Emerging Markets for Ecosystem Services

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Forest Trends/Ecoagriculture Partners

July 2005
Conservation of Natural Ecosystems and ES Services: Key Messages

1) Conservation finance is in crisis even as broader ecosystem conservation needs are identified

2) Innovative market and ‘market-like’ mechanisms are emerging to incorporate financial value of ecosystem services in mainstream economy

3) PES rules and strategies developed over the next decade will influence patterns of conservation and investment globally over the next century—and the benefits/ protections for local communities
Investing in “Natural Infrastructure”

- Air quality
- Pest & disease control
- Watershed protection and regulation
- Wilds species & habitat protection
- Plant pollination
- Carbon sequestration and storage
- Soil formation and fertility
- Decomposition of wastes
- Landscape beauty
Motivations for Using Market Instruments

- Failure of traditional regulatory approaches
- Limits of protected areas
- Financial markets reward short-term returns over long-term ones
- Financial value of forest conversion is much higher than for conservation
- Stagnant public and civic funding for forest conservation
Who Buys Ecosystem Services?
Direct Beneficiaries

**Watershed protection**
- Industrial, agricultural water users – to secure stable supply, flow
- Municipal water utilities, consumers (reduce costs, water quality)
- Agencies managing environmental risks (e.g., floods)

**Carbon emission offsets or avoided deforestation**
- Industries seeking to comply with carbon rules (offsets for emissions)
- Companies, groups strengthening reputation for env. stewardship
- Agencies, municipalities seeking to improve air quality

**Biodiversity conservation**
- Conservation agencies and organizations working on private lands
- Tourist industry, for landscape beautify or protection of key species
- Land developers (offsets for damage, or for amenity values)
- Farmers (to protect pollinators, sources of wild products)
Who Buys Ecosystem Services?
Indirect Beneficiaries

- Consumers: “green” values
- Companies: “green” branding
- Investors: ”green” filters
Above-Ground Time-Averaged and Total Soil Carbon (0-20 cm) for sites in the humid tropical lowlands of Brazil, Cameroon and Indonesia
THE WATER CYCLE AND DRYLAND SALINITY

- Forest maintains natural water table
- Discharge zone has good water quality
- Healthy agricultural crop
- Subsurface salinity remains at depth
- Water table rises bringing salinity upwards
- Discharge of saline water at surface
- Saline water runoff
- Impact on aquatic ecosystems
- Deforestation affects water table
- Productivity of crops declines
New Value from Forest Services

Present
The existing rural landscape.

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Area (ha)</th>
<th>Revenue (000's)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTPUT</td>
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<td></td>
</tr>
<tr>
<td>Sheep</td>
<td>250,000</td>
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<tr>
<td>Cattle</td>
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<tr>
<td>TOTAL</td>
<td>1,000,000</td>
<td>785,000</td>
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</table>

Environmental Problems
- Dryland salinity increasing
- Rising water tables and saline discharge
- Nutrients leaching into waterways
- Low biodiversity
- Soil erosion and turbid waterways

Future
Planted forests in the landscape create a more diverse economy and a healthier environment.

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<th>Revenue (000's)</th>
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<tbody>
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<td>Sheep</td>
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<tr>
<td>Timber</td>
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<td>12,000</td>
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<tr>
<td>Bioenergy</td>
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<tr>
<td>Charcoal</td>
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<tr>
<td>Carbon credits</td>
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<tr>
<td>Salinity credits</td>
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<tr>
<td>TOTAL</td>
<td>1,000,000</td>
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</table>

Environmental Benefits
- Dryland salinity reduced
- Lower water tables and clean discharge
- Nutrients retained on farm
- Biodiversity increased
- Soil erosion reduced
Potential Benefits & Risks for Producers

**Benefits**
* New, often more regular, flows of income (15-25% +)
* Portfolio diversification
* Catalyst for adopting better management practices
* Asset appreciation (pest & disease control, high inventory)
* Locally-valued ecosystem goods and services
* Social investment, such as preserving cultural heritage

