

# Payments for Environmental Services

State-of-the art review and potential for NCA

**Stefano Pagiola**

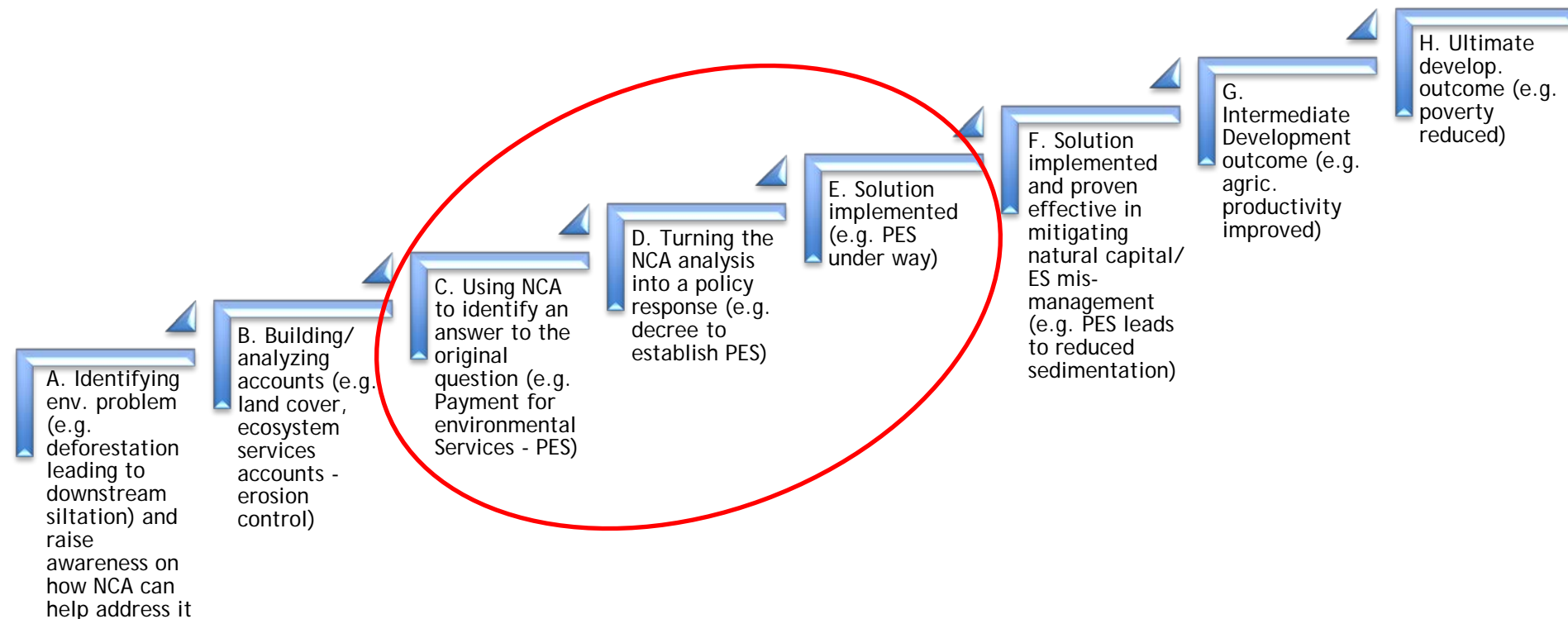
Global Platform, Environment and Natural Resources Global Practice  
World Bank



