) Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results.
- **§ 354.28. Minimum Thresholds** — (b) (4) How minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.
- **§ 354.34. Monitoring Network** — (b)...The monitoring network objectives shall be implemented to accomplish the following: (2) Monitor impacts to the beneficial uses or users of groundwater.

4.5 Projects and Management Actions (PMAs)

GSAs are required to identify specific Projects and Management Actions that will enable them to meet their sustainability goals. The PMA section review looked at GSP considerations of water markets, well metering, fee assessments, plans to reduce groundwater depletion during drought and demand management strategies. We were interested in how plans identified and considered potential impacts or benefits to underrepresented farmers in their PMAs.

- **§ 354.44. Projects and Management Actions** — (a) Each Plan shall include a description of the projects and management actions the Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin. (b) (9) A description of the management of groundwater extractions and recharge to ensure that chronic lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels or storage during other periods.

5. Results and Discussion

The tables below contain our main findings from the GSP review for the consideration of underrepresented farmers.

5.1 Consideration of Underrepresented Farmers in Plan Area

The result of GSP review for identification of underrepresented farmers within the 14 groundwater subbasins showed that none of the plans included a description of farm sizes within the basins, or provided information on land ownership or race of farmers (Table 2). One GSP included information on socio-economic status of farmers within the basin. This detailed information is necessary to identify if farmers of color, farmers with smaller farms and/or tenant farmers are located within the basin.

Eleven GSPs included maps showing irrigation well density, but only 4 out of the 11 provided the well depth data (Table 3). Irrigation well depth data is necessary to determine the number and location of shallow irrigation wells which are most likely to be used by small-scale farmers and indicate the likelihood that wells will be dewatered due to lowering groundwater levels. We were also interested in the description of crop types within the basin to ascertain the inclusion of BIPOC, immigrant and refugee farmers who commonly grow culturally important produce. While all 14 of the reviewed GSPs included land use maps with top crops grown within the basin, none of the plans included information of small-acreage or details of culturally important crops. Lack of inclusion of diverse produce shows that the information on crop type within the basin was incomplete. Nine GSPs provided average acreages of the farms within their basins.

