The Fight Over the Colorado River: How Nevada's Water Conservation Policies Can Inform Basin-Wide Management Efforts

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Course Information

This paper was originally written for Will Niver's REM 356W Environmental Policy course. The assignment asked students to choose from a list of environmental policy issues and write a 2000-to-2500-word paper on a current topic within the selected issue. The selected issue for this paper was "Fight over the Colorado River". The paper uses APA7 citation style.

Abstract

This paper examines what other states in the Colorado River Basin can learn from Nevada's water conservation efforts and policies to improve the overall conservation of the Colorado River and strengthen water allocations by analyzing Nevada's water conservation efforts compared to other states in the Basin. The state of Nevada has been a leader in water conservation for decades despite having the smallest water allocation in the Colorado River basin. Nevada continues to surpass expectations with its comprehensive water conservation plan while the other six states in the Basin that lack similar plans could learn a lot from Nevada and use Nevada's efforts as a baseline for future conservation strategy. Nevada has paved the way for the future of the Colorado River by covering all types of water use in policies and efforts, using a range of policy mechanisms, and utilizing stakeholder input during policy creation. With the last Basin guidelines published in 2007 and set to expire in 2026, there is a huge opportunity now to design a more adaptive and Basin-wide plan that incorporates climate science, equitable water distribution, and the voices of all affected community members.

Article

The Colorado River is one of the most critical water resources in the Western United States and it is drying up. Additionally, in just two years, the reservoir and water management decisional documents and agreements that govern the Colorado River facility operations

and management of the Colorado River are scheduled to expire. Despite being the state with the smallest water allocation in the Colorado River Basin, Nevada has historically been the most water efficient out of these states. Southern Nevada has been severely affected by severe water shortages; affecting agriculture, local biodiversity, and urban water supplies. This has led Nevada to be extremely proactive about water conservation in both its statewide and regional policies and guidelines. While Nevada has made significant progress in water conservation, other states in the Colorado River Basin have failed to meet the same standards, putting Nevada's efforts in a precarious position. Other states in the Colorado River Basin can improve their water conservation efforts and policies by learning from Nevada's water conservation efforts and policies as Nevada is the most water-efficient state in the Basin.

Like many major cities in the southwestern United States, Las Vegas, Nevada experienced a significant population boom in the early 2000's that came with a large wave of new home construction that needed water-efficiency guidelines. This population boom has continued to grow and now Southern Nevada–which encompasses Las Vegas, Henderson and other towns–relies on the Colorado River to meet 90% of its water supply needs (Pellegrino, 2022). Southern Nevada Water Authority's (SNWA) Water Smart Home program was launched in 2005 in partnership with the Southern Nevada Home Builders Association (SNHBA). The program certified new homes and neighborhoods as "water smart" in an effort to help homeowners purchasing a house understand that they could save up to 75,000 gallons of water per year with this certification. A new home would meet this certification through water-efficient appliances like toilets, fixtures and builder-installed water efficient landscaping (SNWA, 2006). In a research study done by the American Water Works Association (AWWA), Water Smart Homes used an average of 94,000 gallons per year (gpy) and saved approximately 90,000 gpy compared to pre-2003 built houses in Southern Nevada. One of the reasons this program was so successful was due to SNWA's high efficiency toilets rebate that incentivized builders as there were minimal participation costs for the program. Nevada was ahead of its time with the Water Smart Home program, running it successfully for 15 years until its termination in 2020. During the period that this program ran, nearly 17,000 homes were built with this certification and over 14 billion gallons of water were saved in Southern Nevada (SNWA, 2024).

