

The Value of Water

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“When the well is dry, we know the worth of water.” Benjamin Franklin, (1706-1790), Poor Richard's Almanac, 1746.

Water in the American west is a scarce resource that is literally running out. Water is essential to sustain people, agriculture, and ecological systems, but modern pressures on water usage in the western United States have strained traditional water allocation systems. In California, in particular, current water uses may no longer be sustainable. Population growth and rising environmental awareness will continue to make demands on water which is already put to use for agriculture, while global climate change adds a “wild card” into a mix that can only result in less available water.¹

More people than ever before are making their homes in the western and southwestern regions of the country. Seven of the ten fastest growing states are in the West.² For example, between 1990 and 2000, the population of Nevada increased by an incredible 66.3 percent.³ From 2000 to 2003, its growth continued at 12.2 percent in just three years.⁴ Although the southwest is leading the way, California is expected to add 400,000 new residents per year, increasing its population to 51 million by 2040.⁵ To provide sufficient water for these

¹ See A. Dan Tarlock & Sarah B. Van de Wetering, *Western Growth And Sustainable Water Use: If There Are No "Natural Limits," Should We Worry About Water Supplies?* 27 PUB. LAND & RESOURCES L. REV. 33, 39-47 (2006). See also Edward J. Pauline, *The Geopolitics of Water Resources in the United States* (Aug. 2003) (unpublished BS Degree dissertation, Ohio State University), available at <https://kb.osu.edu/dspace/bitstream/1811/6112/1/Pauline,+Edward+J.++2003.pdf> (last visited Feb. 12, 2007).

² Tarlock, *supra* note 1, at 40.

³ U.S. CENSUS BUREAU, *Demographic Changes: Population Has Grown Fast in the West, Particularly in the “Public Land States,”* <http://www.doi.gov/water2025/populate.html> (last visited Feb. 12, 2007).

⁴ Tarlock, *supra* note 1, at 40.

⁵ Robert Glannon, *Of Waterbanks, Piggybanks, and Bankruptcy: Changing Directions in Water Law, Water Scarcity: An Overview*, 83 TEX. L. REV. 1873 (2005).

burgeoning populations, cities are looking farther and paying more for water, acquiring water that is otherwise used for agricultural purposes.⁶ Population is likely to continue to increase in these regions, and municipal water demands will become an ever increasing percentage of western water use.

Changed popular opinions about the proper use of rivers are also affecting the availability of water. From the nineteenth to the mid twentieth century, the dominant view was that rivers should be improved for human use by human intervention. People straightened out and regulated the flow of streams and rivers, confining them to navigable pathways and damming them for irrigation, flood control, and hydroelectric power generation.⁷ Today, however, this viewpoint is now being questioned as increased population and industrial demands for water stretch limited resources thin. People also increasingly see rivers as valuable ecosystems and parts of a natural landscape, “ribbons of awe and grandeur to be enjoyed in a wild or restored state.”⁸ Of course, the Wild and Scenic Rivers Act was passed in 1968, putting an end to the dam building era, and since then other environmental statutes, like the Endangered Species Act, have been enacted to protect fragile freshwater ecosystems.⁹ But environmental concerns have steadily and more recently become a more powerful objective in the mind of the American people, and thus will continue to further constrain municipal and agricultural water uses.

While the impact of population growth and conservation measures on water usage can be estimated and to some extent managed, future available water scarcities due to global climate change will exacerbate these water needs by reducing the water available in the West in ways that are less predictable. Although climate change forecasters believe that there will be little

⁶ Tarlock, *supra* note 1, at 40; Holly Doremus, *Water, Population Control, and Endangered Species in the West*, 72 U. COLO. L. REV. 361, (2001).

⁷ Tarlock, *supra* note 1, at 44.

⁸ Tarlock, *supra* note 1, at 44.

⁹ Tarlock, *supra* note 1, at 44.

change, on average, in total annual precipitation for California, even modest declines in precipitation levels "would have a significant impact because California ecosystems are conditioned to historical precipitation levels and water resources are nearly fully utilized."¹⁰ Another concern is that climate change will almost certainly lead to higher temperatures in the Sierra Nevada mountains, where normally water is stored as snow and ice and, as it melts, slowly feeds rivers and streams.¹¹ Warmer temperatures have already led to more precipitation falling as rain, later snow accumulations, and early melts, which have a cascading effect on water supplies.¹² One study finds that between the years 2035 and 2064, snowpack in the Sierra Nevadas could decrease as much as 47 percent, with a possible 90 percent reduction by the end of the century.¹³ Currently, the snowpack provides natural water storage equal to half the storage capacity in California's man-made reservoirs.¹⁴ If the snowpack were to disappear, much of the water would not fit into existing reservoirs and a significant percentage of California's available water would be lost.¹⁵ Opposition to building new dams is substantial due to environmental costs.¹⁶ Forecasters are also expecting a 2 to 13 percent increase in agricultural demand due to global climate change.¹⁷ But more agriculture means more need for water for thirsty agriculture as well.

Given increasing demands on water resources and probable decreasing supplies, it is inevitable that water "will be more costly, and the trade-offs between growth and its alternatives

¹⁰ Mongabay.com, Global Warming to Have Significant Impact on California, <http://news.mongabay.com/2006/0731-california.html> (last visited Feb. 12, 2007).

¹¹ CAL. CLIMATE CHANGE CTR., SCENARIOS OF CLIMATE CHANGE IN CALIFORNIA: AN OVERVIEW, at 14 (Feb. 2006), available at <http://www.energy.ca.gov/2005publications/CEC-500-2005-186/CEC-500-2005-186-SF.PDF> (last visited Feb. 12, 2007).

¹² CAL. CLIMATE CHANGE CTR., *supra* note 11, at 14.

¹³ CAL. CLIMATE CHANGE CTR., *supra* note 11, at 14.

¹⁴ CAL. CLIMATE CHANGE CTR., *supra* note 11, at 15.

¹⁵ CAL. CLIMATE CHANGE CTR., *supra* note 11, at 16.

¹⁶ Glannon, *supra* note 5, at 1879.

¹⁷ CAL. CLIMATE CHANGE CTR., *supra* note 11, at 16.

will become more intense and obvious,”¹⁸ thus leading us all to more closely examine the value of water in a variety of contexts.

¹⁸ Tarlock, *supra* note 1, at 35.