Table 2: Identification of Underrepresented Farmers in Description of Plan Area

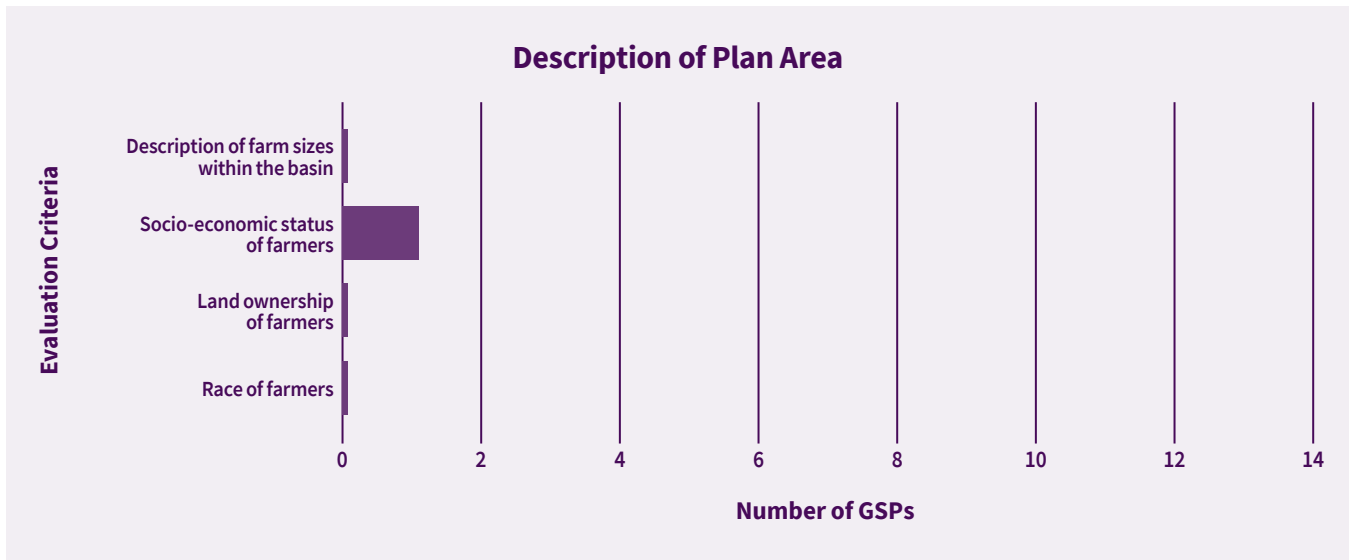
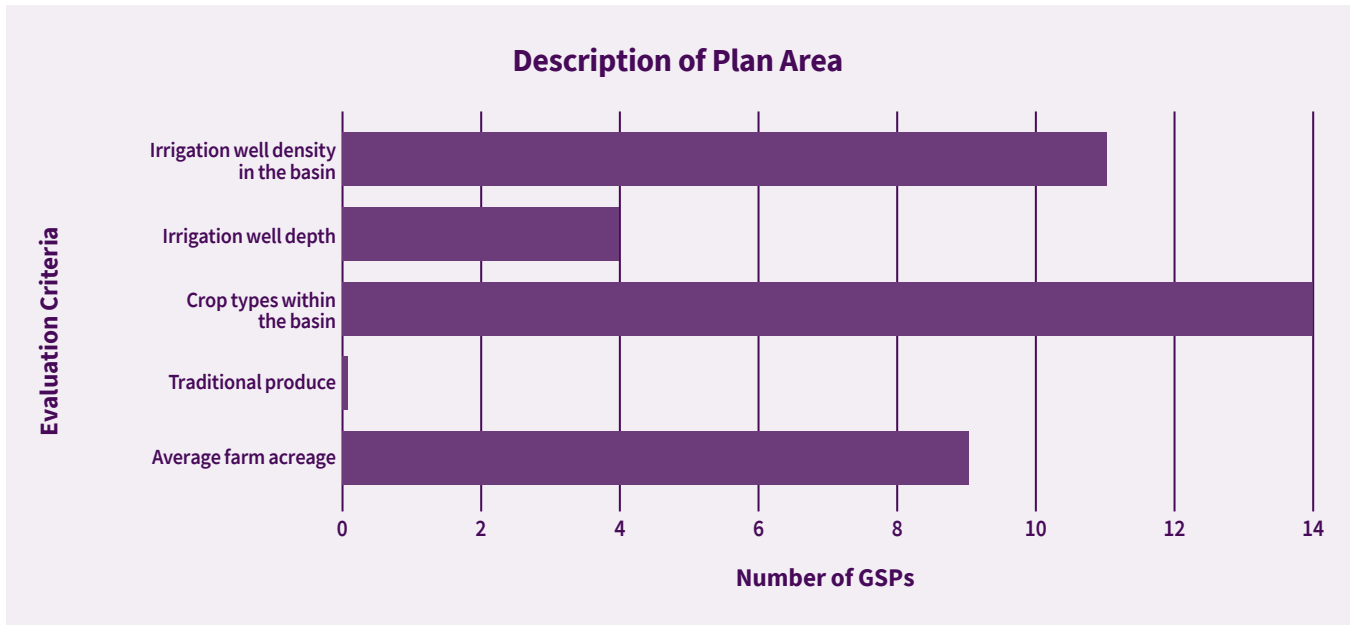


