**Preliminary Outline for NM Water Dialogue Annual Meeting**

Draft of September 17, 2019

Working theme: **Building the Resilience of New Mexico Communities, Rivers, and Aquifers.**

Definition: **Resilience** is the capacity of an [ecosystem](https://en.wikipedia.org/wiki/Ecosystem) to respond to a perturbation or [disturbance](https://en.wikipedia.org/wiki/Disturbance_(ecology)) by resisting damage and recovering quickly. Such perturbations and disturbances can include [stochastic](https://en.wikipedia.org/wiki/Stochastic) events such as [fires](https://en.wikipedia.org/wiki/Fires), [flooding](https://en.wikipedia.org/wiki/Flooding), [windstorms](https://en.wikipedia.org/wiki/Windstorm), insect population explosions, and human activities such as [deforestation](https://en.wikipedia.org/wiki/Deforestation), fracking of the ground for oil extraction, pesticide sprayed in soil, and the [introduction of exotic](https://en.wikipedia.org/wiki/Introduced_species) plant or animal species. Disturbances of sufficient [magnitude](https://en.wikipedia.org/wiki/Magnitude_(mathematics)) or duration can profoundly affect an ecosystem and may force an ecosystem to reach a [threshold](https://en.wikipedia.org/wiki/Ecological_threshold) beyond which a different [regime](https://en.wikipedia.org/wiki/Regime) of processes and structures predominates. Human activities that adversely affect ecosystem resilience such as [reduction of biodiversity](https://en.wikipedia.org/wiki/Loss_of_biodiversity), over[exploitation of natural resources](https://en.wikipedia.org/wiki/Exploitation_of_natural_resources), [pollution](https://en.wikipedia.org/wiki/Pollution), [land use](https://en.wikipedia.org/wiki/Land_use), and [anthropogenic climate change](https://en.wikipedia.org/wiki/Global_warming) are increasingly causing [regime shifts](https://en.wikipedia.org/wiki/Regime_shift) in ecosystems, often to less desirable and degraded conditions. Interdisciplinary discourse on resilience now includes consideration of the interactions of humans and ecosystems via socio-ecological systems, and the need for shift from the [maximum sustainable yield](https://en.wikipedia.org/wiki/Maximum_sustainable_yield) paradigm to [environmental resource management](https://en.wikipedia.org/wiki/Environmental_resource_management) which aims to build ecological resilience through "resilience analysis, adaptive resource management, and adaptive governance.”

Focal issue: Weather and water are the primary expressions of global climate change. As our climate changes, temperatures rise, droughts and floods become more extreme, and the climate grows more and more arid. These changes include both long-term trends (warming and aridification) and shorter-duration events (drought). In fact, [extreme climate change has already arrived](https://www.washingtonpost.com/graphics/2019/national/climate-environment/climate-change-america/) in the United States, and water scarcity is growing as supplies decline while demands hold steady or rise. The World Resource Institute’s [Aqueduct Water Risk Atlas](https://www.wri.org/aqueduct), released this month (August 2019), reports that the Southwest is the most water-stressed region in the United States.

New Mexico is the only U.S. state in the “extremely high” category, earning the same alarming score (4.26 on a five-point scale) as the United Arab Emirates, which is the 10th most-stressed country in the world. New Mexico’s demand accounts for more than 80 percent of our largely arid state’s annual supply. That leaves 20 percent, but such a narrow margin means that the state may have trouble withstanding an extended drought or an increase in demand from population or industry growth.

In an [Albuquerque Journal story](https://www.abqjournal.com/1352635/report-nm-water-stress-level-extremely-high.html) about the WRI report, newly-appointed Interstate Stream Commission members Stacy Timmons (NM Tech hydrogeologist) and Paula Garcia (NM Acequia Association) said the institute’s findings help raise awareness about water usage and shortages here. “Especially when you consider climate change, the quantity of water needed to grow (crops) and do what we need to do does not match up with our water supply,” Timmons said. Garcia said state water management strategies could benefit from the traditional acequia focus on equitable water distribution during shortages instead of strict implementation of the water rights hierarchy. “In New Mexico, water is life – *el agua es la vida*,” Garcia added. “Our traditions treat water with reverence and gratitude, and that is ingrained in New Mexico culture. Our water policies should reflect that.”

