Water Banking: Should There Be More Interest?

by Austin Hamre

Editor's Note:

In the March 1994 issue of The Colorado Lawyer *[at page 595], an article entitled "Water Banking: A New Tool for Water Management" discussed the concept of water banking and how its careful use could be beneficial in certain situations. There also have been various reports issued on this subject in recent years. This article further examines the issues involved in water banking and the cautions that are needed in keeping water banking in line with Colorado's existing water policies.*

The concepts of dry year leasing and water banking seem to offer not only a means of making limited water supply go further, but also a vehicle for cooperation between water users in a win-win situation. Yet, despite a fair amount of discussion in recent years, dry year leasing and water banking are seldom used in Colorado in actual practice. This article discusses whether Colorado needs to "tweak" its system for changing water rights in the state to help facilitate these short-term transfers, as some authors have suggested.

Dry Year Leasing and Water Banking

A dry year lease is simply a contract by which one water user allows its water right to be used in a different place by another user in a dry year, which would be defined by certain criteria. The most likely scenario is a lease between a farmer wanting to cut his or her losses in a dry year, and a municipal/industrial water provider who needs additional dry year yield.[1] The names "interruptible supply contracts," "water right option contracts" and "drought insurance contracts" also have been used to describe the same thing.

Both the term of the lease and the criteria used to trigger the lessee's use (that is, the definition of "dry year") could be subject to negotiation. A recent study of the Fort Lyon Canal system on the Arkansas River included an analysis of dry year leasing and suggested that a dry year having a probability of occurring once in ten years would be an appropriate trigger.[2]

A water bank is simply a clearing house to facilitate one-year leases between many lessors and users (not to be confused with underground water storage projects, sometimes referred to as "banking" water). The water bank concept envisions some leasing every year, although perhaps more transactions in drier years, and the individual lessors and users may vary from year to year. To achieve the volume of transactions necessary to sustain a water bank, a broader market including leases between agricultural users in different ditch systems would be needed. Water banks may involve more overhead, but also may create economies of scale.

If successful, these concepts could have a number of benefits: (1) the farmer leasing out or banking his or her water generates income and, in theory, turns a poor revenue year into at least an average year; and (2) the municipal water provider minimizes its need to stockpile water and water rights to ensure that it will have an adequate supply in dry years.

Colorado's Water Allocation System

System Goals

Colorado's water allocation system has three basic goals related to changes of water rights. The first is maximizing beneficial use.[3] Because water is such a limited commodity, the system must have reasonable flexibility so that water can be moved to the uses where it is most needed and where it can do the most good.

Second, the system must protect existing rights in water.[4] In Colorado, as in most western states, water rights are property rights. Those who use and own water need a reasonable amount of certainty as to both the yield and the value of those rights. Changes of water rights can upset the *status quo*, decreasing certainty for all water users.

Third, the system must properly allocate the costs of achieving the first two goals. Not only is the *status quo* a known commodity, but it is known to be essentially free of injury. An entity proposing to change the present administration of a stream, therefore, should bear most of the burden of demonstrating that the new regime will not injure existing rights.[5]

These goals are achieved in Colorado through the application of various principles. Water is not tied to specific land but can instead be conveyed separately and applied to new uses, provided no injury is caused. Every water right is entitled to the maintenance of conditions on the stream at the time it was appropriated. Recognition of this basic principle quickly led to the corollary that it is not merely the decree, but historic use under that decree, that defines the water right. When a water right is changed to a new use, it is "frozen" as of that time and requantified

based on past actual, lawful use, not on how it could have or might have been used. Allowing the expansion of diversions by existing water rights would take water away from more junior rights that have been putting that water to beneficial use.

Water Court Procedure

In Colorado, the approval needed for moving water to a new place and type of use is obtained judicially through the water court. The process for obtaining a change of water right decree starts (officially) with filing the application. The water court publishes the application in a resumé, and persons who believe they may be adversely affected can enter the case by filing a statement of opposition. An engineering analysis is provided by the applicant, and a report is typically provided to the opposers, who have their own engineers and lawyers look it over.

The case usually then enters a negotiation stage in which the opposers point out perceived flaws in the analyses and propose additional terms and conditions to prevent injury. Frequently, the applicant's engineer then revises some analyses or performs additional analyses to address the opposers' concerns. If a consensus can be reached, the opposers may stipulate to a decree. If not, the case goes to trial.