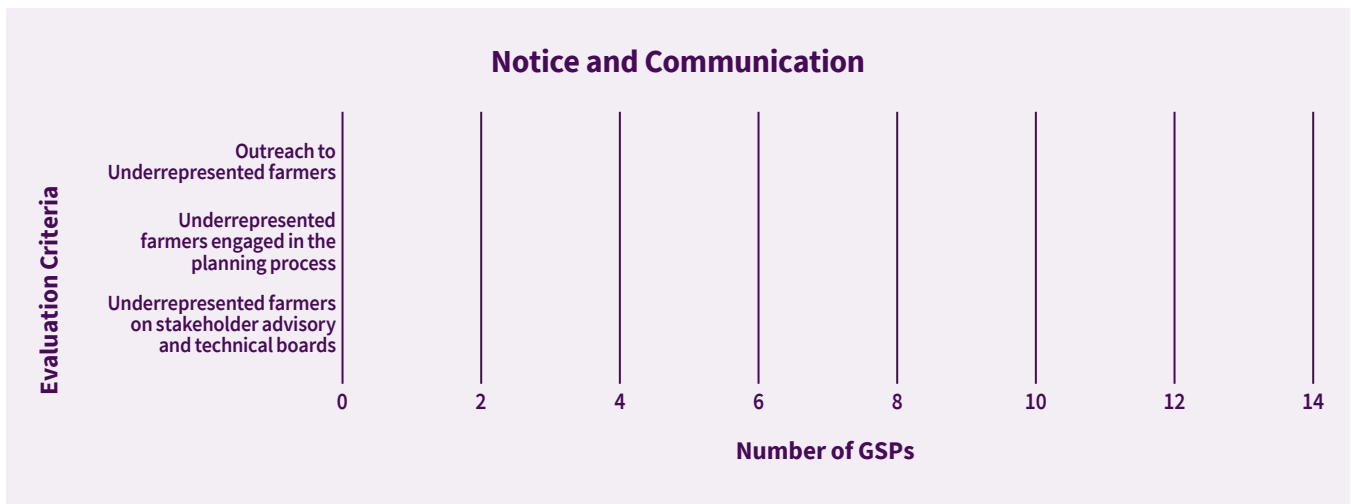
Table 3: Consideration of Underrepresented Farmers in Plan Area



5.2 Notice and Communication

None of the GSPs reviewed provided outreach and engagement efforts targeted at Underrepresented farmers; neither did they include participation in the GSP planning process or inclusion of Underrepresented farmers on stakeholder advisory and technical committees (Table 4).

