

CASE STUDY 1: California's Fourth Climate Change Assessment

THE CHALLENGE

Sacramento Valley Region changes to be expected from climate change:

- Warming air and water temperatures • More extreme heat-waves • Drier landscapes • Less snow • Variable precipitation and seasonal shifts • More intense droughts and floods with less predictability • Higher Delta water levels compounded by subsidence • Increased risk of wildfire • Loss of ecosystem habitat

Statewide impacts from climate change:

- Public health: human mortality, mental health, asthma, etc.
- Potential droughts and mega-floods: damages to infrastructure and properties (inland and coastal)
- Changes in agricultural productivity: longer growing seasons; insufficient cold for some tree crops; low elevation flooding; changes in productivity of current crop varieties; conversion of agricultural land to other land uses.

THE OPPORTUNITY

Community preparedness includes the need to minimize climate impacts to disadvantaged communities, and increase the resiliency of vulnerable populations.

Local community opportunities to equitably distribute climate change risks:

- Transportation programs: develop and implement sustainable strategies, reduce GHG emissions, and increase public health.
- Initiatives with joint economic and environmental benefits: energy generation and conservation, cooling centers, forest thinning and management, and agriculture.
- Adaptive decision-making and technological advancement: maintain the viability of California agriculture through crop varieties that can thrive under warmer and drier conditions, and tools to identify and implement adaptation options sustainably, especially in groundwater resource management.

Vulnerable populations benefit from coordinated focus on issues of social and environmental equity and justice, and attention to stressors that amplify climate impacts for disadvantaged populations, tribal and indigenous communities, low-income communities, and people of color.

- Climate solutions must acknowledge and address legacy injustices that render such populations more vulnerable to climate risks.
- Community involvement in climate adaptation planning should result in better tools, indices, maps, and metrics for identifying, supporting and quantifying resilience.

FURTHER CONSIDERATIONS

- 1. Which populations and communities are most vulnerable? Why?**
- 2. How can we make research available in a way that empowers local decision making?**
- 3. How can we incentivize collaboration and align resources around common goals, and between researchers and communities?**

BASED ON:

<http://www.climateassessment.ca.gov/state/docs/20190116-StatewideSummary.pdf>

<http://www.climateassessment.ca.gov/regions/docs/20180827-SacramentoValley.pdf>

<http://www.climateassessment.ca.gov/state/docs/20180928-ClimateJusticeSummary.pdf>

<http://www.climateassessment.ca.gov/state/docs/20180928-TribalCommunitySummary.pdf>

CASE STUDY 2: Food Loss & Waste

THE CHALLENGE

- Californians discard almost 6 million tons of food each year, approximately 20% of all landfill material.
- [California Senate Bill 1383](#) proposes mandatory regulations to reduce organic waste from landfills by 50% of 2014 levels by 2020, and recover 20% of discarded edible food for human consumption. (The 45 day comment period ended March 4; implementation timeline at <https://www.calrecycle.ca.gov/recycle/commercial/organics>)
- The state-wide recycling of organics would reduce food waste, landfill congestion and related GHG emissions. The California state board is required to limit GHG emissions equivalent to 1990 levels, to be achieved by 2020.
- Landfill decomposition of organic waste is a significant source of GHG emissions, contributing to global climate change. Organics such as green waste and food materials are recyclable through composting and mulching, and through anaerobic digestion, which can produce renewable energy and fuel.

THE OPPORTUNITY

Statewide economic and community impacts:

- Costs: Already, Californians each waste more than \$1,000 worth of food every year (among the most wasteful in the country); yet implementing SB 1383 would require local organic waste collection services, compliance monitoring, outreach and reporting.
- Benefits: Implementation could create jobs, avoid landfill costs, and develop potential revenue from compost sale to agriculture and food sectors, or generation of biofuels. Farmers and ranchers can apply compost to croplands and rangelands to improve soil health, reduce GHG emissions, improve irrigation, and potentially increase long-term carbon storage in rangelands.

Local impacts, according to the proposed legislation:

- Counties must estimate the amount of organic waste that will be disposed of, identify existing recycling infrastructure capacity and estimate new/expanded facilities required for processing the organic waste.
- Local agencies must procure or buy recycled compost and renewable transportation fuel in a quantity that meets an annual recovered organic waste procurement target.
- Local agencies may be subject to CalRecycle administrative penalties for noncompliance.

FURTHER CONSIDERATIONS

1. **Food loss and waste: What is the best way to frame related issues for better outcomes?**
2. **Rethinking excess and waste as an opportunity for repurposing: how to build adaptability and resilience into emerging technologies?**
3. **Reduce/reuse/recycle/repurpose: how can we ensure the longevity and relevance of yesterday's infrastructure for tomorrow's opportunities?**

BASED ON:

<https://www.calrecycle.ca.gov/organics/food>

<https://www.jdsupra.com/legalnews/organic-waste-regulations-proposed-73027/>

<https://kleinkitchenandbath.com/2018/12/10/guilty-of-food-waste/>

<https://www.calrecycle.ca.gov/climate>

https://www.cdfa.ca.gov/oefi/healthysoils/docs/CompostApplicationRate_WhitePaper.pdf