

# Factors to Consider in Choosing Instruments to Promote Environmental Services



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# Objectives of Paper

- 1) Describe range of instruments available to promote environmental services of forests
- 2) Identify advantages, disadvantages and conditions required for successful use of specific instruments
- 3) Provide examples of the development of diverse instruments from Katoomba Group related initiatives



# Instruments to Promote Ecosystem Services (I)

- 1) Public control and management of resources (e.g., biodiversity reserves)
- 2) Public regulation of private resource management (e.g., forest mgmt plans, restrictions on clearing)
- 3) Pricing to “internalize” environmental cost/benefit (e.g., stumpage fees, tax benefits for afforestation)
- 4) Pollution permit markets with regulatory cap (e.g., carbon emissions trading, TDRs)



# Instruments to Promote Ecosystem Services (II)

- 5) Support self-regulation and innovation in resource management by local communities (e.g., LandCare in Australia)
- 6) Public payments to producers for services (e.g., NYC pays landowners for water quality)
- 7) Private deals for environmental services (e.g., bottlers pay upstream landowners)
- 8) Eco-labeling of marketed products (e.g., forest product certification)



# Key Factors to Consider in Selecting Instruments

- a) Biophysical features of ecosystem service
- b) Context for implementation
  - Economic conditions
  - Institutional conditions
  - Political conditions
- c) Management complexity
- d) Economic costs
- e) Equity



# Biophysical Features of the Ecosystem Service

- Certainty of link between resource management and environmental outcomes
- Whether beneficiaries are clearly defined
- Ease of monitoring actions and outcomes (e.g., whether resource is fixed or moving/growing)
- Sensitivity to specific spatial configuration of land use or management
- Compatibility between economic use and provision of ecosystem service
- Urgency of threat to ecosystem service



# Economic Conditions

- Sensitivity of the instrument to the opportunity costs of land or resource
- Need for well-functioning market institutions
- Perceived economic value of ecosystem services to users and capacity to pay
- Economic capacity of producers to improve resource management



# Institutional Conditions

- Capacity of local regulatory institutions (regulations, registries, monitoring)
- Capacity of producer cooperative institutions
- Functioning of the legal system
- Clarity/security of property rights for land
- Clarity/security of rights for ecosystem services
- Degree of trust among stakeholders (social capital)





# Political Conditions

- Political power of landholders relative to beneficiaries of ecosystem service
- Perceived legitimacy of landholder, beneficiary claims, and legitimacy of government action to defend them
- Presence of leaders, “champions”
- Degree of environmental awareness and “consensual vision”



# Property Rights for Ecosystem Services & Instrument Selection



# Management Complexity

- Production, marketing, business skills required of producers
- Managerial skills required of private businesses and traders
- Managerial skills required of public agencies
- Prior experience in ecosystem markets
- Risk of non-performance, risk management



# Economic Costs

- Cost to plan and set up system
- Cost for agency to operate
- Incidence of costs: landholders, taxpayers, consumers, forest users, other businesses
- Risk of unanticipated costs  
*[relative to economic value of environmental outcomes]*



# Equity

- Potential threats to livelihoods of the poor
- Potential to enhance the value of resources owned by, or ecosystem services provided to, the poor
- Access of the poor to institutions providing support or payments
- Participation of poor producers and consumers in developing programs and rules
- Safeguards for the poor and vulnerable



# (1) Public Control and Management of Resources

## ■ Advantages:

- Where services & economic use incompatible
- Can implement w/o strong property rights, legal system
- Where low landholder power, awareness, skills

## ■ Requires:

- Moderate to strong public mgmt capacity

## ■ Disadvantages:

- Insensitive to opportunity costs
- Hard to defend w/o local support

## ■ Costs:

- Paid by taxpayers (and locals if lose use rights)



## (2) Public Regulation of Private Resource Management

### ■ Advantages:

- May be spatially sensitive; fast response to threat
- If production & ecosystem service incompatible
- Where markets are poorly developed

### ■ Requires:

- Well developed legal system; competent agencies
- Moderate-high political consensus

### ■ Disadvantages:

- Insensitive to opportunity costs
- Often economically inefficient, hardest on the poor

### ■ Costs:

- Moderate-high; paid by landholders (& taxpayers)



### (3) Pricing to “Internalize” Environmental Costs & Benefits

- Advantages:
  - Simple, sensitive to opportunity costs, flexible
- Requires:
  - Well developed markets
  - Moderate political consensus; public capacity
- Disadvantages:
  - No spatial sensitivity
  - Production systems may not be price-sensitive
- Costs:
  - Moderate costs for planning, operation
  - Paid by producers, consumers and forest users





## (4) Pollution Permit Markets under Regulatory Caps

### ■ Advantages:

- More flexible than simple regulation
- Sensitive to opportunity cost, induces new technology

### ■ Requires:

- Well developed market, legal, property institutions
- High environmental awareness, political support
- High skills of producers, agencies, private sector
- Rigorous monitoring

### ■ Disadvantages/Costs:

- Complex; high producer costs
- Difficult for poor to participate



## (5) Support Self-Regulation and Innovation by Communities

- Advantages:
  - Spatially sensitive
  - Flexible and voluntary; improves technology
- Requires:
  - High environmental awareness of producers
  - Strong local institutions and agency capacity
  - Technologies for compatible production/services
- Disadvantages
  - Low priority to outside benefits; change is gradual
- Costs:
  - Moderate costs for landholders, taxpayers or agencies



## (6) Public Payments for Environmental Services

- Advantages:
  - Sensitive to opportunity costs
- Requires:
  - Clear property rights, fairly good legal system
  - High landholder power or political consensus
  - Strong public agency capacity
- Disadvantages:
  - Complex to plan, monitor; may be politicized
  - Often not spatially sensitive
- Costs:
  - Moderate/high costs; paid by taxpayers (or consumers)



## ( 7) Self-Organized Private Deals for Environmental Services

### ■ Advantages:

- High spatial sensitivity
- Sensitive to opportunity costs
- No need for political consensus or public capacity

### ■ Requires:

- Good ecosystem monitoring
- Clear property rights, good legal system
- Beneficiaries clearly defined
- Strong producer business skills or advice

### ■ Disadvantages: ??

### ■ Costs:

- Mainly private business or conservation agency



## (8) Eco-Labeling of Products

- Advantages:
  - Compatibility between production and services
  - Minimal political or institutional requirements
- Requires:
  - Well developed product markets
  - Environmental awareness by consumers
  - Good producer business skills or advice
- Disadvantages:
  - Not always spatially sensitive
- Costs:
  - Moderate to high costs for producers
  - Costs shared with consumers/intermediaries



# Interaction of Instruments

- Evolution (e.g., from regulation to self-regulation; from payments to markets)
- Complementarities (e.g., pollution credit market as alternative to regulation; “real” prices support other instruments)
- Direct linkages (e.g., payments for services to self-organized communities; tax agrochemical to finance environmental service payments)
- Contradictions (e.g., payments for ecosystem services can undermine self-regulation)



# Case Studies of Instrument Selection and Evolution

- British Columbia (litsak Forest Resources)
- Brazilian Amazon (A2R)
- New South Wales, Australia (NSW Forests)
- Others.....

*Can you help by filling in the questionnaire?*