Table 4: Consideration of Underrepresented Farmers in Notice and Communication

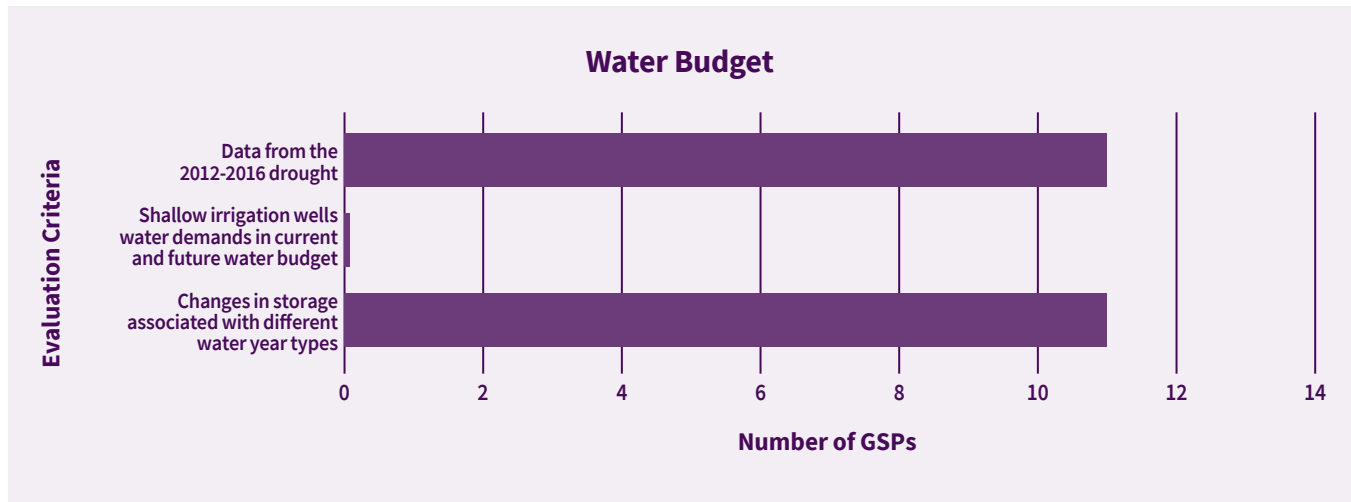


5.3 Water Budget consideration

SGMA regulations require accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin, including historical, current and projected water budget conditions, and the change in the volume of water stored. The review of the 14 GSPs showed that 11 included data from the 2012-2016 drought in their analysis and changes in storage associated with different

water year types (Table 5). However, none of the plans considered shallow irrigation well water demands in their current or projected water budget conditions.

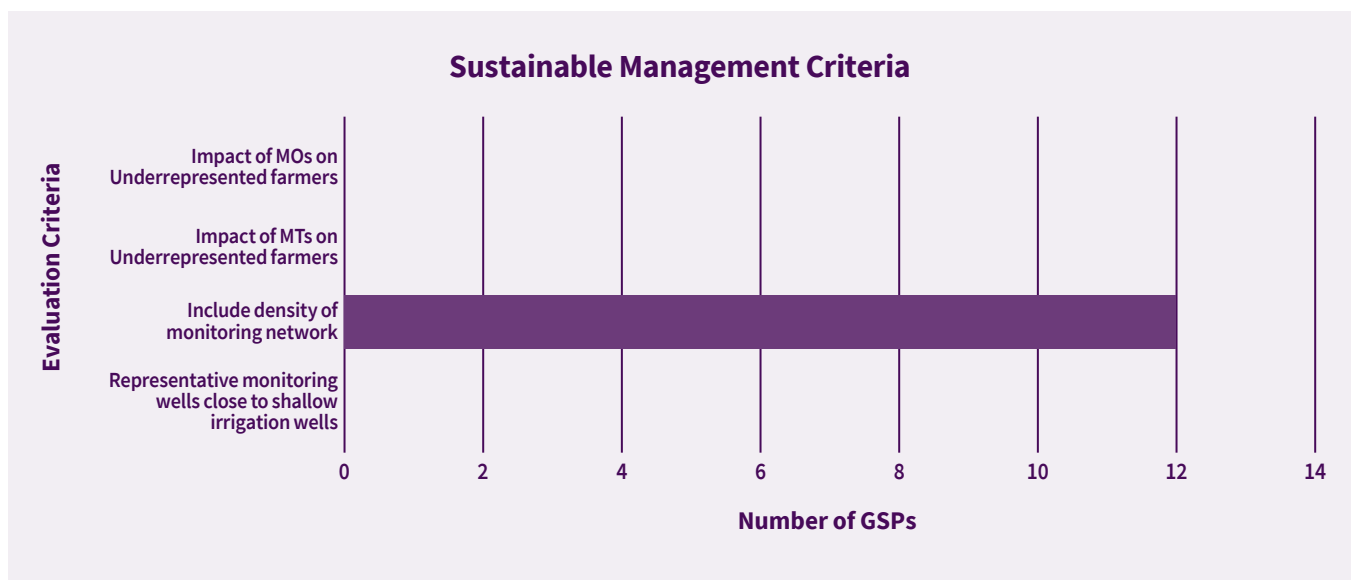
Table 5: Consideration of Underrepresented farmers in Water Budget



5.4 Sustainable Management Criteria

None of the reviewed GSPs considered the impacts of their minimum thresholds and measurable objectives on Underrepresented farmers (Table 6). While 12 of the plans included a density map of their monitoring network, all plans failed to include representative monitoring wells close to shallow irrigation wells. Having representative monitoring networks in close proximity to shallow irrigation wells is important to adequately monitor and understand groundwater level changes near shallow irrigation wells dependent on shallow aquifers.

