Water Rights in Colorado: No One Ever Said It Was Easy

by Gary Barber

Introduction

> "*When you first start out, understanding water is like trying to understand Greek. After a while it starts getting to where it kinda registers; then if you stick with it, it becomes fascinating. Water is the most valuable thing there is on the earth.*"[1]

In his book *Water, The Answer to a Desert's Prayer*, farmer Frank Melinski provides both an excellent history and an irrigator's perspective of water development in the West. Often referred to as "the most knowledgeable water expert in the State of Colorado - bar none,"[2] Melinski's experience as a irrigator illuminates three important elements of water resource development:

- Creation of a water right and the accompanying lexicon of the Prior Appropriation Doctrine,
- Historic development of water resources in Colorado, and
- Challenges facing Colorado's water allocation, or re-allocation, in the coming decades.

In 2013, Governor John Hickenlooper directed the Colorado Water Conservation Board to deliver a statewide water plan by December 2015. Colorado's Water Plan, a comprehensive planning document reflecting thousands of hours of collective effort, render the complex, counter-intuitive aspects of water resources into an understandable form. The Plan highlights Colorado's challenges and begins to frame potential solutions, including greater reuse of existing supplies. To understand water, its reuse, and Colorado's water resource future, let's start with the water at your home.

Water Usage

In a typically family household of four, an average of about 15,000 gallons flows into the home each month. Of that amount, about one-half is applied to lawn irrigation and the balance to various domestic purposes. Over a period of one year, from 180,000 to about 240,000 gallons (15-20,000 gallons per month) of water flows to and through the home.

While the gallon is a common unit of measure, a less cumbersome measure for large volumes of water is the **acre-foot**. This quantity of water would cover an acre (43,560 square feet) to a depth of one foot, about 325,851 gallons. Picture a football field with one foot of standing water. A typical household, at 180,000 gallons per year, is taking delivery of just over a half an acre-foot per year (.55 af).

Where does the water go? The Colorado Municipal League published *Water and Wastewater Utility Charges and Practices in Colorado* in 1997, identifying the following percentages (Figure 1):

- Landscaping - 54%,
- Showers and Baths - 18%,
- Toilets - 11%,

[1] Melinski, 1990, p. 110.
[2] Ibid, p. *i.*

- Faucets - 8%,
- Laundry - 7%, and
- Leaks - 2%.[3]

The first water concept revealed in the single-family home is the volumetric difference between delivered and consumed water. The bulk of the water passes through the home and down the sanitary sewer line, or is used for irrigation of the lawn. Note that most of the applications above, like the shower, don't consume all the water.

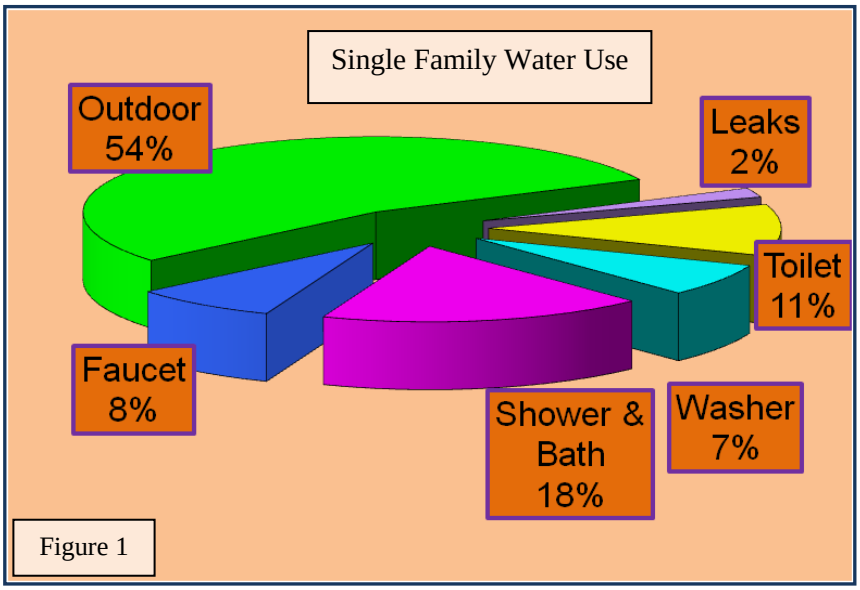

Figure 1

In the water lexicon, the difference between delivery and what is consumed (stays in the house) is termed **consumptive use**. Water that goes down the drain pipe is called **return flow,** because the unconsumed portion eventually returns to the stream system, including runoff from overwatering the grass.

