

Revised 12/2/97

CALFED Water Transfer Element

Draft Discussion Paper No. 1 - Transferable Water

Issues

Broadly stated, the major definitional issue is: What constitutes transferable water? More specifically, the question is: how is transferable water defined and measured for a specific transfer?

There are a number of variations on or corollaries to these questions:

1. What constitutes transferable water for a transfer of saved or conserved water? For a fallowing or crop shift transfer?
2. Can water quality improvements or changes in flow timing be used as a measure of transferable water?
3. What is the significance for transferability of the distinction between water held under water right and water held under settlement contract? A related question is what are the rules for determining whether water proposed for transfer is available at the time of the transfer?
4. Does the current water transfer system encourage consumptive use of water which would not otherwise occur?

The question of what is transferable water depends on the physical source of the water, the underlying water right or legal entitlement to the water, and the type of transfer. From a technical perspective, groundwater and surface water are part of the same system, but legally, water is considered to be surface water or ground water.

Water rights or legal entitlements include: riparian and pre-1914 rights, post 1914 appropriative rights, prescriptive rights, various types of contract entitlements, overlying ground water rights, and appropriative ground water rights.

There are several types of water transfers: transfer of surface water through groundwater substitution; direct groundwater transfer; transfer based on reductions in consumptive use through crop fallowing or crop shifting; transfer of stored water; transfer

of treated wastewater; transfer for instream use; and transfer of saved or conserved water by reduction of irrecoverable losses to saline sinks or "undesirable" vegetation, or other reductions in evapotranspiration. Additionally, transfers of CVP water are subject to the requirements of the CVPIA.

This paper will not address transfers of reclaimed waste water, groundwater, stored water, or transfers for instream uses under Water Code section 1707. This paper will focus on transfers of surface water held under a right of direct diversion.

Background

Water Code sections 386, 1702 and 1706 codify what is commonly referred to as the "no injury" rule on water transfers. While the scope of application of these provisions is not entirely clear, they do establish the principle that no legal user of water should be injured by a transfer.

Water Code sections 386 and 1725 establish that, at least as to transfers which must be submitted to the State Water Resources Control Board, the Board can approve a transfer only if the transfer will not have an unreasonable affect on fish, wildlife or other instream beneficial use, and will not unreasonably affect the overall economy of the area from which the water is being transferred.

Water Code sections 484 and 1725 define transferable water as water that would have been consumptively used or stored by the transferor, the transfer of which will not injure any legal user of water, and which will not unreasonably affect fish, wildlife, or other instream beneficial uses.

Water Code section 484 also says that temporary transfers of water do not prejudice the transferor's future right to the use of the transferred water and defines consumptively used water as water "which has been consumed by use through evapotranspiration (ET), has percolated underground, or has been otherwise removed from use in the downstream water supply as a result of direct diversion."

Water Code section 1011(a) provides that when water appropriated for irrigation is not used because of land fallowing or crop rotation, the reduced usage shall be deemed water conservation.

Water Code section 1011(b) provides that water, or the right to the use of water, the use of which has ceased or been reduced as the result of conservation may be sold, leased, exchanged or otherwise transferred.

Water Code sections 1011(a) and (c) also provide that any cessation or reduction in the use of appropriated water is deemed equivalent to a reasonable and beneficial use of water; and upon completion of any transfer of water based on conservation efforts, the right to the use of the water shall revert to the transferor as if the transfer had not been undertaken.

Water Code section 1725 provides that a permittee or licensee may change the place of use (i.e., transfer) water "if the transfer would only involve the amount of water that would have been consumptively used or stored by the permittee or licensee in the absence of [the transfer], would not injure any legal user of the water, and would not unreasonably affect fish, wildlife or other instream beneficial uses. For purposes of this article, 'consumptively used' means the amount of water which has been consumed through use by evapotranspiration, has percolated underground, or has been otherwise removed from use in the downstream water supply as a result of direct diversion."

