



Creating and Using Markets to Pay for Environmental Services

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INTRODUCTION

- Findings of the Millenium Ecosystem Assessment (March 2005) - 60 per cent of the 24 ecosystems examined were over-used, mismanaged or degraded
- A variety of policy choices are available to reduce the degradation of ecosystem services and retain the benefits for people. These include regulatory approaches, technological approaches **and economic approaches**, which can include assigning private property rights to the resource, and enabling the owners to charge for the use of the service



WHY ECONOMIC APPROACHES?

- Ecosystem degradation has continued. Water quality, soil productivity and habitat are impaired
- traditional regulatory approaches “command and control” are not enough
- Need to place value on ecosystem functions in a way that creates incentives for maintaining them e.g provide financial incentives for farmers to weigh cost/benefit of maintaining native vegetation vs. cash crops
- Need to ensure beneficiaries pay for the env. services they receive. E.g land holders are compensated for services they provide - income can be used to finance on-ground works; reward good land mgt practices/ecosystem stewardship
- Poverty reduction strategies/sustainability – could be a source of revenue if well structured



Ecosystem Services: The “Natural Infrastructure”

**Air quality
control**

Pest & disease

Watershed protection and regulation

Wilds species & habitat protection

Plant pollination

Carbon sequestration and storage

Soil formation and fertility

Decomposition of wastes

Landscape beauty

So what is PES?

- * PES is a voluntary transaction, in which a well defined environmental service—or form of land use likely to secure that service, is bought by at least one buyer, from at least one seller, if and only if the seller continues to provide the service.

The critical, defining factor of what constitutes a PES transaction, however, is not just that money changes hands and an environmental service is either delivered or maintained. Rather, the key is that *the payment causes the benefit to occur where it would not have otherwise. That is, the service is “additional” to “business as usual,”* or at the very least, the service can be quantified and tied to the payment

- Another key characteristic of these PES deals is that the focus is on maintaining a flow of a specified ecological “service” — such as clean water, biodiversity habitat, or carbon sequestration capabilities — in exchange for something of economic value.



Payments for Ecosystem Services: Key Trends

- 1) PES strategies are emerging because conservation finance is in crisis just as broader ecosystem conservation needs are identified; conservation investment must be part of the mainstream economy
- 2) **They are not the whole solution, but could be an important tool to foster environmental conservation; a tool that brings new economic incentives, markets, jobs and income opportunities to rural areas around the world- And businesses may have a lot to contribute to and benefit from it, as demanders of ES, as suppliers of ES and as market developers**

Types of Markets

REGULATION COMPLIANCE MARKETS:- Producers buy and sell ecosystem services to comply with regulations (e.g. carbon markets, environmental offset markets)

PUBLIC PROCUREMENT OF ECOSYSTEM SERVICES:- Governments take the lead in procuring part of society's demand for ecosystem services (e.g. protected areas)

VALUE-ADDING MARKETS:- Consumers' demand for goods and services that have ES component embedded in them and pay a premium for it (e.g. ecotourism, green or organic food, certified wood products, etc)

COST SAVING MARKETS: Producers and consumers buy ES because it saves them money (cleaner energy?)



Types of Incentives

- **ECONOMIC** – create incentives for ecosystem protection by establishing a price, property right, or liability rule for the provision of ecosystem function- e.g. permits, subsidies, taxes
- **REGULATORY** – Give firms/people who take actions that protect ecosystem functions privileged treatment within the regulatory system – e.g. Easement
- **INFORMATION** – These measures seek to motivate change by providing information about the ecosystem impacts of different production processes or daily behaviours – e.g. Ecolabelling, product information, etc.
- **MANAGING RISK** – These measures address additional risk that actions to protect ecosystem services can create for members of the community. E.g. Insurance

Types of Payment Schemes

- Self-organized private deals – *Private entities pay for private services*
- Public payments to private land and forest owners- *Public agency pays for service*
- Open trading of environmental credits under a regulatory cap/floor *Landowners either comply directly with regulations, or buy compliance credits*

Who Buys Ecosystem Services?

Direct Beneficiaries

- **Watershed Protection:**
 - Industrial, agricultural water users (to secure stable supply, flow)
 - Municipal water utilities, consumers (to reduce costs, ensure water quality)
 - Agencies managing the environmental risks (e.g. floods)
- **Carbon Emissions Offsets or Avoided Deforestation**
 - Industries seeking to comply with carbon rules (offsets for emissions)
 - Companies, groups strengthening reputation for new env. stewardship
 - Agencies, municipalities seeking to improve air quality
- **Biodiversity Conservation**
 - Conservation agencies and organizations working on private lands
 - Tourist Industry, for landscape beautification or protection of key species
 - Land developers (offset for damage, or for amenity values)
 - Farmers (to protect pollinators, sources of wild products)

Benefits for Rural Producers

- New, often more regular, flows of Income (15-25% +)
- Income diversification
- Financing adoption of more sustainable and profitable management systems
- Increased value of resource assets (pest & disease control, higher forest inventories)
- Financing protection and restoration of locally-valued ecosystem goods and services (e.g., water, fuel, medicines, wild game, improved air quality)
- Social investments, such as preserving ecosystem-based cultural heritage and encouraging enterprise management and development



