



# New Mexico Legislative Council Service

## INFORMATION BULLETIN

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### DROUGHT AND WATER CONSERVATION

#### SUMMARY

New Mexico is in a drought. Last winter was the driest in Santa Fe and Albuquerque since 1892, when record keeping began. Statewide, New Mexico had one of the driest seasons on record, with Santa Rosa, Alamogordo, Roswell, Las Cruces, Los Alamos and Taos all recording their driest winters in decades.

This Information Bulletin summarizes drought conditions, water policy issues and water conservation ideas.

#### DROUGHT

Only 0.28 of an inch of precipitation fell from November 2005 through March 2006 in Albuquerque. The United States Forest Service had closed the Lincoln National Forest and there had been partial closures in other forests in northern New Mexico as well as open-fire restrictions in the early spring of 2006. The fuel-moisture content was between seven and 10 percent in early March. Readings below 10 percent are commensurate with catastrophic wildfires. Likewise, water levels are low. The National Weather Service predicts that flows in the Rio Grande will be 35 percent of normal this summer.

The last drought in New Mexico that was this extensive and severe was the drought lasting from 1898 to 1904. Drought on this scale can result in a nightmarish wildfire season and increasing pressure for water conservation and enhancement programs.

#### WESTERN WATER LAW

Water law in western states is based on the doctrine of "prior appropriation". This means the person who used it first has the first claim on available water. A water "right" can be sold or

transferred as property. Explicit in the vernacular definition of a water right is "use". In fact, the New Mexico constitution states that "[ ]Beneficial use[ ]" shall be the basis, the measure and the limit of the right to the use of water" (Article 16, Section 3), and Section 72-5-28 NMSA 1978 provides that a water rights holder can lose the water right through "forfeiture" if that water right has not been used within a four-year period.

Beneficial use is not a defined term in the constitution or in New Mexico statute, but it has been generally characterized by court decisions to include irrigation, domestic, commercial and industrial use. There has been little room in this term for "conservation" or, in effect, nonuse; although an Attorney General's Opinion issued in 1998 did say that New Mexico law permits the state engineer to afford legal protection for in-stream flows in certain instances. Similarly, Section 72-5-28 NMSA 1978 provides for nonuse of water rights that are covered by a conservation plan approved by the state engineer. Some arid states have defined "beneficial use" in their statutes, but those definitions are not dissimilar to New Mexico's definition of beneficial use.

A fundamental challenge for policymakers in crafting a water conservation policy is the very definition of "water conservation". The term has different meanings for different political constituencies. Historically, conservation of water throughout the arid West meant storage or impoundment of surface water during the runoff season for distribution through ditches and canals for farm "use" during the growing season. Hence, many irrigation authorities in the West were named "conservancy districts".

Other constituencies such as environmental, recreation and sustainable agriculture proponents view water conservation quite differently from what was understood when most water law was enacted. Conservation to these constituencies means preserving the rivers and stream sources, i.e., leaving the water in the streams and rivers for watershed health, water quality, wildlife habitat, endangered species, recreation and simply the benefit of scenic and ecological values of the natural landscape.

### **WATER USE EFFICIENCY**

Some groups initially suggested minimum in-stream flow requirements to maintain "natural" and "in-stream" benefits. This was a very controversial proposal when it was introduced in New Mexico, subsequently failing in committee. Another term, "water use efficiency", has been used consequently to bring contrasting constituencies closer to consensus. When the debate shifted from whether or not to use water to how water can be delivered more efficiently and for less long-term cost and energy consumption, common ground was revealed. For example, evaporation is estimated to be nearly one-tenth of the state's total withdrawals from stream sources. This is costly and negatively impacts in-stream benefits and delivery of water for interstate river compact compliance. Some advocates argue the need to change storage protocols to reduce evaporation. Current technology and law may limit these options, but future improvements in both need to be explored. Although the solution to evaporative losses may be some years down the road and rely on more scientific research, in the meantime, significant water savings could be found by changes in the way water is stored, transported and used now.

