

Conservation Oriented Responses to Colorado's Drought

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The 2002 drought in Colorado was a 1 in 300 year drought that impacted the water use strategies and water management plans of many Colorado cities. In order to mitigate demand on limited water supplies, four main conservation strategies have been employed: water pricing changes, landscape reform, water use restrictions, & rebate programs for water efficient appliances. Though most conservation measures have been implemented on the municipal level, three state legislative bills (SB 87- defeated, HB 1120-defeated, HB 1001-passed) addressed water conservation. The federally sponsored Western Water Initiative will also include some water efficiency measures. This document includes summaries of the four main conservation strategies employed by municipalities, a look at statewide conservation efforts, and the federal response to the drought.

Municipal Response to Drought:

Every city has a different water portfolio and thus responses to drought varied widely. This is a general overview of the four main strategies employed. For individual case studies of drought response see Use and Effectiveness of Municipal Water Restrictions During Drought in Colorado (Kenney & Klein, 2002) and Eight Municipal Drought Responses (Brooke, 2003).

Water Pricing Changes

Across the Southwest, the average cost for a gallon of tap water is less than one-fourth of a penny and that price hasn't gone up for homeowners since 1950 (Denver Post, February 2003). Utilities in the west set their rates at break-even prices, not on the principle of supply and demand. This keeps water prices low and encourages water waste. As an incentive to reduce water consumption during and after the 2002 drought many municipalities in Colorado have restructured their water rates to penalize excessive water use. House Bill 1001 also requires municipalities to have water rate structures that encourage water use efficiency in a fiscally responsible manner.

Changes to water rates generally consist of three tactics used in various combinations: a tiered water rate structure, drought surcharges, and individualized water budget billing. Tiered water rates charge an increasing amount per thousand gallons of water used. The rate and number of tiers varies between municipalities, which include Fort Collins, Lafayette, Louisville, and Westminster. Surcharges are additional charges added to normal water rates. Like tiered water rates, the surcharge usually increases with increasing use and may also increase with higher drought stages. Boulder is currently using a drought surcharge and Denver was using one from April 2002 to June 2003. Individualized water budget billing determines a water allocation for each individual customer that, depending on the city, is based on the number of people in the household, the landscaped area, weather variation, or use history. If a household surpasses its allotted use additional fees are normally charged in a tiered, per thousand-gallon block

rate system. Municipalities currently employing an individual water budget billing system are Aurora and Thornton.

Supporters of rate increases say that a price signal is an essential component of water conservation plans. Dan Lucke, a longtime Colorado environmental leader, thinks that water rates along with education and economic incentives are the most important strategies in water conservation. "Let them use what they want but make them pay for it," Lucke said when asked how personal freedom should be balanced with a limited water supply (personal interview, July 2003). Opponents of recent rate changes have complaints about the equity of some new water rate structures, while others are concerned about how the extra profit will be spent. Some even debate how effective raising rates will be. Generally a 10% increase in price causes a 4% reduction in consumption (Denver Post, July 2002). According to David Brookshire, a University of New Mexico economist, it will take a water rate increase between 278 and 463 percent to curb consumption (Denver Post, February 2003). Increases that high seem unlikely.

Landscape Reform

Landscaping is a major use of water in Colorado municipalities. In Denver 50% of the city's water is used by single-family homes and 54% of that is used for landscaping (Denver Post, July 2002). Due to limits on water consumption imposed by the 2002 drought the use of water for landscaping purposes is undergoing a reformation. Elimination of restrictive landscaping covenants, promotion of xeriscaping, use of recycled water, and landscaping rebates have all been implemented in order to reduce consumption on a long-term basis. Several bills (HB 1120 and SB 87) would have dealt with conservation of water used for landscaping on a state level but were defeated. HB 1001, prohibiting new homeowner associations from requiring thirsty landscaping, passed.

Some communities in Colorado have historically required homeowners to use bluegrass for landscaping purposes. Bluegrass, native to Kentucky, is a thirsty variety requiring lots of water. Other communities have prohibited xeriscaping, a type of landscaping using native plants that require minimal water. Elimination of these types of restrictive covenants was a topic of debate in municipalities such as Colorado Springs, Aurora, and Fort Collins over the past year. Elimination of restrictive covenants was also debated on the state level and ultimately passed in House Bill 1001, which forbids any new restrictive covenants that prohibit or limit the installation or use of drought tolerant vegetative landscapes by non-governmental entities. Opposition to eliminating restrictive covenants included some republican senators who argued that it would violate people's property rights and some city officials who resented the state meddling in municipal affairs.