**Preliminary** ideas for topics and speakers

1. **Overview/Keynote Talks**
2. Aridification and Adaptation in New Mexico – David Gutzler, UNM (confirmed)
3. Resilience as a Lens for Governance – Melinda Harm Benson, UNM (confirmed)
4. **Science and planning for resilience**
5. Local water management planning: Acequias, irrigation districts, and municipalities

* *Possible case studies:* 
  + *ABCWUA’s Water 2120: Securing Our Water Future (Katherine Yuhas)*
  + *Santa Fe Water Reuse Feasibility Study (presenter?)*

1. Regional/river basin-scale water management science and planning

* *Possible case studies:* 
  + *Middle Rio Grande Basin Study (Dagmar Llewellyn)*
  + *Rio Chama Flow Optimization Project (Steve Harris)*
  + *Colorado River Basin Water Supply and Demand Study (Carly Jerla)*

1. State water management science and planning

* *Possible case studies:*
  + *Implementation of the NM Water Data Act (Stacy Timmons)*
  + *NM 50-Year Water Plan (Rolf Schmidt-Petersen)*

1. Tribal water management science and planning

* *Possible case studies:* 
  + *Tribal Water Study (Daryl Vigil)*
  + *Navajo Nation Climate Adaptation Plan (Gloria Tom, Jason John?)*

1. **Resilient water management in practice: lessons from the past and innovations in the present**
2. Local case studies: Acequias, irrigation districts, and municipalities

* *Possible case studies:*
* *Elephant Butte Irrigation District Depletion Reduction and Offset Program (Phil King)*
* *Resilience challenges for NM acequias (Paula Garcia)*
* *Grand Valley (CO) Conserved Consumptive Use Pilot Program (Mark Harris, Grand Valley Water Users Association)*

1. Regional/river basin-scale case studies

* *Possible case studies:*
* *Pecos River water transaction program (Hannah Riseley-White)*
* *Upper San Pedro River Basin (AZ), Cochise Conservation and Recharge Network (Holly Richter)*
* *Colorado River System Conservation Pilot Program and Drought Contingency Plan: demand management, extended operations, and augmentation (Rolf Schmidt-Petersen, Dominique Work)*
* *Evaluation of Alternative Strategies to Manage the Colorado River to Meet Water Supply Needs and River Ecosystem Needs – Jack Schmidt, Utah State University Center for the Study of the Colorado River*
* *“Grand Bargain” alternatives for the Colorado River (John Fleck, UNM)*
* *Rio Grande Water Fund: Creating Resilient Ecosystems and Communities in the Upper Rio Grande Basin (Collin Haffey, The Nature Conservancy)*

1. State case studies

* *Possible case studies: Comparative assessment of state water plans (Adrian Oglesby, UNM Utton Center for Transboundary Resources), others?*

1. Tribal case studies

* *Possible case studies:*
  + *NM Tribal Resilience Action Network (Cynthia Naha)*
  + *Ten Tribes Partnership (Daryl Vigil)*
  + *Others?*

1. **Panels** could be developed from any of the topics, and including any of the speakers, listed above.
2. **Closing talk**

* Option A: NM water policy reform in the 2020 legislative session
  + Possible speaker: Rep. Melanie Stansbury (HD-28)
* Option B: NM OSE/ISC: challenges and solutions for resilience
  + Possible speakers: Rolf Schmidt-Petersen, John D’Antonio
* Option C: Global trends: the virtuous cycle of water and prosperity
  + Possible speaker: Sandra Postel, co-founder of National Geographic’s Change the Course and author of *Replenish*, *Rivers for Life*, and other books on water policy and management.
* Option D: Building Resilience in Water Management Systems Across the Americas
  + Possible speaker: Mark Stone, UNM Resilience Institute