Nationally, the consumptive use for a home is about 23%, with approximately 77% **return flow**.[4] In Colorado, consumptive use can be as low as 10%. In our arid climate, inclusive of lawn irrigation, return flow averages 50%.

This relationship between delivery, consumption and return flow equates to agricultural applications of water as well. In an agricultural setting, delivery is via a **diversion**. Modern delivery is commonly via a well and center-pivot sprinkler system. The Denver Water Board defines diversion as: "The removal of water from its natural course or location, or controlling water in its natural course or location, by means of a ditch, canal, flume, reservoir, bypass, pipeline, conduit, well, pump or other device."[5] One attribute of a water right is the flow rate of the diversion. The earliest water rights diverted water from a stream into a ditch or canal that carried the water to the field. Because the size of a ditch can be measured, and then multiplied by the speed of the water, the **cubic foot per second** (cfs) became the common unit of measure for an agricultural water right.

Crop type determines the consumptive use. The farmer has the obligation to return the unused portion of water back to the stream system. One ditch company's return flow is the water available downstream at the next farmer's point of diversion. The transferable portion of a water right, the portion that can be sold by a farmer to a city, is the **historic consumptive use**.

Today, agricultural diversions of water still far exceed municipal uses. (Figure 2) The Colorado Water Conservation Board (CWCB) estimates that 100 million acre-feet of water falls from the sky each year. Most of the precipitation, about 87 million acre-feet, is lost to evaporation, leaving an average of 13.7 million acre-feet in the rivers.

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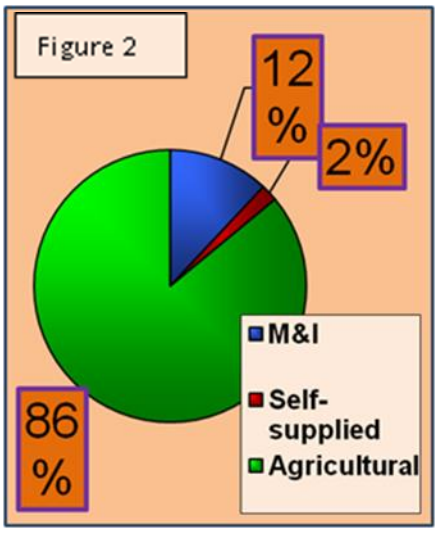
[3] Colorado Municipal League, 1997, p.15.
[4] Information Pus, 1993, p.13.
[5] Denver Water Board, Glossary of Frequently Used Water Terms, 1997, p.6

Of the 5.3 million acre-feet consumed annually, most serves agriculture (86%) with the remainder for municipal and industrial (M & I) uses, along with self-supplied water for mining and power generation.

The dependibilty of water delivery is the single most important element of successful agriculture. The imperative to extract a reliable water supply from an ephemeral, arid environment set the stage for development of the Prior Appropriation Doctrine.



The Prior Appropriation Doctrine

> *"It is probably true that most U.S. residents think of the western water situation as rife with conflicts reminiscent of the gun battles over water that occurred in the California gold camps. Those very gun battles stimulated the development of our 'Doctrine of Prior Appropriation,' a form of water law that has served reasonably well to resolve water conflicts over the long run (although not so well in the short run).*"[6]

The early miners used water diverted from the streams to wash gravelly deposits and extract placer gold by panning. As gold strikes developed, new miners moved in upstream of their neighbors taking the water they needed from the stream. Then came the gun battles as the first miner protected his "right" to use the water. Most conflicts were peacefully resolved in the miner's courts. This mock court, actually a Sunday camp meeting organized to resolve disputes, created a new principle for allocation: the "prior appropriation" takes precedence over later uses. This Prior Appropriation Doctrine, often called the Colorado Doctrine, is based on the premise that "First in time is first in right."[7]

