



# 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 in-kind 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 **buyer** 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,

*supports*



# PES in Practice Costa Rica

Luis Gamez

Public 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 Government's PLst.8 1e7B5g**







# Modalities & Distribution of Payment

# Types of Forest Conservation Contracts



<b>Contract</b>	<b>Maximum Area (ha)</b>	<b>Land Owner Type</b>
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



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# Estimation of Replacement Value

$$VP = \sum_{i=1}^n \frac{C_{ij}}{Oc_i}$$

Where,

$VP$  Protection value of watersheds ( $\text{¢}/\text{m}^3$ )

$C_{ij}$  Costs of activity  $j$  aimed at protection of watershed  $i$  ( $\text{¢}/\text{ha}/\text{yr}$ )  
 Fraction of  $j$  aimed at the water functions of forest protection in watershed  $i$  (%)



# Environmentally adjusted water fee

Use value  
(opportunity cost)

$$VC = \sum_{i=1}^n \frac{B_i A b_i}{Oc_i}$$

$$VC = \frac{0.414 * 53000 * 5561.56}{81390000} = 1.080 \quad 2.70 \quad \text{colones/m}^3$$

Recovery & Protection  
(replacement cost)

$$VP = \sum_{i=1}^n \frac{C_{ij}}{Oc_i}$$

$$VP = \frac{0.414 * 128777 * 7469.28}{81390000} = 4.89 \quad \text{colones/m}^3$$

Additional fee

**¢3.80 /m<sup>3</sup>**

\*monto actual





# 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.

A scenic landscape featuring a forested mountain in the background, a river in the foreground, and a bridge crossing the river. The scene is captured in a soft, hazy light, possibly during sunrise or sunset. The text "Thank You!" is overlaid on the left side of the image.

Thank You!