WATER CONSERVATION DATA JAM DATASET – SANTA FE COUNTY WATER USE

BACKGROUND:

The Water Use and Conservation Bureau of the New Mexico Office of the State Engineer publishes the New Mexico Water Use by Categories Report every five years (https://www.ose.state.nm.us/WUC/wuc_waterUseData.php). The purpose of the report is to make water use data available to the public. Data from the report are used by community planners, legislators, scientists, and individuals. This dataset includes data from the New Mexico Water Use by Categories Reports from the last 20 years (1995-2015).

WATER USE VARIABLES:

- **RESIDENTIAL WATER USE:** This includes all water supplied by community water systems that have common collection, treatment, and distribution facilities to provide water to multiple locations. For example, the City of Santa Fe Water is a major public water supplier in Santa Fe County. Most public water suppliers report the meter records of water use to the NM Office of the State Engineer. It also includes domestic, self-supplied water, which would include single family houses with their own well. The domestic, self-supplied water withdrawals are calculated by multiplying water use per person per day (currently estimated at 80-100 gallons, depending on the county) by the number of people served by self-supplied water.
    - While we call this "residential use," this public water supply category would also capture water supplied by public water suppliers to golf courses, parks, and athletic fields.

- **AGRICULTURAL USE:** This category includes all withdrawals of water for the irrigation of crops grown on farms, ranches, and wildlife refuges. This value is estimated using a multi-step process that includes:
    - Calculating the total acreage of irrigated acreage by crop and by irrigation system (drip, flood, or sprinkler) using a Geographic Information System (GIS) to integrate map layers showing the entire state. Information from agencies like the USDA Farm Service Agency and county extension agents was used to validate the values determined using maps and aerial images.
    - Obtaining temperature and precipitation data from the state.
    - Determining the irrigation season for each crop.
    - Using the information from above to calculate the "weighted consumptive irrigation requirement" for each crop.

- **LIVESTOCK USE:** This category includes water used to raise livestock, maintain livestock facilities, and provide for on-farm processing of poultry and dairy products. These values are estimated using two pieces of information:
    - The number of livestock by species per county – These values come primarily from the New Mexico Department of Agriculture.

o   Water withdrawals – Metered water withdrawals are used when available. When the water use is not metered, these values are estimated using water requirements per animal per day for each livestock species (e.g., 65 gallons per dairy cow per day and 3 gallons per hog per day)

- **COMMERCIAL USE**: This category includes use by self-supplied businesses (e.g. motels, restaurants), schools, hospitals, and self-supplied golf courses. The values are calculated by combining metered withdrawals and estimating non-metered withdrawals based on earlier records.

- **INDUSTRIAL AND MINING USE:** Industrial water use includes businesses that process raw materials or manufacture goods. The industrial category also includes water used for construction of highways and buildings. Mining use includes water used for oil and gas production, quarrying, and milling. The values are calculated by combining metered withdrawals and estimating non-metered withdrawals based on earlier records.

- **POWER USE**: This category includes all self-supplied power generating facilities, including coal-mining operations associated with a power generating facility. The values are calculated by combining metered withdrawals and contacting non-metered facilities.

OTHER VARIABLES INCLUDED IN THE DATASET
- **PRECIPITATION:** Data were collected by the NOAA National Centers for Environmental Information from a network of rain gauges located at a variety of land-based stations across the county. This dataset includes total precipitation from across Santa Fe County.

- **HUMAN POPULATION:** Data were collected by the US Census Bureau for Santa Fe County. A complete population census is conducted every 10 years, and populations are estimated in between.

TABLE 1. WATER USE BY CATEGORIES AND OTHER VARIABLES

Year	Residential Use (AF)	Agricultural Use (AF)	Livestock Use (AF)	Commercial Use (AF)	Industrial and Mining Use (AF)	Power Use (AF)	Precipitation (in.)	Human Population (# of people)
1995	17,746	32,404	334	491	70	2	11.5	116,746
2000	18,356	33,364	299	559	41	0	15.0	129,843
2005	15,839	36,446	131	1,277	44	0	15.4	140,468
2010	15,883	38,511	114	1,692	47	0	15.6	144,528
2015	14,270	21,151	78	1,138	17	0	19.8	148,098

Acre-feet (AF): A unit of volume of water equal to the volume of a sheet of water one acre in size (a bit larger than the size of a football field) and one foot deep.

   1 AF = 325,851 gallons