UNITED STATES DEPARTMENT OF THE INTERIOR
U. S. - MEXICO BORDER FIELD COORDINATING COMMITTEE

WATER-RESOURCES ISSUES IN THE MEXICAN HIGHLANDS SUBAREA

Fact Sheet

INTRODUCTION

In 1994, the Department of the Interior (DOI) chartered the U.S.–Mexico Border Field Coordinating Committee for the purpose of promoting and facilitating coordination among the DOI bureaus with respect to environmental issues of Departmental interest along the U.S.–Mexico border. One of the foremost issues identified was that of shared-water resources. Subsequently, a multibureau Shared-Water Resources Issues Team was created to identify, compile, and communicate significant issues relating to shared-water resources of the U.S.–Mexico border area. Woodward and Durall (1996), as part of the Issues Team, used surface-water drainage basins as the primary basis for defining and delineating the extent of the border area from a shared- water resources perspective, and divided the border area into eight subareas (fig. 1). This Fact Sheet presents shared-water resources issues in the Mexican Highlands from a DOI perspective. The continued importance of border resource issues to the DOI is evidenced by its recent participation in the development of the Border XXI Program, a conceptual plan for binational cooperation in the transboundary region (U.S. Environmental Protection Agency, 1996a).

WATER-RESOURCES ISSUES IDENTIFICATION

The Issues Team surveyed representatives of the various DOI bureaus to identify the significant management and scientific issues associated with shared-water resources in each subarea. The Issues Team acknowledges a number of deficiencies in the issue-identification process, in that not all of the land owners/managers in the subareas were surveyed: (1) the non-DOI Federal agencies with holdings in the subarea—such as the Department of Defense and the U.S. Forest Service—were not surveyed; (2) the remaining non-Federal U.S. border lands are owned and managed by the States or are privately held, and no survey has been conducted to identify State and public issues; and (3) issues have been identified only for the U.S., and a comprehensive issue-identification process requires data from Mexico. These deficiencies notwithstanding, the Issues Team has identified a large number of the most pressing issues associated with shared-water resources from a DOI perspective. Solicitation of additional input from other U.S. Federal agencies, States, the private sector, and Mexico would enhance future efforts to more completely identify shared-water resources issues in the border area.

MEXICAN HIGHLANDS

The Mexican Highlands subarea (fig. 1), part of the Basin and Range physiographic province, is characterized by broad valleys or basins separated by steeply rising mountain ranges. Each basin is essentially an independent hydrologic system. The subarea contains 14 basins that drain to rivers in southern Arizona, southwestern New Mexico, northern Sonora, and the northwestern tip of Chihuahua. This subarea encompasses a total of 21,840 square miles, of which 5,395 are in Mexico and 16,445 are in the U.S. A total of 9,665 square miles are under the ownership or administration of the U.S. Government.

The Mexican Highlands subarea is classified as desert. However, this desert area, unlike many others, is reknowned for its lush vegetation and diverse aquatic habitats, remnants from a time when the area was wetter. The uniqueness of this desert has attracted humans since early history. The U.S. and the Mexican 1990 census estimated the population of the subarea to be about 935,000. Selected regions in the Mexican Highlands subarea have experienced intense human pressure with subsequent effects on its water resources and associated plant, fish, and wildlife species.

SIGNIFICANT WATER-RESOURCES ISSUES

Limited water quantity and impaired water quality represent the greatest water-resources issues in the Mexican Highlands subarea (fig. 2). Activities such as agriculture, urbanization, and industry compete for and affect the quantity and quality of these shared-water resources. Prior to 1940, the basin aquifers were in hydrologic equilibrium—that is, water inflow was approximately equal to outflow, based on long-term flow conditions (Anderson and others, 1992). Since then, water withdrawal and use have reduced water quantity and quality, resulting in significant effects on the biological, cultural, and physical resources of the Mexican Highlands subarea.

Figure 1. Subareas within the U.S.–Mexico border area.