The Water Energy Food nexus from a Mexican-Sonoran Desert perspective

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Preliminary considerations
Centralized institutional arrangement

• Mexico is a centralized country
  – Water management
    • National Water Commission
    • Water rights register and dams management
  – Energy management
    • Federal Electricity Commission (monopoly)
    • Mostly thermo electrical plants (oil)
  – Food
    • Market provision
    • Agriculture, ranching

• Question: Is the WEFS Nexus easier to approach in a centralized institutional arrangement?
The Sonoran Desert and the Gulf of California

• Water scarcity
  – Aquifer depletion, river contamination

• Triple challenge:
  – Growth, immigration
  – Urbanization, Industrialization, globalization
  – Climate change, less water

Gulf of California, Baja California Peninsula
  – Natural environmental reserve,
  – Mostly undeveloped
Economic & Management Implications

Centralized arrangement has high transaction costs

- Time and place knowledge
- Coordination
- Opportunism

WEFS nexus demands:

- Bottom-up approach (decentralization, devolution, local empowerment, local integration)
- Take advantage of solar energy
The case for desalination

Desalination is seen as a means for water augmentation in the near future
- With oil or solar energy?
- What to do with brine, brackish water?
- Impact on fisheries?
- Impact on Gulf environment?

Development strategy
- Less agriculture and produce (food) production?
- More industrialization and tourism?
- What about mining?
- What about desalted water for export (sale)?
Conclusion

• The WEFS nexus approach helps to:
  – Entice Science-policy (trans disciplinary) dialogue
  – A better understanding of regional, economic-social conditions (geography)
  – To improve policy-making
  – To enhance development strategies