**Wealth Accounting and the Valuation of Ecosystem Services (WAVES)**

Eighth Annual Partnership Meeting  
28-29 November 2018, Paris, France

# Climbing the ladder: from NCA to development outcomes

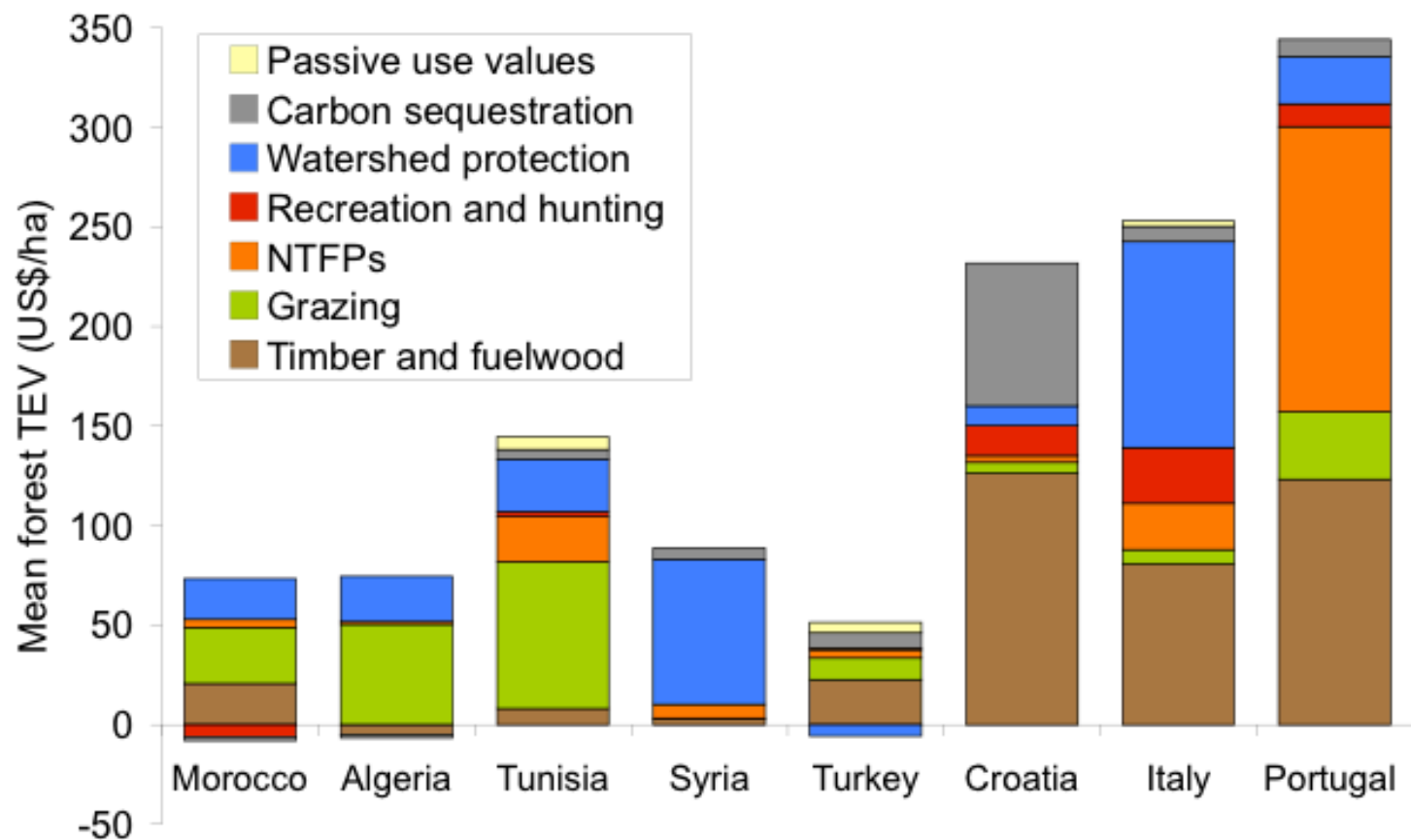


