Inside the $7.5-billion water bond that California voters enthusiastically approved in November is a provision that never should have been included. It requires the expenditure of $2.7 billion — more than a third of the bond — on water storage, which in this case mostly means dams. The bond’s billed purpose is to bring California’s aging water infrastructure into the 21st century, but the largest allocation in it may keep the state mired in the 1950s.

Dams are a relic of the Industrial Age, a brute-force solution to water scarcity that sets off a cascade of environmental collapses, from the upstream tip of the reservoir to the river’s mouth and beyond. They’re particularly ill-suited to the era of extremes — heat waves, floods and droughts — that climate change has brought on. High temperatures intensify evaporation from reservoirs. Massive floods threaten dams with overtopping and breaching. Droughts defy the very reason for dams’ existence: They drop reservoir levels, wasting the “capacity” that goes unused, and cause hydroelectric output to dwindle.

The water-storage bond provision, known as Chapter 8, was included largely at the insistence of the Legislature’s Republican minority, whose support was needed to reach the two-thirds threshold to qualify the bond for the ballot.

The embrace of dams by the state’s “water buffaloes” — mostly Republicans but some notable Democrats too — reflects hidebound ideas about dams that were formed before the record of their financial and environmental performance was established. Many water buffaloes seem to view water chiefly as an agricultural input, like fertilizer, whose conduits happen to include rivers. It doesn’t hurt their outlook that dam building ensures the distribution of vast sums of money to developers, contractors, consultants, bankers, lawyers and construction workers — many of them constituents or potential contributors.

California already has almost 1,600 inventoried dams, plus thousands more mostly small, privately owned uncounted ones; the sites that remain for new dams are the engineering dregs. The five new or enlarged dam projects most often discussed for Chapter 8 funding together would produce 400,000 acre-feet of water per year, at a cost of $9.75 billion, according to Friends of the River, a
state conservation group. All that money would increase the state’s yield by less than 1% of its annual water budget of 41 million acre-feet.

“Despite sound evidence that the dam projects are follies, the California Water Commissions faces enormous pressure to approve at least one dam.”

Add to the cost of the dams the strong likelihood that they’ll come in over budget and behind schedule. A pioneering 2014 study by four Oxford University scholars of the costs and benefits of 245 large dams built between 1934 and 2007 found that actual costs were on average nearly double projected costs, and construction took 44% longer than forecast. Dam builders have not even learned from their mistakes: “Forecasts of costs of large dams today are likely to be as wrong as they were between 1934 and 2007,” the study said. It concluded that “the actual construction costs of large dams are too high to yield a positive return,” and recommended more “agile” alternatives.

It’s possible that Democrats have inserted enough snares in Chapter 8 to confound the water buffaloes. The projects must “provide a net improvement in ecosystem and water quality conditions,” a standard that virtually no dam achieves. In addition, ecosystem benefits must constitute at least half of all public benefits from the project, ensuring that environmental concerns are addressed ahead of things such as recreation and flood control (which is allocated $395 million in another part of the bond). But as an October 2014 report on the water bond published by the Pacific Institute, an independent Oakland-based water research group, explains, “Ecosystem benefits could be funded directly and would most likely produce far greater ecological improvement than the benefits … from … any of the proposed surface storage projects.”

A preferable alternative is to develop the other kind of water storage specified in Chapter 8 — underground. The water bond separately sets aside $900 million for groundwater cleanup and development, but Chapter 8’s larger funds can be tapped for groundwater storage too, if a project improves environmental conditions in the highly compromised Sacramento River-San Joaquin River Delta.

As it happens, beneath the San Fernando Valley lies a capacious aquifer that is contaminated by industrial effluents. Rehabilitating it requires extracting the water, cleaning it and returning it to the aquifer. It’s an expensive process, but it’s far more cost-effective than building dams, and increasing the aquifer’s capacity could result in less water taken from the delta.

Aquifers have notable advantages over dams: They lose no water to evaporation, they require much less infrastructure construction, and they reinforce natural processes instead of rupturing them. The Pacific Institute report compared Chapter 8’s dams with underground storage and found that “groundwater storage has greater water supply potential at a lower cost.”
The final allocations will be decided by the California Water Commission, which was moribund until legislation reconstituted it in 2009. One of its nine memberships is vacant; the others are split evenly between those first appointed by Gov. Arnold Schwarzenegger and Gov. Jerry Brown. Despite sound evidence that the dam projects are follies, they face enormous pressure to approve at least one dam.

As they deliberate, they might consider what has happened to the nation’s two largest reservoirs, Lake Mead and Lake Powell. Their water levels have dropped so low, currently at 37% and 54% of capacity respectively, that Lake Mead could easily hold both their contents. In fact, environmentalists have quite reasonably proposed emptying Lake Powell into Lake Mead, since doing so would save a huge quantity of water by eliminating evaporation and leakage from porous Lake Powell. Officials have resisted, for the proposal strikes indirectly at the rationale for Lake Powell’s creation. Along with the beautiful Colorado River side canyons that were inundated for half a century, the low water levels have exposed the fallacy of dams.


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