

MEMORANDUM

To: GW Banking Project Participants
Fr: Bryce Contor
Date: 24 October 2005

Re: Thought paper for future discussion.

Tasks 9, 10 and 11 of the Ground Water Banking Project address ways to structure a possible system so that it meets certain goals. In the spring of 2006 I would like to receive input from each of you, perhaps in one-on-one meetings or perhaps in another group meeting, for each of these tasks. At our last meeting we agreed that I should present some ideas to prompt consideration and response. This is the first of four memos attempting to respond to that agreement. There will be one memo for each of the three tasks, and a fourth memo discussing the need to consider policy implications of ground-water-banking management decisions.

Tasks 9 is described as follows:

Task 9. Develop and evaluate ground-water banking concepts aimed specifically at increasing the availability of surface reservoir storage for maintenance of fisheries habitat during dry years.

General Ideas

1. This task is presented as if the goal it describes is a foregone conclusion. That may not be so for all your constituencies. Please help us articulate any arguments for or against this goal, that must be considered by an organization contemplating creating a ground-water banking system.
2. Dr. Garth Taylor is preparing an outline of economic principles that relate to water resources in general and to ground-water banking in particular. Just as the concept of conjunctive management is an effort to address a particular hydrologic externality, in the broadest sense a ground-water banking system could be considered an effort to address externalities. The following externalities could potentially be addressed in part while contemplating a ground-water banking system:
 - a) Excess surface-water diversion depths impose a negative externality on fisheries.

- b) Excess surface-water diversion depths impose a negative externality on junior surface-water users (including hydropower users).¹
 - c) Excess surface-water diversion depths provide a huge positive externality in the form of incidental recharge. This is enjoyed by spring users (including hydropower users), surface-water users who depend on reach gains, and ground-water users.
 - d) Conjunctive management is an effort to address the negative externality that ground-water pumping imposes on other ground-water pumpers, spring users, and surface-water users who depend on reach gains.
3. Some potential components of ground-water banking are compatible with current water law and practice, and some will require modification of law and practice.

Discussion of Task 9

This discussion could take two general directions. The first direction is to consider specific components of a ground-water banking system. The second direction is to consider the externalities implications of water management in general.

Potentially helpful components that could be considered within a ground-water banking system.

1. Policies that maximize the ability to store water during wet years. These include:
 - a) Flexibility in allowing temporary changes in place or purpose of use of surface-water rights to accommodate managed recharge, or to accommodate supplying in-lieu water for foregone ground-water pumping.
 - b) Preferential discounts for storage during wet periods.
 - c) Mechanisms to allow trades and agreements to accomplish placing water in storage in the aquifer. For instance, a canal owner, a holder of surface-water-storage and an owner of a recharge site could agree to cooperate in delivering water for recharge, each receiving part of the credit for the activity.
2. Rules that prevent surface water from being applied as a ground-water-banking deposit in dry years.
3. Allowing pumping from wells into the river as a withdrawal activity for banked credits.

¹ In the memo on hydrologic externalities I proposed that this was not an externality. Because of the operation of transfer policies, that may have been too simplistic an assessment.

4. Using banked credits to supply ground water to an irrigator with surface-water rights (natural flow and/or storage), in exchange for the surface-water rights remaining in the river for fisheries purposes. For maximum benefit, this option must be available in dry years.
5. Rules that only allow withdrawal of banked water during dry years.
6. Allowing increased reach gains caused by a banking deposit to be accounted within surface-water administration in a similar fashion to exchange-well water or storage water.

Potentially helpful modifications to water management in general.

1. Allowing leased or purchased water rights to be dedicated to instream flow without loss of priority.
2. Removing preferences within surface-water rental pools.

Externality considerations within Task 9.

1. If the banking system allows credit for activities that effectively place water in the aquifer (managed recharge, supplying in-lieu water to replace ground-water pumping, retiring ground-water pumping), the benefits of these activities will be internalized to the parties undertaking the activity.
2. If the banking system bypasses the priority system in making surface-water available for aquifer enhancement, or if particular classes of water use (such as hydropower or instream flows) are ineligible to compete for available surface water, the banking activities will impose externalities on other surface-water users.
3. If aquifer-enhancing activities are funded by the public (such as may occur with a CREP program, for instance), spring users, ground-water users and surface-water users who depend on river gains will enjoy a positive externality funded by society as a whole. A banking system that allowed and required these users to participate in the cost of the aquifer-enhancing activities would internalize these costs to the users' decision process and better align their use of water with the true costs to society.