**Risks**
* Loss of economic use options
* Loss of land and forest ownership or access
* Loss of local ecosystem services
* Contractual obligations if services not delivered
Types of Markets and Payment Schemes for Ecosystem Services

a) Self-organized private deals

*Private entities pay for private services*

- Perrier-Vittel pays upstream landowners for improved agricultural practices and reforestation of sensitive infiltration zones (US$230/ha/yr)
- TNC, CI, WCS payments to farmers and communities for conservation management

b) Public payments to private land and forest owners

*Public agency pays for service*

- Public payments for watershed protection in Mexico ($60 mln in 2004)
- USDA and Dept. Interior payments to landowners for wildlife conservation (EQUIP, Safe Harbor….)
c) Open trading of environmental credits under a cap or floor

* Landowners either comply directly with regulations, or buy compliance credits
* Wetland banking in US allows developers to offset damage (credits: US$7,500-100,000/acre)
* The Kyoto-compliant carbon emission offset market is expected to grow to a minimum of 15m t/CO2 in 2008-2012

d) Eco-labeled forest, farm products

* Consumers prefer certified sust. supplies
  * “Shade-grown coffee” in Mesoamerica (US$5 billion for sale in USA alone)
Creating Markets for Ecosystem Services

- Biodiversity
- Carbon sequestration
- Water regulation
- Soil fertility

Must be defined in a way that creates a product or service of value to a buyer

The Products and Services

- Insurance
- Standards
- Legal Rights
- Pools or registers
- Financial projections

Must give market confidence in ownership, risk and financial values

Risk Mitigation, Legal Rights, Reliability

- Enviro-bonds
- Equity structures
- Trading
  - OTC
  - Exchanges
  - Derivatives
- Retail markets

Must have efficient mechanisms to link buyers and sellers

Transfer of Ownership and Finance

- Individuals
- Business
- Integrated Products
- Marketing
- Communications

Must understand the psychology of the potential buyer - motivation and risk perceptions

The Market
Current Obstacles

• Lack of technical and market information
  • Limited institutional experience
    • Inadequate legal framework
  • Suspicion of markets for public goods
    • Equity concerns
The Katoomba Group–Linking Global Innovators, Providing Policy Support
Business Models for ES Suppliers

• Biodiversity Offsets Project (Pilots: Australia, Brazil, Mexico, Uganda..)

• Business Development Facility (Brazil, South Africa, Mozambique, China…)

• Forest Carbon Projects

• Agri-Environmental Payments (Brazil, C. Am., E. and S. Africa, U.S.)
Overcoming Obstacles for Community Producers

- **Democratize information** about ecosystem service markets

- **Encourage broad participation** in policy dialogue about the rules and shape of ecosystem service payments

- **Reduce learning costs** for new entrants to these markets; training programs and enterprise support; financial viable and appropriate business models

- **Reduce transaction costs** through institutional innovations like suitable intermediaries, ‘bundling’, large-area programs, integrate with economic activities
The “Ecosystem Marketplace”

The first global information service to report on developments in new ecosystem service-based markets for:

• Water quality and quantity related to land use decisions
• Carbon sequestration
• Biodiversity and endangered species
• Other conservation-related transactions

http://www.ecosystemmarketplace.com
A monthly/bi-weekly news service targeted to diverse users, including finance, industry, communities, and environmental NGOs.

The “Ecosystem Marketplace”:
• Highlighting market developments
• Price trackers of major markets
• Key transactions
Possible Roles for the U.S. Forest Service in Development of PES

- Identify promising opportunities for public and private PES
- Mobilize public and expert dialogue and action about PES across
- Undertake research on ES and PES
- Support design of appropriate regulatory frameworks
- Provide technical assistance to landowners and ES buyers
Thank you!

www.forest-trends.org
www.ecosystemmarketplace.com
www.ecoagriculturepartners.org