

Accounting for California's Water

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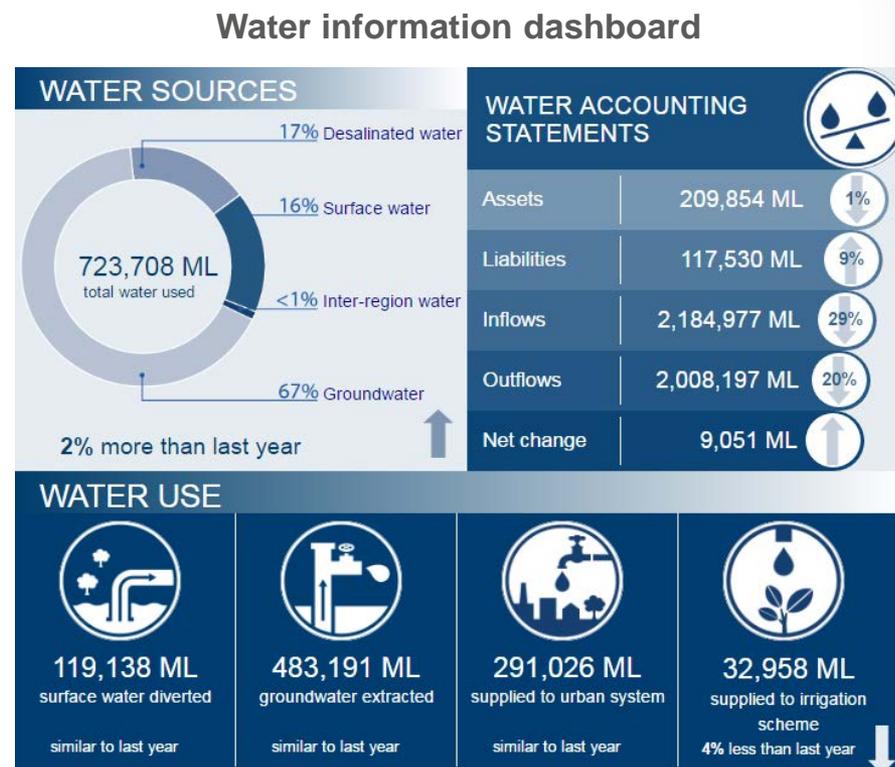
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California needs to improve accounting of water assets and liabilities

- 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

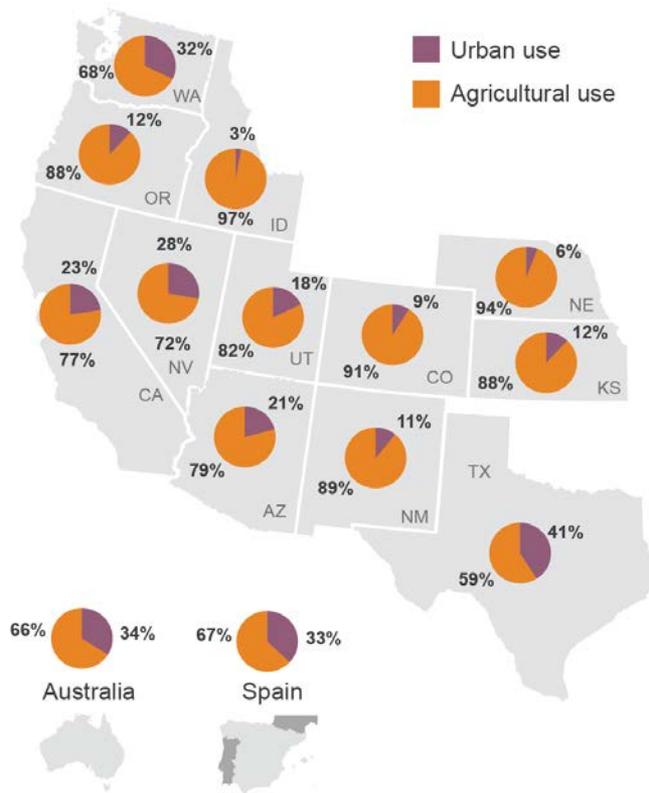
The drought has spotlighted weaknesses in California's water accounting

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



Other dry regions teach valuable lessons

Study areas



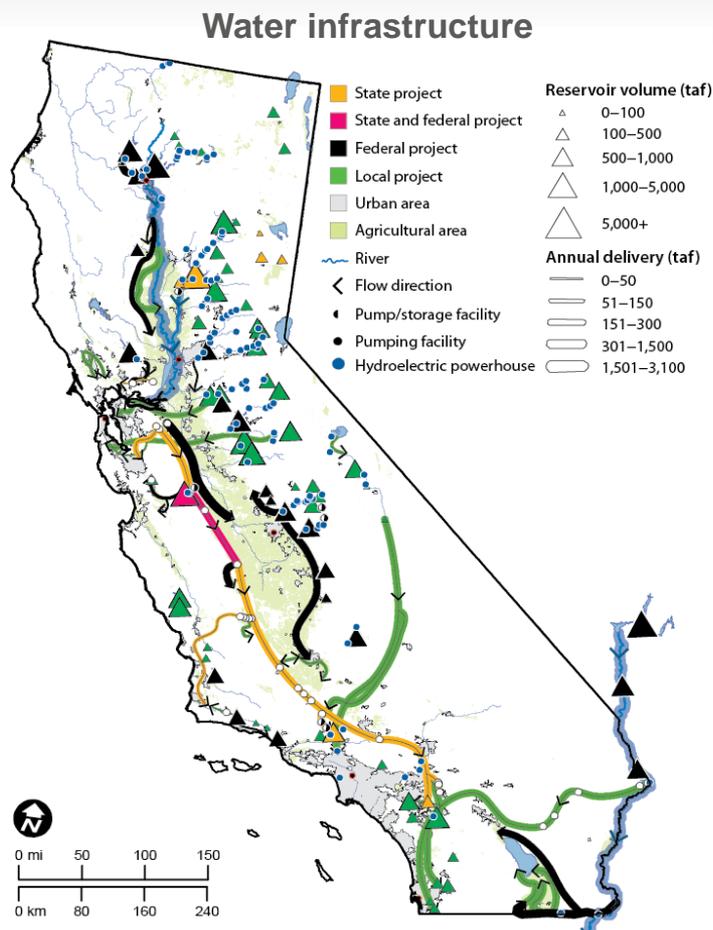
Our study looked at:

- 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.