

Engineering With Nature

Project Fact Sheet



Acequias as a Paradigm of Direct Community Involvement in Tribal Nation Water Resource Infrastructure and Watershed Management

Background

Acequias are small irrigation diversions and earthen conveyances utilized by the tribal communities, among others, predominantly in northern New Mexico. Communal irrigation practices have been utilized by Indigenous communities since before colonization of the region, and there is a strong cultural tradition that involves rural disparate communities cooperating to maintain main channels and diversions. Large infrastructure improvements require a comprehensive understanding of social, economic, hydrologic, and ecological effects they are likely to cause. Particularly, the active engagement and consultation of stakeholders is paramount. The Acequia Rehabilitation Program carried out by USACE in the 1980s and 90s has a mixed legacy in the minds of some local stakeholders, chiefly due to the alterations to the ancestral, to some sacred, landscape. The approach taken contrasts with the ongoing tradition of community maintenance of the acequias, where all who benefit from the channel convene yearly to maintain them.

This project aims to inspect the past, present, and future of this engineered landscape and examine the decisions made in its configuration and how that colors the relationships with all stakeholders that interact with it. The lessons learned will better prepare USACE to organize stakeholder interactions and create consensus and partnerships that contribute to broader benefits from infrastructure development and maintenance programs.

Objectives

Our objectives are: 1) Examine the historical and current community use of acequias; 2) Discern to what extent community engagement and participation is essential to the proper use of the acequias; and 3) Derive insights regarding the resilience and durability of infrastructure that relies on consistent communal engagement and activity, with a particular focus on the benefit of this approach to watershed management serving underserved tribal communities in remote areas. The understanding developed through successful completion of this project will better prepare USACE to undertake infrastructure projects in a manner that incorporates the insights of and increases the benefit to all those affected by infrastructure projects.

Approach

The approach begins with a thorough documenting of the history of acequias as a watershed management practice, from the practices of native nations in the area through colonization and occupation and into the present (Phase I). Phase II will entail a thorough examination and gap analysis of the Acequia Rehabilitation Program carried out by USACE, to include its goals, actions taken, and results both immediately and in the long term. In Phase III, input will be gathered from those who currently maintain and interact with acequias, and a synthesis will be developed to find acequias within a wider context of Engineering With Nature projects that can inform additional approaches to infrastructure planning and maintenance in the context of a changing climate, particularly for arid regions.

Outcomes

By examining and highlighting the role of Indigenous community relationships with nature while underscoring the unique and distinct irrigation practice tied thoroughly to their communities, this project seeks to export these ideas to modern systems and build stronger, better, and more resilient communities. On a broader scale, arid regions in a global context would benefit from information regarding how the traditional practices of an Indigenous community that irrigates in a complex relationship with nature could stand as a model for sustainable development practices as water security and scarcity remain a global issue in the foreseeable future.



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