Update on the Arizona-Sonora portion of the United States-Mexico Transboundary Aquifer Assessment Program

Water Committee of the Arizona-Sonora Commission
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Introduction

♦ Last presentation I made to this committee was in June 20, 2008. We provided a brief update on June 5, 2009. Also represented at the December 2009 meeting in Hermosillo.

♦ U.S. Public Law 109-448, the United States - Mexico Transboundary Aquifer Assessment Act was approved in late 2006.

♦ Authorized the Transboundary Aquifer Assessment Program (TAAP) in the U.S., with a spending authorization limit of $50 million.

♦ Intent is to provide scientific information useful to policy makers and water managers.

♦ To date, a total of $2 million has been appropriated for this program.

♦ The presentation will highlight accomplishments to date and note challenges moving forward.
Primary Participants

♦ U.S. Geological Survey (USGS) in the Department of Interior
♦ U.S. federally recognized water institutes/centers located at universities in Arizona, New Mexico and Texas.
  ▪ Water Resources Research Center at the University of Arizona
♦ International Boundary and Water Commission (IBWC)
  ▪ U.S. section
  ▪ Mexican Section - Comisión Internacional de Límites y Aguas (CILA)
♦ Comisión Nacional del Agua (CONAGUA)
Focus on two transboundary aquifers at Arizona-Sonora border
Arizona-Sonora Aquifers

Santa Cruz  San Pedro
Institutional Arrangements – U.S.

♦ USGS is the lead federal agency on U.S. side according to the legislation.
♦ No federal responsibility in regulating groundwater in the states
♦ Funding for the U.S. portion of the tranboundary aquifer program must be appropriated by the U.S. Congress.
♦ University of Arizona Water Resources Research Center (WRRC) is specified as the university partner, working with USGS on U.S.-funded work.
♦ Funding for Arizona from U.S. Congress is split between the USGS and WRRC.
  ▪ WRRC can direct funding to outside partner organizations.
♦ By law, U.S. Section of IBWC, located within U.S. Dept. of State, is to be consulted as appropriate.
Institutional Arrangements – MX

- CONAGUA is the federal agency charged with administration of waters. It leads scientific and technical activities associated with binational aquifer assessment.
- CILA, a branch of the Mexican Ministry of Foreign Affairs, has major federal responsibilities for groundwater and surface water at the border. It works diplomatically with the U.S. section of IBWC.
- Mexico permits state level water uses. Mexico requires all water matters at the border with the U.S. be handled through CILA.
Have worked through Institutional Asymmetries

♦ Partners have had to work through two major asymmetries

1. The U.S. legislation specified priority aquifers and a funding plan, but there was no corresponding Mexican legislation.

2. The roles of the federal water agencies differ.
   a. Mexican water management is more centralized than in U.S.
   b. U.S. federal agencies have limited state-level water management responsibilities
   c. Have had to work through these differing responsibilities
Key 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)
Joint Cooperative Framework

- The objective of the joint cooperative process for groundwater research is to improve the knowledge base of transboundary aquifers.
- The following is carried out within the IBWC framework:
  - Assure concurrence of the U.S. and MX for binational aquifer assessment activities
  - Facilitate agreement on the aquifers that will be evaluated jointly
  - Establish and coordinate binational technical advisory committees for each aquifer
- IBWC serves as an official repository for binational studies developed
Have worked on building shared vision with stakeholders

♦ Cross-border meetings and field trips have involved numerous governmental and non-governmental stakeholders

♦ Emphasis on shared priorities
  ▪ Water availability
  ▪ Climate change
  ▪ Water quality

♦ Materials (factsheets, meeting minutes) prepared in English and Spanish

Santa Cruz, Sonora – Summer 2008
Binational workshop held in November 2009

♦ Participants included:
  - CONAGUA, USGS
  - CILA, IBWC
  - Sonora, Arizona state agencies
  - NGOs
  - Universities
  - UNESCO
  - Congressional staff, others

♦ Established elements of binational work for both aquifers

Tucson, Arizona – 3-4 Nov 2009
Status of binational efforts

Key Binational Milestone #2

♦ Agreement that the Santa Cruz and San Pedro aquifers are priority.
♦ Developed integrated work plans for both.
♦ **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
Binational efforts (continued)

♦ Univ. Arizona Water Resources Research Center has redirected funding to support in part work to be conducted at the University of Sonora in MX.
♦ CONAGUA is providing matching funds
♦ This is an important first element of the binational work plan.
♦ The work efforts were developed jointly by the Binational Technical Advisory Committee, as called for in the IBWC-CILA Binational Cooperative Framework.
♦ Jointly authored paper for ISARM2010 Conference
♦ WRRC has also funded water quality monitoring by the Friends of the Santa Cruz River
We have been busy – TAAP-A/S work plan for project year 2010-11 focused on the following activities:

♦ Data collection of land use, zoning, economic and population growth, infrastructure, etc.
♦ Urban growth characterization and effect on watershed land use and hydrology
♦ Bi-national water balances and supply / demand analysis
♦ Groundwater Vulnerability Assessment
♦ Water quality assessments including anthropogenic impairments
♦ Assessment of institutional asymmetries and bi-national cooperation frameworks
♦ Improved linkages with international best practices (via ISARM)
♦ Refinement of data base on existing studies and reports
♦ Presentations and papers
♦ Etc.
Handouts here at the meeting

♦ Two-page fact sheet in English and Spanish on the Arizona-Sonora portion of the TAAP
♦ Two-page fact sheet on the overall program
♦ Article from the WRRC’s Arizona Water Resource newsletter
♦ Binationally authored paper from the ISARM 2010 Conference, forthcoming in the conference proceedings, in English and Spanish
♦ Recently submitted article, “The Importance of Institutional Asymmetries to the Development of Binational Aquifer Assessment Programs: The Arizona-Sonora Experience,” co-authored with C. Scott, submitted to special issue of the journal, Water
Conclusions

♦ It is necessary to recognize and work through Institutional asymmetries that can pose challenges to transboundary aquifer assessment.

♦ The Mexican and US parties have established the foundation for genuinely collaborative efforts to acquire, share and analyze data/information.

♦ Aquifer assessment requires time and financial resources.

♦ Developing the collaborative framework requires time.

♦ Efforts to date have resulted in a long-term commitment to a partnership that will result in better understanding of transboundary aquifers and thereby lead to better cross-border water management.

♦ **BUT**…There is no funding on the U.S. side for current federal fiscal year or any funding proposed for the fiscal year beginning October 1, 2011.

♦ We have had to reduce our staffing and graduate assistance support, which means a reduction in our assessment activities. Only funded activity is the current binational contract and related activities.
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  ▪ Many others
Thanks!!
¡¡Gracias!!

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Arizona-Sonora TAAP Web Site at the University of Arizona
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