Transaction Costs

Trying to integrate the dry year leasing/water banking concepts into Colorado's water allocation system presents some difficulties. Perhaps the biggest problem is the cost of obtaining a change of use decree. The required engineering analysis often raises a tangle of engineering and legal issues that are a fertile ground for controversy. Because the question of injury is so fact dependent and case specific, often there is no clear answer in either statutes or case law. The combined costs for the legal and engineering analyses, trial preparation and trial are in the tens and often hundreds of thousands of dollars for most municipal changes of use. Depending on the amount of water transferred, these costs can range from a few dollars per acre foot to more than a thousand.[6]

Economists group all of these costs of legal and engineering analysis, negotiations and trial under the heading of "transaction costs." These costs may be tolerable for a permanent transfer that will provide benefits every year, but could be far more difficult to justify for a water source that will be used only in one year out of ten. The problem is, the fact that the water will be put to a different use only 10 percent of the time does not mean that an entity can get by with doing only 10 percent of the engineering and legal analysis.

> "High transaction costs are not necessarily an indication that something is wrong with the current system for changing water rights."

Some authors have suggested that the rules for changing water rights in western states, including Colorado, should be modified in cases of short-term transfers such as dry year leasing and water banking in order to lower transaction costs and make these mechanisms a more viable alternative.[7] One proposed "fix" is to make the legal requirements less rigorous. Rather than strictly limiting a water right to its historic use, a short-term transfer could require only that some recent use be shown, rather than a full historic use analysis.

It also has been suggested that the engineering should be made less rigorous by relying on general assumptions to estimate consumptive use on the basis of crop type and by establishing presumptions that no injury will occur if the water banked is limited to the estimated consumptive use.[8] The water bank itself, or some governmental agency (other than Colorado's water court), would perform the analysis to further streamline the process.

Appropriateness of Procedural Inducements

The question that remains is whether the rules should be bent in order to lower transaction costs for short-term transfers.[9] In this author's opinion, the answer is no, for several reasons.

Uncertainty Is a Transaction Cost

Aside from those transaction costs directly associated with the water court process, another set of transaction costs is created by the uncertainty about future events and the need for one party or the other to bear the risk of that uncertainty. For example, when does the municipality know its supply-and-demand picture well enough for a given year to make commitments for additional water? The difficulty in answering this question was illustrated along Colorado's Front Range in 1995. Until April, it appeared that the state was in for a very dry year; then came monsoon season until mid-June. Because the water supply picture can change quickly, a municipal water provider will want to wait as long as possible before making a commitment.

The agricultural water user and potential lessor, however, faces entirely different time constraints. In some circumstances, fields are prepared, and seed orders are placed for some specialized crops (many varieties of seed corn, for example), the preceding fall or over the winter prior to planting. In northern Colorado, much of the planting takes place between late February and early April, and these dates get earlier as you move south.[10]

In this competition for certainty, the timing problems caused by the differing schedules of municipal and agricultural users reduce the margin of feasibility for short-term transfers. The longer the municipality waits to commit, the more costs the farmer would have to recover for a lease to be profitable. The more guessing the municipality has to do, the more wrong guesses there will be. Leasing water in years it is not actually needed reduces the benefits of leasing as compared to an outright purchase of water rights. The municipality's means of reducing uncertainty, therefore, may be to purchase water rather than to lease it.

Certainty comes up again in the related context of long-term municipal water supply planning. Municipalities are most concerned with sustained droughts lasting from three to five years or longer, rather than a single dry year. A water bank may not offer enough reliability because the amount of water available and the price can change every year.[11] Dry year leases might offer the municipality greater certainty for extended droughts, but what might be called the "farmer's psychology" then must be considered.

Farming is what farmers do. They did not buy all their land and equipment to watch it sit idle for a whole season, much less for five years in a row. A person unable to muster a fair amount of optimism about the prospects for next year's water supply and crop production is not likely to last long in the farming business.[12] The farmers who are willing to lease their entire water supply and take a few years off are perhaps more likely to sell their wa-

ter rights and get out of farming permanently.

