

# Building Drought Resilience in California's Cities and Suburbs

June 16, 2017

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Henry McCann, María Pérez-Urdiales, Kurt Schwabe

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Supported with funding from California Water Service, the S. D. Bechtel, Jr. Foundation,  
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# What is urban drought resilience?

- Ability to weather droughts without significant social and economic disruptions
- Two components:
  - **Supply investments** that reduce risk of extreme shortages
  - Short-term **demand management**

# Key takeaways from the latest drought

- Urban suppliers were generally well prepared, and economy remained robust
- State conservation mandate showed Californians can respond quickly to call for rationing
- But mandate disrupted local programs, created uncertainties about future state and local roles
- State, locals need to align policies and expectations to build resilience for future droughts

# Outline

- Lead-up to the latest drought
- State action and local responses during this drought
- Lessons for the future

# Many lessons learned from past droughts

Supply emergencies were wake-up call for urban suppliers. Their response:

- Invested heavily in drought preparation (e.g., storage, interties)
- Launched long-term conservation programs



Emergency pipeline, San Rafael Bridge (1977 drought)

# State actions supported local drought resilience

State responded by:

- Standardizing urban water planning
- Adopting efficiency standards
- Facilitating water trading
- Supporting local investments
- But left rationing decisions to local utilities



Orange County recharge basin

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# Early local and state actions

- Some regions faced early supply challenges, cut use
- In Jan. 2014 state called for:
  - 20% voluntary conservation
  - Implementation of local water shortage contingency plans
- Savings varied regionally, averaged 10%



Folsom Lake, December 2013



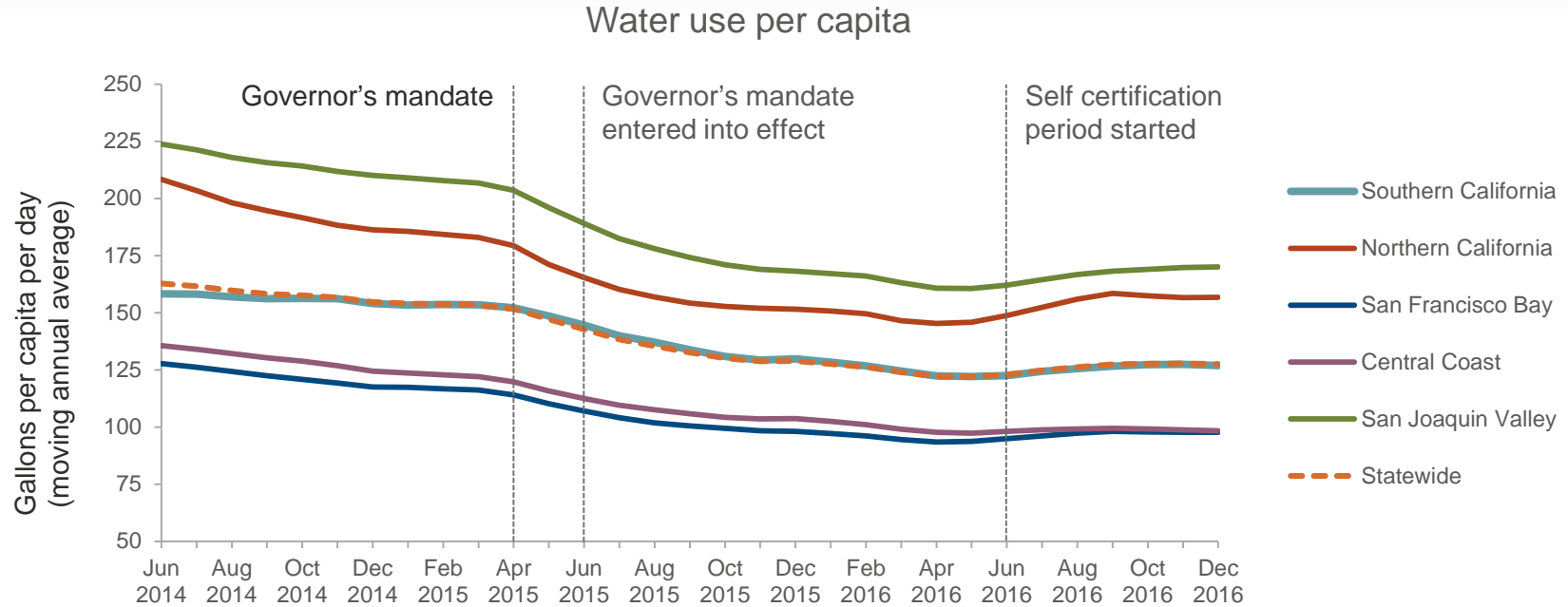
# State's concern over drought severity prompted unprecedented conservation mandate