# Measuring the annual flow of forest benefits



# Value of forests in the Mediterranean

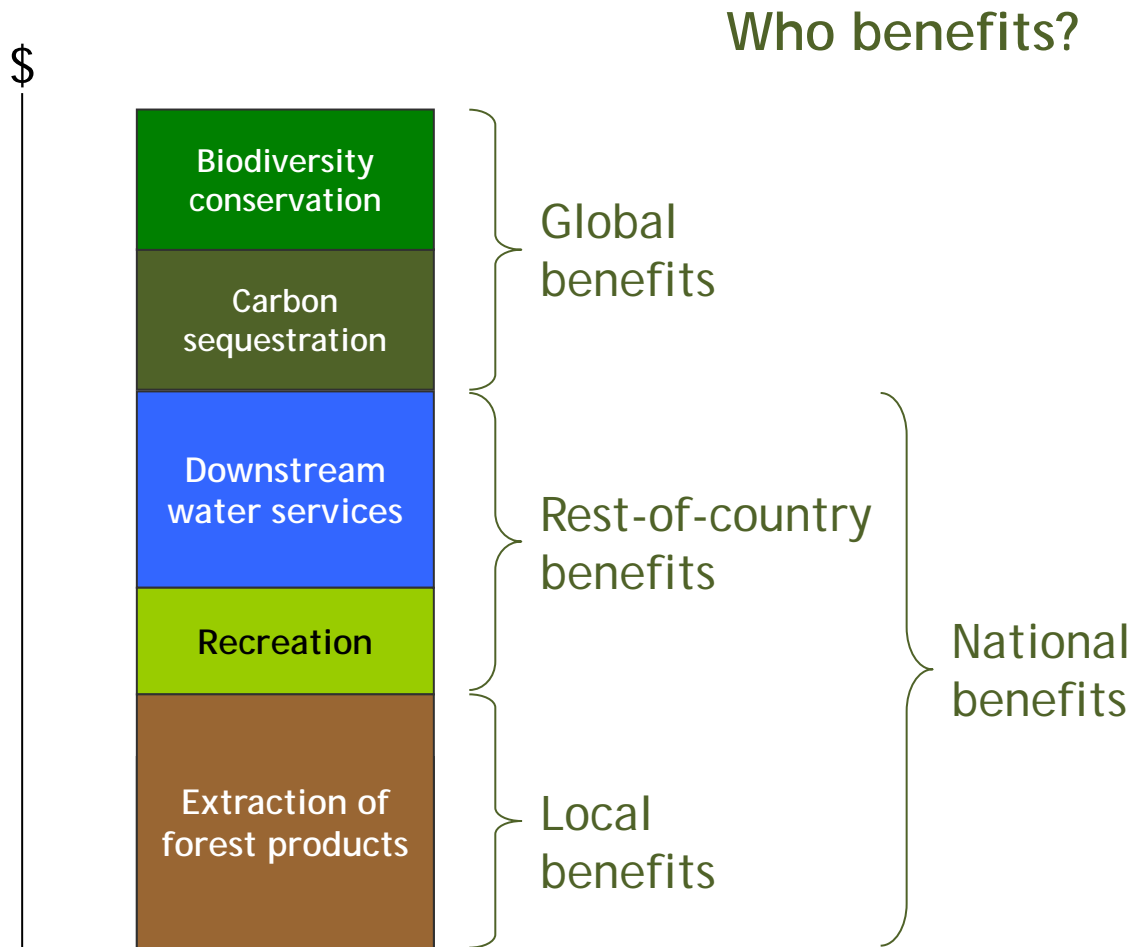
Annual flow of benefits from Mediterranean forests  
Mean: US\$148/ha



