Markets for valuing intangible ecosystem services and environment sustainability

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Ecosystem Services

(Tangibles & In-tangibles)

Provisioning services
(Food, Fiber, Fuel and Water)

Regulatory services
(Air and Water Circulation)

Supporting services
(Nutrient cycling and Plant Pollination)

Cultural Services
(Recreational and Spiritual)

Preserving Services
(Minerals, etc.)
Ecosystem Services
Have Always Valued Tangible Services
(Food, Fiber, Fuel and Minerals)

Time to start valuing in-tangible services offered by mother nature
**Ecosystem Markets**

**Definition**
One entity paying ($) another entity for improving *ecosystem service(s)* offered by the environment

**Benefits**
Facilitates and encourages private sector to invest in conservation on private lands to sustain and improve the environment
Ecosystem (Environmental) Markets

Water Quality (WQ)
- Nitrogen
- Phosphorus
- Temperature

Air Quality
- CO₂
- Methane
- Nitrous Oxide

Biodiversity
- Mitigation Banking
- Conservation Banking
Types of WQ Trading

Point source (WWTPs) to point source (WWTPs)

Non point source (Ag Ops) to point source (WWTPs)
Nutrient (WQ) Trading

Why Non-point Sources?

- Cost Benefits
- Control pollutant at its source
- Control multiple nutrients
- Promotes ecosystem approach
- Provide wildlife habitat

Buy one get many free!
NRCS Tools

- Nutrient Tracking Tool (NTT)
- Water Quality Index for Runoff Water from Agricultural Field (WQIag)
A tool for estimating changes in pollutant loading to the environment from the current to alternative management scenarios.

delta N
delta P
delta Y

Nutrient Tracking Tool
(Being Re-designed and Re-Engineered)
WQIag

- A tool for ranking runoff water from agricultural fields
- Could be used for fixing WQ Trading baseline criteria

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