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California Focus: State likely faces a drier future

As population continues to rise, everyone needs to focus on conservation.

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The worst drought in 130 years is a wake-up for all Californians: Now we have no choice but to plan to secure water for a drier future.

Tree rings from bristlecone pines living at 11,000 feet above sea level on the White Mountains in east-central California clearly shows the climate over the past four millennia. California has just experienced the third- or fourth-wettest century in the past 4,000 years.

Ninety percent of the fresh water in California – which has the eighth-richest economy in the world – comes from the slow springtime melt of the snow pack that accumulates each year along the majestic Sierra Nevada. Another 6 percent of the fresh water needed in our state comes from the Colorado River. That water is vitally important to the Coachella and Imperial Valleys and to Los Angeles and San Diego.

Global circulation models predict that as global temperatures rise, so, too, will the occurrence of more intense and frequent wild weather, including periods of prolonged drought.

Currently, there are about 18 million people in Southern California. By 2020, that figure is expected to rise to 23 million. California's state population by 2050 is projected to exceed 55 million people – supplemented by millions of tourists each year.

Over the past decade, the Metropolitan Water District of Southern California has created an important new reservoir at Diamond Valley Lake. However, it is not sufficient to sustain a burgeoning population and agriculture industry in Southern California with a warmer and drier climate in the ensuing decades.

Two dam-building projects also are currently in the works. One dam would be built above the existing Friant Dam, north of Fresno, and the other in the grasslands north of Sacramento. There also are plans for water-conservation-related improvements to the vital Sacramento Delta.

We'll need all these projects, and more.

Some climate models predict that global temperatures will rise between four and 10 degrees this century. Utilizing the most conservative estimates from the Scripps Institute in La Jolla, modelers estimate that Sierra Nevada's water reserves will drop by at least a third by 2060 and a half by 2090.

Moreover, the seasonal distribution of available water will shift from spring and summer to the winter months thereby significantly increasing the frequency of winter floods and lethal summer forest fires.

The total snowpack accumulation this past winter along the Sierras was 40 percent of normal recordings. But the eastern Sierras, where the Los Angeles basin draws about half its water supply, marked its second-lowest snowpack on record. Fortunately, the bumper 2006 snowpack will sustain Southern California but only with stringent water rationing this summer and fall.

What happens if the winter of 2008 is dry? Although initially the effects of a drought are not as fearsome as those of a hurricane or tornado, the long-term outcome of a drought is deadly – especially when droughts persist for years.

Over the past four thousand years, droughts have annihilated the Akkadians, Mayans, the Pre-Incan Moche and Tiwanaku, and the Anasazi of the American West's Four Corners region. Some of the droughts lasted centuries while others occurred at three-, six- and nine-year intervals.

Furthermore, droughts promote wildfires. Sixteen million people live in the Los Angeles basin, which is surrounded by forested mountains. The forests are tinder-dry, and there are a million beetle-killed trees from previous droughts available as kindling. We must be very careful in the forests this summer and fall.

Every California resident has a role to play with water conservation. All

households and businesses that haven't should switch to ultra-low-flow toilets and shower heads. As the drought deepens, trees should be watered only at night, and lawns not at all. Use commercial carwashes because they recycle water.

Educating primary and secondary school children about water conservation helps ensure that the message is taken home to parents.

Clearly, more reservoirs to capture and store mountain water throughout the summer months must be undertaken and secured.

California's prosperous future is incumbent on a reliable source of water.