Key role is Property Rights

- Set limits, allocate, enforce, and monitor
- Let market (supply and demand) set price

Actors need certainty

- To invest, to participate, to not get “spooked”
- i.e. don’t be changing the rules too often
- Like interest rates and currencies



Status of the Market:

Carbon Market

- The carbon market is the most visible result of early regulatory efforts to mitigate climate change. It was valued at US\$64 billion (€47 billion) in 2007- more than double the previous year (US\$ billion).
 - Project-based activities primarily through the Clean Development Mechanism (CDM) grew sharply to a value of about US\$7.4 billion in 2007 (from \$5 billion in 2006).
 - The voluntary market for reductions by corporations and individuals also grew strongly to an estimated US\$ 265 million- down from US\$100 million in 2006.
 - The carbon market has stimulated innovation and carbon abatement worldwide, as motivated individuals, communities, companies and governments have cooperated to reduce emissions
- It is essentially a cap-and-trade market

- ▶ Much less developed
- ▶ Two possible kinds:
 - ▶ Quality
 - ▶ Quantity
- ▶ Quality likely to come in first
 - ▶ i.e. Nutrient trading



Nutrient trading: potential

- ▶ Issues of water pollution are so important (health, productivity)
- ▶ Could become a series of large markets:
- ▶ Is essentially cap-and-trade applied to watersheds- Those who pollute more buy from those who pollute less
- ▶ Lake Victoria, Murchison Bay, River Nile



Other Water Markets

- ▶ **Paying for upstream watershed protection**
 - ▶ Seen this in many places (Mexico, Costa Rica, Ecuador)
 - ▶ But in Mexico, Costa Rica is essentially a way to channel gov't money
 - ▶ Or one-off deals like Ecuador
 - ▶ Problem is science is still tricky
- ▶ **Salinity Markets in New South Wales, Australia.**



Biodiversity Markets

- ▶ Not easily commoditized
 - ▶ Is an “anti-commodity”
- ▶ Besides, what do we mean by Biodiversity?
 - ▶ Ecosystems?
 - ▶ Species?
 - ▶ Genetic diversity?
 - ▶ All of the above?



And yet there is movement...

- ▶ Wetland Banking
- ▶ Conservation Banking
- ▶ Voluntary Biodiversity Offsets – several examples in Uganda now
- ▶ Government payments for biodiversity conservation
 - ▶ Bwindi Mgahinga Trust Fund
 - ▶ Co-management in national parks/forest reserves





CARBON MARKETS IN UGANDA

SEQUESTERING CO₂ BY TREE PLANTING, SMALL PLANTATIONS, LAND RESTORATION- most common

BIOMASS COGENERATION IN THE TEA INDUSTRY-Reducing CO₂ and methane by generating energy and bio-fuels from tea industry by-products -- bagasse and molasses

BIOMASS COGENERATION IN THE SUGAR INDUSTRY-Reducing CO₂ and methane by generating energy and bio-fuels from sugar industry by-products -- bagasse and molasses

MINI-HYDRO PROJECTS -Extending grid to reach customers currently using diesel or kerosene

SEQUESTERING CO₂ THROUGH THE USE OF EFFICIENT STOVES

METHANE REDUCTION -Extracting methane from landfills; from disposal of sewage sludge; FROM COMPOSTING ORGANIC WASTE IN URBAN DUMPSITES; OR by bio-digesting livestock wastes

CAPTURING N₂O, FROM FERTILIZER PRODUCTION-

CAPTURING METHANE LEAKS FROM GAS PIPELINES, TANKERS, COAL MINES

BIODIVERSITY MARKETS

TRUST FUNDS TO CHANNEL PAYMENTS FOR
BIODIVERSITY CONSERVATION

PAYMENTS FOR BIODIVERSITY CONSERVING
BUSINESS – (organic certification,, ecolabelling

PAYMENTS FOR OFFSETTING BIODIVERSITY
LOSSES

CO-MANAGEMENT in forest reserves and protected areas
– UWA & NFA

PAYMENT FOR ACCESS TO SPECIES OF HABITAT –
almost all of our tourism revenue

WATER MARKETS

- NOT YET DEVELOPED! – but lots of potential and there is a need for them given problems with water quality
- Need to get the science right –ensure activities compensated for do indeed result in watershed services

CHALLENGES

- Insecure land tenure – and tenure tied to “active” (ES degrading) land use?
- Adding “carrots” on pre-existing “paper sticks” (weak enforcement?)
- Should we really reward people to respect the law? Need to avoid “perverse incentives”
- PES = “victim pays” principle

Obstacles to Development of PES

- Lack of technical and market information
- Limited institutional experience
- Inadequate legal framework
- Limited 'business models'
- Suspicion of markets for public goods
- Equity concerns

Strategies: Getting to Scale

The Katoomba Group: To create a vibrant learning network – sharing knowledge, learning Together and learning from each other



**Global PES
Clearinghouse**

**Tactics:
New Business
Models for PES**

**Leadership & Institutional
Capacity for Market
Development**



Activities:

**Ecosystem
Marketplace**

BDF (Business Development Facility)
BBOP (Business & Biodiversity Offset Program)

**Africa Katoomba
Brazil Katoomba
Southeast Asia Katoomba**