

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

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Local and regional water management

- * Decision-making by local water users
 - * has a high degree of specificity that builds on local knowledge
 - * relies on self-imposed rules, but may require external “carrots” and/or “sticks”
 - * can lead to outcomes that are perceived as more beneficial to stakeholders when compared to regional water management approaches

Decentralization / centralization tradeoffs

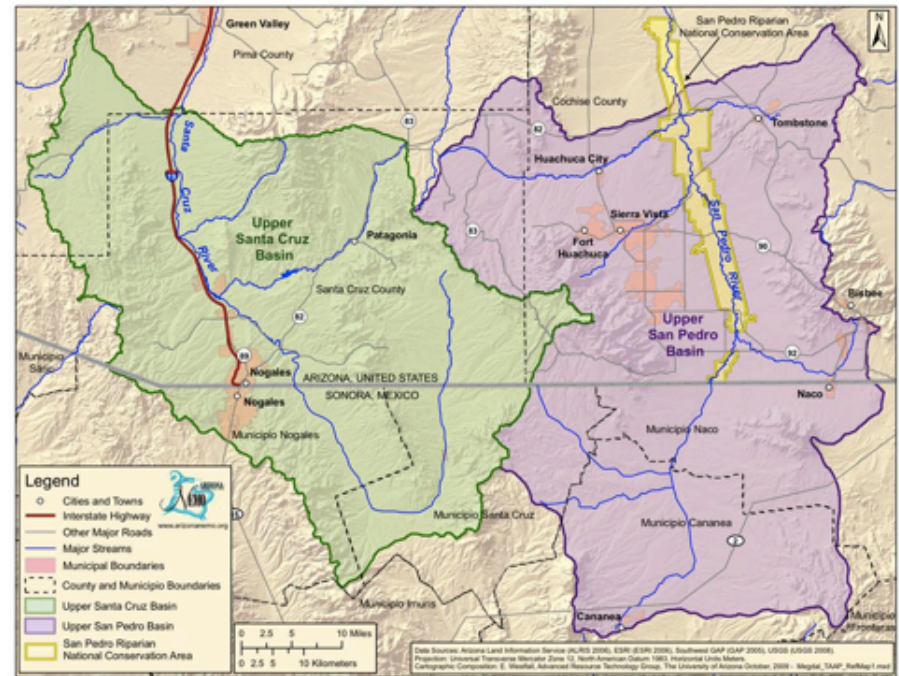
- * Transboundary water-resource assessments
 - * consider multiple scales of planning and decision-making
 - * local
 - * state
 - * national
 - * binational
 - * in order to support water management goals, transboundary assessments build on local initiative but comply with higher level regulations

Binational San Pedro River

- * Economy of Cananea, Sonora (population approx. 40,000) dominated by copper mining

Santa Cruz

San Pedro



- * 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

Upper San Pedro River shared by U.S. and Mexico

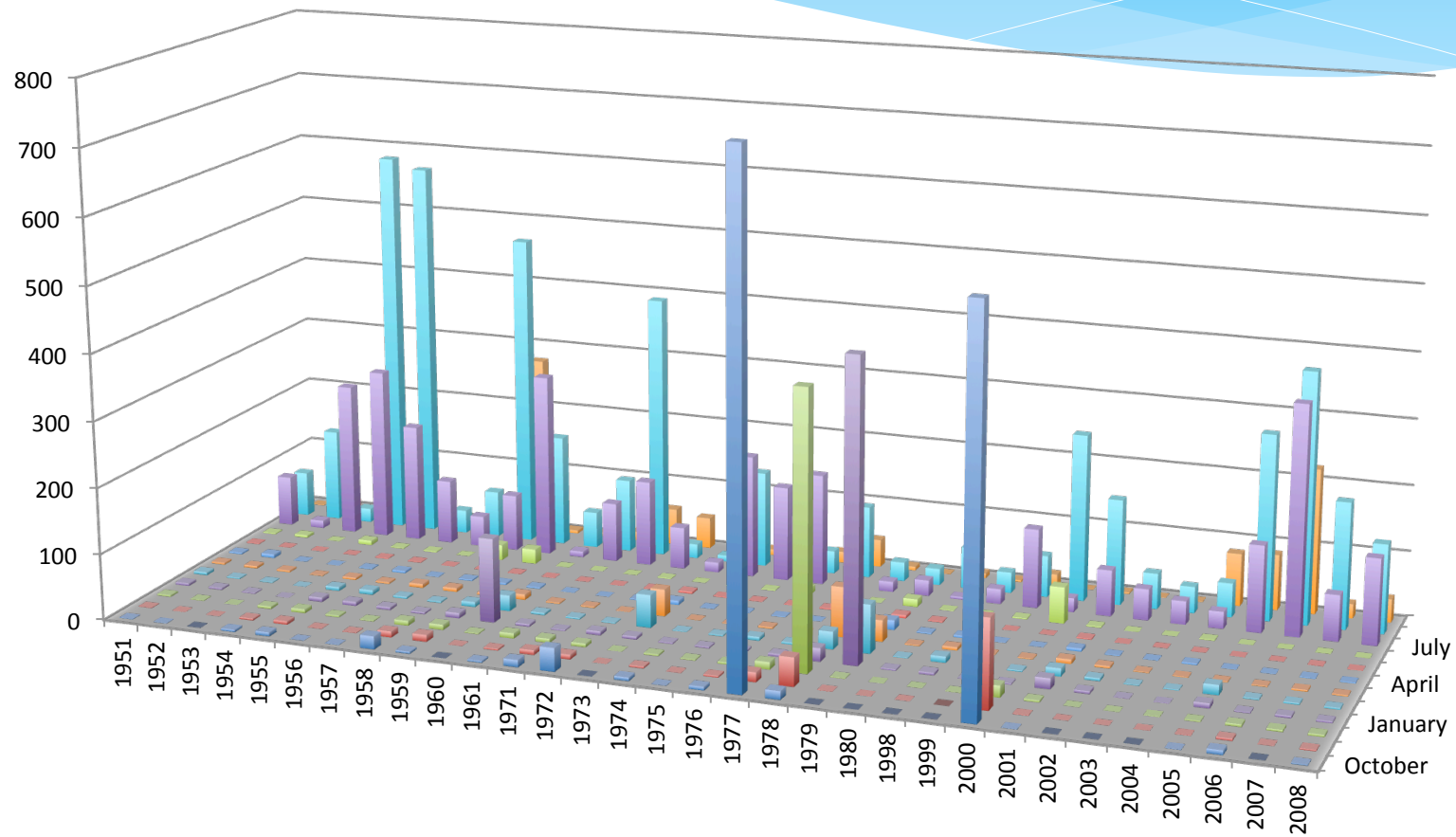
- * Locally, water users from both sides of the border have initiated dialog and exchange visits to promote 'binational-local' water management
 - * land and water interventions
 - * farm ponds
 - * grazing management
 - * urban water conservation
 - * scientific studies including modeling of future scenarios

