

[Water: How long will the Southwest's acequias survive?](#)

Posted on February 25, 2014 by Bob Berwyn

Dartmouth study details threats to historic communal irrigation



A patchwork of fields around Taos, New Mexico

Staff Report

FRISCO — The historic communal irrigation systems known as acequias Southwest are in decline as snowmelt dwindles and water priorities shift. Social and economic shifts favoring modernism over tradition, are also factors on the decline, according to a new study from Dartmouth College.

Similar trends have been observed in other parts of the world, where rural communities that once fended for themselves are becoming integrated into larger economies, which provide benefits of modern living but also the uncertainties of larger-scale market fluctuations. The study appears in the journal [Global Environmental Change](#).

Acequias evolved in the Middle East and Roman Empire and were introduced into the Americas by Spanish colonizers in the early 1600s. The term acequia refers to both communities of farmers as well as engineered irrigation canals that carry snowmelt-driven runoff to farm fields as a way for the agricultural communities to share a scarce resource in arid regions.

The acequias system, which is common in northern New Mexico and southern Colorado, provides a model of communal ownership that governs water rights, distribution, disputes and other issues.

Dartmouth Assistant Professor [Michael Cox](#), the study's author, examined the acequias of the Taos Valley in northern New Mexico. He found the acequias are declining in terms of their agricultural productivity and have mostly lost their common property-based livestock pasturing system.

The changes stem from a declining amount of snowmelt and a host of socio-economic factors, many resulting from population growth in the nearby city of Taos. The factors include state-level public policies that grant private water rights to individuals, which conflicts with the acequias' water sharing traditions; newcomers who are increasing

demand for what water remains; increased tourism and land use development; and declining reliance on traditions in favor of modern, highly integrated economies.

Researchers typically focus on successful examples of community-based common-pool resource management systems, but Cox's study, which used a mix of interview, survey, remote sensing and census data, is among the few to explore the deterioration of such systems.

"While some of these changes can be attributed to declines in water availability, much of the change results from social drivers, including demographic changes, regional-to-global market forces and public policies," Cox says. "It thus seems quite unlikely that the acequias in Taos will return to their historical situation, meaning the acequia farmers must adapt to the current conditions."

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