Historically, English and American common law recognized only the riparian water right, wherein a landowner abutting a waterway could enjoy the adjacent water along with his fellow riparian right holders. This rationing approach, where all right holders bear the burden of shortages equally, did not meet the needs of the early miners or farmers. The Prior Appropriation Doctrine gives priority to the first individual to put the water to a **beneficial use**.[8]

The new legal principle permeated the West. A new water right was created when an irrigator diverted and applied water from a natural stream to a farm, establishing the **appropriation date**. These water rights were later perfected by local courts, defining the **adjudication date** in a water court **decree**. A decreed water right has four attributes:

1) The point of diversion on a stream,
2) rate of diversion in cubic feet per second,
3) a place of use, and
4) type of use.

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[6]Howe, 1980, p.16.
[7]Felt, 1999, p.11.
[8]Denver Water Board, 1997, p. 2. "Lawful and prudent use of water that has been diverted from a stream or aquifer for human or natural benefit"

As Melinski recalls:

> *"There are many early decrees for water in the mountains and along Fountain Creek. Much of the early Fountain water was used to develop crops to feed the miners and the people who were migrating to the West. Soon people were in court trying to justify the amount of water they were taking out of the rivers, so they could come up with a solid cubic second foot decree. Since no one really knew how much water they had taken out of the rivers, those involved began to produce witnesses. For instance, there was a cowboy who said he had come across the Rocky Ford Ditch at a certain point and the water had come up so high on the stirrups of his saddle. So they put this old boy in the Rocky Ford Ditch, raised the water until it come up to where it was supposed to hit on the saddle, measured the area, and then determined that Rocky Ford Ditch was getting 112 cubic second feet."*[9]

The Prior Appropriation Doctrine is embodied in the Colorado State Constitution, Article XVI.[10] Colorado statutory law created the Office of the State Engineer, who serves as administrator for the many water right decrees.

History of Water Development

In *Cadillac Desert*, his comprehensive history of water in the American West, author Marc Reisner describes the daunting challenge facing the pioneers:

> "*Any place with less than twenty inches of rainfall is hostile terrain to a farmer depending solely on the sky, and a place that receives seven inches or less–as Phoenix, El Paso, and Reno do–is arguably no place to inhabit at all. Everything depends on the manipulation of water–on capturing it behind dams, storing it, and rerouting it in concrete rivers over distances of hundreds of miles. Were it not for a century and a half of messianic effort toward that end, the West as we know it would not exist*."[11]

Reservoir Storage

The Front Range of Colorado receives about 14-16 inches of rainfall per year. By Reisner's standards this qualifies as habitable; for a farmer this is hostile terrain. The lack of precipitation means agriculture is impossible without irrigation canals. In a relatively short period of time, all the water was spoken for:

> *"Decrees dating after 1890 have a difficult time acquiring water, because by 1890 there were already 6,000 cubic second feet of water decreed out of the Arkansas River. And about the only time this entire 6,000 cubic second feet of water is available is during a high snow melt period or during a flood. Storage rights were eventually developed in an attempt to provide ditches water when the Arkansas River was running low*."[12]

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[9] Melinski, 1990, pp. 4-5.

[10] "The water of every natural stream, not heretofore appropriated, within the state of Colorado, is hereby declared to be the property of the public, and the same is dedicated to the use of the people of the state, subject to appropriation as hereinafter provided."

[11] Reisner, 1993, p. 3.

[12] Melinski, 1990, p. 7.

Beginning in the early 1900's, farmers constructed reservoirs to store water for finishing crops. Reservoirs give a farmer reliability of water supply and the opportunity to store water during the winter. Storing water in a dry climate is not a new idea. Recent scientific discoveries reveal the very earliest storage reservoirs were constructed by the Anasazi of Mesa Verde.[13]

Interstate Compacts

Colorado's growth resulted in more water diverted or stored upstream. Inevitably, this led to conflicts with downstream neighbors. The Equal Apportionment clause of the U.S. Constitution mandates that all states have equal standing. As new states joined the Union, each was treated equally with the prior states, receiving a proportionate share of the nation's resources. In the early 1900's, disputes and lawsuits between the states over equal apportionment led to **Interstate Compacts**. When states disagree about apportionment of a river that traverses multiple states, they take the dispute directly to the United States Supreme Court.

