

Framing Groundwater Depletion: A challenge similar to Climate Change

- Inter-generational equity
- Global –but manifest locally

- Depleting/Modifying a Resource today

- Limits future development opportunities
- The change may be nearly irreversible
- C substitutes are available.

No substitute for H₂O

- Resource Management

- Renewable sources have high variability that needs to be buffered by stocks
- Energy conservation not enough

Water use efficiency first order

- Multiple Actors with Political Power

- Government policies and subsidies that favor trajectory leading to impact
- Fossil fuel stocks, use and impact are well quantified.
- Failure of Markets for Energy
- Global Agreements needed for C.

Not for H₂O

Lack of Markets for H₂O

Local-Federal action possible for H₂O

Hot spots:

Intensive agriculture in regions with high climate variability

Large urban areas relying on groundwater

Framing Solutions: Federal Role

- Recognize National Interest, but local/state control/roles
 - Acknowledge Climate Variability/Change and Groundwater depletion as linked threats to all sectors and groups in the country
 - Define the need and parameters for a **Strategic Water Reserve** and its implementation
 - Water is expensive to move relative to price → Reserve needs to be localized= groundwater stock
 - Conjunctive use of surface and groundwater → Address jurisdiction/rights challenges and who can operate
 - Role of Markets, Critical Needs, Infrastructure investment, affordability and monitoring/regulation
 - National principles and local/state adaptive application – focus on critical water stocks/risks and operation
 - Mandate to appropriate federal agencies to support local/state with data, system design and analysis
 - Role for universities in each state to aid solutions oriented science in local context
 - National data analytics to help identify best land use strategies considering climate/water and SWR for future economic development – to design incentive instruments and trans-state agreements: expose the benefits not the problems
- Leverage Federal/state subsidy structures and grants to improve water use to match resource availability and variability
 - Restructure Crop Insurance subsidies, irrigation provision /water rights reforms and grants to support more efficient use and shift of crops/other uses to more economically efficient uses
 - Urban/industrial water reuse, precision agriculture, food vs non-food crop incentives