National Association of Conservation Districts

WATER QUALITY TRADING
NONPOINT CREDIT BANK MODEL

Introduction

In January 2003, EPA announced final policy on the concept of water quality trading as one potential option to help finance and solve water quality problems on a watershed basis. A typical trading system would allow credits to be sold by those who can voluntarily implement water quality measures to those who need them to achieve a regulated water quality standard that they cannot provide by themselves. Trading could help to finance watershed restoration or Total Maximum Daily Load (TMDL) implementation plans. (See *An Introduction to Water Quality Trading*).

When a trading program allows trades involving nonpoint sources, landowners could agree to implement agricultural best management practices (BMPs) that they are not required by law to implement and would generate credits based on the BMP's ability to control nutrients or sediment. Generally, agricultural credits can be sold for less than credits generated by point sources or industry because they cost less to install and maintain.

The conservation community should provide leadership and encouragement to create water quality trading programs wherever feasible because it provides another source of incentives for landowners to voluntarily install the same BMPs that the conservation community has been endorsing for decades. Those practices provide more environmental improvements than just nutrient management and sediment control. BMPs also provide erosion control, carbon sequestration, animal waste management, wildlife habitat and floodplain management.

The design and promotion of a relatively unknown, market-driven concept such as water quality trading should be carefully planned and presented in order to be perceived in a favorable light and draw enough players to make it effective. Preliminary negative perceptions can present acceptance problems to any new program.

There are several perception and other issues that may present barriers to establishing a good start for a water quality trading program. A water quality trading program that establishes a bank for nonpoint credits within a state agricultural cost-share program could resolve a number of those issues and could present the best, most cost-effective format for putting conservation on the land.

Barriers to Acceptance

Several factors could present acceptance problems to buyers, sellers and the general public. Those factors include:

- **The trading mechanism** – The concept of environmental credit trading is new and somewhat mysterious to many. Some may be skeptical that trading will provide an opportunity for regulated entities to buy their way out of achieving tougher environmental standards. Although water quality or carbon trading is based on the

remarkable success achieved by sulphur dioxide trading established in the Clean Air Act Amendments of 1990, there is currently little to show by completed trades to prove that water quality trading can also be successful. Even after a trading program is established in a watershed, there will be caution exercised by both buyers and sellers as they attempt to negotiate deals when a market price has not yet stabilized. The presence of a trading bank can instill some confidence and stability at the start by setting the price.

- **Combining credit sales with cost-sharing** – Some existing trading programs have been established with rules that if a BMP has been installed with cost-sharing provided, a landowner can only sell the percentage of credits generated by his share of the installation cost. For example: if a BMP was cost-shared 70% and generated 10 credits, the landowner is only entitled to sell 30% of the credits or 3 credits. Some have claimed that the perception of selling credits is "unduly enriching individuals", while cost-sharing is perceived as an incentive that constitutes the public benefit derived from stopping pollution before it starts on private land.

  Credit sales is another form of voluntary incentive that could be regarded the same as cost-sharing. A trading bank could combine two forms of incentive from different funding sources to leverage each other's efforts by working together to increase participation in a voluntary program to put conservation on the land. The increased combined incentive may convince those who have so far resisted accepting the standard cost-sharing rates alone or credit sales, if they were conducted alone.

  Increasing incentives for the same BMPs is very similar to the intent behind the establishment of the Conservation Reserve Enhancement Program (CREP). Increasing incentives within a targeted area results in greater participation, which may be necessary to generate sufficient credits to be meaningful in a trading program. Working through a bank within a state cost-share program that uses the combined assets of cost-share funds and credit sales to either increase cost-share rates, extend total cost-share funds or offer a combination of cost-sharing and credit sales would provide the most efficient, cost effective operation.

- **Concerns about operating costs** – If buyers had to negotiate individually with farmers to buy water quality credits, transaction costs would be high. Depending on a buyer's need for credits, he might need to make dozens or hundreds of individual sales to cover his requirement. Buyers might also find themselves responsible for verifying the continued maintenance of a BMP and replacing BMPs that fail to function as planned.