High Transaction Costs May Be Necessary

In this author's opinion, the second, and more important, reason why special rules should not be applied to short-term transfers is that high transaction costs are not necessarily an indication that something is wrong with the current system for changing water rights. Before concluding that the system needs fixing, it is important to look at what interests and values the system is supposed to protect and whether those interests and values are being protected.[13]

The three basic values underlying the current system for changing water rights were discussed above. The cost of changing water rights comes from having people with a lot of expertise debate the issues and from having a reliably neutral forum, free of both economic and political pressures, to judge the merit of the opposing positions and determine the outcome. This system is exceptionally effective in ferreting out potential injury and finding ways to prevent it. It should be noted that the current process is not always terribly expensive, particularly in the case of smaller transfers. Because both sides bear some legal and engineering costs, there is a substantial incentive to negotiate a solution in cases in which the amount of water and potential injury are not worth fighting over.

A "streamlined" change procedure, whether administered by an administrative agency or a water bank board, is unlikely to be as effective as the current system, from both a procedural and a substantive standpoint. The State Engineer's Office is overworked already, and it is becoming increasingly apparent that government has to get smaller, rather than bigger. An administrative body that takes basic information and performs the engineering itself is put in the extremely difficult position of trying to be a proponent, adversary and neutral judge all at once. An administrative body has less incentive to come up with creative solutions than the parties themselves. Having the analyses done and decisions made by an arm of the water bank is leaving the fox to guard the hen house. A water bank board would have a strong incentive to approve more transactions in order to maintain the flow of both water and cash through the bank, but would have no economic incentive to protect other water users on the stream.

Bending the Rules Externalizes Costs

At first glance, it appears that these suggestions for streamlining the process for short-term changes could significantly lower transaction costs. In fact, however, they would redistribute costs or allow a larger number of unknown water rights injuries to occur. Those unknown injuries translate into real costs to third parties, even if they cannot be quantified.

Because actual use and consumption define the amount of water that can be changed to a different use, moving away from a full examination of a water right's historic use will usually take water away from someone. Such a move would translate to greater uncertainty in the reliability of water rights generally, the ultimate effects of which would be difficult to forecast.

Water engineers currently use assumptions to the extent they are reliable, but estimating consumptive use based solely

on crop type has a strong likelihood of causing injury. Numerous other factors are at least as important as crop type, such as the amount of water actually delivered to the field, soil type, field slope and dimensions, the irrigation method employed and the amount of water applied in each irrigation. These factors affect not only consumptive use, but also the amount, timing and location of return flows. The appropriate result in any given case is highly fact-specific.

Reliance on generalized assumptions rather than adequate engineering will cause one of two things to happen: either the assumptions will be generous enough that some applicants get too much water and cause injury, or the assumptions will be conservative enough that most applicants get penalized. A single "rule of thumb" number that prevented injury in most cases would have to be so conservative that its impact on the economic feasibility of most water bank transactions would be worse than the present transaction costs.

Numerous other critical aspects of changing a water right similarly defy easy generalization. For example, what is the proper study period for quantifying historic diversions? The study period used can have a profound impact on the result. Are the diversion records accurate, and do they tell the whole story? Where did return flows reach the river, and did they take three years or thirty to get there? Return flow timing cannot be determined solely by the distance from the river, but requires also a study of surface and bedrock topography, as well as the transmissivity of the soil in between.

Even with the relatively exhaustive analyses performed for contemporary change cases in Colorado, the water court is required by statute to retain jurisdiction over the change decrees it enters for a long enough period of time so that any injury caused by the change can become apparent and the parties injured can take the applicant back to court to have the injury remedied. Where the change is both short-term and intermittent, injury may exist, but it may not become evident until it is too late.

Employing a presumption that no injury will be caused if general rules of thumb are employed causes two additional problems. The first is one of fundamental fairness. A presumption of no injury shifts most of the costs and risks from the applicant to other water users on the stream, who then must bear the initial cost of doing the engineering to find out whether the general rules are valid in their case, and they must assume the burden of proof of injury. The second is one of economic policy. Allowing the costs to be borne by parties other than those who will receive the benefits of the transaction encourages transactions that are undesirable economically or socially.