Perhaps the most well-known is the Colorado River Compact of 1922, which apportions the waters of the Colorado River between the Upper Basin States—Colorado, Wyoming, Utah and New Mexico, and the Lower Basin States—California, Nevada and Arizona. Strict application of the Prior Appropriation Doctrine in the 20's could have committed most of the water to farms in California. Instead, the waters of the Colorado River were equally apportioned, giving Colorado a future water supply for its growth.

Another example is Colorado's early use of the Arkansas River, which, by the early 1900's, began having a detrimental effect on farming in Kansas.[14] Lawsuits initiated in that period eventually led to the Arkansas River Compact, also known as the Colorado—Kansas Compact, in 1948.[15] Recently, litigation over the Compact, in *Kansas v. Colorado*, was heard from 1986 to 1996 by the U. S. Supreme Court. The Court ruled in Kansas' favor, resulting in wholesale changes in administration of water in Colorado. The ruling has had a direct impact on the value of water rights in the Arkansas River drainage.

Transbasin Diversions

In Colorado, the majority of rain and snowfall drains west from the Continential Divide, but the majority of agriculture and municipal consumption occurs to the east. According to the Farm Bureau's 1997 *Colorado Water Development Study*:

> *"As of 1993, more than 10 million acre-feet of water leave the state in an average year. Of that amount, approximately 87% flows west from the Continental Divide toward the Pacific Ocean and 13% flows east toward the Atlantic Ocean. The location of the state's water supply is in direct contrast to the location of consumptive use in the state, with approximately 25 % located west of*

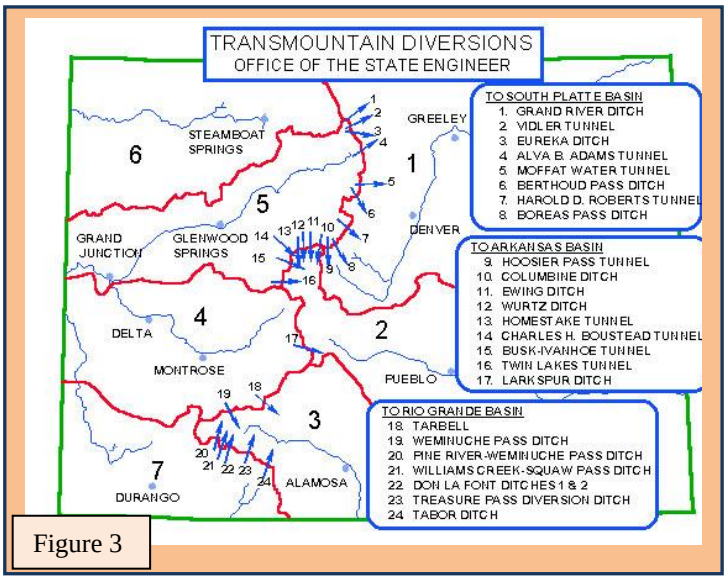


Figure 3

[13] Wright, 2003, p. 1.

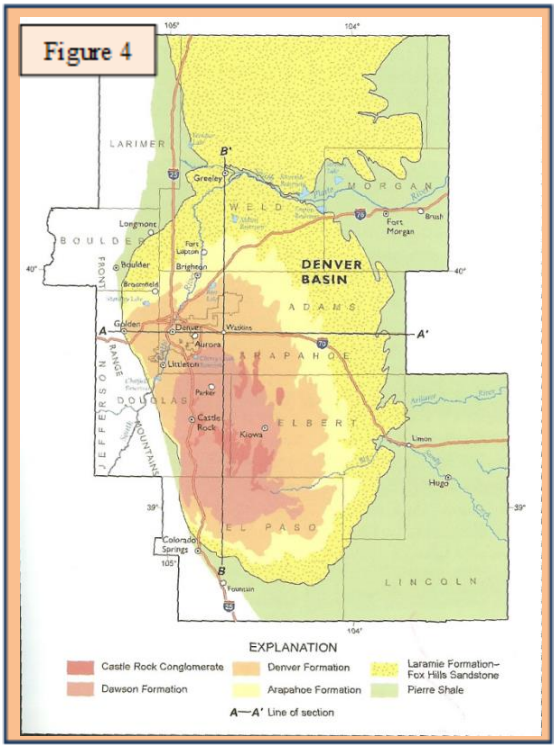
[14] Melinski, 1990, p. 15.

