

California looks Down Under for drought advice

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California's longest and sharpest drought on record has its increasingly desperate water stewards looking for solutions in Australia, the world's driest inhabited continent.

The struggle to survive with little water is a constant thread in the history of Australia, whose people now view drought as an inevitable feature of the land poet Dorothea Mackellar dubbed "a sunburnt country."

FILE - In this March 3, 2015, file photo, a flock of sheep drink from a dam at the edge of dried-up Lake George, about 250 kilometers (155 miles) southwest of Sydney. On the world's driest inhabited continent, drought is a part of life, with the struggle to survive in a land short on water a constant thread in the country's history. The U.S. state of California is looking to Australia for advice on surviving its own drought. | Rob Griffith, File AP Photo



Four years into a drought forcing mandatory 25 percent water cutbacks this year, Californians have taken a keen interest in how Australia coped with its "Big Dry," a torturous drought that stretched across the millennium, from the late 1990s through 2012. Australia's city dwellers had to accept tough water restrictions as cattle collapsed and died in barren fields, monstrous wildfires killed 173 people, and scores of farms went under.

But by the time the rains returned, Australia had fundamentally changed how it handles water, following landmark reforms to more carefully mete out allocations and cutbacks. Today, Australia treats water as a commodity to be conserved and traded. The system also better measures what water is available, and efficiency programs have cut average daily water use to 55 gallons, compared with 105 gallons per day for each Californian.

The hard-earned lesson is that long droughts are here to stay, says drought-policy expert Linda Botterill of the University of Canberra.

"We can expect longer, deeper and more severe droughts in Australia, and I believe the same applies in the U.S.," Botterill says. "As a result, we need to develop strategies that are not knee-jerk responses, but that are planned risk-management strategies."

That's why California water officials routinely cite Australia's experience and invite Australian water ministers to come speak. It's also why Felicia Marcus, who runs California's Water Resources Control Board, can talk in minute detail about the stormwater-capture system watering soccer fields in Perth.

But Californians may find Australia's medicine tough to swallow. Australians are accustomed to living in a dry land, expect government intervention in a crisis and largely support making sacrifices for the common good. For much of their history, many Californians have enjoyed abundant water, or were able to divert enough of it to turn deserts green, and highly paid lawyers ensure that property rights remain paramount.

"The outstanding feature of the California drought is the way in which it's been allowed to become incredibly serious, with — from an Australian perspective — an absolutely pathetic and nominal sort of response," said Daniel Connell, an environmental policy expert at The Australian National University. "The main difference between California and

Australia is they're dominated by a legalistic approach and dominated by rights, and we've got a much more public-policy approach."

Australia hardly has all the answers. Some of its drought responses faced sharp criticism, and some experts believe Australia already is losing some of its gains. Still, Americans suffering their own "Big Dry" may benefit from some comparisons:

WHOSE WATER IS IT?

AUSTRALIA: Too many water entitlements had been allocated for Australia's main river system, which winds thousands of miles across four states that produce a third of the nation's food. Overuse and drought so depleted the Murray-Darling Basin that by 2002, the mouth of the Murray had to be dredged to keep it flowing into the sea.

Australia responded by capping entitlements, canceling inactive licenses and buying back hundreds of billions of gallons from irrigators to restore the rivers and sell to other users when rain is plentiful. Water use is strictly metered to ensure license holders use only what they are allocated. Precise measurements also track the availability of water, which affects its price as shares are bought and sold on a water trading market worth \$1.2 billion a year in U.S. dollars.

The amount of water represented in entitlements doled out to farms, industries and towns depends on what's in the river; in drought, it can dwindle to virtually nothing. This is where water trading becomes critical. License holders can buy or sell their entitlements to others, keeping agriculture afloat. A farmer of a thirsty crop like cotton might not profit when both the share of water and the price of cotton is low. But if an orchard grower in desperate need buys that water, the cotton farmer can live off the sale while the orchard owner reaps a profitable harvest.

