

Moving Toward Watershed-Based Water Quality Trading

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**WESTERN GOVERNORS' ASSOCIATION WORKSHOP
Pollution Trading as a tool for meeting TMDL Requirements
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- A. Creating a “climate of cooperation” among all interested stakeholders
 - 1. Identifying appropriate community-based representatives
 - a. Technically competent representatives
 - b. Professionally and politically connected representatives
 - 2. Establishing a watershed entity
 - a. Soft forms include committees and informational forums.
 - b. Formal structures include watershed councils, foundations, and basin authorities.
- B. Working collaboratively, toward a watershed management plan.
 - 1. Planning and scoping
 - 2. Water quality inventory efforts
 - a. General watershed characterization
 - b. Flow regime
 - c. Land uses
 - d. Water uses
 - e. River or reservoir operations
 - f. Significant planning efforts
 - g. Pending water or land development projects
 - h. Declining, threatened or endangered species issues
 - 3. Water quality assessment and analysis
 - a. General ambient water quality characterization
 - b. Assessment of beneficial uses, use attainability
 - 4. Community-based goal-setting
 - 5. Standards and classifications rule-making

6. Detailed segment-by-segment analysis and characterization
 - a. Modeling and determination of TMDL's for numeric and narrative standards
 - b. Identification of biological and physical goals for aquatic ecosystem integrity.

7. Effective presentation of multi-dimensional segment analysis (see figure 1: Target Zone).
 - a. Develop scaling factors for individual water quality parameters and factors so they can be displayed along common axes.
 - b. Parameters of ambient water quality for which numeric standards have been adopted can be displayed in direct contrast to the applicable standard after the individual values have been normalized onto a common scale.
 - c. Ambient biological measurements and indices can be displayed in contrast to biological goals represented by appropriate reference conditions or biological criteria.
 - d. Ambient physical measurements can also be displayed in contrast to goals represented by reference conditions or accepted models.

VI. Unique Challenges related to Water Quality Trading

- A. Types of trades:
 - In or out of kind--
 - In or out of time--
 - In or out of place--

- B. Determining the dimensions of trading: important ground rules.

- C. Availability of data and capability for integrated data management

- D. Multiple regulatory jurisdictions: currently trading must be superimposed upon several existing regulatory systems.

- E. Conflicting values concerning environmental resources and natural systems. (e,g, Row vs. Wade)

- F. Community-wide consensus required to support and legitimize trading systems.

- F. Tremendous potential complexity in evaluating individual trades- need for decision support systems

- G. Constraints associated with flow directionality.
- H. Liability concerns- Good Samaritan issue.
- I. Potentially costly ongoing environmental assessment and project evaluation monitoring.
- J. Waste load allocations and load allocations are not property rights. This may sharply constrain or eliminate some potential market-based incentives.
- K. Potentially few participants in watershed-based trading systems.

VI. Opportunities with Trading

- A. Achieving environmental improvements not otherwise required.
- B. Potentially better environmental results than with regulatory systems only
- C. Potential time and money savings
- D. Presumably increased public support for water quality goals.
- E. Potential for permanent water quality improvements through retirement of certain waste load and load allocations

VI. EPA's Draft Framework for Watershed-Based Trading (EPA 800-R-96-001)

A. Trading Principles

1. Traders must meet applicable technology-based effluent requirements
2. Trades must result in attainment of water quality standards throughout the affected watershed.
3. Trades should be developed within a TMDL framework or other equivalent analytical framework
4. Trades occur in the context of current regulatory and enforcement mechanisms.
5. Trading boundaries generally coincide with watershed or segment boundaries and trading areas are of a manageable size.
6. Trading will result in increased ambient monitoring.
7. Careful consideration is given to the types of pollutants traded.
8. Stakeholder involvement and public involvement are key components of trading.

B. Trading economics

C. Favorable conditions for trading

- D. Point/point source and intra-plant trading
- E. Pretreatment trading
- F. Point/non point source trading
- G. Non point/non point source trading

VII. Market-Based Incentives for Watershed Improvement

A. National forum on non point source pollution: *Adoption of Orphan Sites for Credit Project*

1. The Orphan Sites Project was sponsored by the National Forum on Nonpoint Source Pollution (convened by The Conservation Fund and the National Geographic Society) in 1993.
2. The Forum launched 25 separate initiatives across the country. The intent of the Orphan Sites Project was to use market-based incentives to attract private-sector resources to cleanup orphan sites.

B. Orphan Site Definition

1. A site which cannot be regulated under current laws, and
2. Has no identifiable, responsible entity which can be located or has the means to address the problem.

C. Cleaning Up Orphan Sites For Credit

1. A typical orphan sites project would consist of a company (which has no liability for a site) Adopting the site and cleaning it up in return for a desired benefit or credit.
2. The opportunity to then bank the credit for future use or sale would expand the degree of flexibility for sponsors.

D. Example Of The Problem

1. In the Clear Creek watershed [500 square miles], which is located in the Front Range west of Denver, there are over 1,300 orphan mine sites.
2. Together, these sites constitute the major source of sediment and toxic metal pollution to Clear Creek.

E. Example Of An Orphan Sites Project

1. The first company to adopt an orphan site in the Clear Creek watershed and to clean it up was Asarco, Inc.
2. Asarco removed a 1,000 cubic yard tailings pile, hauled the tailings to an off-site storage disposal site and restored the landscape along Virginia Creek.
3. Their desired benefit--the opportunity to demonstrate their renewed commitment to being a good corporate citizen

F. Barriers Encountered #1

1. Building a credible Steering Committee (EPA, WQCD, EDF, industry, upper and lower basin representatives)
2. Soliciting participants (hired a broker)Developing a liability relief tool (used an AOC)
4. Evaluating the merits of the cleanup (developed Target Zone Approach)

G. Barriers Encountered #2

1. Evaluating the merits of the desired benefit (developed by consultant)
2. Determining net environmental gain for the watershed.
3. Developing a banking concept (developed by consultant)
4. Time, time, time...

B. Possible uses of credit and their likely public acceptability

C. Accelerated water quality improvement, addressing presently unregulated pollutant sources and expanding the set of credit uses as primary goals.

D. Evaluating institutional mechanisms to accommodate as yet, untried trades such as out of kind, out of place and out of time.

E. Investigating possible approaches to banking, addressing such issues as credit life, accommodating changing environmental values, other legal, political and procedural issues.

F. Evaluating several demonstration projects.