



## **WATER RESOURCES RESEARCH GRANT PROPOSAL**

**Title:** Information Management Program and Geographic Information Systems for Water Resources Research Planning

**Focus Category:** conservation, water quality, groundwater, surface water

**Keywords:** geographic information systems, water resources information, data development, education

**Duration:** 12 months: 03/01/00 - 02/28/01

**1999 WRI Award:**

Federal: \$18,178

Non-federal: \$7,425

**Program Manager:**

Bobby J. Creel, Acting Director  
NM Water Resources Research Institute  
New Mexico State University

**Statement of problem**

As use of Geographic Information Systems has grown and presented new opportunities, it also has raised a number of new issues and problems. Of increasing concern is the management of a growing collection of spatial data sets and applications programs. These data sets and programs are very expensive to produce but relatively easy to share, so there is a great incentive to avoid duplicating production efforts. The trend clearly is toward managing these elements in distributed spatial libraries.

**Statement of results or benefits**

The New Mexico Water Resources Research Institute (NMWRRI) has become the focal point for Geographic Information System utilization concerning water resources in New Mexico. This system supports not only research activities but water resource planning by the New Mexico/Texas Water Commission, public entities of southern New Mexico, the NM Interstate Stream Commission and the NM Office of the State Engineer. The institute has established and maintains a Water Resources Data System for support of these activities. NMWRRI has entered into a number of formal and informal cooperative arrangements with state and federal agencies and other entities to assist in the development of and access to spatial data.

## **Nature, scope and objectives**

The objective of the project is to increase availability and accessibility of water resource information to support water resource planning and management in the state. More specifically, two tasks are described below:

1. **Spatial data library accessibility.** This task will maintain arrangements and establish those necessary to provide access to spatial data maintained by other agencies and organizations. These may be through formal agreements, licenses and/or contracts, or informal arrangements to assist in development of data and access to currently maintained data.
2. **Spatial data development.** This task will evaluate needs, establish priorities, and undertake development of spatial data within the NMWRRI that is otherwise unavailable. The principal investigator will maintain, update as necessary, and make the data available to cooperating agencies and organizations through both formal and informal arrangements to facilitate water resource planning activities.

## **Methods, procedures, and facilities**

A number of cooperative data sharing agreements have been entered into with state, federal, and local agencies and organizations to facilitate access and to develop spatial data. Others will be pursued as necessary. Research funded by the NMWRRI in many cases results in the development of data that can be represented in a spatial form and thus can contribute to the state data pool. Projects that have such a potential are adjusted as necessary to meet this secondary purpose.

The NMWRRI has acquired and maintains a GIS laboratory consisting of computer workstations, data storage devices, input/output devices (color plotter, digitizer, etc.); software for mapping and analysis (ARC/Info), database, and visualization; as well as network systems. The laboratory is connected via fiber to the New Mexico State University computer network, and thereby to the Internet. The NMWRRI also maintains an Internet web server site through which both spatial and tabular water resource data can be provided.

## **Application of activities to date**

Various research activities are supported by the system and water resources planning in the state. The New Mexico Interstate Stream Commission provides grants to regional groups to support water resources planning. NMWRRI will be utilized by the NM Interstate Stream Commission to provide GIS mapping products for use in their plans and in public outreach.

Additionally, support has been given to the New Mexico/Texas Water Commission and various public entities of southern New Mexico for their planning activities. GIS mapping support is also provided to the Lower Rio Grande Water Users Organization.

### **Work remaining**

This is an ongoing project with new data continually being added to the database and assistance being given to produce specific GIS products upon request. Continued funding is anticipated from annual state appropriations.