Groundwater Policy in the Western U.S.

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Outline

• Groundwater Mining: What is the Policy?
• A global perspective
• New Mexico examples
  – City of Albuquerque
  – Navajo-Gallup
  – Eastern New Mexico
• Rescue Projects
• Governance
source: Center for Environmental Systems Research; found at http://www.worldwatercouncil.org
Water availability as function of climate
Blue Water Consumption on Cropland

CONSUMPTIVE USE AND RENEWABLE WATER SUPPLY, 
BY WATER-RESOURCES REGION

NM Overview:
Climate and Groundwater

• Climate: arid to semi-arid
• Groundwater use:
  – 87% of drinking water
  – Irrigation (esp. alfalfa)
• No charge for use
• Statewide regulation
City of Albuquerque: Setting

- North-central NM
- Underlying Santa Fe Basin Aquifer
- Recharge:
  - Mountain runoff and infiltration
  - Rio Grande River and its tributaries
City of Albuquerque: History

- Pre-European contact: Indian Pueblos
  - Irrigation ditches used as early as A.D. 1000

- 1700s: Spanish settlements
  - Surface water reliance for irrigation and domestic uses
  - Ditches and possibly shallow wells

- WWII: Kirtland AFB and atomic weapons complex
  - Accelerated recent growth
  - Eight-fold population increase since WWII
City of Albuquerque: History

- Growth enabled by groundwater use
- 1875: 1st modern municipal well
- 1950s: several municipal wells went dry
  - Pumping continued on belief that aquifer size was equal to that of Lake Superior
City of Albuquerque:
Early Groundwater Policy

• 1950s – shrinking supply led to:
  – Federal approval to import surface water from another basin
  – Increased rates
  – State and Federal $$ for new diversion

• 1956 – state administrative control:
  – “Declaration” of Rio Grande Basin groundwater
  – Groundwater and surface water believed to be directly linked; needed surface water for downstream compact obligations
City of Albuquerque: Recent Groundwater Policy

- 2001: New groundwater permits must be offset by acquiring/retiring surface water rights
- 2007: Groundwater remained only municipal drinking water source
City of Albuquerque: Solutions

• Conservation
  – 30% reduction between 1994 and 2004

• Water imports
  – Interbasin transfer from Colorado River
  – 1950s – 1971 construction
  – 2008 SJ-C water delivery began

City of Albuquerque: Policy Gaps

• Is water delivery from another basin hundreds of miles away the best solution?
• Will the City of Albuquerque be able to manage population growth, climate change (increased drought), and endangered species protection?
Navajo-Gallup: Setting

- Western NM
- Southern portion of Navajo Reservation
- 23,000 Gallup residents
- 100,000 Navajo in surrounding areas
Navajo-Gallup: Water Use

• Gallup
  – 100% dependent on groundwater
  – Extremely limited recharge
  – Drastically declining water levels
    • Last 10 years: 200 ft
    • Since 1970s: 800 ft
  – 9 producing wells (down from 15)

• Navajo Reservation
  – 40%+ households haul all their domestic water
  – 80%+ poverty rate
Navajo-Gallup: Solutions

- 2009: Omnibus Public Lands Management Act
- Navajo-Gallup Water Supply Project
  - 260-mile pipeline
  - 24 pumping stations
  - 2 water treatment plants
  - $864,000,000
  - 37,376 AF yearly transfer from San Juan River

map source: Water Matters! Navajo-Gallup Water Supply Project.
http://uttoncenter.unm.edu/pdfs/WM_Navajo-Gallup_Project.pdf
Eastern New Mexico: Setting

- Overlies western edge of Ogallala Aquifer
- Clovis and Portales predict exhaustion of usable groundwater by 2040
- Clovis wells from 28 to 54 to maintain production in last 10 years
Eastern New Mexico: Solutions

• 2009: New groundwater permits closed for large users

• 2009: Omnibus Public Lands Management Act

• Eastern NM Rural System authorization
  – 180-mile pipeline
  – 75% Federal funding, up to $327,000,000
  – 16,450 AF/year transfer from Ute Lake on Canadian River
  – Failed to address reduction of groundwater use by agriculture
Public Interest

• Water law needs to include public interest
  – Rights of individual users may come at the expense of public interest
  – Sustainability and long-term solutions much broader than interest of single permit holder

• Consequences of mining to future:
  – Higher costs for water, pumping, and treatment
  – Energy intensive solutions
  – Creation of ghost towns and abandonment of population centers

• “New water”: uncertain, costly, short term
Policy Changes: Broader Approach

- Groundwater policy change is ultimately linked to:
  - Surface water use/policy
  - Population growth
  - Addressing climate change, carbon emissions
  - Economics (local, national, global)
  - Agricultural practices and what we eat

- Need expanded definitions
  - Think like ecologists in terms of systems and interconnectedness
Policy Changes: Sustainability

• When is depletion of non-renewable resource acceptable?
• Sustainable? Leaving next generations with less than we have.
Policy Changes: End Rescue Projects

• Rescue projects:
  – Relieve local and state decision-makers from mismanagement consequences
  – Remove conservation incentives, providing instead political rewards for keeping water costs low, encouraging new development, and creating jobs through infrastructure projects
Policy Changes: Better Governance

• Use lessons learned from surface water
  – Include multiple stakeholders
  – Regional water management

• Federal Aquifer Commission for interstate aquifers?
  – Regulation of drawdown rates
  – Water quality oversight
  – Fee setting

• More scientific data
Conclusions

• Future of West should not be built on mining of groundwater
• Find sustainable, long-term solutions: efficiency, conservation, agricultural forebearance
• Better governance in which community addresses
  – Purposes of use
  – Time period over which groundwater is used
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