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FEATURE

# The San Joaquin Valley at a Crossroads: A Strategic Approach to Repurposing Land for Groundwater Sustainability

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**FOR DECADES CALIFORNIA HAS BEEN ON A STEADY** trajectory toward water scarcity, which is now exacerbated by climate change. More frequent and intense droughts and increased demands have affected the reliability of surface-water supplies. As a result, many have looked to groundwater to fill the gap. Groundwater overpumping has resulted in adverse impacts such as reduction in groundwater storage, land subsidence, water-quality degradation, seawater intrusion, and depletion of wells and of interconnected surface waters throughout many areas in California's San Joaquin Valley. These impacts led to the passage of the Sustainable Groundwater Management Act (SGMA) by the State Legislature in 2014, which mandates sustainable use of groundwater by 2040 for the most critically overdrafted basins.

In some regions of the state, sustainable use of groundwater will require farmers to shift to less water-intensive agriculture or take land out of production. Indeed, over the next several decades, as local agencies and water managers transition to sustainable groundwater management and deal with overall increased water scarcity, it is estimated that at least 500,000 acres, primarily in the San Joaquin Valley, may need to be taken out of production.

With the need to remove farmland from production, the San Joaquin Valley faces a fork in the road. One path leads to a haphazard patchwork of barren, dusty lands and fields covered with invasive weeds and pests, which will further impair already poor air quality and put many farmworkers out of work. Another path leads to a region with a thriving agricultural economy, sustainable groundwater supplies, vibrant wildlife habitats, outdoor recreation and jobs, and healthy air and soil. Successfully following this second path will require taking a strategic

Increasing scarcity of groundwater in California means that large swaths of water-intensive agricultural land will need to be repurposed. A thoughtful and strategic approach to repurposing land can lead to new uses—such as renewable energy generation, rangeland, and wildlife habitat—that offer a range of benefits. Source: Environmental Defense Fund.

*If even a fraction of the land transition projected for the San Joaquin Valley occurs, it will be imperative that groundwater sustainability agencies, land use agencies, landowners, and community advocates coordinate efforts to ensure this transition is socially equitable, environmentally responsible, and economically sustainable. Otherwise, we risk losing the San Joaquin Valley altogether.*
*—Danielle Dolan, Local Government Commission*

approach to repurposing irrigated lands in order to maximize the benefits of change.

### A Roadmap for Regional Land Repurposing

To help the groundwater sustainability agencies (GSAs), local governments, and land use planners who face land use changes, the Environmental Defense Fund (EDF) convened a series of four workshops. Participants included a whole range of stakeholders with an interest in groundwater: growers and farming interests, GSA leads, environmental justice groups, environmental interests, land trust representatives, and other key stakeholders representing land use planning. The workshops resulted in a guide titled *Advancing Strategic Land Repurposing and Groundwater Sustainability in California*, which synthesizes key insights, themes, and recommendations on land repurposing from the diverse stakeholders.

As defined in the guide, land repurposing is any activity undertaken by a public or private entity that converts previously irrigated agricultural land to new uses that both (1) reduce groundwater demand or use and (2) provide some other measurable benefit to the environment or the broader San Joaquin Valley community. Potential benefits of land repurposing include improving air quality, creating habitat corridors and recreational spaces, creating new sources of revenue and local jobs, producing renewable energy, conserving topsoil, and facilitating groundwater recharge.

The guide provides a possible roadmap. It outlines practical and creative approaches to developing regionally coordinated land-repurposing strategies, including incentive-based voluntary programs that prioritize the health and resilience of communities and landscapes in the San Joaquin Valley. It can steer groundwater agencies and local planners through several steps that are critical to creating a successful regional land repurposing program, from exploring whether the time is right to pursue this strategy, to designing and implementing a program. It also offers links to technical tools and resources on stakeholder outreach and education and a financial analysis summarizing current and potential future funding options. One-page case studies offer real world examples.

### Why Develop a Land Repurposing Strategy?

The development of any local or regional land repurposing strategy should begin with the question "why?" Why is a land repurposing strategy desired for this particular region, and what do program developers hope to achieve through this approach? Why should stakeholders engage in this process?