Municipalities have increased efforts to educate the public about Xeriscaping as a result of the 2002 drought. Xeri (dry)scaping began to be used in the early 1980's and relies on plants that need only small amounts of water to survive. Experts estimate that Xeriscaping reduces water consumption by 30 to 40% and a federal study of its impact on water use is due out the summer of 2003 (Denver Post, June 2002). Opponents of Xeriscaping call it 'zero-scaping' and suggest that it is less than aesthetically pleasing. The upscale housing development of Littleton, on Watson Lane Reserve, was the first to

have covenants requiring xeriscaping (Denver Post, June 2002). Denver is offering landscaping rebates for installation of moisture absorbent dirt and low-water-use trees and shrubs beginning July 2003.

Use of recycled water on parks and golf courses also has a growing appeal. Recycled water is treated enough for turf but not enough to drink. Denver is in the process of building a water recycling system scheduled to go on line in 2004. Fort Collins has a recycling project that the city is estimating will save them 1,100 acre-feet this year and Westminster's recycled water system, one of the biggest in the state, provides water for all city parks and golf courses. Many cities shut down some of their sports fields for the spring '03 season because of limited water to maintain turf. New lawns and sod installations were also restricted in some cities. Landscaping companies have complained of potential job losses due to restrictions on new sod. Colorado Springs revoked a ban on installing sod lawns that would have saved 80 million gallons of water because of economic concerns (Denver Post, June 2003).

Water Use Restrictions

As water dwindled last summer many municipalities turned to voluntary or mandatory water use restrictions in an effort at conservation. Restrictions typically included limiting lawn watering to two or three times per week, restricting at home car washing, requiring a permit for new lawns, and operating pools only under best management practices. Restrictions were and in some cases continue to be enforced by water police and fines for violations range between \$250 and termination of water service. In a study on the effectiveness of municipal water restrictions, Kenney & Klein found mandatory restrictions to be an effective means of curbing water consumption while voluntary restrictions were of limited value (Kenney & Klein, 2002).

Aurora was the first large city to impose water restrictions in May 2002 and Denver, Louisville, Boulder, Lafayette, Fort Collins, and Westminster among others followed suite. Though summer 2003 has been less dry, Aurora, Denver, Fort Collins, Thornton, & Westminster continue to enforce restrictions. Because water restrictions vary between municipality, residents have may experience some confusion about water regulations in their hometown. Communities are trying to work together to write somewhat uniform water restrictions that will at least give water utility directors a common outline for water-saving strategies (Denver Post, October 2002 & February 2003).

Golf courses have been especially hard hit by stringent water restrictions and have raised concerns about the economic impact of decreased golf revenues that such restrictions will cause. A current campaign sponsored by the Colorado Golf Association, Club Managers Association, Rocky Mtn. Golf Course Superintendent's Association, and Women's Golf Association is undertaking a study to define the economic implication of decreased golfing revenue on the Colorado economy. According to Denver Water's chief planner, harsher restrictions for golf courses reflect their priority in the eyes of the public (Denver Post, April 2003).

Rebate Programs

On the inside of Denver homes flushing toilets (13% of total household use), laundry (11%), and showers (10%) are the top three water users. Some municipalities

have sought to decrease these amounts by offering rebate programs for low flush toilets, water saving showerheads, and water efficient washing machines. Rebates for toilets are \$75 or \$100 and for washing machines are \$100 or \$125. Cities who offered rebates at some point in 2003 include Aurora, Boulder, Denver, Fort Collins, Louisville, Thornton, and Westminster. Boulder, Denver, and Louisville are also offering rebates on water-conserving landscape materials such as moisture retaining soil amendments, soil moisture sensors, drip irrigators, and plants which use less water.

In an effort to improve industrial water uses the city of Denver is also offering a free audit of company manufacturing systems. The Commercial and Industrial Incentive Program will then hire an engineer to find ways to reduce the system's water use. If the company chooses to implement the suggestions of the engineer than the service is free (Denver Post, October 2002).

