

# **Water Institutions and Practices in the U.S.-Mexico Upper San Pedro Basin: Is Development Sustainable Where Transboundary Policies Conflict?**

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Transboundary watersheds provide water managers, decision-makers and local communities a valuable geopolitical opportunity for assessing the potential for new policies, institutions, and tools to negotiate potential regional water management conflict. This sort of assessment is essential to effectively implement integrated water management. While we know that the United States and Mexico have each committed to economic development based on neoliberal principles, research on the Upper San Pedro watershed between Arizona and Sonora, suggests that certain institutional practices challenge water managers' capacity to implement the effective water management required in a climate-stressed environment (Browning-Aiken, et al. 2006; Pablo Pineda et al 2007; Richter, et al., in press; Varady et al. 2000). At the same time, other transboundary watershed research indicates that with more decentralized management, stakeholders have a greater capacity to collaborate in addressing shared water concerns (Mumme and Brown 2002; Varady and Milich 1999).

In 1997, local and regional stakeholders in the San Pedro basin initiated a binational dialogue through the Commission on Environmental Cooperation (CEC), which evolved over time into two watershed councils – one in each country. These councils have in the last ten years reached across shared waters to discuss geohydrological research, pollution issues related to upstream use, impacts to aquifers from population growth and industrial expansion, natural resources policy changes and differences, and habitat protection, (CEC 1998). The Udall Center for Studies in Public Policy at the University of Arizona, with the support of the UNESCO Hydrology for the Environment, Life and Policy (HELP) Program and the Technology Center of the Sustainability of Semi-arid Hydrology and Riparian Areas Program (also at the University of Arizona), has played a key role in fostering this stakeholder dialogue within watershed partnerships or councils (Varady and Browning-Aiken 2005).

After several attempts, in 2007 the two stakeholder groups formed a binational San Pedro Commission. This Commission, consisting of sectoral representatives (e.g., mining, ranching, and commerce), government agency representatives, NGOs, and elected officials, is now facing the challenges of implementing natural-resource policy changes and designing a management program (Morehouse et al., 2008). These challenges are apparent in the way decisions about water governance made by federal, state, and municipal officials and managers are constantly threatened by local, regional and federal power struggles over development, be it industrial or population growth. In addition, social memory of former economic development policies and present tensions over immigration between the U.S. and Mexico frustrate the prospect of regional and binational collaboration on common natural-resource issues.

This paper links policy reforms to the political processes and power struggles over transboundary water resources and distribution. The paper argues, based on empirical evidence from a case study of the Arizona-Sonora San Pedro River basin, that Mexico's federal water and mineral development reforms and subsequent policy changes have seriously impacted the supply and quality of water at the head of the watershed. These problems are further exacerbated by population growth in an area of Arizona facing potential depletion of the aquifer upon which its economy depends.

Using policy analysis, conflict assessment, water and climate surveys, and 13 years of interview material, this case study illustrates how governments at all levels, the mining industry, and a major U.S. military installation struggle with contradictory national policy goals. It also demonstrates how stakeholders and water managers

respond to policy changes such as a) decentralization of water management, and b) conflation of national security and immigration policies; and to the challenges associated with c) extended drought. The gap between policy and management practices related to growth and development threatens equitable access to natural resources in the transboundary basin and to the long-term economic and environmental stability of the region. However, local and regional efforts to share data, technology, and planning strategies may provide a window of opportunity to resolve scale and policy challenges. In addition, environmental conflict mediation and technological tools can support the transboundary negotiating process and suggest the necessary ingredients for collaborating successfully with a wide range of binational stakeholders on a broad scale of water issues. The paper concludes by suggesting ways that water users, municipal governments, and the industrial sector might work together toward more mutually beneficial water management practices.

Theme topics:

- International political issues, decision-making and conflict resolution
- Involving stakeholders in transboundary areas
- Institutional and legal issues

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