- State assumed suppliers weren't doing enough
- Main reasons given for mandate:
  - Insuring against longer drought
  - Helping those in need
  - Changing social norms on water use



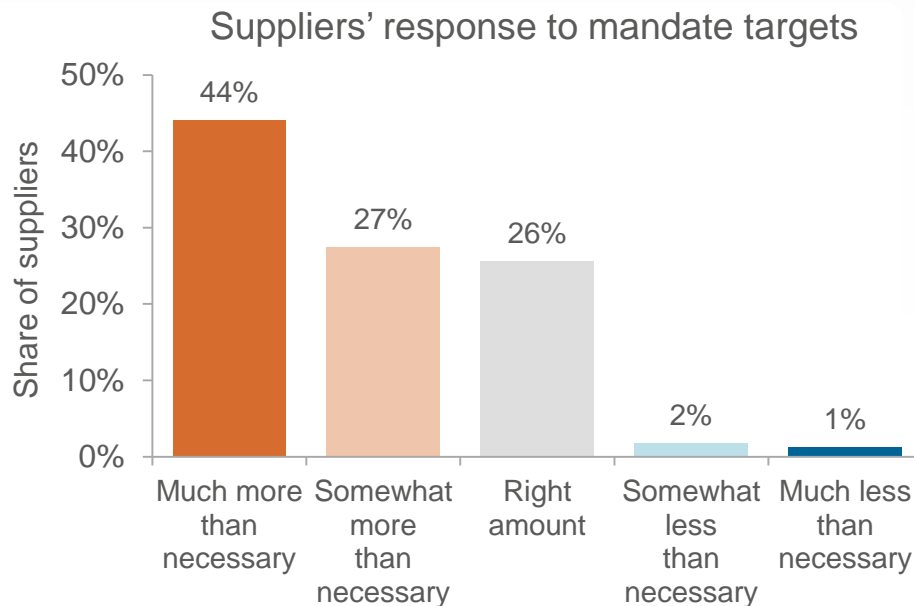
Governor Brown announces mandate  
April 1, 2015

# Californians responded immediately to governor's call



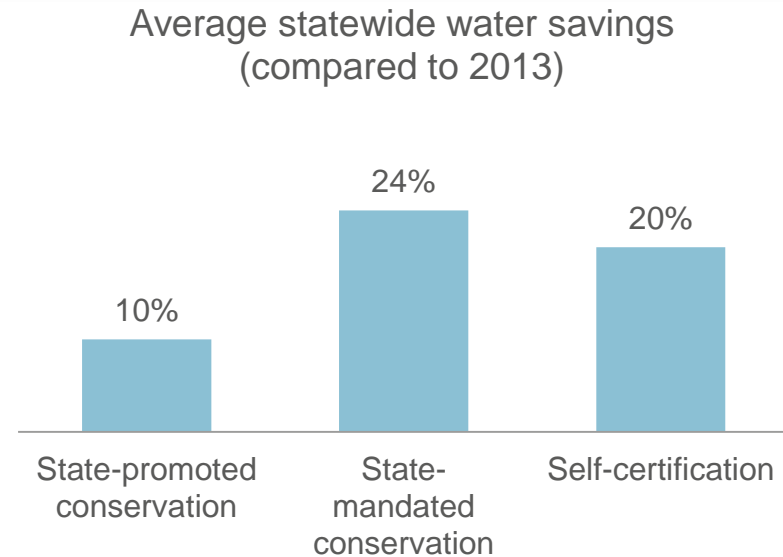
# But the mandate posed challenges for many utilities

- Disconnect between mandate levels and local conditions
- Compliance challenges for suppliers with high targets
- Scaled-back use of drought supplies
- Intensified financial impacts



# State relaxed mandate in 2016, let suppliers pass a “stress test”

- Most utilities (83%) were prepared for extended drought *without* mandatory conservation
- Central Coast remained most vulnerable
- Water savings remained high



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# 1. Coordinate drought contingency planning and implementation

- **Issue:** The disconnect in state/local views on local preparedness reflects an information gap
- **Actions:** Improve quality and transparency of information
  - Switch from “better safe than sorry” mandate to “trust but verify” stress test approach
  - Make monthly water use reporting permanent