Water Code sections 1745.04 and 1745.05 provide that a water supplier may transfer water from storage, water made available by crop shifting or fallowing, or water made available by "conservation or alternative water supply measures ...". Following transfers are limited to 20% of the water which would have been applied or stored by the water supplier.

The application of these statutes and, in particular the interpretation of the "no injury rule" has led to the development of three concepts which are instrumental in considering proposed water transfers.

"New water" is water not previously available in the system, created by reducing irrecoverable losses or flow to unusable water bodies.

"Real water" is water which if transferred does not diminish the supply available for other beneficial uses. "Real water" is not necessarily "new water", but all "new water" must be "real water".

"Paper" water is water that does not create any increase in the water supply, such as water under right but not historically used, or tailwater or return flows which are used downstream.

Discussion

Collectively, these provisions establish the public policy and legal authority that water transfers based on fallowing, crop shifting, and conservation measures are determined substantially by reductions in consumptive use and reductions in irrecoverable losses. However, some questions remain.

1. The first specific issue is the question of what is the scope of "consumptive use" for transfers based on fallowing, crop shifting or conservation measures.

Some stakeholders (potential sellers and buyers of transferred water) argue that the traditional definition of "consumptive use" is too narrow, and unreasonably limits transfers of saved or conserved water authorized by Water Code section 1011(b) and fallowing/crop shift transfers authorized by section 1001(a).

The argument is that the narrow definition of consumptive use effectively limits transferable water to reductions in evapotranspiration (ET), which can only be accomplished by fallowing or crop changes, and reductions in percolation to unusable groundwater, which occurs only in a few geographic areas of the state.

There is no disagreement that water consumed by the crop (evapotranspiration) is part of the consumptive use measure and that, if foregone, is transferrable.

Similarly, there does not appear to be any serious dispute that surface water runoff (tailwater) which is not recaptured and reused, but which becomes available to a downstream user, is not transferrable. (However, the question has been raised whether, if it is permissible for the water user to recapture tailwater for his own use, thereby depriving the downstream user of its benefit, why could he not reduce his tailwater production by efficiency improvements and transfer it?)

Water Code section 1725 includes in its definition of consumptive use "water which ... has percolated underground." The Department of Water Resources has interpreted this phrase to be limited by other language in this section, so that it only applies to water percolating underground which "has been removed from use in the downstream water supply...."

There is no dispute that water which otherwise would have percolated to unusable groundwater is transferrable. While there is general agreement that water which would otherwise have percolated to usable groundwater is not transferrable, there is some question about how this rule should be applied.

For example, water that percolates below the crop root zone as a result of overapplication of irrigation water (which is necessary to some extent for leaching) enters the "vadose zone". This is the portion of the soil column below the rootzone but above the aquifer. Water movement through this zone is known as vadose zone transport. Transport is affected by several variables but most significantly by gravity and soil type (permeability).

The rate at which water moves through the vadose zone affects the rate of recharge to the aquifer. The recharge rate is not always known, therefore the consequence of changing the rate of transport through the vadose zone cannot always be determined. The extent to which other legal users of water may be affected by changing this transport rate (as a result of a groundwater substitution transfer) is also dependent on other variables that result in a recharge or drawdown of the aquifer, including subsurface lateral flow, precipitation, streamflow accretions and depletions, and rates of withdrawal by other overlying users. Therefore, it is not always clear that pumping groundwater (as part of a groundwater substitution transfer) which would otherwise eventually percolate through the vadose zone to a usable aquifer (or affect the rate of recharge to the aquifer) will necessarily injure another legal user of water.

Solution Options (First Issue)

It has been suggested that one way to resolve the question of what constitutes transferable water based on conservation measures is to put the decision in the hand of some entity other than the project operators, perhaps the State Water Resources Control Board.

It has also been suggested that a standardized set of policies and rules on transferable water generally, agreed to by USBR, DWR and the State Board, would be helpful in clarifying the agencies' interpretations of the requirements for transfers of saved or conserved water.