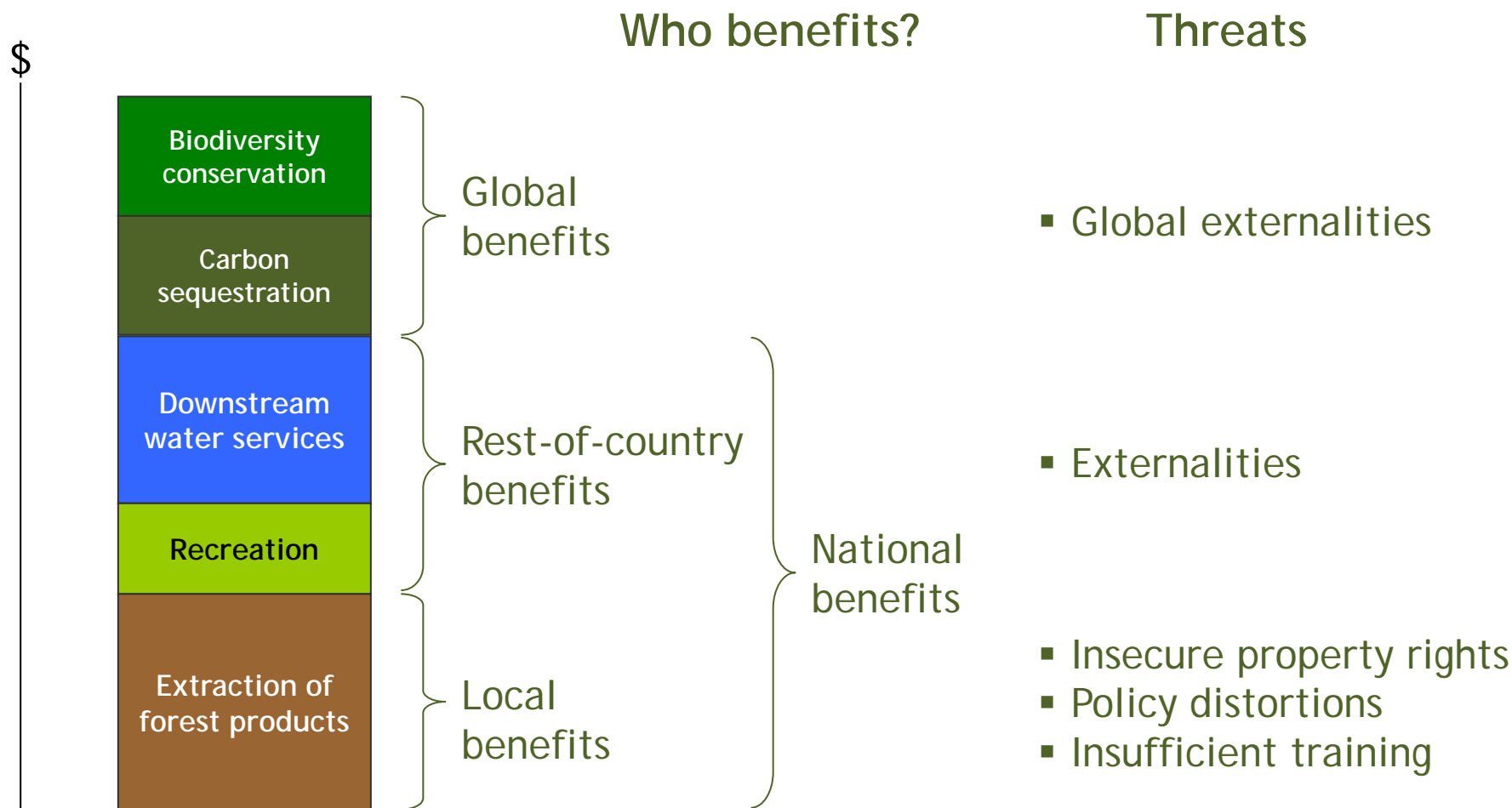
Note: Some benefits could not be measured in some countries