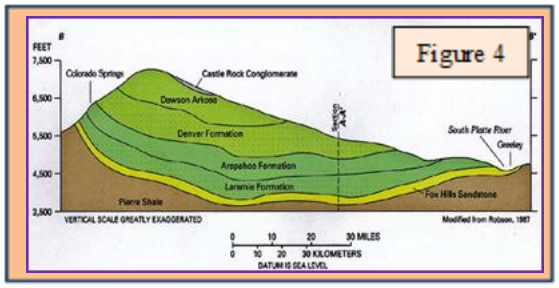
[15] Colorado Revised Statutes, 37-69-101 et seq

the Continental Divide and 75% located east. The difference in location between water supply and demand has resulted in the development of 24 transmountain diversions within the state. [Figure 3] shows the 24 existing transmountain diversions in the state. About 507,000 acre-feet are diverted annually from the Colorado watershed into the South Platte River, Arkansas River, and Rio Grande River Basins."[16]

The period following World War II through the 1970's saw the construction of massive public works to bring water through the Continental Divide. The major transmountain diversions were constructed either for agriculture or as water supply for the growing cities of the Front Range. Several, such as the Colorado-Big Thompson project in northern Colorado, bring water to farms and cities. The state's largest communities, Colorado Springs, Aurora and Denver, depend on extensive transbasin supply systems to deliver water to its citizens. Denver gets about half of its water from the Western Slope. Colorado Springs has developed transmountain diversions from the Blue River above Dillon Reservoir and other tributaries of the Colorado River.

The diversion of so much water, from the western side of the Divide to the cities on the east, perpetuates the historic animosity between the East and West Slopes of Colorado. In the decades following World War II, growth has depended almost entirely on water supplied from west of the Continental Divide. New high mountain diversions, however, are no longer available to new communities along Colorado's Front Range.





The Denver Basin

Since the 1980's, growth between Colorado Springs and Denver has flourished on **groundwater** from deep wells in the Denver Basin. The Denver Basin **aquifer** is a geologic formation of water-bearing rock underlying a vast area along the Front Range. This water is physically separated from the hydrologic cycle—evaporation from the sea, rainfall and the tributary river systems that return water to the sea—and is therefore deemed **nontributary**.

As shown in Figure 4, the aquifer extends from Colorado Springs north to Greeley and from Denver east to the town of Limon, an area of approximately 6,700 square miles. [17]

The lower graphic depicts a cross section of the aquifers, illustrating their saucer-like shape and how the layers daylight to the surface north, east and south. The four layers sit atop one another similar to a layer cake. Between each water bearing formation is an impermeable layer of shale, which serves

[16]Colorado Farm Bureau, 1997, pp. 4-2 to 4-4.

[17]Robson, 1989, pp. 11 & 13.

to separate the aquifers hydrologically from each other. The center, and deepest part of the aquifers lies along the reach of Cherry Creek in southern Douglas County.

The defined volume of water that can be removed under a water right decree is established by legislation. Current statutes allow 1% of the adjudicated volume to be removed each year. This results in a theoretical one-hundred-year supply available for extraction from each well site. Some local land use jurisdictions have added a greater restriction on use. In Douglas County, for example, some areas are limited to a 200-year extraction. The last three decades have seen a population boom along the Front Range dependent primarily on this "mined water."

Water extracted from bedrock aquifers is not replaced. The recharge to the aquifers occurs over centuries, not decades. As the aquifer is depleted, or mined, the performance of the wells also diminishes. Replacing this source of municipal supply is a pressing issue.

The return flow from the use of this non-tributary aquifer adds an important source of available water to the streams. As growth put pressure on the available water resources, rulings by the Colorado Supreme Court called for "maximum utilization" of Colorado's water. The concept of maximum utilization brings us to 21st Century challenges facing water rights administration.

