

# **U.S. BUREAU OF RECLAMATION NAVAJO NATION SUPPORT ACTIVITY (1997-2000)**

## **PROJECT FINAL REPORT**

### **INTRODUCTION**

This is the completion report for a four-year water resource-related community development assistance program (1997 to 2000) involving Colorado State University, the U.S. Bureau of Reclamation (Reclamation), and the Navajo Nation. The report covers the purpose and description of activities, the current status of the program, and some recommendations for the future.

The program involved the Sociology Water Lab (SWL) at Colorado State University assisting the U.S. Bureau of Reclamation to, in turn, assist the Navajo Nation Department of Water Resources, Water Management Branch, in developing water user associations. The Water Management Branch selected several small, pre-existing, gravity-fed irrigation systems within the boundaries of the Navajo Nation as target areas for the program. An additional Sociology Water Lab activity included assisting Diné College (formally the Navajo Community College) in developing a small multipurpose irrigated agriculture demonstration farm on the Diné College campus in Shiprock, New Mexico.

The goal of the program was to initiate a gradual process of (1) transferring the management of irrigation systems from tribal government control to local irrigation community control and (2) encouraging the development of more sustainable irrigated agriculture.

On or around 1962, Tribal government assumed responsibility for many irrigation facilities throughout the Navajo Nation. Prior to that date, U.S. federal agencies, primarily the Bureau of Indian Affairs, had responsibility for managing these systems.

The water user association development program was initiated because it was felt that the irrigation systems in question could be more sustainably managed through such associations. The Sociology Water Lab's participation in the program was supervised and guided locally by the Navajo Nation Water Management Branch. Principal contacts for the Sociology Water lab during the full three year period of assistance are noted at the end of the report.

### **ACTIVITIES AND ACCOMPLISHMENTS**

Over the duration of the program, the SWL wrote several small grant proposals and received funding from Reclamation's Western Colorado Area Office. The combined value of the grants was \$71,101. The grants were primarily educational in nature and were awarded to the SWL to introduce the concept of water user associations to Navajo farmers and elected tribal officials. This involved organizing and conducting workshops and study tours, and providing guidance to various locally elected and chartered Navajo Nation Farm Boards targeted by the Water Management Branch for assistance. The Farm Boards were involved in the process because of their statuted responsibility under Navajo Nation law to (1) oversee agricultural land permit uses and (2) encourage and coordinate agricultural improvements in their respective geographical areas. Early in the program, the SWL recommended the Farm Boards as a means of promoting and incubating the water user associations, rather than attempting to convert or expand Farm Board activities into areas of water management.

Many of the affected irrigation systems were originally constructed by the Bureau of Indian Affairs prior to World War II. They are presently in generally poor condition and have substantial encroachment by homes and farm structures on canal rights-of-way. Early in the program, the SWL recommended consideration of an acceptable and proven water user association design, along the lines of a nonprofit irrigation enterprise (i.e., mutual ditch company or irrigation district). Such an enterprise would ideally have a water user-elected governing board, and a revenue base in the form of an annual irrigation service fee (i.e., assessment) prorated per acre of land that could be irrigated under a given irrigation system. The association would be responsible for managing the system in the future. This fee would be assessed and administered by the board, but voted on annually by the water users to cover expected operation and maintenance costs. In effect, the water users, not the board of directors, would be setting the association budget. Net water supplies available for irrigated lands after system conveyance losses of various forms would be prorated per acre as well.

The SWL pursued a vision of these associations being incorporated and possessing comprehensive and detailed bylaws and rules and regulations. SWL emphasized the need for an association-hired trained water delivery workforce to supervise the full length and extent of the primary and secondary hydrologic levels of irrigation systems (main canal and principal laterals). Associations would have a small business office where needed, and modern and computerized water delivery and financial record keeping where appropriate. Associations would have a fully developed operation and maintenance plan involving 24 to 48 hour water ordering by water users (a “water call” or arranged system) to provide timely and reliable irrigation water service.

In addition to these organizational features, the SWL’s approach and recommendation for developing the associations included the formation and incorporation of a large parent association to oversee the entire irrigation system in question, and then and only then to begin the process of organizing small lateral groups (incorporated or unincorporated) as particular needs and local preferences dictated. This is a proven and sound approach. All of these features were expected to ensure sufficient support and interest from local growers in the program.

