California, Australia Share Drought Strategies

San Diego County's Approach Similar to Perth, Australia
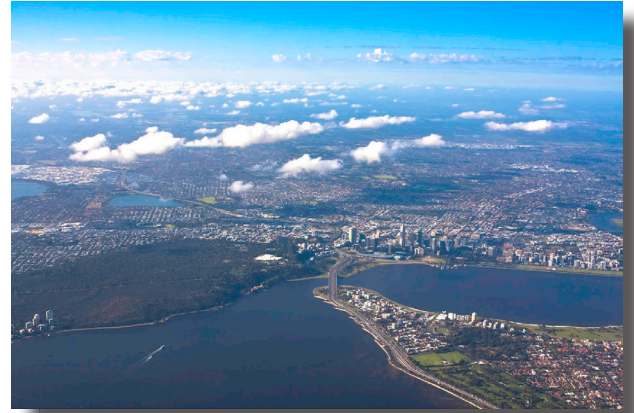
DIVERSIFICATION

Enhancing Water Supply Reliability

California and Australia are similar in that both experienced significant droughts in the early part of the 21st century, and they both responded with an array of tools to make the most of their precious water supplies. A variety of conservation efforts in both places have been combined with supply development measures such as seawater desalination and water recycling.

While water comparisons between California and Australia are common, it's important to ensure comparisons are valid by examining similar regions and recognizing that every region has unique characteristics that afford both opportunities and challenges.

Comparable regions

Like California, Australia has highly variable climates, geography, water sources and water demands. For San Diego County, the closest Australian comparator is Perth, a major metropolitan area on the continent's southwest coast with 2 million residents. In addition, the populations of San Diego and Perth are expected to continue growing for decades because both cities are viewed as desirable places to live, with mild winters and a qual-

Perth, Australia

ity of life that draws tourists and inhabitants from around the world.

As for precipitation, Perth receives about 34 inches annually — less than the 45 inches of rain per year received by the eastern Australian cities of Brisbane and Sydney that are much wetter than San Diego and have rainfall distributed throughout the year, including during the summer. Perth's rain falls mostly in the late fall and winter, much like it does in San Diego. However, Perth benefits from more than three times as much rain as San Diego each year.
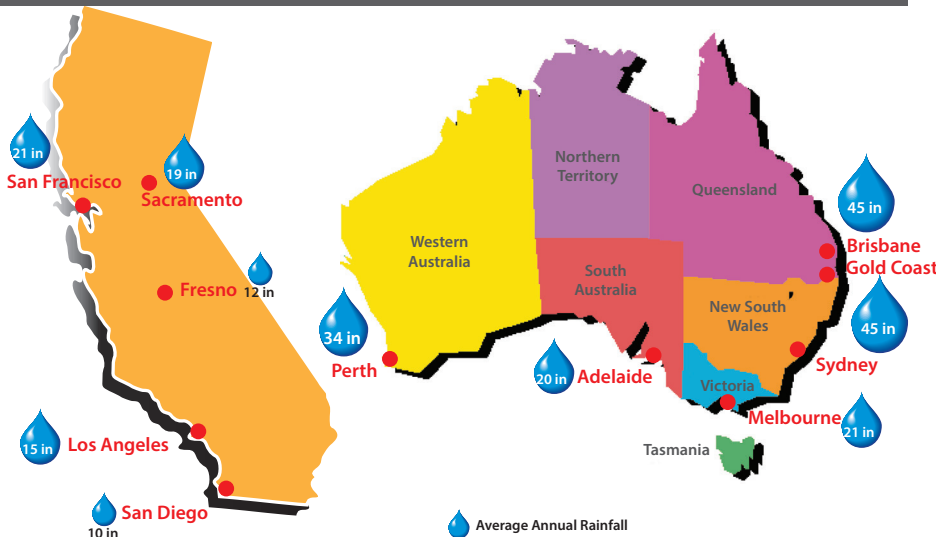
Residential water use in the two cities is very similar — about 83 gallons per person per day in San Diego and about 75 gallons per person per day in Perth.*

A similar approach to water supply development

The Water Corporation of Western Australia and the San Diego County Water Authority have taken comparable steps to diversify and drought-proof their respective water supplies. In fact, Perth's water agency promotes its plan for "security through diversity" while the Water Authority has become widely known for pursuing a "diversified water supply portfolio" — and the two strategies share much in common.

*Journal of Water Resources Planning and Management (2013)

California – Australia Rainfall Comparison

San Francisco 21 in
Sacramento 19 in
Fresno 12 in
Los Angeles 15 in
San Diego 10 in

Perth 34 in
Adelaide 20 in
Melbourne 21 in
Brisbane / Gold Coast 45 in
Sydney 45 in

Western Australia
Northern Territory
Queensland
South Australia
New South Wales
Victoria
Tasmania

Average Annual Rainfall

February 2020

For instance, Perth has built two large seawater desalination plants that supply about half of its water. Those plants are operated year-round and are part of Perth's core supply, protecting it from the boom-and-bust cycle of relying heavily on runoff into reservoirs as it did into the 1980s.