Given that the answer to the question "why?" will often be driven by the mandate to balance groundwater supply and demand, most land repurposing strategies will begin by considering groundwater supply and demand reduction objectives. When demand reduction goals are clear, stakeholders can better understand the economic and agronomic limitations and opportunities that may, over time, give rise to long-term changes in land use, crop choices, and water management options. Then they can explore additional values and opportunities and put them into context. It can be challenging for stakeholders, particularly growers, to weigh in on a relatively abstract concept like land repurposing without understanding the current context, alternative pathways, and defined implications for land management in their particular region.

Once the need to rebalance groundwater is established, a land repurposing strategy can deliver a wide variety of benefits, such as the following:

- creating valuable community assets, such as high-quality habitat, groundwater recharge, and recreation areas
- avoiding undesirable results, such as subsidence near infrastructure and lowered groundwater levels near shallow domestic wells
- avoiding and minimizing threats associated with land fallowing, such as erosion, pest infestations, and invasive weeds
- becoming more competitive for supplemental external funding, like state and federal grants, habitat mitigation payments, and solar development
- creating new opportunities for historically underserved communities and small growers who are likely to be the most affected under SGMA.

### What Should Be Included in a Land Repurposing Strategy?

A diverse array of land repurposing options can produce groundwater savings while also providing water and land conservation and other benefits. These options might include switching irrigated crops to rangeland or dryland farming, providing valuable habitat for at-risk species, developing solar infrastructure, or installing groundwater recharge basins. Any practice incorporated into a land repurposing strategy needs to reduce groundwater demand.

One size does not fit all, and land repurposing does not need to be all or nothing. Instead, land repurposing strategies should seek to create a mosaic of different values across the groundwater basin. This approach also applies to individual farms: a grower may choose to repurpose certain fields while continuing agricultural production on others. Agencies should seek direct input from residents on what kinds of land uses would most benefit their communities when forming ideas about how to develop a land repurposing program.

> *In terms of "land repurposing," there is not some magic formula separate from water. Rather, figuring out how much water each basin has is the magic formula that will sort out the economics of how and where land repurposing may make sense.*
> *—Justin Fredrickson, California Farm Bureau Federation*

### Who Should Be Involved in a Land Repurposing Strategy?

Although multiple organizations will likely need to be involved, land repurposing opportunities can often best be coordinated through a groundwater sustainability agency or local land use agency. Every program will need a trusted organization as a champion to guide it. Land repurposing strategies should be co-developed with both potential participants and others who may be affected—particularly low-income rural community residents, small farmers, and farmers of color.

Effective community engagement can sometimes be challenging owing to language, geographic, technological, and other barriers. Nonetheless, broad, ongoing community engagement is essential to ensure that programs can achieve regional goals and avoid disproportionate impacts on already overburdened communities. Historic and ongoing exclusion of immigrants and Black, Indigenous, and other communities of color from planning processes and land and water use decision making poses a significant barrier to the development of equitable programs. Land repurposing planning efforts should actively work to include marginalized and underrepresented groups in any land-use planning and decision-making processes.

> *Bringing together stakeholders to create a holistic vision of what our region can become is a critical first step toward repurposing some agricultural land to create benefits for farmers, farm workers, and the community as a whole.*
> *—Mike Hagman, East Kaweah Groundwater Sustainability Agency*

It is EDF's hope that program developers—such as groundwater sustainability agencies, local governments, and land use planners—will consider the strategies and concepts discussed in the guide and start the conversation early on the potential role of strategic land repurposing in long-term sustainable groundwater management. In doing so, strategic land repurposing can help to transform parts of the San Joaquin Valley into sustainable agricultural regions that not only put food on our plates but also ensure equitable outcomes for all community members while supporting wildlife, outdoor recreation, soil health, groundwater recharge, and other objectives. ■

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**Anna Schiller** is a project manager for the Environmental Defense Fund (EDF). The development of this article and the EDF guide was a collaborative effort. For more information, visit www.edf.org/CALandRepurposing. Questions may be directed to https://www.edf.org/expert/email/24096.