To the extent permitted under Navajo Nation agricultural and water law, the task was largely completed. Two ditch companies were formed - the Ganado Water Users Association and the San Juan River Diné Water Users, Inc. The former is currently participating in the management of the Ganado Irrigation System in Ganado, Arizona. It was incorporated in January 1999. The latter entity is currently participating in the management of the Shiprock Irrigation System in and around Shiprock, New Mexico. It was incorporated on December 22, 1999. Voting by the Shiprock area farmers on San Juan River Diné Water Users, Inc. bylaws was completed on April 27, 2000. Although less than one-fourth of the 803 registered water users in the Shiprock area turned out for the vote, the tally was 150 to 12 in favor of approving the bylaws.

The SWL has routinely defined its role as one of facilitator, providing guidance as requested, and developing pamphlets and other materials on water user association development for the communities involved. The local communities in question have largely developed their own associations, utilizing effective leadership, knowledge and resources at the local level. To this extent, SWL is proud to have been a part of the effort, which again required the support of many people and entities. The Sociology Water Lab participated in the following:

- organized some forty meetings,
- organized and conducted four regional study tours for 15 farmers and five elected tribal officials,
- provided numerous draft documents to Navajo Nation Farm Boards,
- provided exemplars of association bylaws and record keeping tools to association organizers,
- drafted proposals for Navajo Nation Farm Boards,

- made comments on draft articles of incorporation and bylaws,
- gave numerous informational presentations to local communities,
- made arrangements for computer training for water delivery record keeping by an outside consultant,
- provided a computer upgrade for the Shiprock association business office,
- attended harvest festivals and other community activities,
- assisted Diné College in initiating the development of the irrigation demonstration farm, and
- assisted the Water Management Branch in various ways and on numerous occasions.

It is estimated that the Sociology Water Lab provided training, consultation, advice, and the presentation of materials at scheduled meetings for about 400 people over the course of the project.

## **OBSERVATIONS**

The following are some observations regarding the current status of water user association development. This report concludes with some recommendations.

1. The Ganado Water Users Association appears to be under good leadership, and has had the benefit of considerable support provided by Ms. Teresa Showa of the Water Management Branch. The irrigation system is planned for rehabilitation by Reclamation. This rehabilitation project will help the association immensely. The only concern that the Sociology Water Lab has is the level of participation that will be allowed from local growers during the rehabilitation design and construction of the Ganado system. System design and rehabilitation should be linked carefully to current and anticipated farm income in the area. The rehabilitation should have an economic and social dimension, as well as an engineering dimension. There have been delays in getting at least some water to all farmers interested in irrigating under the Ganado system. If more farmers were involved, it would advance the association and farming in the area. This delay has occurred for reasons apparently associated with the proposed rehabilitation. A strategy has been followed that favors delaying water to farmers until modern facilities are fully installed. The Sociology Water Lab feels that water should be provided to farmers regardless of potentially high conveyance losses initially. SWL opposes the rehabilitation-first approach being taken toward further development of the association and irrigation in the area. It is counter to more than twenty years of international experience undertaken by Colorado State University in support of water user association development in many countries around the world. In addition, it is probably advisable to subcontract some of this rehabilitation work out to the association, in order to help further the development of the financial and water delivery record keeping of the association.

2. The Tsaille/Wheatfield Water Users Association appears to be behind originally anticipated development. This area is socially unique in many ways, and there may be somewhat limited potential for irrigated crop production in the area; particularly higher value crop production that generates farm income sufficient to pay for annual water assessments and association needs. The Sociology Water Lab has tried to work with the community over the past three years, but without much success. Phone calls are not returned, meeting times are broken, and the community apparently has not acted on a recent grant that would have allowed SWL to visit the community, hold workshops, and organize study tours for the local farmers as it did with the other communities. There may be a leadership issue in this community, relative to irrigation development.

3. The San Juan River Diné Water Users, Inc. of the Shiprock irrigation system is recently incorporated, and appears to be under sound leadership. Efforts have been made by the Sociology Water Lab to encourage maximum participation. This included promoting the formation of an ad hoc water board to draft articles of incorporation and bylaws for the association. This was agreeable to the local Farm Board overseeing the Shiprock activities. Since the formation of this temporary water board, evolution has

progressed smoothly. As mentioned previously, the Shiprock community recently voted approval of association bylaws.

The three separate irrigation systems in the Shiprock area (Hogback, Fruitland and Cudei) are expected to be operated by a large parent water user association. This is the San Juan River Diné Water Users, Inc. However, these irrigation systems have many small laterals taking water off their respective main canals. It will probably be necessary to reconstitute each of these laterals separately. This will require numerous local community meetings. The process may take several years. The Sociology Water Lab feels it can help in this process, but cannot do so without funding for travel, etc. The parent water user association (i.e., the San Juan River Dine Water Users, Inc.) will have to assume some leadership in this task. Many of the small laterals could provide garden water to homesite leases as well as for irrigating crops. The Sociology Water Lab has been attempting to encourage this lateral development effort through a pilot initiative on one highly visible lateral. However, funding is still needed to do this.

