

# Accounting for California's Water

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Supported with funding from The David and Lucile Packard Foundation, the S. D. Bechtel, Jr. Foundation, the US Environmental Protection Agency, and the Water Foundation, an initiative of the Resources Legacy Fund



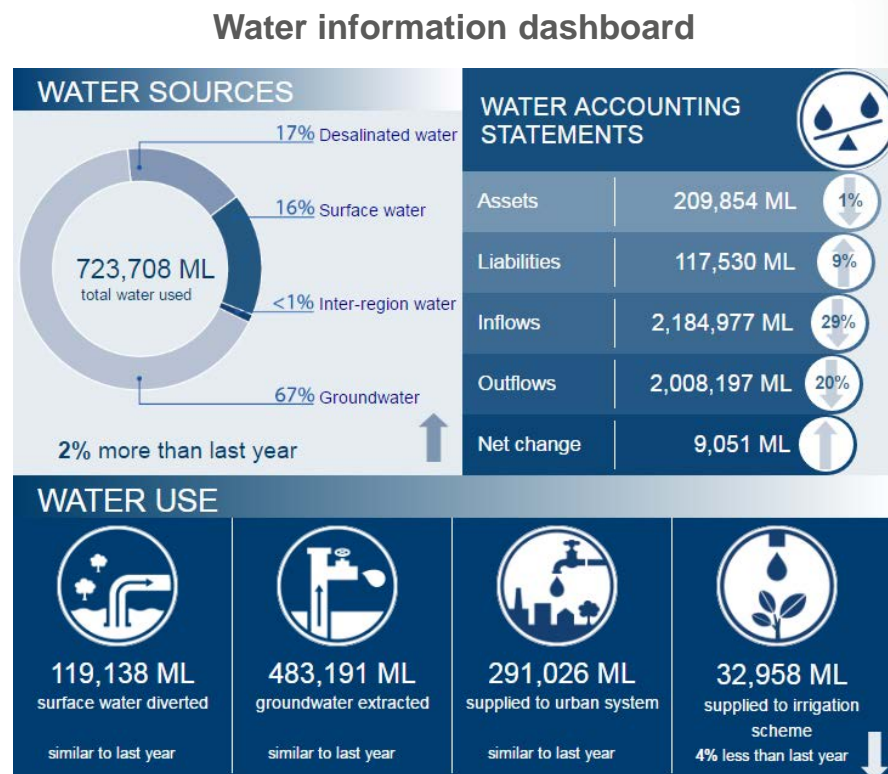
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# California needs to improve accounting of water assets and liabilities

- Understanding the balance sheet:
  - How much is there?
  - Who has claims to use it?
  - What is actually used?
- Managing and sharing information



Source: Bureau of Meteorology of the Australian Government

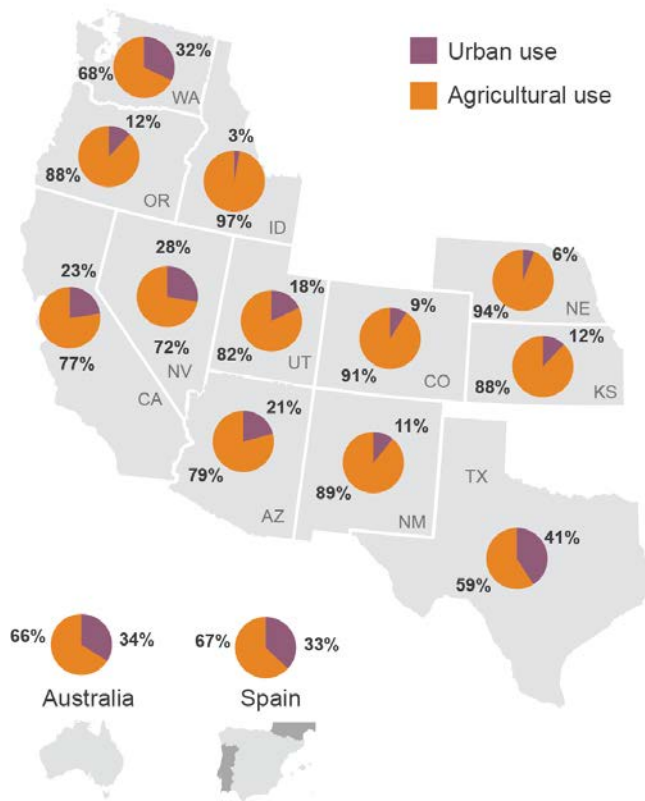
# The drought has spotlighted weaknesses in California's water accounting

- Surface water allocations and curtailments
- Long-term depletion of aquifers
- Water for the environment
- Water trading



