What's Groundwater Got to Do With Rural Economies and Development? Plenty!

Presentation to the Economic and Rural Development and Policy Committee
August 11, 2025

Maurice Hall, PhD, PE
Senior Advisor, Climate Resilient Water Systems
Environmental Defense Fund

Environmental Defense Fund

1

1

We're here to talk about...

- Groundwater's importance to New Mexico's rural communities and economies
- The upcoming “NM 360 Groundwater Report” from the New Mexico Groundwater Alliance
- Policy and investment recommendations for how to protect this critical resource for current and future generations.

2

2

The Importance of Groundwater for Rural Communities

- Groundwater makes up more than half of the state's total water supply and serves as the sole source of water for residents in 24 of 33 New Mexico counties* (mostly rural counties)*.
- Groundwater provides over 50% of total water for irrigated agriculture statewide but 100% of water in some of the counties with the highest agriculture production particularly in High Plains and Southeast regions of the state*
- As surface water supplies decline due to climate change, groundwater supplies will decline as 1) groundwater demand increases and 2) interconnected surface water recharge declines.
- Lack of appropriate groundwater management has far-reaching impacts, from community wells going dry to interstate compact challenges.

* Valdez et al. (2024) New Mexico Water User by Categories 2020 (Technical Report 56), NMOSE

3

3

Groundwater sustains rural community health and economic viability

1. **Basic household needs –** Groundwater is the **only source of water** for basic family needs outside major river corridors
2. **Agricultural and food systems** – Over 50% of irrigated agriculture depends on groundwater, and the agricultural sector makes up approximately 80% of total NM groundwater use.
3. **Outdoor, tourism, and cultural economies** – Groundwater and surface waters are interconnected, and the health of both will impact our rivers and ecosystems, and the businesses and long-standing cultural practices that have grown around them.
4. **Technology, film, and innovation** – New technologies often come with high water demands.
5. **Federal, military, and border economies** – Already military installations such as Cannon Air Force Base are contending with operational threats due to groundwater depletion and contamination.

Aquifers are infrastructure!

4

4

Building Groundwater Knowledge and Advancing Solutions

- The Groundwater Alliance
  - Focused on focusing attention to the issues and needs for good groundwater management in New Mexico
  - Groundwater policy, science and community engagement experts
  - Meeting since 2023

- The New Mexico Groundwater 360 Report
  - Provide a broad overview of conditions, available tools, possible advancements
  - The "lenses"
    - Science
    - Law and Policy
    - Spotlighting Solutions and Community Experiences
    - Learning from other states experiences
    - Recommendations

5

5

Status and Trajectory of Groundwater in NM

- Dramatically different aquifer types across New Mexico
  - River-connected aquifers
  - Terminal basin aquifers (Mimbres, Estancia, etc.)
  - Isolated (slow to zero recharge) aquifers (High Plains/Ogallala, etc.)
- Groundwater basins across the state are facing **substantial declines** (High Plains, Mimbres, Estancia, Others).
- Climate change and drought are **worsening conditions** and putting more pressure on groundwater resources.
- **Significant gaps in groundwater knowledge** across much of the state hinder robust groundwater management.

Without proactive approaches to groundwater management, persistent drought and increasing temperatures threaten groundwater resources across the state.

6

6

Authorities and Management Tools (Current and Future?)

- Office of the State Engineer (OSE) has basic responsibility and several established tools for Groundwater Management
  - Licensing new water allocations/rights
  - Well construction standards
  - Metering orders (so far in limited cases)
- **Historic management largely reactive** – more proactive actions needed
- **Clear and strong authorities** are essential for proactive management
  - Most success examples **locally-driven**, with state delegation of authority
  - **State backstop** and support
- Many **great tools/approaches available** for proactive groundwater management
  - **Requires empowerment** – authorities, mandate, capacities, resources
  - Success more difficult the longer we wait – **Water Can't Wait**

7

7

Solutions are Emerging in New Mexico...

- **High Plains (Ogallala) Aquifer and the Ogallala Land and Water Conservancy**
  - Based in Curry County, OLWC seeks to conserve the agricultural land and groundwater of the Ogallala Aquifer by developing a voluntary, incentive-based groundwater conservation model that addresses immediate threats while planning for long-term sustainability.
- **Pecos River Valley and the Pecos Valley Artesian Conservation District**
  - Based in Chaves and Eddy Counties, PVACD is a political subdivision that works to conserve the waters of the Pecos Valley by offering low interest water conservation loans, plugging abandoned wells free of charge, and ensuring that wells with a water right are metered
- **Lower Rio Grande Groundwater Conservation Program**
  - Created to address water deliveries to Texas, the LRGGCP's focus is to conserve groundwater through a voluntary grant program designed to financially compensate agricultural irrigators in the Lower Rio Grande region to stop irrigating previously irrigated parcels for 1-2 years.
- **Cañada de Los Alamos Mutual Domestic Water Association**
  - Located in Santa Fe County, the MDWCA engages in proactive planning, community education, and water infrastructure projects to protect their village's strained water resources.

8

8

Lessons Learned in New Mexico and Across the Arid West:

- Science, data, and modelling inform decisions and build trust.
- Governance and investment in support of locally driven solutions helps ensure solutions are durable.
- Holistic basin management goals can incorporate economic, community, and environmental values.
- Integrated, conjunctive* management helps leverage surface-groundwater connections and offers the most resilience.
- Flexible, adaptable management goals help adjust to changing conditions.

*Conjunctive management – management of surface water (streams and rivers) and groundwater in coordination as an interconnected system

9

9

What is Needed from the Legislature: Recommendations

The 2026 Legislative session and beyond

Expand Monitoring and Data Access

- Invest in and encourage/require statewide metering and monitoring

Advance Aquifer Mapping and Modelling

- Build and fund NMBGMR aquifer monitoring and mapping capacity for the long-term

Modernize Groundwater Governance

- Authorize and encourage establishment of resource of local authorities to effectively manage groundwater and resource and support them

Support Local and Tribal Leadership

- Provide technical assistance, capacity-building grants, etc.

Prepare for water resilience in climate change

- Groundwater and long-term water security should be part of all climate adaptation and drought planning.

10

10

Thank you!

Contact:
Maurice Hall, PhD, PE
Senior Advisor, Climate Resilient Water Systems
Environmental Defense Fund
mhall@EDF.org
C 9+1 (US) 916-208-1706

Gretel Follingstad, PhD
Senior Manager, Climate Resilient Water Systems
Environmental Defense Fund
gfollingstad@edf.org
C 505-603-5402 (MT)

Environmental Defense Fund

11

11