Assurance

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Underlying Structure of NPP

- Ambient environmental quality is a random variable
- Distribution depends on farmers’ actions
- Often it is the actions by a GROUP of farmers
- Realization depends on both farmers’ actions AND random factors
- Underlying objective is to SHIFT the distribution to increase the PROBABILITY of meeting some environmental target
What is “assurance”?

General idea: provide greater certainty about desired outcomes, i.e., about getting X in exchange for Y

Here, increase likelihood that specified environmental improvement occurs (e.g., environmental goals are met)

2 dimensions to this:

(1) designing programs to increase likelihood of meeting goals (e.g., addressing leakage, additionality, transaction costs, trading ratios, scope of markets, etc.)

(2) determining what will be done if goals are not met (“who should bear the burden?”)
How to define environmental goals?

• Performance vs. Practices?
  – ambient water quality vs. BMPs?
  – Reduction in atmospheric concentrations of carbon dioxide vs. acres of forestland

• What is the “good” or “service” that is being bought/sold (i.e., contracted)?
Possible Reasons for Failing to Meet Environmental Goals

• Failure of Farmer A to take agreed upon actions

• Failure of other farmers to take agreed upon actions

• Failure of agreed upon actions to result in anticipated environmental improvement
  – Incorrect prediction about link between actions and environmental quality
  – Randomness in relationship between actions and environmental quality

• Unanticipated responses/impacts (e.g., leakage)

Note: Not necessarily easy to identify reason
Who should be responsible/liable and for what?

Considerations:

(1) Fairness

(2) Incentives
  • Individual compliance
  • Group monitoring/compliance

(3) Allocation of Risk
Different Contexts

• Private purchasers
  – Offsets/credits
  – Sales to private parties (e.g., ecotourism)

• Public payments
  – Voluntary participation in government programs
Offsets/credits: Non-compliance with contract terms

Currently, in water quality trading programs, point source purchasers are liable for non-compliance by nonpoint sellers.

(1) Is this “fair”?
(2) Does it create correct incentives?
(3) Does it allocate risk appropriately?
Fairness

Arguments against:
- Point source does not control compliance
- “Breach of contract” principles

Argument for:
- “Principal-agent” relationship: Nonpoint source is an “agent” of the point source, i.e., acts “on behalf of” point source
Incentives

• Compliance incentives for nonpoint sources
  – Ex ante vs. ex post payments?

• Incentives for point sources to enforce contracts, esp. in absence of regulatory enforcement authority
Allocation of Risk

- Risk associated with non-compliance is borne by point source.

- Large point sources may be better able to bear risks than small nonpoint sources.

- Society as a whole still bears risks regarding ambient environmental quality, given compliance.
Other Contexts

• Voluntary government programs
  – Similar to other subsidy programs; no principal-agent relationship

• Private purchases (e.g., ecotourism)
  – Similar to other private goods: “Buyer beware”??
Another “Assurance” Problem

Will information revealed through markets be used to justify regulation?

Implications?