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## Hetch Hetchy Reclaimed: Water questions are always flowing

**By Jay R. Lund and Sarah E. Null -- Special To The Bee**  
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San Francisco's Hetch Hetchy water supply system was a marvel of engineering and public administration when constructed in the 1920s and now provides reliable, inexpensive and high-quality water to 2.4 million people in the San Francisco Bay area. It is also the heart of a conversation about tradeoffs.

From an engineering perspective, the Hetch Hetchy water project is a classic, early 20th century system that used a remote, largely inaccessible, mountain watershed to deliver pristine water requiring minimal treatment. Hydropower was a side benefit.

New York City, Seattle, Portland and Los Angeles' Owens Valley and Mono Lake supplies are other such systems. After many decades, these systems, with modifications, still serve their original purposes.

The last 80 years have brought great improvements in drinking-water technology. Water treatment was in its infancy when the Hetch Hetchy system was built. It is now nearly universal. Waterworks filtration is now required for all surface drinking-water sources - with rare exceptions for heavily monitored remote watersheds - including Hetch Hetchy. If Hetch Hetchy lost its status as an unfiltered supply, then filtration, costing roughly \$1 billion, would be required, just as it is for municipalities across the nation.

During the same eight decades, the country has experienced tremendous growth in demand for public recreation and national parks. When O'Shaughnessy Dam was built at Hetch Hetchy, John Muir and others valued the quality of Hetch Hetchy Valley, but such wilderness resources were relatively abundant for California's 1920 population of 3.4 million. Now that California has 35 million souls, a more prosperous economy and alternative water supply options, the tradeoff of a unique recreational valley for one part of a classical water supply is being revisited.

Research at the University of California, Davis, explored water supply alternatives for San Francisco if O'Shaughnessy Dam were removed, allowing the Hetch Hetchy Valley to be restored. A pipeline between the Hetch Hetchy Aqueduct and the much larger New Don Pedro Reservoir downstream would allow almost all of the water captured at O'Shaughnessy Dam to be captured downstream with little loss of water quality. Drinking water supply is less of a problem than the costs.

The idea of connecting the Hetch Hetchy Aqueduct to additional existing storage on the Tuolumne River shows promise for restoring Hetch Hetchy Valley but is far from a detailed

proposal and does not prove that removing O'Shaughnessy Dam is worthwhile.

Even if shown to be worthwhile, substantial economic and political barriers must be crossed, including how to pay for the changes and deal with lost hydropower, perhaps some lost flood control and cooperative agreements between San Francisco and local agricultural water users. If the Tuolumne River System can provide substantially similar benefits without O'Shaughnessy Dam and the people of San Francisco come to support change, the political and media controversy on this issue might well melt away, as it did with the more drastic case of Mono Lake restoration. For restoration to occur, a renewed Hetch Hetchy Valley, like O'Shaughnessy Dam 80 years ago, probably must become a source of pride for San Francisco.

As California's population grows, drinking water standards become more stringent and water supply options for cities diversify (with desalination, treatment, water trades and water conservation), a restored Hetch Hetchy Valley might become a feature of a multiple-use Tuolumne River system.

To some, Hetch Hetchy will represent the defense of traditional water projects versus the opportunity to restore a unique valley. Nevertheless, this example of examining changes and opportunities that entail difficult decisions illustrates the challenges and the need for more serious and creative water analysis and management for all of California. Much like Mono Lake, Owens Valley, the Salton Sea and the Delta, the case of Hetch Hetchy is merely a vignette in the continuing saga of California noisily adapting its water resources to changing technologies, economic conditions and social expectations.

### **About the writers:**

- Jay R. Lund is a professor of civil and environmental engineering and Sarah E. Null is a doctorate student in geography, both at the University of California, Davis. The two used a computer model known as CALVIN, invented by Lund, to study Hetch Hetchy and the possibility of removing the dam.

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