

Water as a Commodity

Larry MacDonnell, Ph.D. – Porzak, Browning & Bushong

Of all natural resources essential to humans, only the demand for water is not satisfied through the marketplace. Why have we chosen not to rely on the market to provide this resource? Is water really different from land, timber, minerals, and other valuable fruits of the earth's natural endowment?

Water is essential to all life, it is true. But would life as we know it be possible without use of land to grow crops, without timber, without fossil fuels or metals? Compare the relatively small quantity of drinking water required for human survival (around 1 gallon/person/day) with the average per capita daily water use in the United States of 1,500 gallons (U.S. Geological Survey, 1995). According to Peter Gleick of the Pacific Institute, the basic human water requirement for such uses as cooking, washing, and consumption is 50 liters/day (a little over 13 gallons). If 13 gallons per day are essential but we use more than 100 times as much, why don't we trust markets to provide the 99 percent that is "nonessential" water?

Just who does supply the water we use? For those of us who live and work in urban areas, our water is likely to be supplied by a public entity — usually a department or agency of city government. These municipal uses account for only about 12 percent of daily water use (in 1995, according to the USGS). By far the largest quantities

of water are used for thermoelectric cooling (about 39 percent of all freshwater use) and the irrigation of crops (also 39 percent). Based on my experience I would say the bulk of this water is supplied directly by those who use it or by organizations established by such users to provide water. (For example, farmers drill their own wells or band together to form irrigation districts.) Most of the rest is provided by public agencies (including the U.S. Bureau of Reclamation for irrigation).

It wasn't always this way. Originally, most urban areas were supplied by private water companies. Such companies also built the elaborate structures sometimes required to deliver water to the mineral diggings in the mountains of California during the gold rush. And private companies in states such as Colorado later constructed water systems capable of bringing water to irrigate otherwise valueless prairie lands. What happened?

Water as a Common Resource

Though the story is far more complex and interesting, the short answer is that people did not want to pay the full costs associated with making water available. There is a long-standing belief that use of water should be freely available to those requiring its use. Beginning at least with Roman jurists in the 6th century A.D., water has been regarded as a "thing" belonging to all people and thus incapable of being privately owned as it flows in a river. One may

Segovia Aqueduct

Considered one of the greatest surviving monuments of Roman engineering, this aqueduct in southeastern Spain stretches about 10 miles from the Río Frío, its water source, to the walls of the old town of Segovia. The final section (shown) where the arches are divided in two levels is about 900 feet long. It is made of rough-hewn massive granite blocks, joined without mortar or clamps.

The exact date of construction is not known, but the aqueduct is believed to have been built around the end of the first century A.D. under orders

of Emperor Trajan, one of the Spanish rulers of the Roman Empire. The Romans appear to be the first to put a price on water delivery. Water taxes were paid according to the size of the diversion from the storage cisterns, and the money was used to maintain the distribution system. Diversions were made via underground pipes to private homes and industry, baths, and public fountains, in order of priority, as described by the Roman architect Vitruvius.

Photo by David W. Eby. ©1999

have a legally recognized right to its use (a usufructory interest), but that right ceases once the water has been used and returned to the commons for general enjoyment.

There is a certain logic to this view, given the nature of the resource itself. Water moves in a complex hydrologic cycle, renewing itself for apparent human benefit. It is difficult to own something that moves. Moreover, many nonconsumptive uses of water, such as navigation, fishing, and recreation, are not mutually exclusive and can be gainfully shared as water moves through its cycle. Even those uses that are exclusive, such as irrigating a crop, rarely require total consumption of the water, which then returns to be available for a succession of other exclusive and non-exclusive uses. In a world in which water is abundant relative to human demands it makes sense to treat it as a common resource.

Muslim law, developed in more arid circumstances, emphasized the essential life-supporting quality of water and established a rule of sharing the resource. Spanish law followed this approach, treating water as a necessity to be shared among those dependent on its use. This view of water as a resource to be shared equitably within the community took root when transplanted to the New World via Mexican law.

Even the prior appropriation doctrine of the American West regards water as a public resource, subject to temporary use by those who have invested the requisite labor and money to put it to use. Water is not owned but may be beneficially used. This right to use is perpetual, regarded as property, and, subject to certain conditions, may be transferred to another.