In December 2015, the Water Authority began purchasing water produced at the largest seawater desalination project in the United States through an innovative public-private partnership with Poseidon Water. It produces approximately 50 million gallons a day as a core water supply for the region. Since it began operation, the Carlsbad plant has produced more than 180,000 acre-feet of desalinated water.

In Perth, the second largest water supply is groundwater, and the water agency has expanded its aquifer network and groundwater recharge facilities. San Diego County is taking a different approach because local groundwater basins are small and only in a few instances suitable for municipal-scale withdrawals. Instead, the Water Authority has invested in long-term conservation-and-transfer agreements that deliver highly reliable, and contractually secure Colorado River water and are critical for helping California stay within its allotment of water from the Colorado River.

Perth and the Water Authority also are boosting water recycling in their respective regions with the goal of significantly increasing that resource in coming decades. The Water Authority envisions potable reuse of recycled water as the next major increment of local supply, with roughly half of its member agencies developing or considering plans to purify wastewater to augment their drinking water supplies.

Commitment to water-use efficiency

Finally, the Water Authority and Perth's Water Corporation have focused heavily on water-use efficiency strategies over the past decade. Perth's tools have included leak detection efforts, low-flow showerheads and irrigation restrictions.
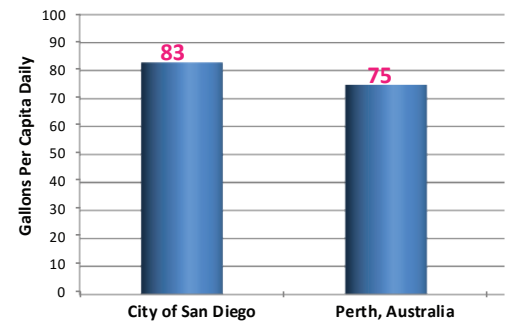
Water-use efficiency also is a core element of the Water Authority's long-term strategy. In fact, the Water Authority's commitment to efficiency started during its own experience with severe drought conditions from 1987-92. Since 1991, the Water Authority's water-use efficiency programs and initiatives cumulatively have conserved more than 1 million acre-feet of water.

These savings have been achieved through measures such as: incentives on water-efficient devices; sponsoring legislation to improve water-use efficiency standards for toilets, clothes washers and landscapes; public outreach campaigns; and educational programs focused on reducing landscape irrigation. Even before the State of California instituted emergency water-use restrictions in 2015, the San Diego region was using 39 percent less water per capita than in 1990, a testament to the region's commitment to making the most of every drop of water. ■
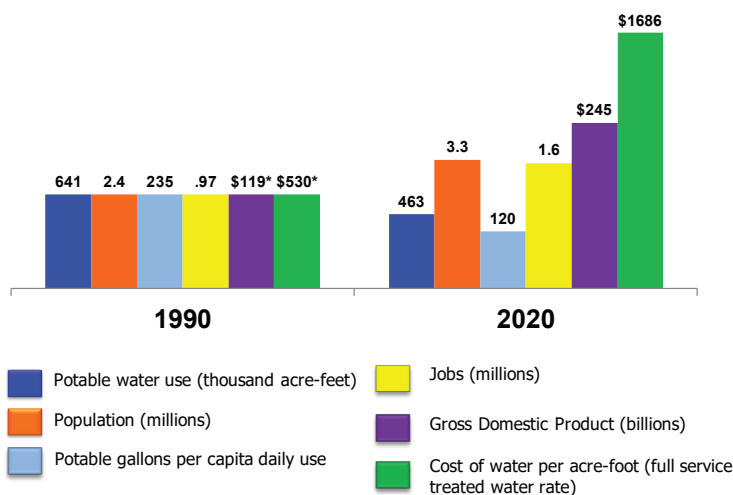
Improving Water Supply Reliability

San Diego County		Perth, Australia
✔	Water-Use Efficiency	✔
✔	Long-Term Transfers	
	Groundwater Recharge	✔
✔	Desalination	✔
✔	Recycling/Reuse	✔

Per Capita Water Use

*Journal of Water Resources Planning and Management (2013)

San Diego County: 1990 vs. 2020

1990	2020

Legend:
- Potable water use (thousand acre-feet)
- Population (millions)
- Potable gallons per capita daily use
- Jobs (millions)
- Gross Domestic Product (billions)
- Cost of water per acre-foot (full service treated water rate)

* 2020 dollars

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