In 2019, the Nevada Legislature passed Assembly Bill 163 (AB 163) during its 80th session which required all new single-family residential construction after January 1, 2020 to include toilets, showers/baths, faucets and urinals that have been certified under the WaterSense program. Although this bill led to the termination of SNWA's Water Smart Home program, it would not have been possible without the foundation that the program laid (Schien et al., 2022). This bill builds off of the existing national WaterSense program from the United States Environmental Protection Agency (EPA), a voluntary partnership program established in 2006 that is an identifiable certification for water-efficient products (EPA, 2024). AB 163 was passed in conjunction with the deployment of Version 2 of the nationwide WaterSense-labeled homes program from the EPA and has been a new chapter in water conservation for the State of Nevada. During the 2020 pilot study of Version 2, WaterSense-labeled homes used a median of 44,000 gpy and an average of 53,000 gpy. These results proved to be positive and showed extremely low water consumption for the area. Over 500 homes in Southern Nevada were given the WaterSense label during the nine-month long pilot study (Schien et al., 2022).

For commercial and multifamily property owners, SNWA has the Water Efficient Technologies (WET) program which offers financial incentives to install water- efficient devices and technologies. SNWA states that since the program's inception in 2001, over 24 billion gallons of water have been saved through this program. WET offers property owners an extensive list of SNWA-approved water-saving technologies that have corresponding savings and defined monetary incentives. Similar to the Water Smart Home program and AB 163, some of these water-saving technologies include toilet, urinal, and showerhead retrofits. This program also includes converting sports fields from grass to artificial turf and cooling tower retrofits (SNWA, 2024). These technologies are further classified under consumptive or non-consumptive technologies to determine the one-time payment per year financial incentive paid to the property owner. Property owners can receive up to $50,000 USD in rebates per year from this program. In 2021, WET Program participants completed 52 projects and saved an estimated 197 million gallons of water (Pellegrino, 2022). This type of program is impactful in water conservation because, like the Water Smart Home program, it offers a financial incentive that makes these changes a minimal cost to commercial property owners and developers. This kind of incentive has proven to be very successful compared to other types of policy outlets.

For contractors, SNWA offers the Water Smart Contractor program. This program requires contractors to complete at least eight hours of water-efficiency training provided by SNWA and maintain good standing with the Nevada State Contractors Board (SNWA, 2006). The two classifications that SNWA offers for this program are Water Smart Landscapers and Water Smart Plumbers. Both of these classifications are offered at no cost to the contractors and are also available to companies in the form of company-wide workshops. Additionally, Water Smart Contractors are required to complete additional training each year to maintain their Water Smart status. Landscapers and plumbers are vital to Colorado River Basin water conservation efforts. Plumbers install and maintain the Water Smart technologies discussed earlier as well as find and fix leaks on both the residential and commercial scale, potentially saving gallons and gallons of water with each installation. Landscapers install desert landscaping that replaces nonfunctional grass with rocks, sand, and drought-resistant plants like succulents and cacti to alleviate water usage. By training contractors in water efficiency, this better prepares contractors to act in response to future policies and guidelines as well as advocate for water-efficient technologies in the community.

In 2021, the Nevada Legislature passed Assembly Bill 356 (AB 356) Replacing Useless Grass Law. Starting January 1, 2027, the use of Colorado River water as delivered by SNWA member agencies to irrigate nonfunctional grass is prohibited (SNWA, 2024). This law applies to all Southern Nevada commercial, multifamily, government, and other types of properties, but does not include single-family property front yards and backyards. The goal of this law is to majorly cut back on grass use in Southern Nevada and, in turn, reduce water consumption from the Colorado River. Colby Pellegrino, Deputy General Manager of Resources for SNWA, stated, “Grass is the highest consumptive use of water in [Southern Nevada]. Getting out this turf helps lower your water bill, but it also helps our community have a more sustainable watershed,” (Williams, 2024). With grass seen as a necessity by many people, enacting a law to take away an already small amount of grass could be seen as a negative action compared to voluntary and financial incentives. The State of Nevada helped to counteract this by creating a Nonfunctional Turf Removal Advisory Committee in conjunction with SNWA to gather community member input and recommendations on how to define what is and is not nonfunctional grass. The members of this committee ranged from business owners to environmental organizations to local government officials to citizens simply concerned about the matter (SNWA, 2021).