  A cost-share program has an existing infrastructure that includes administrative, technical and financial services operating through a state office and a network of local conservation districts with the capability of inspection, verification and adequate record keeping. A trading bank within a cost-share program would allow a buyer to purchase credits without the necessity of verification or additional insurance, although the Bank may find it necessary to assess a fee to cover additional verification and insurance.

The Nonpoint Trading Bank Model

This model is based on the concept of a water quality trading bank for nonpoint credits being established as a component of a state cost-share program. It is based on the efficiency of using the existing funding, procedures, staffing and infrastructure of a state cost-share program. The Bank serves as a registry and sells the credits generated by implemented BMPs, whether they were cost-shared or not. Credit sale revenue is accounted for separately, but then can be added to state funds to either increase cost-share rates, extend total cost-share funds at the same rate or provide credit sales to farmers in addition to cost-share (see *Credit Sale Revenue Scenarios*). There should be little or no difference between the regular cost-sharing program and credit trading in terms of landowner requirements for installing and maintaining BMPs. The Bank may also create special BMPs that generate credits but might not be in the cost-share program such as a proven reduction of fertilizer for cropfields or providing a poultry feed supplement to reduce the phosphorus in manure.

Cost-Share Program Features

A cost-share program performs the following services:

- **Establish/Revise Standards** – Standards and specifications for BMPs and their maintenance requirements are established and reviewed periodically.

- **Set Cost-Share Rates and Areas for BMPs** – Cost-share rates are reviewed on a regular basis and set to increase incentives for priority BMPs. Areas and specific BMPs can be targeted where severe pollution is taking place or to support a special project.

- **Create Mechanism to Cover Losses**– Policy can allow additional cost-share payments for the restoration of BMPs damaged by acts of God. In the case of negligence or fraud, the landowner is required to return the cost-share payment amount.

- **Verification through Field Spot Checks** – Conservation districts or NRCS field office staff make periodic field visits throughout the maintenance life of a BMP to verify that the practice is still in place and functioning properly. An annual percentage of all existing BMPs with a maintenance life over one year is established for spot checks. Annual cost-shared BMPs such as cover crops are not paid until field staff verifies that the cover has been established; or, in the case of conservation tillage, that adequate residue is present. A visit to a farm for one BMP can also verify any other active BMPs on the same farm.

  Some state cost-share programs allow "piggy-backing" on federal cost-sharing through programs such as the Environmental Quality Incentives Program (EQIP). If the state offers a higher rate than EQIP, the landowner gets the higher rate, EQIP pays its rate and the state pays the difference. This arrangement would leverage even more funding to apply BMPs that generate credits. EQIP requires field checks each year for the first several years. State cost-share programs may generate a random selection of practices by computer that does not consider if EQIP practices are involved. The net result is that more BMPs are field checked each year than state records might indicate.

Nonpoint Trading Bank Features

- **Defining a Credit –** How a credit is defined in the trading rules has a profound effect on the incentive it would provide. Using the Revised Universal Soil Loss Equation (RUSLE) or some other approved scientific method, the pollutant control capability of each cost-shared BMP and thus, the corresponding number of credits generated by each eligible BMP is determined.
  - One potential definition would allow credits to be sold once and would be in effect for the entire maintenance life of the BMP.
  - Another definition would allow credits to be sold each year of the maintenance life of the BMP.

  For example, if a BMP with a 10 year maintenance life were determined to generate 10 credits, a landowner would have in the former definition, 10 credits to sell one time only that would be in effect for the next 10 years. With such rules, adjustments would need to be made for the value of BMPs with different maintenance lives: cover crops or conservation tillage are annual practices; typical vegetative practices such as buffers, grass waterways, etc. have a ten-year maintenance life; and most structural practices such as animal waste storage facilities have a 15-year life. To be fair, an annual practice such as a cover crop should only be 1/15 the value of an animal waste management facility with a 15 year maintenance life.

  In the latter definition, the landowner could sell 10 credits a year for each of 10 years yielding a total of 100 credits generated by the BMP. The market price of those credits could rise (or fall) significantly over the 10 year period. Also, with annual sales of credits, the difference of maintenance life is not a factor. Obviously, the latter definition provides far more incentive than the former.