# Other dry regions teach valuable lessons

## Study areas



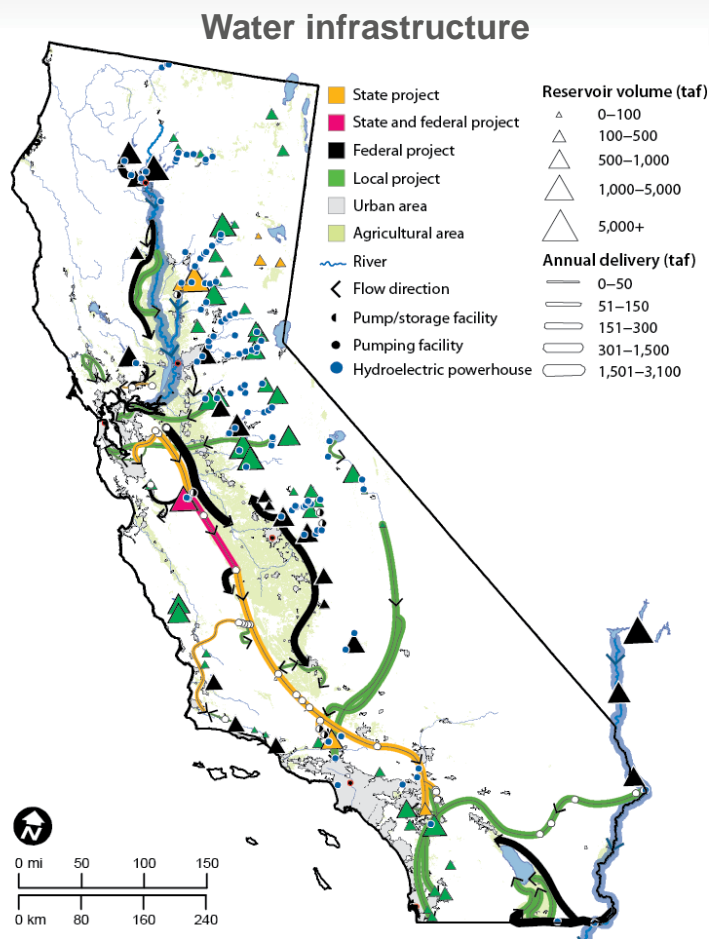
## Our study looked at:

- Accounting systems for 12 western states, Australia, and Spain

## We analyzed:

- Legal and institutional frameworks
- Management protocols
- Information technologies

# California's water supply is physically interconnected, but institutionally fragmented






- Several federal and state agencies manage water
- Over 1,000 irrigation districts
- Over 400 urban agencies
- Nearly 200 priority groundwater basins
- Over 1,400 large dams




Source: Hanak et al. (2011), *Managing California's Water: From Conflict to Reconciliation*

# California has critical water accounting gaps





Understanding water availability

-  Surface water
-  Groundwater
-  Surface-groundwater interactions




Understanding legal claims on water

-  Surface water rights
-  Groundwater rights
-  Environmental claims

Understanding water use

-  Surface water diversions
-  Groundwater pumping
-  Return flows
-  Environmental uses

Managing and sharing information

-  Consistent accounting and data standards
-  Authoritative and transparent models
-  Useful public information

# Closing these gaps would improve the state's water management

- California is making progress but ...
- ... better water accounting will:
  - Improve allocation of scarce surface water
  - Enhance groundwater management
  - Strengthen environmental water management
  - Expand water trading opportunities

# Improving allocation of scarce surface water

## The problem:

- Lack of info on water rights, availability, and use



## Solutions:

- Develop comprehensive flow monitoring for river basins
- Firm up surface claims
- Improve estimates of net use and return flows



# Enhancing groundwater management

## The problem:

- Long-term depletion of aquifers that must be brought into balance



## Solutions:

- Define groundwater accounting standards
- Develop modeling standards and authoritative models
- Firm up claims
- Account for groundwater use and recharge

# Strengthening environmental water management

## The problem:

- Lack of info on environmental requirements and flows



## Solutions:

- Monitor flows in environmentally sensitive streams
- Define environmental water budgets
- Consolidate information on water availability and ecological indicators

# Expanding water trading opportunities

## The problem:

- Stagnation of water trading during drought



## Solutions:

- Clarify how much water is tradable
- Increase public information on water trading

# Modernizing California's water accounting

- Provide more accurate assessments:
  - How much water is there?
  - Who has claims to use it?
  - What is actually used?
- Fill accounting gaps, consolidate information, and make data useful
- Make the most of available water

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# Notes on the use of these slides

These slides were created to accompany a presentation. They do not include full documentation of sources, data samples, methods, and interpretations. To avoid misinterpretations, please contact:

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Thank you for your interest in this work.