

# The Concept and Application of Payment for Ecosystem Services

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#### Presentation

- What is PES?
- Why PES?
- Who?
- How? And How Much?
- Critical Elements
- PES in Practice: Case study



#### PES: What?

# Incentive based mechanisms for Sustainable Resource Management

(also poverty alleviation, supports systematic and coordinated actions and funding conservation and sustainable use in the corridors)



### PES: Why?

Direct financial and economic incentives for ecosystem conservation requires finding **new** systems for generating private and public revenues.



#### PES

**Ecosystem Services** – the provision of natural resources and healthy functioning ecological systems that produce environmentally and economically valuable goods and services.



#### PES: What?

#### Payments for Ecosystem Services (PES) -

Compensation for providing ecosystem services. The actual payment that is transferred can take on many forms from actual cash to in-kind assistance, exemption from taxes, tenure security, skills training, and other types of compensation. PES includes those services for watershed, biodiversity, carbon sequestration, landscape beauty, and bundled services.



#### PES: What?

The core principles of PES are that



#### PES

For example, the downstream water users who benefit from the watershed protection services provided should compensate upland farmers for sustainable land use management practices.



#### PES: What?

PES are for a clearly-defined ecosystem service (or bundle of services) and specifies a land or resource use that is known to provide that service.



#### PES: What?

Some form of **payment** (either cash, or some other direct benefit such as inkind contributions, preferential credit, lower tax rates, employment, etc) is paid to the ecosystem service provider, and financed by the ecosystem service user.



#### PES: Who?

The user is the **buye**r of the ecosystem service, and the provider is the



#### PES: How Much?

In order for PES to provide a meaningful incentive, the payments the sellers receive must be equivalent to the opportunity costs of foregoing alternative land use practices (minimum payment).





# PES: Why Pay?

Buyers must be convinced that their payments for ecosystem services are cost-effective and less than the costs of unsustainable natural resource management.



#### PES: Critical Element

A critical element in a PES mechanism is that both sellers and buyers of ecosystem services must feel confidence and *trust*;

- for the sellers that they will receive the agreed upon payments and benefits
- for the buyers that the ecosystems services for which they are paying are indeed being provided.



#### PES: How?

Developing and implementing PES mechanisms have a cost. Minimizing transaction costs is needed to make payments for ecosystems services of interest to both potential buyers and sellers of services



#### PES: How?

One way of addressing high transaction costs is through the use of existing, viable processes and institutions.



#### PES: Critical Element

This means that the service, or the land or resource use that is known to provide it, must be able to be **monitored and measured.** 

# Policy and Legal Frameworks

For PES approaches to be successfully designed and implemented need to be supported by institutions, legal frameworks,





#### PES in Practice Costa Rica

Luis Gamez
Pubic Utilities Company of Heredia, Costa Rica

#### Forest Environmental Servic



#### What?

Watershed services (water quality and quantity)



#### Who?

Buyers: Water company (utility)

Sellers: Farmers (landowners)



#### How Much?

# Determining Levels of Payment of Government's 1vernment's PLst.8 4e/FB5



#### **Modalities & Distribution of Payment**



# Types of Forest Conservation Contracts

Contract	Maximum Area (ha)	Land Owner Type
Individual	300	Individual land owners
Community	300 by land owner  There is no limit for NGOs	Small and medium land owners associated with a local NGO

Indigenous Reserv



### Estimation of Replacement Value

$$VP = \frac{{}^{n} C_{ij}}{Oc_{i}}$$

Where,

VP Protection value of watersheds (¢/m3)

Cij Costs of activity j aimed at protection of watershed i (¢/ha/yr)

Fraction of j aimed at the water functions of forest protection in watershed i (%)

### Environmentally adjusted water fee

#### Use value

(opportunity cost)

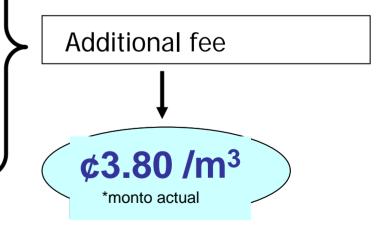
$$VC = \int_{i=1}^{n} \frac{iB_iAb_i}{Oc_i} 1$$

$$VC = \frac{0.414*53000*5561.56}{81390000} 1 = 0.80 = 2.70$$
 colones/m<sup>3</sup>

# Recovery & Protection (replacement cost)

$$VP = \int_{i-1}^{n} \frac{c_{ij}C_{ij}}{Oc_{i}}$$

$$VP = \frac{0.414*128777*7469.28}{81390000}$$
 4.89 colones/m<sup>3</sup>





# Critical Factor: Monitoring

Annual monitoring (by the water company)





# PES: Summary

- Offer an innovative incentive based approach to improve the management and conservation of ecosystems and the services they provide
- Require that the rights and responsibilities of the buyers, sellers and intermediaries are clearly defined;
- Transactions costs are minimized;
- Mechanisms exist for fees to be assessed, collected and effectively disbursed;
- Monitoring systems are put in place that link payments to performance;
- And policies and procedures support PES programs.