- **Set Credit Price** – The credit price could either be set by an organized marketplace such Nutrientnet (www.nutrientnet.org) or by the Bank. If the Bank sets the price, it will establish the time period that the price will hold until it will be reviewed again (annually or as the market might demand). The Bank might also charge a fee per transaction if it is deemed necessary for operating costs in the event that the additional activity in credit sales will require more staff and support infrastructure than the existing cost-share program required. The fee might be expressed as an additional charge to buyers for sales, verification and insurance services or as a reduction to the credit sale to landowners or a combination of both.

- **Determine Eligible Credits Against Baseline** – If agriculture has a baseline of pollution reduction to reach as established by a TMDL or other requirement, the Bank must determine a method of ensuring that the baseline is deducted from the total implementation of BMPs to arrive at the total of eligible credits to sell, either by individual landowner or by county or watershed totals.

- **Establish Margin of Safety** - A margin of safety will need to be established that will compensate for the uncertainty of measurement, variable on-the-ground performance through the maintenance life of a BMP and other risks to desired environmental improvements. For example, with a 2:1 ratio, a buyer who needs 100 credits must buy

the equivalent of 200 credits. The margin of safety should err slightly on the conservative side, such that more conservation benefit is actually provided on the land than is taken credit for, rather than the reverse situation. However, ratios will affect demand and too conservative a ratio may have a chilling effect on market participation. If different ratios are set for different types of BMPs, the demand and the market price will favor the lower ratio practices. For example, if cropland BMPs are set at 3:1 and structural practices such as animal waste management facilities are set at 2:1, buyers will obviously prefer structural practices.

Operating the Bank

- **Providing the Initial Credits for Sale -** When the trading program is established, a base year and a baseline for nonpoint source pollution reduction are set. The Bank has an opening balance of credits based on all eligible BMPs implemented within the trading watershed boundaries, with results above the baseline, accumulated from the start of the base year to the Bank's opening for credit sales. The implementation of BMPs that created all of these initial credits could be funded with state cost-share and private landowner funds only. The Bank's capacity to generate additional credits for sale will be based on the implementation of subsequent BMPs within the trading watershed funded by the combination of state cost-share funds plus credit sale revenue. It is this availability of state cost-share funds, and federal funds, (if BMPs are "piggy-backed"), to generate credits that can get a trading program off to a substantial start.

- **Issue Credits to Buyers** – Buyers purchase credits based on how they are defined in the rules (as described on page 4) and the margin of safety that has been set. The Bank is responsible for verification and insurance.

- **Coordinating Cost-Share Funds with Credit Sale Revenue -** A Bank can be established that offers:
    - Cost-sharing only (credit sale revenue added to cost-share funds); or,
    - Cost-sharing plus credit sales on the landowner's share of a cost-shared practice only. Depending on the market value of credits, such an arrangement might encourage landowners to cover the total cost of implementing BMPs in order to receive maximum credit sales, thereby allowing cost-share funding to go further. or,
    - Both cost-sharing and full credit sales to landowners to maximize the incentives offered and the resulting response.

The Bank needs to determine the appropriate level of incentive to achieve the desired response in participation and the resulting number of BMPs on the land.

Verification and Maintenance

State cost-share programs usually require a percentage of existing BMPs to be field checked each year. In general, most vegetative BMPs have a 10-year maintenance life and structural BMPs, such as animal waste storage facilities, have a 15-year maintenance life. Any practices implemented due to credit sales should have the same maintenance requirements as it would with cost-sharing alone.

Technical assistance and field verification are usually performed by conservation districts and USDA service centers. Field checks also present the opportunity for planners to meet with landowners to discuss the status of their conservation plans and the possibility of applying new BMPs. If the volume of BMP planning, implementation and maintenance field checks increases dramatically due to water quality trading, the Bank may need to impose fees per sale to cover additional costs.

Record Keeping

Adequate record keeping is required to accurately track the sale of all credits. If trading rules allow annual sales of credits on BMPs, record keeping becomes a more complex issue. The Bank can provide the official registry of credit sales and BMP implementation

Those who monitor a buyer's performance standards may require records that can show who is implementing the BMPs that generated the credits, the location of BMPs on each property, the date and frequency of field checks and when the full maintenance life has been reached.

If a watershed restoration project or TMDL requires agriculture to establish a baseline of water quality, that level must be deducted from either the individual contribution or as a percentage of the total BMPs implemented within the watershed.