Still Waters Run Deep: Water Usage in New Mexico

Samantha Stroud, December 2020
Senior Undergraduate, B.A., Geography, University of New Mexico

UNM Grand Challenges:
Sustainable Water Resources

1) Introduction

Water is an important resource everywhere, but it is even more precious in desert climates like New Mexico, which gets around 9 - 23 in. of precipitation per year. This poster condenses the water usage information in the NM Office of the State Engineer's 2015 report[1] on water withdrawals to provide a broad answer to the question: Where is NM's water going?

Quick Facts:

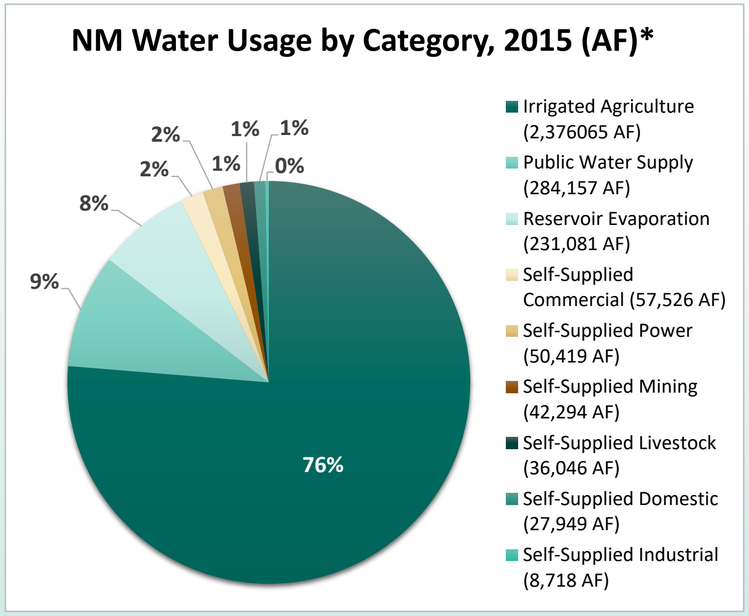
- Over ¾ of New Mexico's water goes toward irrigated agriculture (76%).
- Sprinkler and Flood irrigation are used in about 97% of irrigated acres in New Mexico.
- In the home, toilets use the most water, followed by washing machines & showers.

2) Total Water Usage

In 2015, New Mexico used a total of 3,114,255 acre-feet (AF) of water, with most of the withdrawals being used to irrigate agricultural land.

- Irrigated agriculture (76%) - irrigation of crops grown on farms, ranches, and wildlife refuges
- Public Water Supply (9%) - community water systems with multiple service connections
- Reservoir Evaporation (8%) - the net water lost to evaporation from the exposed surfaces of water stored in reservoirs.

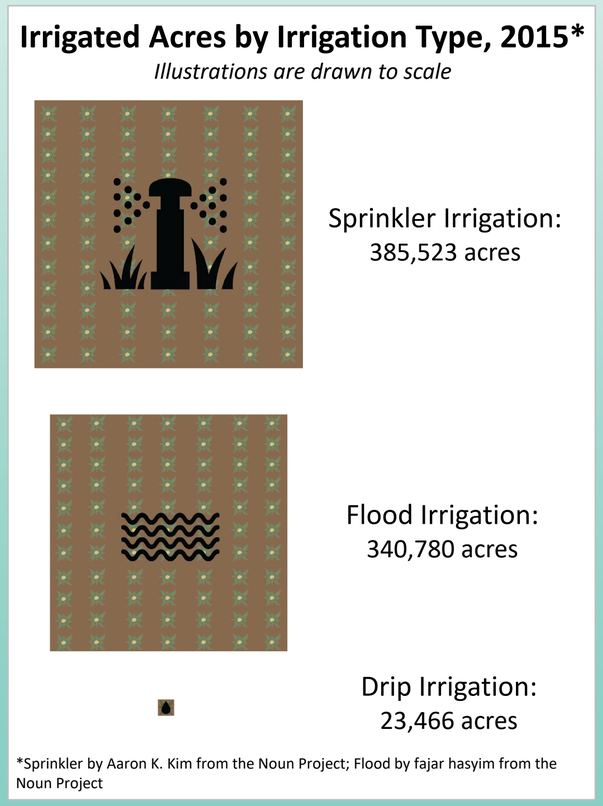
*An acre-foot (AF) of water = 326,000 gallons – or, the amount of water it would take to cover 1 acre of land, 1 ft deep.