Table 6: Consideration of Underrepresented Farmers in Sustainable Management Criteria



5.5 Projects and Management Actions

About half of the GSPs reviewed considered water markets, well metering, and assessment of fees as part of their projects and management actions (Table 7). They also included demand management practices to reduce groundwater depletion during drought. However, all the plans failed to identify potential impacts or benefits of their PMAs on Underrepresented farmers (Table 8).

Table 7: GSP Projects and Management Actions

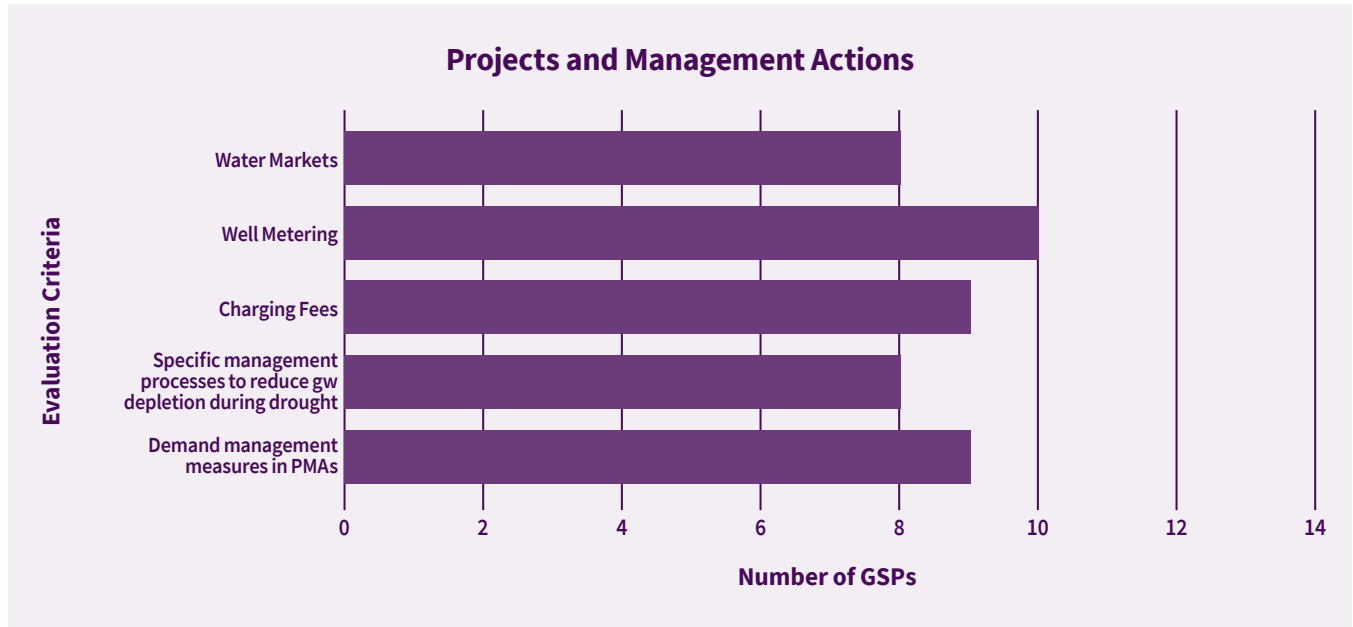


Table 8: Consideration of Underrepresented Farmers in Projects and Management Actions



Based on the findings above, GSAs have failed to meet SGMA requirements regarding consideration of all beneficial users and uses of groundwater within the basin. The impacts or benefits of SGMA implementation to Underrepresented farmers have not been adequately considered. The section below discusses some of our recommendations along with identified government agencies for strategy implementation.