Legal and institutional frameworks: global to local

- * U.N. Convention on the Non-navigational Uses of International Watercourses – 1997
- * U.N. Law of Transboundary Aquifers – 2008
- * 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

Hydrological variability

Monthly mean discharge (cfs), Palominas Gage, USGS



Groundwater balance

Recharge and pumping

		Acre-Feet	Million Cubic Meters
US	Supply	18,000	22.2
	Demand	16,920	20.9
Mex	Supply	33,200	41.0
	Demand	23,595	29.1



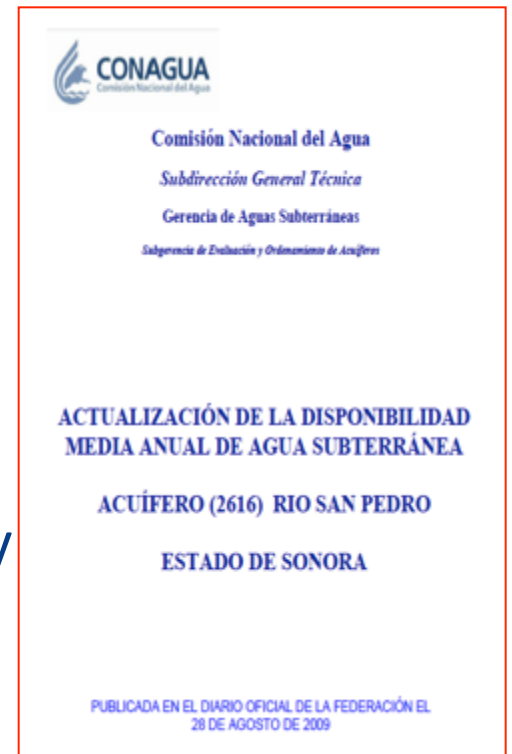
Sources: USPP 2007 321 Report, ADWR, Conagua Estudios de Disponibilidad

Water management goals – U.S.

- * 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 management goals - Mexico

- * 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.

Binational cooperation and initiatives

- * **Arizona Mexico Commission**
 - * State-level work group since 1959 with 13 binational committees (including water)
- * **Border Environmental Cooperation Commission**
 - * Preserve, protect, enhance human health and environment along border
- * **Transboundary Aquifer Assessment Program (TAAP)**
 - * U.S. Federal Law 109-448
 - * Secretary of Interior to systematically assess priority transboundary aquifers
 - * Santa Cruz and San Pedro identified on Arizona/Sonora border
 - * Authorized for up to \$ 50 million over 10-year period (\$ 2 million to date)
 - * Collaborative project between USGS and Water Resource Centers in Arizona, Texas, New Mexico

U.S.-Mexico Transboundary Aquifer Assessment Program

- December 2006, U.S. Congress approved, President Bush signed the U.S.-Mexico Transboundary Aquifer Assessment Act, which authorized the U.S.-Mexico Transboundary Aquifer Assessment Program (TAAP)
- Purpose of TAAP is to provide scientific information that will be useful to policy makers and water managers
- Program authorized for 10 years
- Chris Scott and Sharon Megdal, Univ. Arizona PIs for Arizona-Sonora component, together with James Callegary, USGS



Binational stakeholder cooperation

* 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.



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
- * Need to re-initiate Comisión de Cuenca process in Mexico
- * Continued funding for TAAP uncertain

Next steps

- * 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)

Thanks

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