LOCALIZING DECISION-MAKING IN THE BINATIONAL U.S.-MEXICO UPPER SAN PEDRO RIVER

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Planning for Tomorrow’s Water: Snowpack, Aquifers, and Reservoirs

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Decentralization / centralization tradeoffs

* Transboundary water-resource assessments
  * consider multiple scales of planning and decision-making
    * local
    * state
    * national
    * binational
  * in order to support water management goals, transboundary assessments build on local initiative but comply with higher level regulations
December 2006, PL 109-448, the U.S.-Mexico Transboundary Aquifer Assessment Act, authorized the U.S.-Mexico Transboundary Aquifer Assessment Program (TAAP)

- Purpose is to provide scientific information useful to policy makers and water managers
- Secretary of Interior (USGS) to systematically assess priority transboundary aquifers
- Collaborative project between USGS and Water Resources Research Institutes/Centers in Arizona, Texas, New Mexico
- Program authorized for 10 years; $50 Million; Total $2 million authorized to date
Economy of Cananea, Sonora (population approx. 40,000) dominated by copper mining

Sierra Vista, Arizona’s economy is centered on civilian and military workers of Fort Huachuca, with ecotourism also an important component of the region’s identity.
Legal and institutional frameworks: global to local

- U.S. - Mexico “Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande” – 1944
  - International Boundary and Water Commission (IBWC)
  - Comisión Internacional de Límites y Aguas (CILA)
  - Joint Cooperative Process for transboundary aquifers – 2009
- Arizona - Mexico Commission water committee – 2007
- Upper San Pedro Partnership
- Comisión de Cuenca Alto Río San Pedro – 2006
Locally, water users from both sides of the border have initiated dialog and exchange visits to promote 'binational-local' water management

- land and water interventions
  - farm ponds
  - grazing management
  - urban water conservation
- scientific studies including modeling of future scenarios
Hydrological variability
Monthly mean discharge (cfs), Palominas Gage, USGS
## Groundwater balance
### Recharge and pumping

<table>
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<th>Acre-Feet</th>
<th>Million Cubic Meters</th>
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<td>Supply</td>
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<td>Supply</td>
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<tr>
<td>Demand</td>
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Sources: USPP 2007 321 Report, ADWR, Conagua Estudios de Disponibilidad
Maintain perennial flow in the San Pedro Riparian National Conservation Area (SPRNCA)

Goal of Upper San Pedro Partnership (non-governmental association of agencies, local governments and environmental organizations) is to “coordinate and cooperate in the identification, prioritization and implementation of comprehensive policies and projects to assist in meeting water needs in the Sierra Vista Subwatershed of the Upper San Pedro River Basin”

Maintaining San Pedro River flows through its perennial reach is also a priority of the United States government, which has mandated that the USPP develop and implement a program for sustainable water use for the region
Water supply sufficiency for mining, urban, and agricultural uses

- Limit aquifer overdraft
- Mexican authorities initiated the formation of a watershed commission (*comisión de cuenca*) for the San Pedro
  - by institutional design, this was intended to include cross-border stakeholders from the U.S.
- This process is on hold for several reasons (chiefly leadership transfers within Mexico and a labor strike at the Cananea mine)
Asymmetries

* In Mexico, water management is centralized with the federal government
  * The National Water Commission (CONAGUA), part of the Ministry of the Environment and Natural Resources, holds water allocation and policy priority over the state water agencies and municipal water utilities.
* U.S. system allows greater scope for states to manage water
  * Local initiative is enhanced
* For binational water issues, both countries rely on IBWC (U.S. section) and CILA (Mexican section)
  * Mexico requires CONAGUA, state and local water stakeholders to follow CILA lead for all transboundary water matters at its border with U.S.
Key TAAP Binational Milestone #1

IBWC-CILA Joint Cooperative Agreement was signed on August 19, 2009 to facilitate binational work.

 Signing Ceremony at Boundary Monument #1 in El Paso/Juarez
Principal Engineers John Merino (U.S.) and Luis Antonio Rascón Mendoza (Mexico)
Arizona-Sonora Achievements

- Formation of binational work group to prioritize assessment activities
- Engagement of stakeholders throughout basins and administrative areas.
- Interaction at regional and binationally-focused meetings regarding groundwater issues.
Binational field visits and assessments

**Achievements**

- Design of work plans for assessment of shared groundwater resource
- Beginning stages of binationally coordinated aquifer studies in Mexico
- Collaborators include: ADWR, CONAGUA, CEA-Sonora, USPP, among others.
Key TAAP Binational Milestone #2

- **Key Milestone #2:** Established necessary interagency-intergovernmental contractual agreements for binationally funded work
  - University of Sonora (MX) researchers will carry out work in Mexico
  - $160,000 (U.S. dollars total, split between U.S. (WRRC share of funding) and MX

Nogales, Sonora – 30 June 2010
Elements of binational work plan

- Development of joint data on both sides of border
- Synthesis and analysis of existing and new data and reports
- Identify data gaps
- Update conceptual hydrological models of functioning and state of the aquifers (quality and quantity)
- Cross-border socioeconomic and institutional studies are expected to be carried out
- Hope to have sufficient funding over time for cross-border modeling over a number of years, but funding is highly uncertain
Challenges and uncertainties

- Challenges remain in navigating and coordinating institutional frameworks at multiple levels and binationally:
  - Local – USPP and Comisión de Cuenca
  - State – ADWR and CEA
  - National – USGS, BLM, Ft. Huachuca (DOD)
  - Binational – IBWC and CILA, with diplomatic protocols
- Re-initiate Comisión de Cuenca process in Mexico
- Continued funding for TAAP uncertain
Next steps

* Coordinate information sharing from ongoing work on both sides of the border
* Strengthen links between US and Mexican local stakeholders
  * National Science Foundation project “Strengthening Resilience of Arid Region Riparian Corridors: Ecohydrology and Decision-Making in the Sonora and San Pedro Watersheds”
  * Explore links with urban water initiative – Sonora Sistema Integral (Sonora SI)
* Continue efforts to secure funding for TAAP
Thanks

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