

(Note: The following is an excerpt from the section discussing "issue identification" in the draft Water Transfer Program Technical Appendix being drafted for public release in late December 1998. This information is provided to aid in the discussion of agenda items 3 and 4 at the September 24, 1998 BDAC Water Transfer Work Group meeting.)

3.4 Technical, Operational and Administrative Rules

1. Issue: Transferable Water and the "no injury rule"

Generally, transferable water must be "real water" and transfers which would injure another legal user of water or the environment are prohibited. However, some stakeholders are concerned that these rules are not always interpreted and applied uniformly by agencies with jurisdiction over transfers.

The amount of water which can be transferred based on fallowing or crop shifting is determined by the reduction in consumptive use and irrecoverable losses. However, there is not always agreement on what is meant by, or how to quantify, "consumptive use". In addition, even when the amount of water produced by a reduction in "consumptive use" can be agreed upon, there can be disputes about the extent to which downstream users may be affected or injured by a transfer of this water.

Some stakeholders (potential sellers and buyers of transferred water) argue that the traditional definition of "consumptive use" is too narrow, and unreasonably limits fallowing/crop shift transfers. Others believe the rule is too broadly applied and does not adequately consider the injury to other legal users of water, when such transfer results in reduced downstream flows, changes in flow timing, or reductions in water quality.

There is no disagreement that water consumed by the crop (evapotranspiration of applied water) 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. (The question is sometimes asked: if it is permissible for the water user to recapture tailwater for his own use, thereby depriving the downstream user of its benefit, why can he not reduce his tailwater production by irrigations system improvements and transfer the saved water? The answer is that under current law, the "no injury" rule does not apply in the first case, but it does apply to water transfers.)

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 percolating below the crop root zone as a result of overapplication of irrigation water (which is necessary to some extent for leaching of salts) 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, for example) 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 reducing deep percolation (as an irrigation improvement or water conservation measure) which would otherwise eventually move 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.

List of Potential Solution Options

- A standardized set of policies and rules on transferable water, agreed to by USBR, DWR and the State Board, which would clarify the agencies' interpretations of the requirements for quantification of transferred water;
- Legislation to authorize the State Water Resources Control Board to make determination regarding transferrable water even for those transfers not currently within the State Board's jurisdiction;
- An interagency process for development of uniform criteria or modified criteria based on the type of transfer (place and purpose of use).

2. Issue: Saved or Conserved Water

Section 1011 of the Water Code authorizes the transfer of saved or conserved water. There is some disagreement among agencies and stakeholders about the scope and application of this provision, in particular whether water saved in the past can now be considered as "real water" eligible for transfer, or whether saved water is transferable only on a prospective basis.

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. Some argue that if saved or conserved water is not transferable water, there is little, if any, financial incentive to adopt and implement conservation measures. The rebuttal is that if the same crop production can be achieved with 20% less water than was historically required, then in dry years, when 20% less water is available, the same production value can be realized. Thus, over the long term, the argument goes, conservation does pay off, even if the water user cannot sell the saved water.

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, some stakeholders believe that, given the strict and traditional interpretation of "consumptive use", the amount of transferable water which can be generated by saving or conserving water 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.

List of Potential Solution Options

- Generally, the same as 4.2.1.

3.5 Wheeling and Access to Federal and State Conveyance Facilities

1. Issue: Reliability of Access for transferred water in existing project facilities

With the complexity of Delta operations and the demand for water from the state and federal projects continuing to increase, it is difficult to reliably provide access to cross-Delta water transfers. Generally, there is no reliable capacity in CVP and SWP conveyance or Delta export pumping facilities for water transfers in other than dry years.

As a practical matter, the availability of project pumping capacity for project water and transfers alike has been reduced in recent years by required pumping reductions in April and May and additional "make up" pumping which must then occur in the fall of the year. Other fishery protection and water quality constraints which may occur throughout the year also reduce the available capacity. The effect of these actions is to further narrow the window of opportunity for cross-Delta water transfers.

Water transferred across the Delta must be pumped and conveyed by CVP or SWP facilities. Pumping and conveyance of project water has priority over non-project transfers. This, coupled with unforeseen operational constraints that vary continually, can make it difficult for project operators to make firm commitments regarding the conveyance of non-project water, more than a few months (sometimes, weeks) in advance.

This lack of reliability in the timing or availability of project facilities for pumping, conveyance and storage of transferred water is a strong disincentive to attempt cross-Delta transfers. Buyers are reluctant to purchase water, for short- or long-term transfers, not knowing whether it will be delivered when needed. However, given the current limitations in the Delta and the legal and contractual obligations of the projects to move project water before moving transferred water, it is impossible for project operators to provide any degree of reliability for transferred water, even in the short term.

List of Potential Solution Options

- More flexible operating criteria (such as joint point of diversion for CVP and SWP) which would provide for optimized pumping at certain times of the year, thereby creating a larger transfer window at other times of the year;
- Additional capacity for storage and delivery of project water which would create more and larger transfer windows, even with the same priority requirements as those currently in place;
- New facilities which could operate with a different set of priorities (for example, a priority in some percentage of the capacity of an isolated conveyance facility);
- CVP and SWP disclosure of transfer windows and risk factors.