Source: Croitoru and Merlo, 2005

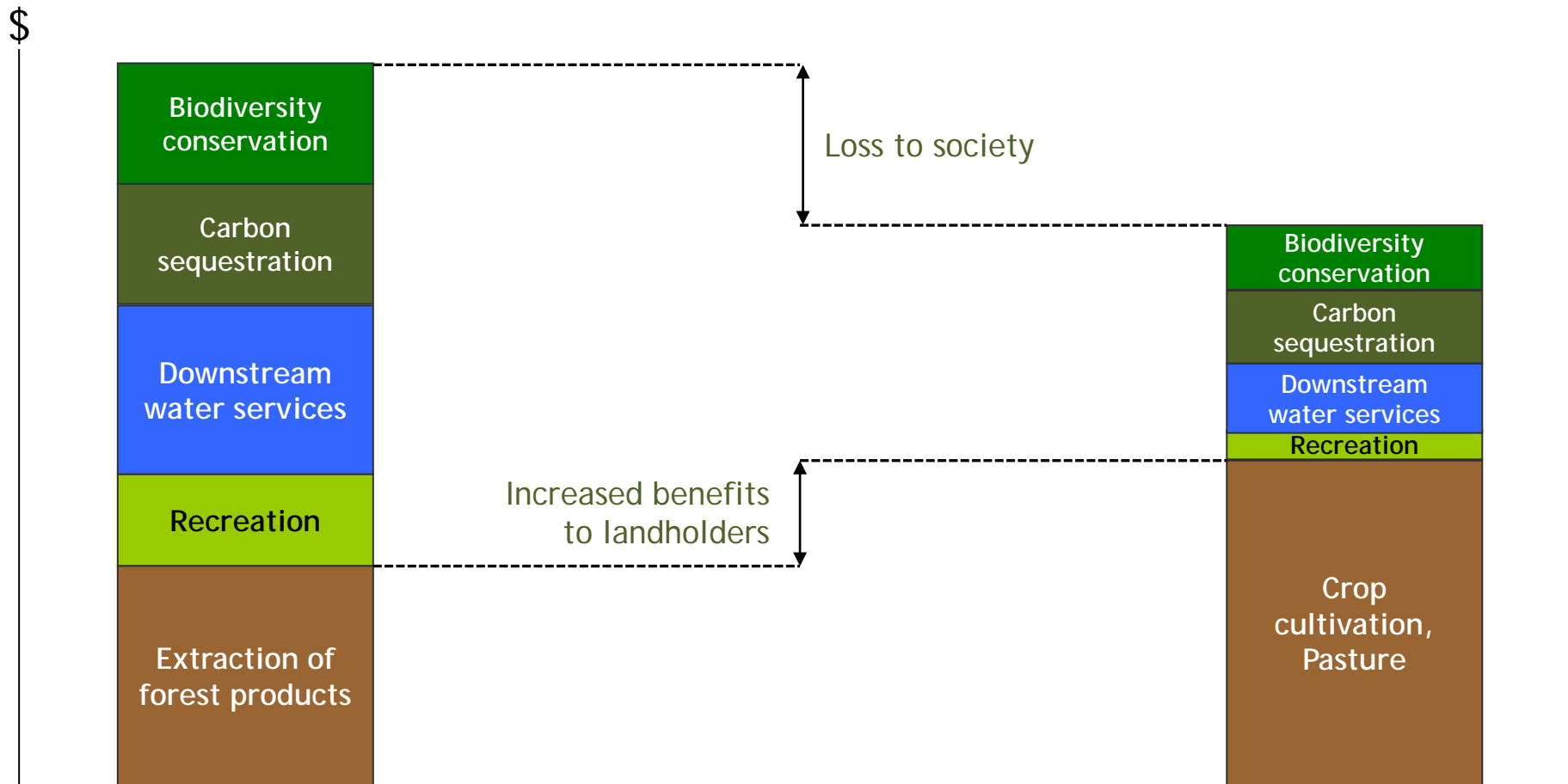
# Who receives forest benefits?