6. Conclusion and Recommendations

Groundwater sustainability requires the involvement, engagement and participation of all concerned stakeholders. Sustainability will be reality in California only when all groundwater beneficial users including Underrepresented farmers are adequately included and considered. The recommendations below are intended to enhance equity in management of groundwater resources. They also suggest areas for further engagement, coordination and investment among state and local agencies.

6.1 *Interagency coordination and consultation to consider and include Underrepresented Farmers in SGMA implementation*

RECOMMENDATION: Improve SGMA implementation coordination between CDFA and DWR.

ACTIONS:

- **CDFA:** Uphold the Farmer Equity Act legislative mandate regarding consultation with state secretaries including California Natural Resources Agency (CNRA) to ensure interagency coordination and mutual participation in programs and policies.
- **DWR & CDFA:** Increase staffing to include a liaison between both agencies to coordinate socially disadvantaged farmer participation in SGMA. Include CDFA in existing interagency SGMA coordination activities.”

6.2 *Improved public outreach, education and engagement to include Underrepresented Farmers*

RECOMMENDATION: Improve stakeholder outreach and engagement to underrepresented farmers to enable them participate and understand the potential impacts of SGMA implementation.

ACTIONS:

- **CDFA:** Provide tailored outreach and engagement materials on CDFA website to enable Underrepresented farmers to understand and participate in sustainability programs such as SGMA, including translated materials. If needed, increase staffing to accomplish this goal.
- **CDFA:** Incorporate groundwater education into existing programs targeted at the realization of the Farmer Equity Act.
- **CDFA:** Coordinate with existing partners — such as UC Cooperative Extension (UCCE), Resource Conservation Districts (RCDs), and Community Based Organizations (CBOs) — who have relationships with underrepresented farmers to distribute outreach and education materials.
- **DWR:** Update SGMA Stakeholder Communication and Engagement Guidance document to include guidance on the identification and engagement of underrepresented farmers.

- **GSA:** Conduct outreach to underrepresented farmers within the basin to identify their unique groundwater concerns and incorporate those issues and potential solutions into GSP development and implementation.

6.3 Technical Assistance (TA) to enhance Underrepresented Farmer participation

RECOMMENDATION: Provide Technical assistance through partnerships and funding.

ACTIONS:

- **CDFA:** Partner with existing technical assistance providers (such as USDA, RCDs and UC Cooperative Extension) as well as Community Based Organizations (CBOs) to include SGMA outreach and education into their technical assistance to underrepresented farmers.
- **CDFA & DWR:** Provide funding to existing technical assistance providers to facilitate assistance to underrepresented farmers.
- **DWR:** Augment existing written translation services and provide detailed translation guidance to GSAs to ensure translation services during GSA meetings.
- **GSA:** Ensure that underrepresented farmers are participating in GSP development and implementation by providing technical assistance to ensure they understand GSP technical language and how to participate in selected PMAs. Provide translation services at meetings.

6.4 Projects and Management Actions (Water markets/trading, fees, allocations etc.)

RECOMMENDATION: Ensure equity for socially disadvantaged farms in the implementation of PMAs across basins.

ACTIONS:

- **DWR:** Provide guidance for the development of water markets to ensure that socially disadvantaged and particularly tenant farmers are protected.
- **DWR:** Review PMAs submitted by GSAs to ensure equity concerns are addressed in proposed projects and management actions.
- **DWR:** Provide funding and financial assistance in drought years to subsidize water purchases and replace failing wells for underrepresented farmers.
- **GSAs:** Ensure that fees for SGMA implementation do not disproportionately burden underrepresented farmers.
- **GSAs:** When water allocations are assessed, consider allowing more time for water pumping cutbacks for underrepresented farmers to allow them the opportunity to adapt.

7. Resources

DWR translation services water.ca.gov/Programs/Groundwater-Management/Assistance-and-Engagement

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