3) Water Usage in Irrigation

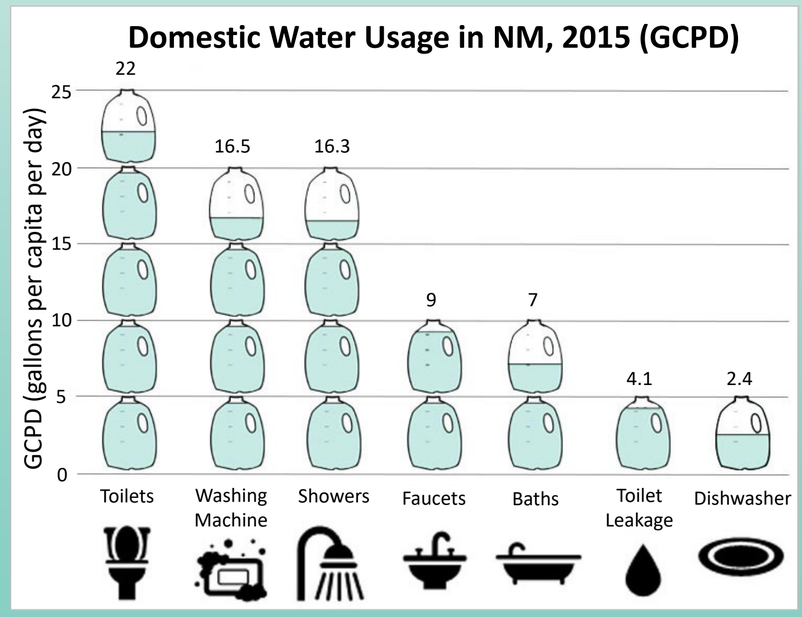
In 2015, New Mexico irrigated an estimated 749,769 acres of land. About half used sprinkler irrigation (51.4%), followed closely by flood irrigation (45.4%), accounting for 96.8% of the total. The remaining 23,466 acres (about 3.1%) used drip irrigation.

- Flooding is considered the least water efficient, as it loses up to 50% of its water to evapotranspiration and runoff[2] but is inexpensive and uses the least amount of energy.
- Sprinkler irrigation is more water efficient, losing 35% or less of its water to wind and evaporation[3].
- Drip irrigation, while more expensive, loses the least water of the three methods.



4) Water Usage at Home

The average New Mexican uses about 77.3 GCPD (gallons per capita per day), with most (28.4%) going towards toilet flushing. The next highest uses are washing machines (21.3%) and showers (21.1%). Household water usage can be reduced by installing water conserving plumbing fixtures & appliances, such as USEPA Water Sense and EPAct fixtures. (Data based on: Self-Supplied Domestic category without water conserving plumbing fixtures & appliances).



REFERENCES:
1. Magnuson, M. L., et al. (2019). New Mexico Water Use By Categories 2015 (Rep. No. 555). Santa Fe, NM: New Mexico Office of the State Engineer.
2. Water Footprint Calculator. (2020, April 28). Why All Farms Don't Use Drip Irrigation.
3. USGS. (2015). Irrigation: Spray or Sprinkler Irrigation.

ACKNOWLEDGEMENT:
I, the author, would like to thank my faculty mentors, Dr. Joni Palmer, Heather Himmelberger, Francine Stinziano for their kind critiques and guidance, and the Environment-Focused Learning Academy (EFLA) and UNM Grand Challenges for funding the creation of this poster.