CALIFORNIA: Gov. Jerry Brown calls the state's system of divvying up water rights, which dates to the Gold Rush of the mid-1800s, "somewhat archaic." The largest state economy in the U.S. still follows the maxim "first in time, first in right," which gives overarching priority to nearly 4,000 so-called senior water rights holders who staked claims before 1914 or own acreage abutting a river or stream. In drought, authorities must completely deny water to most other claimants before they touch the water of senior water-rights holders. San Francisco, for example, has stronger water rights than many other cities because in 1902, Mayor James Phelan hiked up the Sierra Nevada and tacked a water claim to an oak tree along the bank of the Tuolumne River.

"Revising the water-rights system is a thermo-nuclear issue in California," John Laird, California's secretary for natural resources, said last month. If the state's water shortages go on long enough, however, at some point "almost everything has to be on the table."

WATCHING THE FLOW

AUSTRALIA: Marcus says California should follow Australia's example in measuring and publicly declaring how water is used. Thousands of gauges across Australia measure rainfall, authorities in each state and territory measure surface water at stream gauging stations, and underground water is monitored through a complex process involving the drilling of bores and controlled pumping tests. Water data collection agencies report to the federal Bureau of Meteorology, which makes the data available online.

CALIFORNIA: California has been one of the most lax U.S. states in tracking water use, but the drought is changing this. Legislation enacted last year requires the state to gradually phase in monitoring, for the first time, of how much groundwater Californians are pumping. Meanwhile, roughly a quarter-million California households and businesses still lack water meters; state requirements to have them don't apply until 2025. The state has relied on an honor

system, with rights holders self-reporting what water they have withdrawn from rivers and streams every three years. Gov. Brown's budget proposed last week would require rights holders to install monitors and report water usage to the state annually.

TIGHTENING THE TAP

AUSTRALIA: During the Millennium Drought, all major cities imposed limits or bans on watering lawns and washing cars, and inspectors fined people who broke the rules. The restrictions, public-service campaigns and installation of water-saving appliances reduced Australians' household water use from 85 gallons per person per day in 2000 to 55 gallons today.

CALIFORNIA: After some regions all but ignored calls for voluntary cutbacks, Brown's administration mandated a statewide 25 percent cut in water use by cities and towns, and ordered more farmers to stop pumping from rivers and streams. Marcus said the one piece of advice that seemed universal in both Australia and California "was conserve, conserve, conserve, as early as you can, because it's the cheapest, most economical way to buy time" while tougher water-saving measures are phased in. California still is struggling with enforcement, however.

DO MORE WITH LESS

AUSTRALIA: Years before the Big Dry, Australians were encouraged to use less water. In 1995, Sydney's water authority was ordered to slash per-capita demand by 35 percent by 2011, and it met that target by reducing pressure and leaks in pipes, boosting businesses' water efficiency, and offering low-cost, water-saving technologies in homes, such as dual-flush toilets, low-flow showerheads and rainwater tanks for gardens, toilets and laundry. When the drought struck, government rebates became so widespread that such devices are now common in many Australian homes.

Such efficiency measures can be implemented quickly, economically and easily, says Stuart White, an Australian sustainability expert who has advised Californians on drought response. "The water efficiency program is the unsung hero of this whole thing," says White, director of the Institute for Sustainable Futures at the University of Technology, Sydney. "In some cities, it's quite possible we would have reached death's door if it hadn't been in place."

CALIFORNIA: Communities across California offer rebates on drought-friendly plumbing and appliances. But the rooftop-rain collectors, stormwater cisterns and bathwater-recycling for gardens, all commonplace in parts of Australia, are rarities here. Increasing numbers of communities are rewriting ordinances to allow families to recycle water from rains and from showers.

MIRACLES OF TECHNOLOGY

AUSTRALIA: Billions were spent on desalination plants in major cities — a decision that remains hugely divisive. Many of the plants are not currently operating because cheaper water is available for now in Australia, prompting critics to dismiss them as expensive and power-hungry flops that will create greenhouse gases and worsen the continent's climate-change woes. Supporters say the plants will protect the country from the next inevitable drought.

CALIFORNIA: While calling for conservation, Brown has pinned his drought focus on an ambitious infrastructure project — a \$17 billion plan, opposed by environmental groups, to build 39 miles of tunnel to take Northern California water to Southern California's bigger farmers. Desalination plants in the works include one, for San Diego, that will be the biggest such operation in the Western Hemisphere.

