



# COOPERATIVE EXTENSION

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**Fact Sheet-05-19**

## **Public Policies Affecting Water Use in Nevada Water Issues Education Series – No. 1**

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### ***Introduction***

Nevada is the seventh largest state in size with more than 110,000 square miles of land area. Nevada is also the driest state in the nation. The fastest growing area of the state, southern Nevada, only gets 4 inches average annual precipitation. Over 68 percent of Nevada's population lives in Clark County in southern Nevada. Approximately 20 percent of the state's population resides in northern Nevada in the communities of Reno, Carson City and Lake Tahoe. To complicate these demographics further, the vast majority of Nevada (87%) is controlled by the federal government.

Water scarcity is one of the most pressing issues facing the American West. Agriculture, cities, towns and industry are the primary water users. There are more conflicts over water than ever before in the American West. More frequently, these conflicts involve litigation.

There are several competing uses for water in Nevada. These include the use of water to:

- Irrigate crops, including hay, onions, garlic, melons, potatoes, grapes and other vegetables.
- Water livestock, including horses, dairy cattle, beef cattle and sheep.
- Sustain habitat to support wildlife including fish, birds, deer, wild horses, and other wildlife.
- Supply water recreation opportunities such as fishing, swimming and boating.
- Supply other recreation including parks and golf courses.

This fact sheet describes demographic trends in Nevada in light of its history as a leader in water resource development in the western U.S. Population growth and changing attitudes towards water resources in addition to shifts in federal policy create an unprecedented period of conflict and change surrounding water. This is particularly the case for rural Nevadans including farmers and ranchers.

## **Population Growth and Changing Attitudes Towards Water Resources**

Population in the U.S. has increased dramatically since its settlement 400 years ago. The current U.S. population is estimated at 287 million and is expected to increase to 414 million by 2050 (2002).

Nevada is the fastest growing state in the U.S. with a population of nearly 2 million. The majority of Nevadans live in urban areas including Las Vegas, Reno and Carson City. Rural areas located near these urban centers are growing rapidly, providing open space needed for residential, industrial and commercial development that accompanies rapid population growth.

The availability of water resources to meet the demands of increasing population is a question in the minds of many Nevadans, both natives and newcomers. Nevada remains the driest state in the U.S. and the majority of its water resources are legally bound to its traditional use on agricultural lands.

The agriculture sector accounts for about 78 percent of water use statewide in Nevada. And, statewide, commerce and domestic uses claim 13 percent, 7 percent is used for mining, 1 percent for producing power and less than 1 percent for industry. These figures contrast dramatically with southern Nevada, however, where residential uses account for approximately 60 percent, with 8 percent for irrigation of golf courses, schools, parks and other large green areas, 8 percent for hotels and 10 percent for commerce and fire protection.

Current economic growth in Nevada, however, does not rely on agriculture, in spite of the fact that agriculture remains vital to the economic health of its rural communities. And, plentiful water supplies are needed to support continued population and economic growth. Farmers and ranchers in particular are concerned that water resources may be

arbitrarily reallocated if the pressure to support growth in urban areas surpasses the state's history of supporting irrigated agriculture.

### **Federal Policies Affecting Water Use**

Early in the history of the U.S., Federal policies were established specifically for the purpose of motivating pioneer settlement westward. Between 1862 and 1902, the U.S. enacted several important policies to attract people to expansive, arid western territories.

In 1862, for example, President Lincoln signed the Homestead Act. Since farming was the most common livelihood for settlers at this time, this policy granted 160 acres of land to individuals if they could farm it for at least 14 months. Coincidentally, in 1862, the Pacific Railroad Act was enacted and subsidized development of a railway and telegraph system from Missouri to the Pacific Ocean. Railroad investors were granted every other square mile of land per 20 miles on each side of a railroad which spawned settlements along railroads.

In 1862, to stimulate advances in the agricultural industry, the Morrill Land Grant Act donated land to states and territories to establish agricultural and mechanical engineering colleges. The Smith-Lever Act (1914) later provided for the creation of the Cooperative Extension System to educate farm families about agriculture and consumer sciences in order to improve the quality of life for rural Americans, which comprised the majority of the national population.

Perhaps one of the most significant Federal policies impacting the arid west was the Desert Land Entry Act (1877) which gave 640 acres of desert land to any man who could irrigate it and produce crops. To further stimulate the development of irrigated agriculture, this was later reduced to 320 acres.