Augmentation Plans & Replacement Water

The Colorado Supreme Court ruled in 2001 on *Empire Lodge Homeowners Association v. Anne Moyer and Russell Moyer*. The *Empire Lodge* case resulted in a sea change for administration of water rights. The Court cited an earlier decision, which provides an excellent summary of Colorado's historic response to the stress growth places on water:

> "*By the late 1960's, it became clear to Colorado citizens and to the three branches of state government that principal river systems in Colorado, particularly the Platte and Arkansas Rivers, were reaching an over-appropriated status, and junior un-administered diversions, particularly wells depleting tributary groundwater, were intercepting water necessary to fill senior decreed water rights. It also became clear that strict application of the priority doctrine to over-appropriated basins would restrict new water uses to changes of water rights only. How to protect prior appropriation rights while also allowing new uses required a governmental response."*
>
> *Fellhauer v. People contains this court's response to these critical issues. ("*It is implicit in these constitutional provisions that, along with vested rights, there shall be maximum utilization of the water of this state. As the administration of water approaches its second century the curtain is opening upon the new drama of maximum utilization and how constitutionally that doctrine can be integrated into the law of vested rights.*") The 1969 Water Right Determination and Administration Act (1969 Act) contains the General Assembly's response*[18].

Nearly fifty years later, we still operate under the statutes promulgated in the 1969 Act. The Act created a new paradigm, **augmentation**, to provide alternatives for new uses of water to serve municipal growth. An Augmentation Plan follows the same judicial procedures for adjudication of a change to a water right. Any injury to senior water rights must be mitigated. As stated in *Empire Lodge*, the Court also cited an early case for the definition of adequate replacement water:

> *"Decreed water rights receive a replacement water supply that offsets the out-of-priority depletions. We said in Midway Ranches: Augmentation plans implement the*

[18] Emphasis in original.

Colorado doctrine of optimum use and priority administration, which favors management of Colorado's water resources to extend its benefit for multiple beneficial purposes. Out-of-priority diversions can occur only when a replacement supply of water, suitable in quantity and quality, is made available to substitute for the otherwise diminished amount of water available to supply other water rights exercising their priorities. Depletions not adequately replaced shall result in curtailment of the out-of-priority diversions. The replacement water can derive from any legally available source and be provided by a variety of means."[19]

A critical element for modern water development is captured in *Empire Lodge*; adjudication of an augmentation plan allows new growth to adhere to the Prior Appropriation Doctrine. Augmentation plans depend on a defined type of water: **replacement water**.

There are three sources of water that meet replacement criteria:

- Senior water rights that have been re-adjudicated,
- Water derived from a transbasin diversion, or
- Water produced from a source deemed non-tributary.

Cities purchase and convert senior agricultural water rights to municipal uses. The process requires computation of the historic consumptive use while changing the place and type of use. The formerly irrigated land is permanently fallowed and revegetated with native grasses. Since 50% of the water delivered to a home returns to the stream system, that return flow becomes available as replacement water.

Early in the history of water resource development, the courts recognized that water imported from one river system, like the Colorado River, to another like the South Platte, should be given special consideration. Water from an exporting river is "foreign" to the receiving basin, so imported water was extraordinary to the native waters. The tracking and administration of native versus imported water, the transbasin water, has evolved to a precise operation.

Finally, there is water disconnected from the hydrological cycle. As Lawrence MacDonnell describes in *Five Principles that Define Colorado Water Law*, the General Assembly, after establishing the 1969 Act, defined the legal status of the Denver Basin aquifers:

"Next, the General Assembly took up the use of deep formations of groundwater with only remote connection to any surface water source. In 1984, it finally concluded that such groundwater, in effect, belonged to the overlying landowner and provided rules by which recoverable quantities of water could be pumped and used over a 100-year period. Thus, such nontributary groundwater is deemed to be independent of the prior appropriation system"[20]

Water independent from the prior appropriation system is excellent replacement water. The Denver Basin formation is the primary source of nontributary water, although other deep aquifers can qualify.

