

Climate Change Research Program Round 3 Awards

Public Policy Institute of California

Incentivizing Climate-Smart Farmland Transitions in the San Joaquin Valley

Principal Investigator: Ellen Hanak (PPIC)

\$732,859.00

Partners:

- Central Valley Community Foundation
- Fresno State University
- UC Davis
- UC Merced

CCR Research Priority Area(s) addressed:

- Supporting and Protecting Vulnerable Communities from the Impacts of Climate Change
- Accelerating and Supporting Transitions to Climate Smart Communities
- Integrating Land Use, Conservation, and Management into Climate Change Programs

Crosscutting Thematic Lenses addressed:

- Social Dimensions of Change
- Integrating climate vulnerability/adaptation with climate-smart approaches

Research Activities:

Building on a previous in-depth study of the region's water-related challenges and solutions, the Public Policy Institute of California proposes an interdisciplinary, solutions-oriented research project to support San Joaquin Valley stakeholders in developing beneficial strategies for managing this significant land use transition. To implement the Sustainable Groundwater Management Act (SGMA), Valley water users will likely need to take at least 500,000 acres (~10%) of irrigated farmland out of production. A coordinated approach is key to regional climate adaptation and statewide mitigation efforts. Ad hoc land fallowing can leave soils exposed—aggravating air pollution and health impacts for vulnerable populations and accelerating the loss of soil carbon. This research will fill gaps in knowledge that hinder the implementation of a coordinated approach to managing idled lands, including: information on the benefits and costs of different land management options; estimates of funding needs and potential funding sources for different land uses; an understanding of how institutions and policies can be structured to facilitate adoption of beneficial approaches. The project will also bring together diverse stakeholders who must be involved to implement elements of the approach.

Facilitates Greenhouse Gas Emissions Reductions:

A climate-smart San Joaquin Valley must enable cost-effective reduction of greenhouse gas emissions. This research activity to synthesize knowledge about dryland cropping systems and soil carbon will illuminate opportunities for emissions reductions on lands not targeted for renewable energy investments. This type of synthesis is needed because current understanding does not support a robust accounting for emissions reductions benefits. The project will also explore barriers and solutions to responsible solar energy development in the San Joaquin Valley.

Benefits Disadvantaged, Low-Income, and/or Underserved Communities:

The project involves partnerships between research organizations, the Central Valley Community Foundation, and a wide cross-section of Central Valley stakeholders. Ongoing engagement with stakeholders will ensure development of relevant, actionable findings about land management options that lead to implementable and scalable solutions, and to help build shared understanding among diverse groups about how new approaches to coordinate land use decisions can generate greater benefits than business-as-usual approaches. The research will deliver benefits to vulnerable and low-income communities through preventing creation of air pollution from unmanaged lands, as well as by improving water security for communities in the region that are already facing water scarcity and insecurity under climate change.