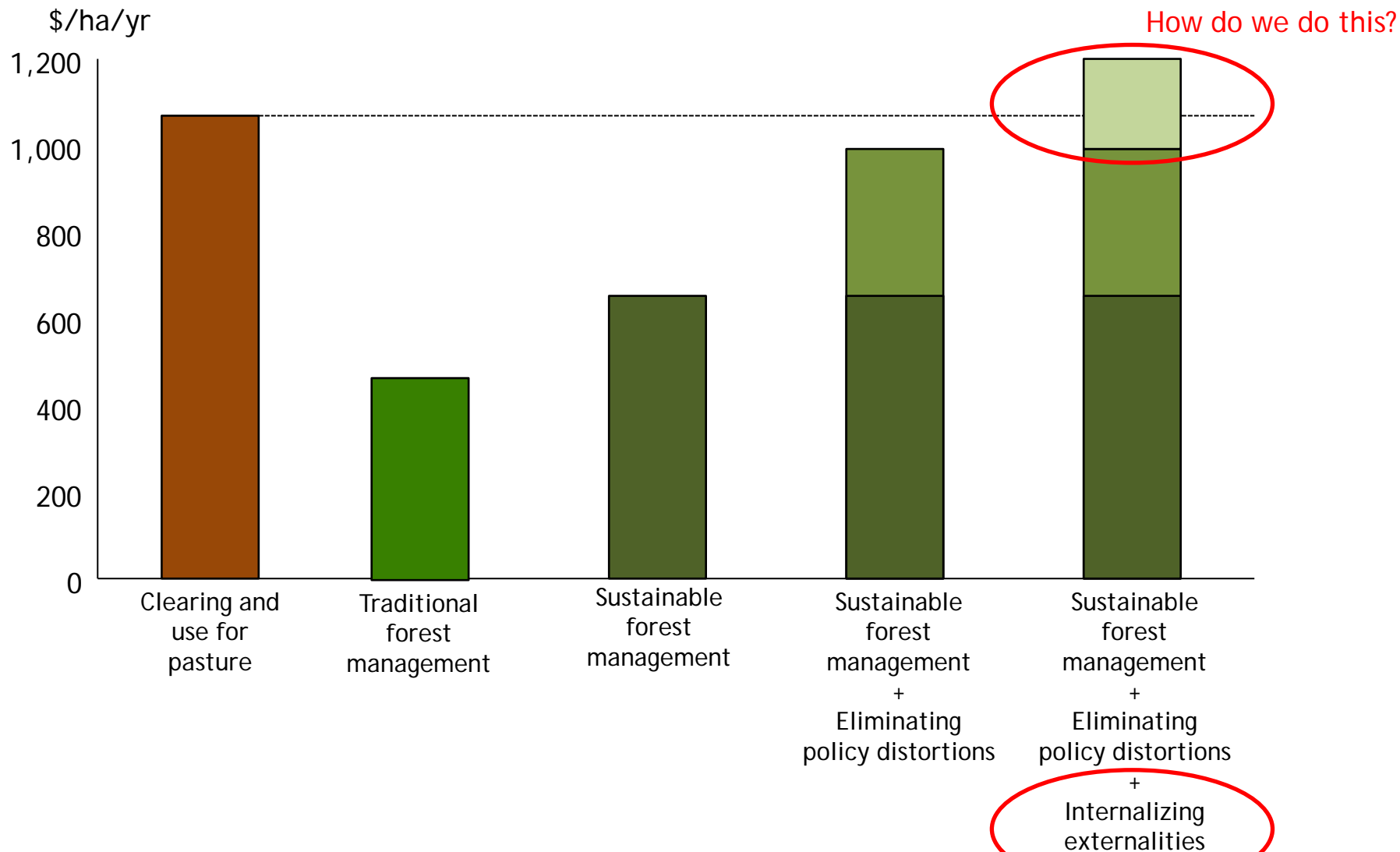
# Threats to forest benefits



# Conversion to alternative