

Key Questions for Resource Management



The Expert Panelists that were consulted during Phase II of the Greenprint were asked to help refine a list of key questions related to the issues and challenges facing Valley resources. The following is the refined list of questions identified with their input.

Water

- » What are the areas with high probability of sustainable water availability and the areas where there is low probability of water availability/reliability in the future? What are the implications for the cost of water to various users?
 - How is the Valley's relative dependence on ground water and surface water supplies likely to vary with changes in climate?
 - Is it meaningful to quantify the relative importance of groundwater as a supply of water compared to other supplies (e.g., rivers, streams, canals) by area and sub-area?
 - What are the implications for the cost of water to various users?
- » Where are the most strategic locations for groundwater recharge and storage, and what management may be needed to maintain them?
 - What would be the impact on water supplies of urbanizing the Valley's remaining aquifer recharge areas?
 - Are there groundwater recharge zones that also provide high-value habitat for wildlife and biodiversity?
 - Is it essential to prioritize (and not just identify) the importance of areas for groundwater recharge?
 - What are the practical implications of land subsidence?
- » Are there areas that can serve as both cropland and as valuable sites for groundwater recharge? If so, where are these areas?
- » How can we minimize flood damage and capture excess water from floods to augment the water supply in times of drought?

- » What are the trends associated with groundwater contamination? Is it getting better or worse, have the historical causes been identified and mitigated, and/or are there new causes?
 - What areas are most subject to groundwater contamination?
- » Where can flood management modifications positively contribute to conservation and habitat availability?
- » How could actions taken outside the San Joaquin Valley affect water availability/reliability in the San Joaquin Valley?
- » How will water infrastructure be financed in the future? What are the implications of these financial changes, if any?
- » What is the potential of better-developed water markets?
- » Can we prioritize or identify water conservation efforts for the various users aside from State requirements?
- » What are the Water Energy Nexus effects due to climate change and drought on water cost for different users? What are the implications for cost of water to various users?
- » What type of investments can be made in the upper watershed to benefit: a) snowpack retention; b) forest health; c) groundwater recharge; and d) water supply and quality for Valley floor users? Where are the best places for those investments? What are the hurdles to implementing upper watershed projects that provide these benefits?
- » As it relates to new, existing, and anticipated surface and groundwater management legislation and local ordinance implementation at the State, local and regional levels, how may existing land use/ general plans need to be modified and land use recommendations managed to reduce regional water management conflicts?
- » How can the general population (public) and policy makers be promptly yet effectively educated in the complex realm of hydrology, water supply and demand, to create a sustainable future?
- » How do we get cities and agriculture, alike to contribute to the above? Should cities be required to participate in groundwater re-charge programs as a condition of allowing urban growth?
- » Should “first in time, first in line” and other traditional water rights systems be extended to ground water? Should the San Joaquin Valley attempt to regulate groundwater regionally, or should we invite the State Water Resources Control Board to act as an outside arbitrator?
- » How are we going to maintain our local food supply without water?
- » Is anything being done to bring surface water to areas not covered by an irrigation district?
- » Have irrigation districts or water districts been queried to see what is in place?
- » To improve habitat for wildlife and biodiversity, will water resources be provided?
- » Will growers maintain ponding basins, possibly the area southwest portion of Tulare County?
- » Are marijuana grow-sites actively monitored?

Agriculture

- » What are the most significant long-term resource management challenges facing agriculture in the region?
 - How can agriculture expect to change in the San Joaquin Valley under the influence of climate change and drought conditions?
- » Given differences in soil productivity and limitations (e.g., salinity), water supplies, environmental constraints and opportunities (including microclimates), and competing demands such as urban development, with the potential impact of changes in climate on these factors, where are existing agricultural lands most or least likely to remain viable for commercial agricultural production in the future?
- » What are the relative public benefits of agricultural lands throughout the Valley, based on their capabilities for food production, water supply, groundwater recharge, wildlife and biodiversity, and other ecosystem services?
- » Where can agricultural practices also provide wildlife habitat benefits? What lands with low agricultural value might be retired and used for habitat restoration? Is there a consensus on what constitutes “low agricultural value” lands? How do we take advantage of wildlife-friendly agricultural practices to benefit biodiversity conservation?
- » Are the significant areas for agricultural land conservation clearly mapped, and is this information made available to ensure impacts from development projects are avoided or minimized?
- » Since there is a question about public benefits of agriculture, should there be a companion question about the public costs such as water and air pollution?
- » Are there areas where agriculture and renewable generation/storage coexist? If so, are these areas/locations identified?
- » Are the reasons for agricultural land loss identified and prioritized? What is or can be done to mitigate these reasons?
- » What crop types are tolerant of temporary inundation to reduce damage from stormwater flows?
- » What mix of farming practices provides the most flexibility to deal with climate change impacts (i.e., increasing temperature, more variable hydrologic regime) while maximizing economic productivity for the region?
- » What are the global food supply ramifications of Valley farmers having a lack of surface and groundwater?
- » Has a public information request of the United States Department of Agriculture Farm Services Agency and Resources Conservation Service been sent to determine what projects are currently in place?