Alternatively, if the problem is that the existing law is not clear on this point, then the law should be amended to state clearly the circumstances under which saved or conserved water is transferable.

Finally, there may be other interpretations of consumptive use based on a variation of what constitutes an "irrecoverable loss". This idea will be explored in more detail in the following section. For example, some have suggested that water which would percolate to a usable aquifer should be considered transferrable unless its removal from the system would affect other legal users of water within some reasonable period of time.

2. The second specific issue raised by the question what constitutes transferable water is whether there are other interpretations of consumptive use or irrecoverable loss which would might be applied. For example, if improvements in receiving water quality or changes in flow timing can be incorporated into the ideas of consumptive use and irrecoverable loss, the volume of water available for transfer might be expanded without impairment to the rights of downstream users or environmental values.

Over the past several years, water suppliers generally have been encouraged by state law to adopt and implement water conservation plans. CVP contractors are required by federal law to adopt and implement such plans. The public policy intent behind water conservation is that reductions in applied water and improvements in application efficiency will make the saved or conserved water available for other beneficial uses. But if saved or conserved water is not transferable water, there is little, if any, financial incentive to adopt and implement conservation measures. Additionally, in spite of law to the contrary, there is a concern that conservation measures may actually create a risk to water rights or contract rights to water, if the saved/conserved water is not continually and regularly put to beneficial use.

In DWR's 1993 publication "Water Transfers in California, Translating Concept into Reality", there is a discussion of conserved water transfers in the Sacramento Valley. An important point is that "... new water can be created only by reducing losses to unusable water bodies (rare in the Sacramento Valley), reducing surface outflow during periods of excess Delta outflow, reducing consumptive use of crops, or environmentally acceptable reductions in consumptive use of non-agricultural vegetation. Reducing percolation to groundwater depletes another part of the system and can penalize other users by direct reduction of ground water supplies, decreasing groundwater discharge to surface streams or increasing percolation from surface supplies to groundwater. Reducing drainage outflow during the irrigation season merely reduces the supply available downstream".

In summary, the basic problem is that given the strict and traditional interpretation of "consumptive use", the amount of transferable water which can be generated by saving or conserving is very limited. This would appear to be inconsistent with the broader state policy of encouraging conservation by making conserved water transferable, thus creating additional economic incentives for conservation measures.

Solution Option (Second Issue)

An alternative approach would be to expand the traditional concept of irrecoverable loss to include losses to the watershed of timing, quality or location. Under this approach, water which would have been lost to a stretch of the stream or river, or water which is returned in a degraded condition, or water which is lost to the system for a period of time, could under some circumstance be considered transferrable water, subject to the "no injury" and "no unreasonable" impact rules.

3. The third specific issue arises out of the fact that some water rights settlement contracts in the Sacramento Valley provide for the contractors' use of water which may exceed the amount of

water they hold under right (riparian, pre-1914 or appropriative). This can lead to questions about whether the water proposed for transfer would be available at the time and in the quantity proposed in the absence of the settlement contract. This goes to the question of when and to what extent USBR approval may be needed for transfers of such water. If the water is truly water rights water, then presumably USBR approval is not necessary. If the water is water which is only available as a function of the settlement contract, then USBR approval is required as a condition of the contract.

A related issue is whether the water proposed for transfer is in fact available at the time of the transfer.

Solution Option (Third Issue)

This issue will probably be resolved in the negotiations of renewed contracts between the Bureau of Reclamation and Sacramento River settlement contractors.

4. The fourth specific issue has arisen because of a concern that a water user may feel compelled to increase his/her consumptive use of water over historical amounts in order to "qualify" as much water as possible for potential transfer. This situation will generally arise when a water user holds a right to use water which exceeds the historical use. The water user clearly has a legal right to the use of the water, but under the traditional rules of "real water vs paper water", the water user will not be allowed to transfer water which has not been consumptively used in the past.

Solution Option (Fourth Issue)

Agreement on a method of determining historical use.