### **LEGISLATIVE HISTORY OF WATER CONSERVATION**

In 1985, the legislature recognized that the promotion of the public welfare and conservation of water would be served by providing public water users (municipalities, counties, state universities, member-owned community water systems, special water users'

associations and public utilities supplying water to municipalities or counties) with a 40-year planning period in which they would not be subject to the forfeiture clause for nonuse (see Section 72-1-9 NMSA 1978). The legislature also enacted a measure in 1985 that established standards for approval or denial of an application for water rights appropriation if the water withdrawal is "not contrary to the conservation of water . . . and is not detrimental to the public welfare".

In 2003, Senate Bill 128 was enacted that amended Section 72-5-18 NMSA 1978 to insert the provision that "Improved irrigation methods resulting in the conservation of water shall not affect an owner's water rights.". This removed the legal "use it or lose it" obstacle to agricultural producers' implementation of irrigation efficiencies, but the initial costs of efficient water delivery technologies remain an obstacle.

In 2003, House Bill 114 amended the Water Quality Act, Chapter 74, Article 6 NMSA 1978, by adding a gray water definition and by adding a subsection allowing gray water use of less than 250 gallons per day for private residential gardening, composting or landscape irrigation. The bill established conditions for homeowners to conserve potable water by reuse of gray water for gardening and landscaping activities. The state engineer reports that 30 to 50 percent of household water usage is for outdoor landscaping. The state engineer and the Department of Environment published a manual on the proper installation of gray water systems.

In 2003, the legislature authorized the development of a state water plan by the Interstate Stream Commission, in consultation with the state engineer and the Water Trust Board. Conservation and drought mitigation provisions are required, including the development of water conservation strategies and policies to maximize the beneficial use of water, the reuse and recycling of water resources, a drought management plan designed to address drought emergencies, promotion of strategies for prevention of drought-related emergencies in the future and coordination of drought planning statewide. In addition, the Water Project Finance Act was also amended to

require that the Water Trust Board prioritize projects for funding in accordance with the state water plan.

Also enacted in 2003 were provisions encouraging municipalities, counties and other water conveyors, such as mutual domestic water consumers' associations, to develop comprehensive water conservation and drought management plans (see Section 72-14-3.1 NMSA 1978). The plans may be submitted to the state engineer and must be consistent with regional water plans and accompanied by a program for implementation. Beginning this year, loan and grant applications to the New Mexico Finance Authority or Water Trust Board for water projects must be accompanied by a copy of the water conservation plan before an applicant is eligible to receive a loan or grant.

House Bill 195, enacted in the 2005 session, established the Strategic Water Reserve to allow the Interstate Stream Commission to acquire water rights to "assist the state in complying with interstate stream compacts and court decrees or assist the state and water users in water management efforts for the benefit of threatened or endangered species or in a program intended to avoid additional listings of species" (see Section 72-14-3.3 NMSA 1978).

### RECENT PROPOSALS

Recently, bills have been introduced and other proposals have been made to enhance conservation purposes. We may anticipate similar bills in the future that propose to revise subdivision laws or the tax code to provide for:

- drip irrigation in gardens and on farms;
- xeriscape landscaping and elimination of water-intensive vegetation;
- water retention architecture and landscape design, and features such as low-flow plumbing and appliances and water-harvesting roofs;
- installation of water-efficient technologies for large turf areas, including golf courses and other sports facilities;
- fees, taxes or surcharges on water use or water rights transfers;
- metering of all water users and water use monitoring by the state engineer;

- watershed and riparian restoration to remove introduced species that consume more water than native vegetation and to reduce wildfire hazards;
- water-enhancing strategies such as cloud seeding and recycling storm water runoff;
- ground water injection for storage in aquifers rather than in surface reservoirs subject to evaporative losses;
- renovation and reconstruction of irrigation and water utility delivery systems to improve efficiencies;
- creative management such as storage in higher elevation reservoirs rather than downstream to reduce evaporative losses and better timing of releases to optimize river compact delivery obligations;
- creative landscaping to cool urban landscapes to reduce energy and water consumption by compressed air conditioners and evaporative coolers; and
- water conservation plans for new power generation plants.