Similarly, it has been suggested that one way to address injury to third parties might be to impose fees on all dry year lease or water bank transactions to compensate those who can demonstrate injury. Such an approach still puts the cost of fact-finding and engineering on third parties, raises issues regarding whether the compensation will be correctly allocated and creates additional costs associated with ensuring proper allocation. Again, the result of this after-the-fact compensation approach is the taxing of economically beneficial transactions to support nonbeneficial transactions that should not occur at all.

Conclusion

While there may be room for fine-tuning, in this author's opinion, Colorado should be careful tinkering with its process for changing water rights. The current process can involve substantial transaction costs, but those costs reflect policy choices about the value of protecting property rights and the value of the certainty afforded by that protection. The justification for more cursory, streamlined analyses of the amount of water allowed to be changed is that the transfer would only be temporary. The implication—that water users are willing to overlook possibly significant injuries as long as they are of short duration—is not in accord with the policies now in place in Colorado.

Before determining that transaction costs should be lowered, Coloradans need to re-examine their commitment to the policy choices that led to the existing system. The present system is achieving the goals it was designed to achieve. General rules and shortcuts cannot be applied without compromising the reliability of the outcome. The concepts of dry year leasing and water banking may have some merit, but, in this author's opinion, only in those cases in which absence of injury is proven rather than assumed. Unless Coloradans want to change their underlying policy choices, they should require that new solutions to water allocation problems conform to the existing system, rather than conversely.

NOTES

1. This scenario is most likely because the concept relies on the differential value of water when applied to different uses. Agricultural irrigation water is bought and sold at substantially lower prices than municipal or industrial supplies. Leasing between agricultural users in different irrigation systems is not likely because usually there is an insufficient differential between agricultural uses to cover transaction costs. Ditch company water rights are generally decreed for use on all of the lands served by that ditch. Most mutual ditch companies' shares are therefore freely transferrable within their individual systems, without the need for judicial approval, although some companies have enacted by-law restrictions limiting their shares' mobility. Not surprisingly, there is already an active rental market within many ditch companies.

2. Gronning Engineering Co., *Fort Lyon Canal Company Water Transfer Alternatives Study*, prepared for the Colorado Water Conservation Board, Feb. 1994 (*hereinafter*, "Ft. Lyon Study").

3. CRS § 37-92-102(1).

4. *See, e.g., Farmers Highline Canal & Res. Co. v. City of Golden*, 272 P.2d 629, 631-32 (Colo. 1954).

5. *See, e.g., Wagner v. Allen*, 688 P.2d 1102, 1108 (Colo. 1984).

6. A recent study of nine transfer cases decreed between 1975 and 1984 looked at the total costs incurred by the applicant, objectors and water court and found that the costs varied tremendously: from less than $1 to more than $1,500 per acre foot transferred. Howe, Boggs and Butler, "Transaction Costs as Determinants of Water Transfers," 61 *U. Colo. L. Rev.* 393, 401 (1990).

7. *See* MacDonnell, Howe, Miller, Rice and Bates, "Water Banking in the West," CU Natural Resources Law Center, 1994. The article contains an excellent compilation of the water banks that have been proposed or operated around the west. Its recommendations, however, have implications for Colorado that deserve thorough discussion and evaluation.

8. *Id.* at 4-80 to 4-81.

9. Arguably, dry year leases and water banks might already be accomplished without water court approval through the use of Temporary Substitute Supply Plans approved by the State Engineer's Office. Doing so, however, raises issues such as notice and due process, whether the SEO is able fully to prevent injury through this process as required by *Ft. Lyon v. Chew*, 33 Colo. 392, 81 P. 37 (1905), and the scope of the State Engineer's authority to approve TSSPs in general.

10. Personal communication on Feb. 29, 1996, with Robert Stieben, president of the Cache la Poudre Water Users Association and retired general manager of the North Poudre Irrigation Company.

11. Regardless of whether the bank is leasing the use of water rights or specific volumes

of water, an analysis will be required of the yield in a dry year of each of the water rights being leased. The dry year yield may be considerably less than the average, and if volumes of water are being leased, the bank will need the analysis to forecast its available supply. If water rights are being leased, the municipality will need this information to know how many water rights or ditch shares to lease, assuming they are available through the bank.

12. Personal communication on Feb. 29, 1996, with Robert Stieben, *supra*, note 10.

13. Howe, Boggs and Butler, *supra*, note 6 at 400.