



Interstate Water Sharing Agreements: What Have We Learned?

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Water scarcity and conflict within the United States has led to the creation of extensive legislation to deal with water issues, and extensive conflict over the water legislation. In her lecture on interstate water sharing Professor Lynne Lewis of Bates College discussed water compacts and conflicts within the United States from an economic perspective. Lewis maintained the conference theme by focusing on issues surrounding water scarcity but took the focus in a new direction by not only looking at the issues from a human and environmental perspective, but also from an economic point of view. By painting water scarcity in an economic frame Lewis brought a touch of reality to this complex issue. She created a picture of current interstate water sharing systems, the economic and environmental problems associated with the systems, and their respective solutions.

Lewis stated that both the Eastern and Western United States are experiencing water quantity and quality issues; however, the pressures on water quantity in the Western United States are greater. There are many different pressures on water supply within the United States, including growth, drought, infrastructure problems and climate change. While US water law was developed to address many of these issues, Lewis pointed out the many failings of current water law systems. Good water law is multi-disciplinary, taking in to account both scientific data and watershed allocation, but Lewis believes that neither the Western system of prior appropriation nor the Eastern system of Riparian water law adequately meet this standard.

Lewis cited the many water compacts that exist in the East and the West as the source of many interstate conflicts and as failures of current water law systems. The Western water compacts exist to allocate water usage and the Eastern water compacts exist to respond to floods and pollution. While the water compacts are put in place to prevent conflict from arising, both the East and the West have experienced difficulties with conflict over compacts. In 2003 the Apalachicola-Chattahoochee-Flint compact between Florida, Georgia, and Alabama expired and was not renewed causing a controversy and signaling the end of water abundance in the East. Much of the Eastern water law and water compacts are no longer adequate to deal with increasing water scarcity.

There have been many disputes over the 22 compacts in the Western states, several of which have been over the Colorado River Compact. The Colorado River Compact divides the water in the Colorado River into two basins, above and below Lee's ferry. The lower basin of the Colorado River, which is appropriated 7,500,000 acre feet of water per year, is growing faster than the upper basin. This system of allocation worked in the past, when the flow of the river was higher, but now that unsustainable use has decreased the flow of the river, the compact has become dangerous for the upper basin. Colorado uses 51.75% of the water supply in the Colorado River, New Mexico gets 11.25%, Utah gets 23%, and Wyoming gets 14%, but soon Colorado and the rest of the upper basin will be forced to use less water.

Lewis stated that the Arkansas River Compact has also been a significant source of conflict amongst the Western states. The purpose of the compact was to reduce disputes; however, conflict arose when Colorado violated the compact with Kansas by using an extra 328,000 acre feet of water. Colorado did not intentionally violate the compact but the compact does not take ground water into consideration and Colorado has incredibly porous soil, causing the water to be lost to seepage. After extensive litigation Colorado ended up paying 34 million dollars to Kansas, a reasonably inexpensive price for water. Other water compact conflicts that ended in litigation include; Texas vs. New Mexico '87, Kansas vs. Colorado '95, and Kansas vs. New Mexico vs. Colorado.

Lewis noted that the interstate water sharing issues within the United States have lead to international conflict. The United States has a treaty with Mexico that allocates a minimum of 1.5 million acres feet of water from the Colorado River every year. The United States has successfully delivered this amount of water to Mexico; however large portions of the water delivered were too salty to be useful. The salty water was unfit for human consumption, and caused extensive damage when it was used to water crops. Not only did Mexico not receive the necessary amount of potable water, but they also suffered economic losses from using the delivered water.

Lewis described the Western water allocation system with a term that she coined, stating that, "where the money goes the water flows." To prove this point she cited the extreme infrastructure built upon the Colorado River in order to divert water to higher value use sources. Water from the lower basin of the Colorado River travels 350 miles away from the river, through 14 pumping stations, and up 3,000 vertical feet to bring water to Phoenix and Tucson. As an economist, Lewis believes that water should go to the highest value use, but also to the highest value non-use. While it may have once made sense economically to pump water so far from its origin, the ecological costs of such unsustainable water use have raised the economic costs as well.

Lewis concluded her talk by offering some solutions to the current water scarcity issues. She believes that part of the solution to water scarcity is to appropriately price water. If people have to actually pay for the true value of water, it is likely that they will use less. Lewis also believes that there should be a greater market for water so that water can go to its highest value use of non-use. As an economist Lewis is able to look at water scarcity problems from a different perspective, offering solutions that could actually function in a modern capitalist society. Lewis was also able to express the political problems associated with water scarcity through her study of the economic issues. It was clear from her lecture that water scarcity and interstate water sharing conflicts are not only environmental problems but they are human problems based in both economics and politics.

Much of the subject matter addressed in Lewis' lecture was based upon her work and research as a professor at Bates College and previously at the Yale School of Forestry. She also completed a two-year dissertation fellowship at the Environmental and Societal Impacts Group at the National Center for Atmospheric Research. Currently, in addition to her work as a professor Lewis is working with a group from the World Bank on river basin decentralization issues and is

serving on the Board of Directors of the Universities Council on Water Resources. Much of Lewis' work has been published in academic journals including the recent publishing of her article, "The Interstate River Compact as a Water Allocation Mechanism: Efficiency Aspects" in the *American Journal of Agricultural Economics*. Lewis has also recently published a text book, along with her co-author Tom Tietenberg entitled, *Environmental Economics and Policy*. Lewis' research as an economist and a professor was incorporated into her lecture at the conference providing empirical data to support her assertions.

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3.1. Interstate Transboundary Water Governance Agreements, Commissions and Institutions. While a prerequisite to the effective cooperation is mostly political will, it is also important to ensure that the joint bodies or other arrangements involving CA countries, the Russian Federation, China, and Iran have the right institutional structures and mechanisms to effectively address their tasks (Table 1).¹ Agreement between the Government of the Russian Federation Joint commission and the Government of the Republic of Kazakhstan Concerning the Joint Use and Protection of Transboundary Waters (1992). We have a moral and spiritual bond to the planet that God made the source of all living things that our own survival depends upon. Many urban dwellers have lost their spiritual bond to the earth when they lose a connection to the natural environment. They can lose their inner peace too. " Father Shay Cullen. Choose Renewable Sources of Energy. Use the power supplied abundantly and freely by wind and sun. Hang your laundry to dry to minimize your use of gas or electricity, and open a window or put on a sweater rather than turning on the air conditioner or heater. Because nations may share a common water supply, animosity can grow over access to it, especially where it is perceived by one group that another is demanding more from the supply. Advertisement. Advertisement.² In the United States, one of the wealthiest nations in the world, one small town has already learned what it means to run out of water. The water supply for Orme, Tenn., went dry in 2007. It was a hardship for the town's 145 residents, but it was something they overcame with the help of their neighbors.³ Water-use agreements are also becoming common elsewhere in the world: During the 20th century, 145 water treaties were created in places like the Middle East and Asia, where water is scarce [source: Leslie]. Advertisement. Advertisement.