Defining Payments for Ecosystem Services

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- Why ‘Payments’ for Ecosystem Services?
- Definition of PES
- Types of Payments and Markets
- Who Pays and Who Receives
- Roles & Responsibilities
- Potential Risks
Why “Payments”?

- Nature has provided these services to us for free
- Consumption of ecosystem goods favored over the conservation
- Market forces must realign to invest in the production of both ecosystem goods and services
- Increased investments in ecosystem services leads to increased production of ecosystem goods
- This will fuel sustainable economic growth and ecological restoration

Definition of PES

A payment for environmental services scheme is:

1) a *voluntary* transaction in which
2) a *well-defined* environmental service (ES), or a form of land use likely to secure that service
3) is bought by at least one ES *buyer* from a minimum of one ES *provider/seller*
4) if and only if the provider continues to supply that service (*conditionality*).

(Source: http://www.cifor.cgiar.org/pes/_ref/about/index.htm)
Types of Payments and Markets

- Biodiversity
- Water
- Carbon
- Others: Scenic beauty (ecotourism), bundled services (land trusts, conservation easements)

Biodiversity PES

By the numbers

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Number of active programs:</td>
<td>39</td>
</tr>
<tr>
<td>Number of programs in development:</td>
<td>25</td>
</tr>
<tr>
<td>Total known regional payments per annum:</td>
<td>US$1.8 - $2.9 billion</td>
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<tr>
<td>Land area protected or restored per annum:</td>
<td>&gt;86,000 ha</td>
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</tbody>
</table>
Biodiversity PES: What is included?

- Establish biological corridors
- Create and strengthen protected areas
- Replant degraded areas with native species
- Remove invasive alien species
- Minimize need for fertilizers and pesticides
- Conserve outside of project areas
- Manage biodiversity to:
  - maintain quality agricultural products
  - ensure pest control, pollination, genetic resources, habitats
  - preserve cultural spiritual or aesthetic valued areas

Biodiversity PES: Market Drivers

- Scientific evidence of biodiversity importance in ensuring reliable access to natural resources
- Concern emerging in key financial services institutions
- Permitting challenges, lawsuits, and regulatory concerns emerging around biodiversity
Water PES

Payments for Watershed services (quality & quantity)
- Paying land owners
- Purchasing land

Nutrient trading
- Nitrogen, phosphorus, sediments

How?
- Restoring, creating, or enhancing wetlands
- Maintaining forest cover
- Reforesting
- Adopting ‘best’ land use management practices

Why?
- Reduce pollution in local water supplies
- Filtration and regulation of water flow
- Controlling for floods
- Minimizing soil loss and sedimentation
**Water PES: Market Drivers**

- Scientific evidence growing about water quantity and quality issues
- Concern rising over future water availability
- Regional and national political pressure to take action on water issues
- Interest in new mechanisms for protecting water quality and quantity

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**Carbon PES**

**Regulated Carbon:**
- Kyoto Protocol
- Cap and trade
- GHG offset credits

**Voluntary Carbon:**
- Variety of carbon sequestration project types
- Forestry included
- Markets: Chicago Climate Exchange, Voluntary OTC
Carbon PES

**HOW?**

- Preventing deforestation (including through REDD)
- Reforesting land, particularly in tropical regions
- Reducing farm emissions (methane, nitrogen, etc.)
- Conservation tillage to minimize soil’s release of carbon
- Avoiding actions that increase acidity of the ocean and release carbon

**WHY?**

- Keeping carbon dioxide in trees, oceans, and soil rather than releasing it into the atmosphere
- Increasing the uptake of carbon by trees and within forests
- Preventing:
  - release of methane to the atmosphere
  - increases in the atmospheric temperature
  - acidification and warming of the oceans
MARKET DRIVERS

- Scientific consensus about human contribution to climate change
- Clarity that a regulatory carbon-constrained future is imminent
- Insurers’, investors’, and consumers’ concerns related to climate change
- National regulations on pollutants such as SO2 and NOX

Table 2. Market Value of Environmental Markets

<table>
<thead>
<tr>
<th>Environmental Market</th>
<th>Market Value (2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulated Carbon</td>
<td>$117,600,000,000</td>
</tr>
<tr>
<td>Water Quality</td>
<td>$9,250,000,000</td>
</tr>
<tr>
<td>Biodiversity</td>
<td>$2,900,000,000</td>
</tr>
<tr>
<td>Voluntary Carbon</td>
<td>$705,000,000</td>
</tr>
<tr>
<td>Forest Carbon</td>
<td>$37,100,000</td>
</tr>
</tbody>
</table>
Who Pays and Who Receives?

**Providers/ Receivers:**
- Landowners (forest, agriculture, wetland)
- Private agencies
- Farming cooperative members
- Municipalities
- Government agencies

**Market shapers/ Facilitators:**
- Regulators
- Advocates
- Philanthropic investors
- Trade associations
- Policy-makers
- Critics
- Development agencies
- Brokerages

Who Pays and Who Receives?

- Government
- Private buyers in regulated markets
- Voluntary private buyers
- Philanthropic buyers
- Buyers of eco-certified products
Ideal Conditions for PES

- Demand for ecosystem services is clear and financially valuable
- Supply is threatened
- Specific resource management actions have the potential to address supply constraints
- Effective brokers or intermediaries exist who can assist
- Contract laws exist and are enforced
- Resource tenure is clear

Opportunities for Landowners

**Short-Term**
- Increased cash income
- Expanded experience with business activities
- Increased knowledge of sustainable resource use practices

**Long-Term**
- Improved resilience of ecosystems
- Potential for higher land productivity
Potential Risks

• Opportunity costs
• Potential loss of rights to harvest products; unfair outcomes
• Potential loss of employment
• Confusion over rights to resources
• Increased competition for land
• Performance risk
• Loss of control over local development decisions

Conclusion

- We now understand:
  - The concepts behind payments and markets for ecosystem services
  - Definition of Payments for Ecosystem Services (PES)
  - Types of payments and markets
  - Who pays and who receives?
  - Risks and opportunities for landowners
- Thank you! Questions?