Sustainability and resilience for New Mexico's water resources
UNM Grand Challenges
November 27, 2018

Questions to Consider

1. What should our goal be with respect to sustainable water resources? Sustainable and resilient for what or whom?
2. How do we protect both water quantity and quality?
3. What contributions can the university make to answering these questions?
4. What contributions can the university make to supporting solutions to the problems?

NM challenges are economic and cultural, maybe more so than our neighboring states. Framework - technical, economical, social/cultural, behavioral, policy/law, bio/ecological impact.

UNM has lots of faculty who deal in technical solutions. Nano-scopic to microscopic materials solutions to produce water, reduce water evaporation, treat water, and scaling these technologies to the civil engineering level.

Sustainable water management should incorporate policy, economics, and other aspects. There is a natural tension between urban and rural areas and their values.

How do we bring in and engage (community) the NM oil & gas (revenue interest for them), utility companies, business owners, and residents? – state policy person who would advise the governor, ABQ & central NM business development director, PNM new business development director, NM Oil & Gas Association?/NM Oil Conservation Division?

Water need sectors - agricultural land need, drinking/food need, industrial need, etc. are well identified and % numbers on usage vs. economic contribution are known. The water rights and prioritizing them are much more complex- even cultural.

Identify the next funding opportunities - NSF MRSEC (around $5M/yr for life!) - multi-university opportunity. Anything in architecture, civil engineering (ERC?)?

Challenges to smaller communities in dealing with water shortages and declining quality.

A possible grand challenge could be look at barriers to reuse in smaller communities, including technological and economic. Research could include developing lower cost technologies, determining how small communities can pay for these systems, social barriers, etc. The effects of fracking contamination on small systems and wells could also be considered.

Possible goal: Sustainability for both biodiversity and ecology.

Need to understand how water is being used across the state by industry, native peoples, urban populations as well as the protective regulations that have been placed on water resources that have an end effect of limiting supply

Partners at UNM can include the Natural Resources Program, Natural Heritage Program, resource management collaborators, Lobo Gardens

Sustainable for communities that have not been included in the conversation like tribal communities. Incorporate local knowledge and perspectives into trying to meet these challenges. Include community knowledge not just technical experts. Mountain water resources - how will they be impacted by climate change and how do we preserve these resources.

Be sure that we have a specific goal. Use this opportunity to get UNM better connected to the community. Connect with Agriculture

Find a way to connect with agencies and communities who are trying to work on water sustainable

What added value would connecting these communities add to the state of NM?

Indigenous science and engineering planning to incorporate and engage more Native communities and traditional knowledge.

Getting a metric for how incorporate more indigenous communities in our work - how do we quantify. How much does it cost to engage with the community to study a social problem? Need to meet with communities around the state.

Ask people to include environmental impacts - how will their research impact rural and native communities? Define and determine a database to help fill in knowledge. Need to have baseline data for quality and quantity. Identify and meet with communities to determine their challenge.

Aquifers in the state a larger challenge/problem.