State Response to Drought

The response to the 2002 drought at a state level has focused more on water development projects than on water conservation. While three legislative bills during the last session addressed conservation options, only one was passed (see summaries below). Many environmental groups have complained that not enough attention is being given to conservation options by the state (Denver Post, May 2003). Governor Owens has said that he thinks more should be done on conservation but consistently points to the fact that between 80 and 90% of the states water is used by agriculture. Owens said that conservation measures directed at households, including low-flow shower heads and low-water landscaping, would have a minimal impact because households only account for about 5% of the state's water use (Denver Post, February 2003). Club 20, a group of 22 Western Slope municipalities is a strong supporter of greater conservation efforts. They fear that more of the Colorado River Basin will be diverted to the Front Range as a consequence of water shortages (Denver Post, October 2002).

HB 1120- Failed

This bill had three parts: a 1% sales-tax break on water-saving plants & trees, an invalidation of restrictive covenants limiting or forbidding the use of xeriscaping or other water saving landscape, and granting of exceptions to the abandonment doctrine when non use occurs for conservation purposes (Cannon, 2003). Opponents, mainly Republican legislators, said the \$6 million in tax breaks "gives me heartburn" (Rep. Diane Hoppe- R Sterling) and that an invalidation of restrictive covenants would violate property rights. Proponents, including environmental groups, Club 20, and Denver Water, argued that an increased demand for the products qualifying for the tax-break would make up for any lost revenue (Denver Post, January 2003).

SB 87- Failed

Senate Bill 87 was an urban water efficiency bill that would have imposed requirements on municipalities to encourage water conservation. The bill required cities of 15,000 or more to write plans showing how they would conserve 20% of their water over the next 5 years. Such a plan would have to be in place before the city could apply for bonds for new water projects. The bill also would have banned new requirements

from municipalities or homeowners associations that would require thirsty bluegrass or other landscaping that uses a lot of water. It would have limited the amount of turf for new landscaping on a percentage basis and required that new landscaping on medians be irrigated through subsurface means. Opponents of the bill, including many local municipalities, worried it would limit economic development in their areas and allow for Colorado water to flow to other states. "I have a hard time encouraging my people not to use water so (people) in California can fill their pools"- Sen. Jim Isgar D-Hesperus. The Colorado Municipal League also came out against the bill on the ground that the state requirements for local governments were unrealistic and didn't recognize the individual situations of every municipality. Proponents of the bill, which was drafted by LAW, were primarily environmental groups.

HB 1001- Passed

This bill was signed by the governor on April 25, 2003 and has been touted as one of the most effective water bills of this legislative session. HB 1001 allows the state engineer to temporarily transfer water rights in certain circumstances, prohibits new homeowner association rules from requiring thirsty landscaping, and has the Colorado Water Resources and Power Development Authority subsidizing the cost of issuing bond for new projects (Denver Post, 2003).

Federal Response to Drought

As a response to the ongoing drought and rising population in the South-Western U.S., the federal government has undertaken the Western Water Initiative, a project lead by Interior Secretary Gale Norton to increase water availability. The project is unique from similar past initiatives in that it plans to push water conservation before looking at new water projects. Increased water efficiency will come from such measures as lining canals to keep water from soaking into the ground, controlling flows with remote control head gates and trading water rights through water banks. The program will put about \$7 million into pilot projects in areas that are showing water shortages. An additional \$3 million will go into research on desalinization of seawater. A long-range study of potential crisis points where growth or endangered species could trigger water shortages is covered by the plan (Denver Post, February 2003).

The Water 2025 Initiative has been holding conferences across the west this summer to discuss water strategies in light of a growing population. Norton, a former Colorado Attorney General, said that expanding existing storage facilities is the first priority while at the same time reassuring people that more dams will only come about through local planning efforts. President Bush's budget seeks an initial investment of \$11 million for improving existing storage, research, conservation and other initiatives (Denver Post, May 2003).

The federal initiatives are fairly new and as of yet specific projects are largely undefined. Research into desalinization plants has received the most opposition, being attacked by environmental groups as too energy intensive to be cost effective (Denver Post, May 2003). Depending on its exact structure, water banking may also become controversial as agriculture's protectors want to ensure that farmers do not lose water rights.