Our apparent aversion to having private companies provide water is well illustrated by the story of the Vidler Tunnel Company. The company intended to capture and store water on the western side of the Rocky Mountains in Colorado and bring it through a tunnel for use in the more heavily populated eastern side. It sought a conditional decree that would protect its priority while it moved ahead

with the difficult work of bringing this water to Colorado's Front Range. In 1979 the Colorado Supreme Court denied the decree, on the basis that the development was "speculative." It stated, "The right to appropriate is for *use*, not merely for profit.To recognize [this claim] grounded on no interest beyond a desire to obtain water for sale would as a practical matter discourage those who have need and use for the water from developing it. Moreover, such a rule would encourage those with vast monetary resources to monopolize, for personal profit rather than for beneficial use, whatever unappropriated water remains." So much for free enterprise!

Markets, of course, depend on mutual advantage to both the buyer and seller. The

seller needs to earn a profit to justify the use of scarce capital for this activity. The buyer purchases water when its use is at least as valuable as its price. All economic development is speculative. There is no revenue to repay costs and earn profits until someone pays for the products of the development.

The growing use of "markets" (i.e., voluntary buyer-seller transactions) to transfer appropriative water rights suggests that the potential value of such mechanisms for meeting new water demands is beginning to be recognized. Yet these transactions are remarkably difficult and time consuming, as evidenced by the eight-year negotiation to transfer water for the next 75 years from the Imperial Irrigation District to San Diego.

See Commodity, page 26

hydroGEOPHYSICS, Inc.
www.hydrogeophysics.com

Non-Intrusive Hydrogeologic Characterization

- ✓ Alluvial Basin Definition
- ✓ Recharge Site Monitoring
- ✓ Plume Mapping
- ✓ Fracture and Fissure Mapping

Arizona registered geophysical engineer • over 30 years experience
2302 N. FORBES BLVD. • TUCSON, ARIZONA 85745
TELEPHONE (520) 647-3315 • FAX (520) 647-3428

GEOMATRIX Engineers, Geologists, Environmental Scientists, and Decision Analysts

- ▶ Regional Groundwater Studies
- ▶ Water Resources Engineering
- ▶ Groundwater Modeling
- ▶ Watershed Management
- ▶ Subsidence Analysis/Geohazard Evaluations
- ▶ Conjunctive Use
- ▶ Water Quality Evaluations
- ▶ Environmental Assessments

Costa Mesa, CA (949) 642-0245
Scottsdale, AZ (480) 348-1283
Other offices in Texas, Colorado and California
www.geomatrix.com

Consumptive-Use Water is a Commodity

Much needs to be done to better define the rules and procedures for such transactions so that water transfers can occur in a more market-like manner. The transferable portion of water rights ought to be defined in consumptive-use terms, and water law should be changed to allow free transferability of consumptive-use water. In fact, consumptive-use water is a commodity. It represents complete ownership of that portion of the water resource. Because the water has been consumed, it no longer is available for sharing or for other exclusive uses. It therefore should be recognized as a commodity and treated as one.

Given that water in the rivers and aquifers of western states is generally overappropriated, private companies are unlikely to play a significant role in developing new water supplies. Markets can, however, help reallocate water that historically has been consumptively used in order to meet new and changing demands.

Why consider only consumptively used water to be a commodity? Why not all water? Because water serves far more than immediate human needs. As it cycles, it provides countless valuable and essential services. Human use of water should seek to interfere as little as possible with the cycles. Consumptively used water has already been removed from its cycle. As much as possible, we should strive to keep human uses within this consumptive-use quantity.

For too long we have carried this idea that, because water is precious, its use must be free (or subsidized). Water *is* precious. It is magic. One cannot be around water without feeling something of this magic. We are not protecting this special resource by treating it as something without limits, which is in effect what we do when we insist on paying far less for its use than its real cost.

Larry MacDonnell is the former director of the Natural Resources Law Center at the University of Colorado, now in private practice in Boulder, Colorado. Contact him at LMacDonnell@pbblaw.com