uses



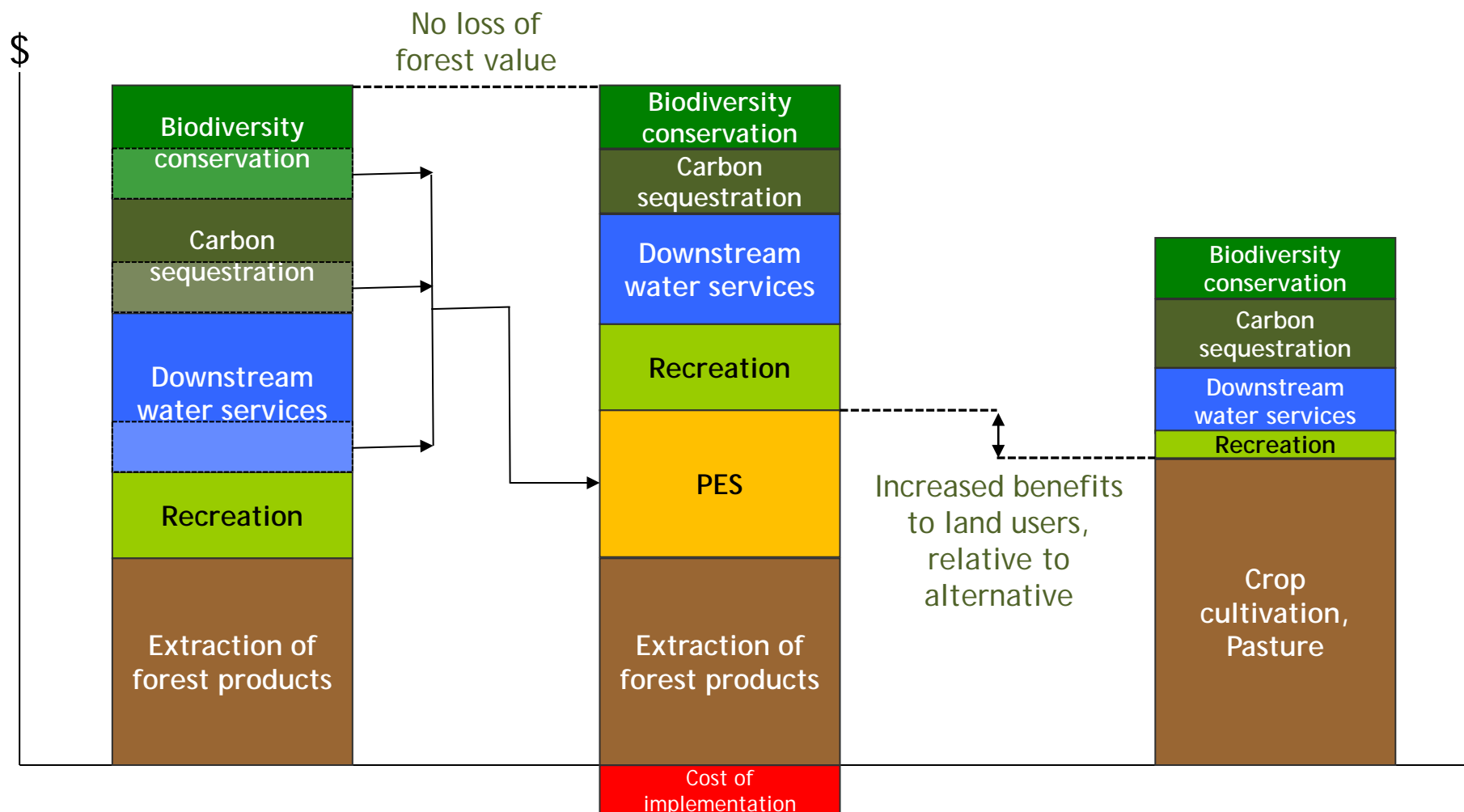
# Addressing threats to forests in Costa Rica