There has been some discussion regarding the overall rehabilitation of irrigation systems in the Shiprock area, possible with funding from Reclamation. This is desirable and needed, but a high level of community participation will be required to make such federal investment fruitful. This should involve a considerable number of local community meetings to establish preferences in design, cost-share financing arrangements and, in several instances, the incorporation of lateral associations to finance the annual operation and maintenance of selected laterals. Another option is to have the parent association in the area, the San Juan River Diné Water Users, Inc., assume management of these laterals. That may eventually occur in the future. However, it is highly likely that, as an initial step, the larger and more complex laterals will need to form (and even incorporate) their own association. Water users would pay an annual assessment to their local incorporated lateral, as well as to the parent association (San Juan River Diné Water Users, Inc.) for their share of main canal operation and maintenance costs.

## **ONGOING INITIATIVES**

The multipurpose irrigation demonstration farm proposed for the Diné College campus is believed to be an important part of the overall water user association development program. Again, the Sociology Water Lab wrote a proposal to develop this demonstration farm. This proposal was later revised and resubmitted to the U.S. Bureau of Reclamation by Diné College. The Sociology Water Lab is now in a voluntary, advisory capacity to this initiative. Although current cropping patterns show significant grower preferences, there will need to be consideration of higher cash crop production to operate and maintain the irrigation system. Farmers will be required to pay an annual assessment per acre of irrigated land (a farm production cost) out of their income for this canal operation and maintenance cost. This annual assessment may not be affordable to some farmers unless their cropping patterns are modified. There are many opportunities for value-added production of traditional crops to improve income from irrigation, so the need for higher value cash crops does not preclude traditional crop production. In any event, any anticipated rehabilitation of irrigation systems in the area should be based on the ability of local farmers to finance canal operation and maintenance costs in the future. Otherwise, the irrigation systems may be expected to gradually deteriorate again.

In the meantime, although the Sociology Water Lab is no longer being funded by the project, it has submitted a proposal to the Western Center for Risk Management Education to fund a sustainable agricultural research program. This will hopefully build upon the efforts it has made to assist local communities in the area. It is titled "Navajo Nation Small Farmer Risk Management Project."

Irrigated small farm production in the Navajo Nation is at a crossroads. In addition to Navajo irrigation water being placed in jeopardy due to low levels of beneficial use, lands designated for irrigation are

showing environmental deterioration, and due mainly to the lack of adequate farm income to adopt much needed conservation practices.

## **RECOMMENDATIONS**

An irrigation system rehabilitation program is greatly needed to restore essential structures for measuring and delivering water, and to reestablish canal rights-of-way. Education in on-farm water management is greatly needed. Diagnostic workshops on farms and laterals, and regional study tours, should be continually encouraged well into the future.

The newly established multipurpose irrigation demonstration farm on the Diné College campus can help develop and promote educational and community outreach programs. Young farmers should be sought out and supported with credit. This may require some investigation into new microcredit institutions for small farms.

A community effort should be initiated to voluntarily consolidate some highly fractionated agricultural land use permits to improve production. Garden production for home consumption should be encouraged as well as cash crop production. Initial emphasis should be placed on local markets and consumption. Marketing and supply cooperatives should be encouraged, and the limited liability cooperative design should be seriously considered for this purpose.

High levels of community participation should be encouraged during all phases of proposed irrigation system rehabilitation. Engineering must be blended with social and economic considerations. Some of the international research and training Colorado State University has been involved in over the past thirty years, including small irrigated farm development, should be made use of by the Bureau of Reclamation to assist water users in the Navajo Nation.

## **PRINCIPAL SOCIOLOGY WATER LAB CONTACTS DURING THE PAST THREE YEARS**

Pat Page, Water Management Coordinator, Reclamation's Western Colorado Area Office - leadership and funding

Larry Walden, Engineer, Reclamation's Farmington Construction Office - funding

Kevin Black, Sr., Engineer, Reclamation's Phoenix Area Office - funding

John Leeper, Director, Water Management Branch - overall program coordination and leadership

Michael Benson, Public Information Specialist, Water Management Branch - program coordination and proposal development

Teresa Showa, Engineer, Water Management Branch - major association development activities

The San Juan River Farm Board - general guidance

The Ganado Farm Board - general guidance

Tracy Raymond, Agricultural Engineer, BIA (Shiprock) - leadership, guidance and facilitation

Jerry Thomas, Director, Natural Resources, BIA - support

Johnnie Francis, Director, Navajo Nation Department of Water Resources - support

Marlin Saggboy, Manager, Shiprock Irrigation Office - guidance

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