[19]Supreme Court, State of Colorado, 2001, pp. 22-25.
[20]MacDonnell, 1997, p.167.

Protecting senior water rights from stream depletions caused by new uses has generated sophisticated modeling tools. These systems are administered daily, documenting replacement of depletions to the stream in time, quantity and quality.

Since *Empire Lodge*, the Front Range municipal water supply has evolved into an interlocking system of augmentation plans, reusing imported water as efficiently as possible. The next frontier in maximum utilization is construction of "pump back" systems, as demonstrated by the City of Aurora's Prairie Waters Project and Colorado Springs Utilities' Southern Delivery System. These multi-million dollar pump and pipeline systems bring water from downstream back into the community of origin.

Connecting Supply and Demand

A water resource portfolio combines three elements to connect supply and demand. A municipality begins with legally adjudicated water rights. Thanks to the vision and initiative of early utility managers, older communities have the luxury of senior water rights and gravity delivery systems. Younger communities, that began growing rapidly in the 1970's, have augmentation plans and rely on expensive infrastructure for delivery to their residents.

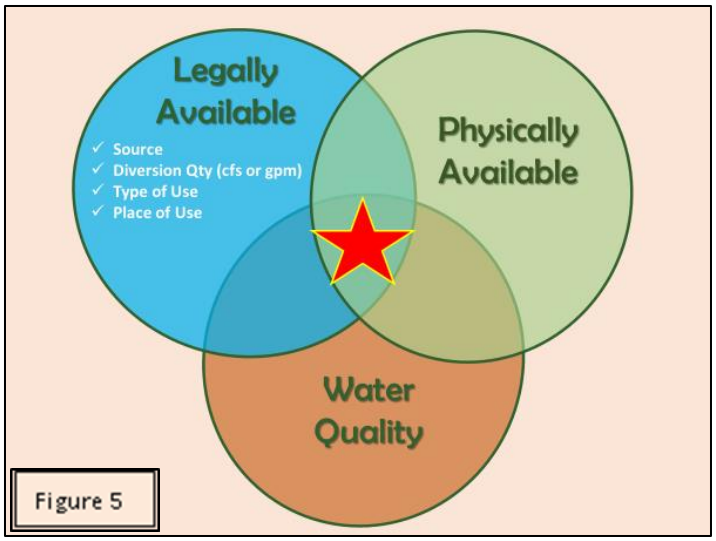


Figure 5

The water court process to establish legal water rights is well defined and relatively transparent to those who operate daily in the esoteric world of Colorado water law. The physical availability issue is an engineering and economic question, demonstrating the adage that "Water runs uphill to money and political power." However, the Colorado water providers of the 21st Century face a different challenge, preserving the integrity of aging infrastructure.

The third element, water quality, has emerged as the most perplexing as the technology of detection has outstripped treatment methodologies. Fortunately, most Coloradans enjoy clean water derived from snow melt at the top of the Continental Divide. The Denver Basin aquifer similarly provides high quality drinking water.

The Dilemma

A dilemma, by definition, requires a choice between two unappealing alternatives. Where will Colorado's communities find new water to match growth? One alternative is to manage growth, likely difficult in a democratic society. The other is to continue converting agricultural water into municipal supplies, with the requisite permanent loss of farm production. The permanent fallowing is captured in the phrase "buy and dry." Neither appears attractive to public policy makers.

However in Colorado water rights are treated as real property, transferrable by deed. Many farmers look to a future sale of senior water rights as their retirement. A common perception is the market system will prevail and provide **fair market value** to the farmer or rancher who wishes to sell. Public water agencies are required by statute to make purchases using a fair market value standard. Value depends on quantifying historic consumptive use, with price dependent on seniority along with the history of use, crop type and local hydrologic conditions.

While this all sounds sensible, here is the perspective of one frustrated rancher in the San Luis Valley:

"Because this is how it works. You're going to get fair market value. The government arrives here with a little list called a use list. I keep one right here in my pocket.

"He's gonna pay you a visit and talk about these uses. First on the list, "historical use." Have you been keeping proper records, or have you maybe been a little lax? Who's to say that you use this water the same as your granddaddy used the water? Well, maybe you might have to give up a little water to the state.