Biodiversity

- » What are the most significant conservation challenges that the Valley is facing?
- » What are the most significant conservation resources that need to be protected and managed in the Valley?
 - Where are optimal sites to restore biodiversity and connect wildlife habitats?
 - Are there groundwater recharge zones that also provide high-value habitat for wildlife and biodiversity?
 - Where can riparian restoration efforts be combined with wildlife corridors and other conservation needs?
 - Are the important areas for conservation clearly mapped, and is this information made available to ensure impacts from development projects are avoided or minimized?

- » Are there areas for urban and energy development that also minimize impacts to wildlife and ecosystem processes?
- » Where can agricultural practices also provide wildlife habitat benefits?
- » What lands with low agricultural value might be retired and used for habitat restoration?
- » Where can flood management modifications positively contribute to conservation?
- » What are the characteristics of land that can serve dual purposes such as cropland-recharge or habitat-recharge?
- » What are the long-term deficiency effects of having 45 percent of the surface water being kept for the Delta health?
- » How does groundwater recharge benefit ecosystems?
- » What can legislators and locally elected officials do to position the San Joaquin Valley region as a leader in renewable energy?
- » What is the impact of climate change on hydro-electric production?
- » How do we manage and balance energy “peaks” through incentives and Demand Response Programs?
- » Migration to Time-of-Use Rates is nearly complete in non-domestic customer segments; what are the implications to the economy and how can small businesses benefit? How can consumers benefit?
- » How can consumers use the existing Smart Connect or Smart Meter data?
- » What kind of technologies (e.g., battery storage) exist to supplement renewable generation (particularly solar)?
- » Some counties are requiring mitigation for the loss of productive farmland as a condition of approving solar installations that are in place on the ground. Should this be a Valley-wide policy? Should a bond be required to pay for the restoration of the site if the project goes bankrupt?
- » How do we retain our oil/gas industry, while protecting groundwater and productive soils?

Energy

- » What locational factors should be considered in determining strategic sites to build solar and wind energy facilities and other infrastructure that minimize impacts to farming and the environment?
- » If fossil fuel operations expand, what conflicts may arise with other resources?
- » Are there environmental risks of “fracking” as a means of extracting fossil fuels in the region? If so, what are the environmental risks?
- » Can stakeholders identify areas for urban and renewable development/storage that also minimize impacts to agricultural, wildlife, and ecosystem processes?
- » What programs, incentives, policy efforts, or changes would help increase clean energy installations in the San Joaquin Valley?

Economics

- » What are the contributions/impacts of water, agriculture, ecological resources and biodiversity, and energy to the San Joaquin Valley economy?
- » Are there economic impacts from changes in climate? If so, what are the economic impacts?
- » Is environmental quality an important factor in attracting business and jobs to the San Joaquin Valley?
- » How does environmental quality impact industries that are not directly dependent on the Valley's natural resources?
- » What are the direct impacts of drought on the San Joaquin Valley's regional economy through its influences on agricultural productivity? How about its rippling effects through changes in land use and water amenities?
- » What are climate change impacts on residential location choices in terms of climate extremes (e.g., extreme heat, droughts, floods)?
- » Would climate change result in the loss of the skilled workforce from the region and pose potential challenges in the Valley? If so, what are the impacts on the labor market and the overall regional economy?
- » Considering agriculture's considerable contribution to the regional economy, what constitutes meaningful mitigation when productive farmland is converted to urban, highway, or environmental uses?
- » Groundwater use in much of the San Joaquin Valley is unsustainable. How do we stabilize and then allow groundwater levels to recover, while minimizing the severe economic impact that will have on agriculture and cities?
- » When land is placed off-limits for urban or agricultural use, it represents lost economic activity and lost tax revenue. How do we equitably distribute the burden among counties for providing or setting aside land for endangered species preservation?

Other

- » When cities sprawl into each other, they begin to lose their unique identities as economic centers. How can we prevent cities from merging into each other, and how can we maintain their unique sense of place?
- » People in the Bay Area, Southern California, and Sacramento increasingly view San Joaquin Valley cities as the source of affordable housing for their workers. This fuels urban sprawl in nearby Valley towns and creates considerable costs as those communities attempt to provide, water, services, and schools. How can we influence State policy to prevent this from happening?
- » The extension of BART and ACE trains from the Bay Area, and the completion of the High Speed Rail project will result in considerable pressure on San Joaquin Valley communities to provide housing, services, and schools to future employees who want to live in the Valley and take rail to jobs outside. How do we prevent that from happening; and if not, how should we require those projects to mitigate their growth-inducing effects?
- » How are all of the above questions affected by climate change?

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