

## MEMORANDUM

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

Re: Thought paper for future discussion - Task 10.

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Task 10 of the Ground Water Banking Project addresses 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 memo is an attempt to respond to that agreement. Task 10 is described as follows:

Task 10. Develop and evaluate ground-water banking concepts which provide a market mechanism for trading and/or buying and selling of credits by both private and public entities. (Describe accounting units and methods, pricing banked units, bank organization and operation)

### **General Ideas**

These are the same general ideas presented in the Task 9 memo.

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 should eventually be considered by an organization that proposes 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.<sup>1</sup>
  - c) Excess surface-water diversion depths provide a huge positive externality in the form of incidental recharge. This is enjoyed by spring 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.

### **Consideration of Task 10.**

#### Banking policies that may promote market transactions.

1. Allowing access to the banking system by as many users and classes of water use as possible.
2. Avoiding preferences.
3. Including pricing and trading mechanisms within the banking system.
4. Allowing prices to be set by market mechanisms.
5. Providing maximum information to all potential traders. This includes information of the volumes of water in banking activities and prices at which transactions occur.
6. Minimizing the number of restrictions placed on transactions. Note that this is in conflict with some of the possible policies outlined to promote Task 9 goals.

#### Potentially helpful modifications to water management in general.

These are the same modifications that may facilitate achieving Task 9 goals:

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.

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<sup>1</sup> 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.

## Economic considerations.

The conditions required for a functioning market may be described as follows (see draft Task 8 document):

1. Adequate information in the hands of buyers and sellers.
2. No significant market barriers.
3. Enough players (buyers and sellers) to prevent any one player or small group of players from controlling the price.
4. All social costs are borne by the players (no externalities).
5. Property rights:
  - complete specification of what is owned
  - exclusive
  - transferable
  - enforceable

The possible policy modifications described above can provide most of these conditions. For instance, the general policy modification of allowing purchased or leased water rights to be devoted to instream flow without loss of priority addresses the current lack of enforceability for water purchased for instream-flow purposes. The operation of the Lemhi Rental Pool provides an illustration that these kinds of mechanisms are possible.

However, the lack of exclusive property rights could still result in insufficient funding being received to move water to fisheries habitat purposes, even if society as a whole values and desires this activity. With the other policy modifications outlined above, an individual or organization putting forth funding to purchase water from other bank participants could dedicate this water to fisheries habitat purposes. However, it may be difficult to construct a mechanism to exclude non-payers from enjoying the benefits, or to compel all who enjoy the benefits to pay for them. In such conditions it would be irrational for the individual or organization to dedicate its own resources to supplying water for fisheries habitat. This market failure may limit the usefulness of ground-water banking in protecting fisheries habitat, even with the modifications outlined above.

Despite this limitation, a banking system that facilitated market transactions could give an interested public agency (such as US Bureau of Reclamation) access to water for fisheries habitat purposes via voluntary transactions, rather than having to pursue regulatory or judicial action. This could also prevent other water users from suffering an involuntary event such as occurred in the Klamath.