In spite of Federal policies to motivate settlement of the west, when the mining boom ended in the early 1880s, many settlers left as quickly as they had come. Farmers

encountered difficult soils, a dry climate with extreme temperatures and a short growing season. During this period, Nevada's population declined significantly. As a result the Federal government enacted the National Reclamation Act and created the Bureau of Reclamation to oversee activities to assist farmers and motivate development of an agricultural industry in the west. In 1902, the Federal government built the first assisted irrigation project in the history of the U.S. in Nevada. First called the Truckee-Carson Irrigation Project, Derby Dam diverted Truckee River water from its natural flow to Pyramid Lake through the man-made Truckee Canal to flow into the Carson River at Lahontan Reservoir. Later, this project was called the Newland Project in honor of Nevada Democratic Senator Francis Newlands who spearheaded reclamation policy.

The Newlands Project became a famous example of irrigated agriculture in the western U.S. It prioritized farming as the primary water use on the Truckee and Carson Rivers and created a water use model for agricultural water use in watersheds across the west. The National Reclamation Act and resulting projects increased the numbers of settlers moving to Nevada and other western states to file claims for land and water rights necessary to farm. More settlers began diverting water from the Truckee and Carson Rivers to irrigate cropland and water livestock. In addition, Reclamation projects were constructed along the Humboldt River in Nevada, creating Rye Patch Reservoir and providing water to irrigate and settle the areas surrounding Winnemucca and Lovelock, Nevada.

In addition to Nevada's steady population growth, Federal legislation enacted over the last 50 years has influenced public perception of appropriate water usage. Although water pollution policies were originated in the U.S. as early as the 1930s, they were not enforced nor were mechanisms in place to support and enforce policies. A growing environmental awareness and supportive sociopolitical

movement in the 1960s inspired the creation of several Federal policies, including the:

- Wilderness Act (1964),
- Wild and Scenic River Act (1968),
- National Environmental Protection Act (1969),
- Federal Water Pollution Control Act (1972) (Clean Water Act),
- Endangered Species Act (1973),
- Safe Water Drinking Act (1974) and Federal Land Policy Management Act (1976).

Increasing environmental awareness and subsequent Federal policies have further shaped attitude changes toward water usage. Rather than valuing water as an input for agricultural production, water has become valued for drinking, recreation and wildlife habitat. Meanwhile, the number of farmers and farms has decreased steadily in the U.S. while the size of farms has increased. In Nevada, as in many other states, crops and livestock are produced on consolidated farming units and absentee-owned ranches.

## **Water Rights**

A water right is the legal right to use a given amount of water for a specific purpose. A water right is the right to use water but not own the water itself. The "beneficial use" of the water right legitimizes a property right but only the property right is saleable. Thus beneficial use of water is a central premise to ownership of a water right.

In Nevada, as in other arid western states, the Doctrine of Prior Appropriation regulates water use indicating an early recognition of water scarcity. The Doctrine of Prior Appropriations resulted partly from land and water granted to settlers by the King of Spain and later by the Mexican government in the early 1800s.

The Doctrine of Prior Appropriation is based on the concept of water use by order of

seniority that is “first in time is first in right” or the first party to use available water has senior rights to continue using the water. The concept of “beneficial use” was also established coincidentally to require water right users to prove a beneficial use for their water right in order to retain it. From the 1800s through the mid-1900s, agriculture, mining and timber were prioritized as beneficial uses for water resources.

Contemporary attitudes towards water use include strong differences of opinion regarding beneficial use. Obviously, farmers and ranchers need to continue a level of consumptive use to adequately irrigate crops and water livestock. However, steady population growth in Nevada and in most western states, may influence this traditional view of beneficial use, particularly in light of the fact that the majority of Americans are unfamiliar with agriculture and agricultural practices. Many environmental interest groups demand water for the protection of fish and wildlife species throughout the American west, in addition to improved water quality for human usage. Irrigated agriculture is increasingly questioned as a beneficial use of scarce water supplies. Similarly, farmers and ranchers question the protection and conservation of wildlife species and habitat as a beneficial use of scarce water resources.

## **Conclusions**

Water scarcity and water quality will become critical issues in the future. Since the early development of the U.S., federal policies have been designed to motivate development based on water, emphasizing agriculture, mining and timber primarily. Demographic trends and sociopolitical shifts in the last 50 years suggest changes in attitudes toward water use.

Unprecedented urban growth in Nevada forces its farmers and ranchers to consider water conservation and water quality improvement strategies despite water rights

protected under the Prior Appropriation Doctrine. Nevada’s already scarce water supplies are likely to suffer heavier demands and competing uses. Increasing demands for quality water resources challenge all Nevadans to take a hard look at resource allocation decisions.

Strategic planning of water use will be a necessity in order to supply homes, commerce and agricultural industries. Conservation efforts, in consort with water quality management efforts, will be needed to balance water demands. Efforts include adherence to federal and state laws to improve water quality, development of water markets and collaborative negotiated agreements. Demands for water as well as plans for allocating water are subject to change based on population trends, economic growth and variations in climate. This element of unpredictability requires a portfolio approach to water planning that includes a diverse set of conservation strategies and flexible, cooperative approaches.

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