"So let's look at the next use, "beneficial use." Do you use your water all the time, put it to beneficial use? Aw yeah, always do. How do you know? How about that little old junior water right down in the bottom that sometimes runs and sometimes doesn't? Do you get any benefit from that? Well, maybe you do, and maybe you don't. If you don't, maybe you'll give a little water to the state.

"Now let's talk about "expanded use." Here you are doing your best to operate in the framework of historical use, but maybe you've gone too far and used a little more than you're supposed to, historically. Well, you might have to give some water to the state.

"Now here comes the real kicker. You're probably fed up by this time too. You're saying okay, this is enough. I've got this amount of water, and I water this amount of land, pure and simple. But you just thought it was pure and simple because we now have "consumptive use." It's not you who decides how much water it takes to grow a bale of hay, although you may disagree. The government agents are going to tell you about this little bill they have here in Colorado, the Colorado Pouring Water Down a Rat Hole Bill. If you've been doing that, plan to give a little water to the state.

"So you started off the day thinking you had a big barrel of water. The government agent might wind up just handing you a milk pail. But don't take your milk pail of water and walk off just yet, 'cause we ain't done yet. We've got one more use. So far we haven't established how much that pail of water is worth.

"So now we get down to the big use, "highest and best use," a term you'll like to use. Right now the Saguache County rancher's highest and best use of his water is in direct proportion to what it takes to produce a bale of hay. You might get a lawyer to niggle around and get that agent to consider that it might be worth a little more after you run that bale through a cow, but it wouldn't be much.

"You can say: "Hey, listen, we've seen that this water's worth a lot of money. Cities are willing to pay a lot of money for this water." Then the agent is going to look at you and get that little gleam in his eye and inform you, "That's good, but you don't have any way to get that water to the cities. All you can do is grow hay."[21]

A Bright Future?

Only a great people can rise to the challenge of thriving in the arid West. The track record so far is good. However, the droughts of last two decades brought into sharp focus the scale of this challenge. Illumination and exploration of the path leading to a confident future has perhaps just begun with publication of Colorado's Water Plan.[22] Or, the various stakeholders have defined their positions and are prepared to defend them. To

[21] Bingham, 1996, pp.230-1.

[22] https://www.colorado.gov/cowaterplan

date, the dialogue has been engaging but most are waiting to see how implementation of the Water Plan proceeds.

At the local level, doubt about the future of groundwater has prompted many water agencies to look closely at their delivery systems. Groups formed in the early 2000's are now advancing regional solutions to regional problems. Both Douglas and El Paso Counties, areas where reliance on non-renewable resources are greatest, have formed Water Authorities—quasi-municipal government entities searching for cooperative solutions between local water purveyors.

Frank Milenski condensed this entire discussion into one paragraph:

> *"Competition for water has always been keen. The miners fought over it; then the farmers fought over it and soon the cities were fighting over it. In eastern Colorado, streams were already over-appropriated by 1890, so canal companies tried to develop water storage facilities. When water storage facilities failed to provide enough water, farmers turned to ground water pumping. Then they turned to transmountain water diversions. Cities acquired all the early water they could get; they began to develop storage facilities especially around Denver from 1900 to 1910; and they threw themselves into the fray of transporting water across the mountains. In less than a hundred years, man has developed about 8,000,000 acre-feet of storage in Colorado, but the search for water goes on. It is pretty evident that the water isn't going to diminish any in value, but it will get more valuable as time goes on. This is without a doubt."*[23]

Where your treasure is your heart will be also, and the West's treasure is in its beautiful rivers, lakes and streams. These treasures are fragile. Our society needs courage to face the challenge of good stewardship while sustaining our civilization through maximum utilization.

The Prior Appropriation Doctrine allocates water rationally, offering certainty in an erratic natural environment. Yet it depends upon an adversarial process. The promise of the future requires solutions based on cooperation and consensus rather than arguments and legal wrangling. Achieving these solutions demands rational allocation coupled with a framework for collaboration. The benefits will be innumerable. This will take persistence and patience, along with willingness to be open to the untried and unknown. Besides, no one ever said it was easy.

[23]Milenski, 1990, p. 27.

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