### TOOLS FOR WATER CONSERVATION

Tools for water conservation include: regulatory programs, progressive rate structures and infrastructure improvements for more efficient water delivery. The most common form of water conservation policy is municipal lawn watering schedules. Cities have various other programs to encourage residents to reduce water use, the aim of which are to spread the demand over time and limit outdoor watering to the evening or morning hours when evaporation and waste are less. Cities may also undertake buyout programs for replacement of old water-wasting toilets or other appliances and fixtures. The efficacy of these programs can be easily quantified, since the municipal water utilities bear the immediate cost of implementation as well as the cost savings of reduced water use and potential loss of revenue.

## FISCAL IMPACTS COST/BENEFITS ANALYSES

One of the key issues for water conservation is its cost-benefit ratio. Supporters of bills that would provide for tax incentives have to overcome the fiscal impact of the loss of revenue. Analysts assert that the state will take an immediate hit from loss of revenues while the economic benefits of water conservation are more indirect and diffuse over time and among various beneficiaries.

However, the fiscal benefit side has seldom been demonstrated for other kinds of programs, such as cloud seeding or watershed restoration. These benefits need to be quantified and captured in order to rationalize the immediate cost to the state. Developers often oppose mandated water conservation measures in new housing construction because of the added up-front costs associated with regulatory compliance. The Earth Works Institute (EWI), a New Mexico-based nonprofit, is currently undertaking a project to quantify the value of water conservation. This and other efforts are needed to adequately assess each side of the fiscal equation relative to water in order to provide policymakers with information on the full benefits of conservation.

For example, one proposed option for enhancing water supplies during droughts is cloud seeding. Many desert countries and western states are experimenting with cloud seeding technology, and the costs and benefits of cloud seeding may be very favorable, but sufficient data has not been available to "prove" its efficacy. However, it may be a compelling idea when additional stream flow, improved wildlife habitat, reduced irrigation, increased drinking water supplies, aquifer replenishment, wildfire prevention, cooler temperatures, pollution abatement and river compact compliance may result. Cost/benefit data can come in handy to justify such investments. The EWI study and other research may be forthcoming to help document more fully water conservation benefits to the economy and, thus, the state's revenues.

## CONCLUSION

Water conservation is common sense in the desert. Paying the actual cost of water would also seem sensible, but water has been an inexpensive commodity in the past and human habits change slowly and with resistance. Hauling water to thirsty residents should be a last emergency resort and perhaps is the most expensive policy option, both economically and politically. Government response to a drought of intense proportions is imperative, although the political consequences of such a response may be extreme. Deliberation and development of water conservation measures now, before the real crisis emerges, is the primary imperative.

### FURTHER INFORMATION

- Office of the State Engineer, Water Use and Conservation Bureau, (505) 827-6121, [http://www.ose.state.nm.us/conservation\\_index.html](http://www.ose.state.nm.us/conservation_index.html).
- Water Resources Research Institute, New Mexico State University, (505) 646-4337, <http://wri.nmsu.edu/>.
- Bureau of Geology and Mineral Resources, New Mexico Institute of Mining and Technology, (505) 835-5420, <http://geoinfo.nmt.edu/>.
- City of Santa Fe Water Conservation Program, (505) 955-4225, <http://www.santafenm.gov/waterwise/index.asp>.
- Albuquerque water conservation program, (505) 768-3655, <http://www.cabq.gov/waterconservation/index.html>.
- New Mexico Water Conservation Alliance, <http://wri.nmsu.edu/wrdis/nmwca/alliance.html>.
- Natural Resources Conservation Service, <http://www.nm.nrcs.usda.gov/>.
- Xeriscape Council of New Mexico, <http://www.xeriscapenm.com/>.
- Earth Works Institute, (505) 982-9806, <http://www.earthworksinstitute.org/>.

This Information Bulletin does not represent a policy statement of the Legislative Council Service or its staff. It was prepared by Gordon Meeks, Jr. For more information, contact the Legislative Council Service at (505) 986-4600.

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