## 2. Foster water system flexibility and integration

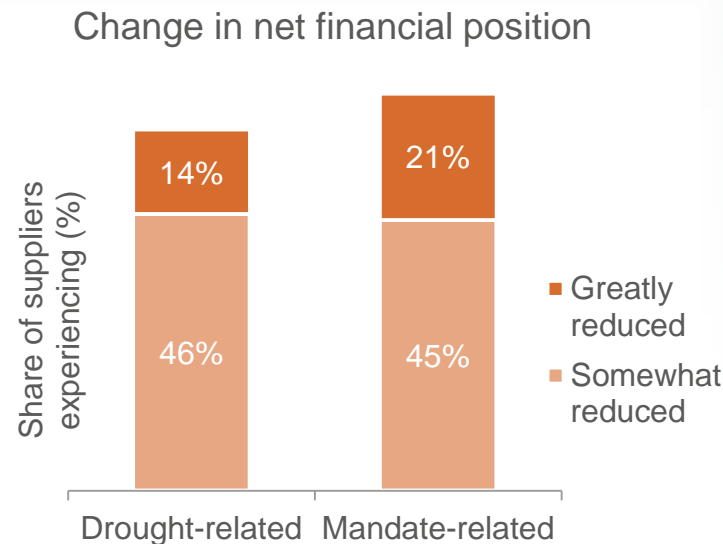
- **Issue:** Continued efforts needed to improve supply side
- **Actions:**
  - Support regional integration
  - Lower regulatory hurdles to water trading, non-traditional supplies
  - Reduce uncertainties about state policies affecting local supply investments



Water recycling facility, El Segundo

### 3. Improve utilities' fiscal resilience during drought

- **Issue:** Widespread fiscal vulnerability among public agency suppliers
- **Actions:**
  - Locals need more proactive drought pricing and communication strategies
  - State can help address Prop. 218 cost-of-service issues





## 4. Address shortages in vulnerable communities and ecosystems

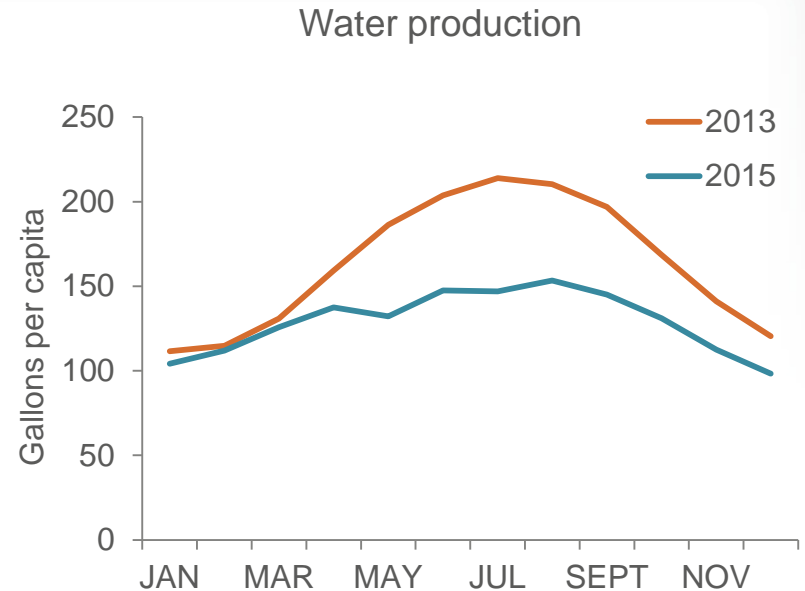
- **Issue:** Simply saving water in cities does not address hardships elsewhere
- **Actions:** State must lead, cities and farms can help
  - Improve small community water supplies
  - Promote watershed health



East Porterville residents get connected to safe tap water

## 5. Balance long-term water use efficiency and drought resilience

- **Issue:** Long-term savings have benefits, but can make it harder to cut use quickly during droughts
- **Actions:** Address the tradeoffs
  - Allocate some savings to a “reliability reserve”
  - Update water shortage contingency plan requirements
  - Incorporate reliability goals into long-range plans



# State and suppliers need to cooperate to protect economy from severe drought impacts

- Because conditions vary greatly, local suppliers are best placed to prepare for and manage droughts in their communities with:
  - Supply portfolios
  - Short-term demand management
- State should focus on areas that require state leadership:
  - Incentives, support for local action
  - Flexibility to reallocate scarce supplies
  - Protection of vulnerable communities, ecosystems

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## About 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.