In order to help address the need for nonfunctional grass to be replaced by the end of 2026, SNWA has made sure to push their Water Smart Landscapes Rebate program. Since the inception of this program, 232 million square feet of lawns have been converted and SNWA issued about $345 million in rebates. Annually, nearly 13 billion gallons of water are saved which is equivalent to 55 gallons of water for every square foot of grass removed. Although first launched in 1999, there was not as much pressure on the community to remove nonfunctional grass until AB 356 was passed. Due to this bill, SNWA was provided with $24 million in funding from the American Rescue Plan Act to continue the program (Williams, 2024). In 2024, the current rebate rate sits at $5 per square foot of grass removed for the initial 10,000 square feet with an additional $3.50 thereafter. With this initiative targeted at single-family homeowners, the participation from this group has outpaced where SNWA projected participation to be according to Pellegrino. The rebate rate for nonfunctional grass will decrease from $3 per square foot to $2 per square foot for business, apartment, and homeowner associations (HOA) which AB 356 is directed at. In addition to the rebates, SNWA also provides an educational resource library to those converting their lawns in order to ensure successful transitions from grass to turf (SNWA, 2024).

With the most comprehensive water conservation plan in the United States, there is a lot for other states in the Colorado River Basin to learn from Nevada. Other states in the Basin include Wyoming, Colorado, Utah, New Mexico, Arizona, and California. Despite six other states not only sharing a role in conserving the Colorado River but also housing significantly larger allocations of the river's water compared to Nevada, these states still lack fundamental and comprehensive water conservation policies needed to sustain life in the Basin. Most of these states only promote good water conservation practices or focus on one effort at a time. With the current Basin guidelines set to expire in 2026, now is an optimal time for these states to look at Nevada's policies and efforts to improve their new conservation plans.

Nevada excels in three areas in their strategy: all types of water use is covered by policies and efforts, a range of policy outlets are used, and all implementations are vetted through community input. Nevada's efforts are comprehensive in that there is a policy, program, or guideline for almost every use of water in Southern Nevada. In addition to water-efficient

landscaping and technologies discussed earlier, Nevada also has guidelines for pools, evaporative cooling systems, waste water, vehicle washing, surface washing, fountains and water features, misting systems, and golf courses as well as personal education tools for citizens to learn more about their own water use and how to reduce it. With much of the southwestern US living in warmer climates, guidelines for pools, cooling systems, and misting systems are necessary as temperatures continue to rise and a balance of water use in the summer months is needed. Nevada also has a strength in providing a variety of policy mechanisms for its water conservation strategy. The strategy effectively includes all four policy mechanisms (voluntary mechanisms, government expenditure, regulation, and financial incentives) in a way that gives community members, property owners, and developers a variety of ways to reduce water usage across sectors that have the most impact. Nevada also does a better job at including multiple stakeholders in the water conservation process. The state has successfully included community member input on laws that will have significant impact on the community to ensure the law is rolled out correctly. An example of this is the committee formed to provide recommendations for AB 356 once it was signed into law. An area, however, that Nevada and all states in the Basin can improve on is water conservation and relations with local Indigenous groups that have been reliant on the Colorado River for thousands of years. There is currently little to no involvement of the Southern Paiute Tribe in water rights and conservation efforts in Southern Nevada. Indigenous knowledge is needed to truly advance water conservation and protect the Colorado River for generations to come.

The state of Nevada has been a leader in water conservation for decades. Despite having the smallest water allocation in the Colorado River basin, Nevada continues to surpass expectations with its comprehensive water conservation plan. The other six states in the Basin that lack similar plans could learn a lot from Nevada and use Nevada's efforts as a baseline for future conservation strategy. Covering all types of water use in policies and efforts, using a range of policy mechanisms, and utilizing stakeholder input during policy creation are all exemplary ways that Nevada paves the way for the future of the Colorado River. With the last Basin guidelines published in 2007 and set to expire in 2026, there is a huge opportunity now to design a more adaptive and Basin-wide plan that incorporates climate science, equitable water distribution, and the voices of all affected community members, including over 20 Basin Tribes whose water rights have historically been overlooked in this process. The decisions made for post- 2026 operations in the Colorado

River could set a precedent for how the United States navigates resource scarcity in the age of climate change.

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