Source: Based on Kishor and Constantino, 1993.



# PES as a solution to externality problems

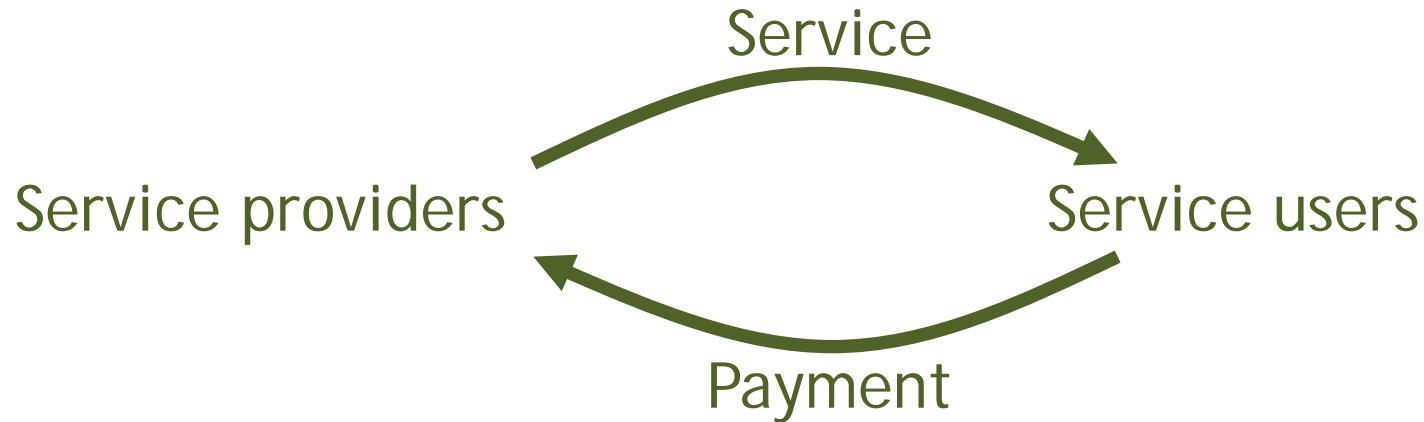


# Payments for Environmental Services (PES)

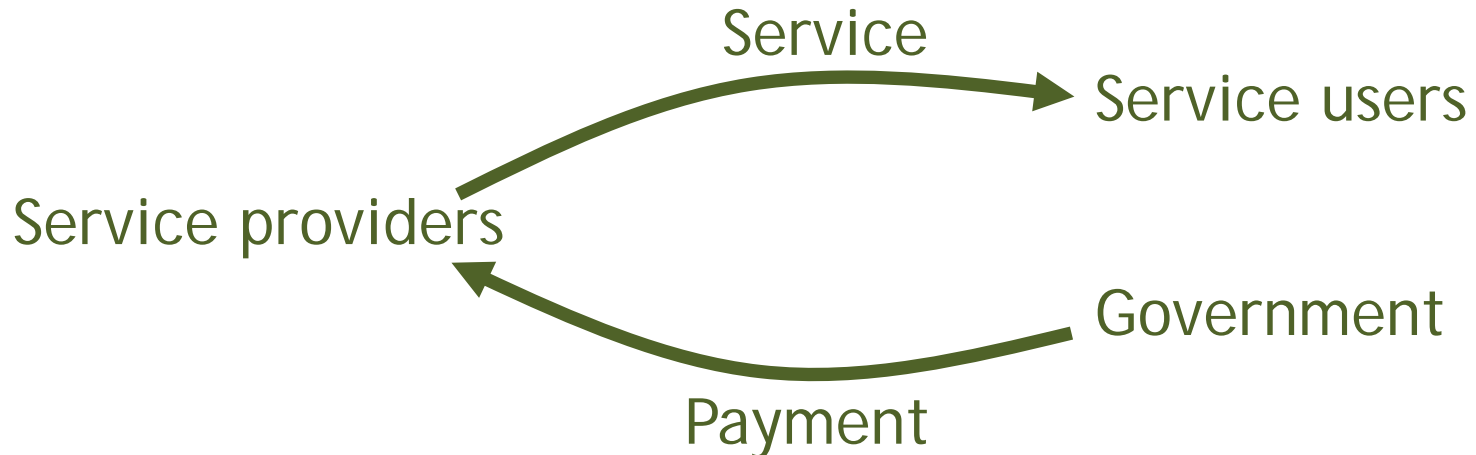
Payments that are conditional on managing natural resources in ways that generate benefits for others

# Two kinds of PES programs

- User-financed PES programs:

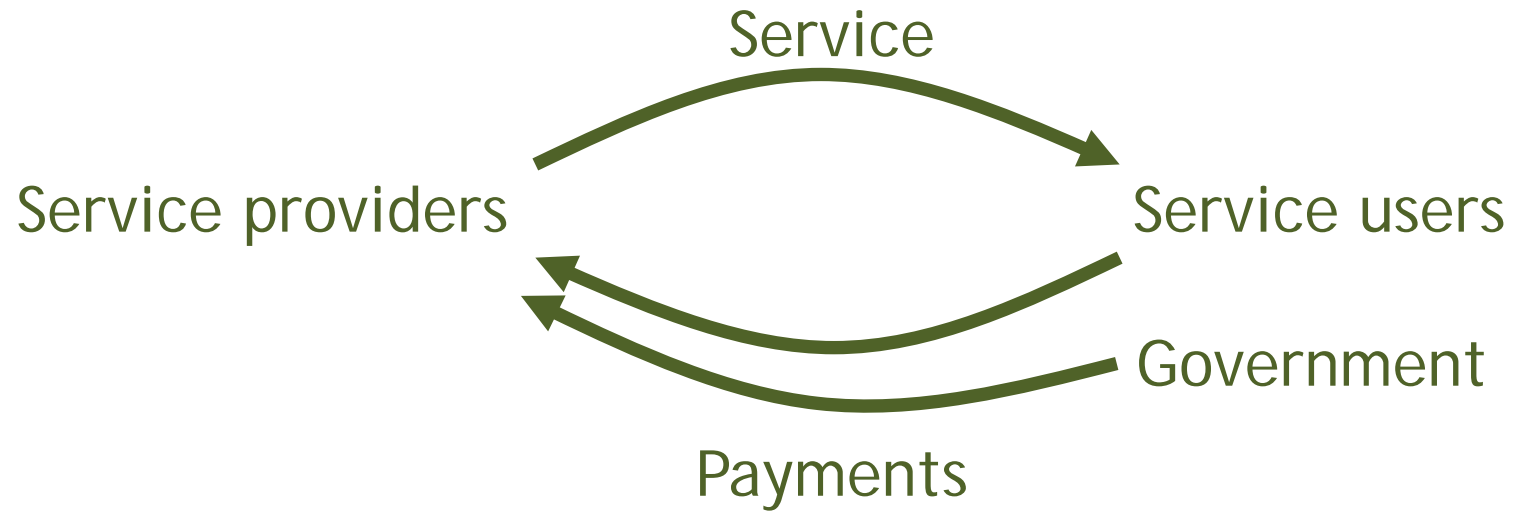


- Government-financed PES programs:

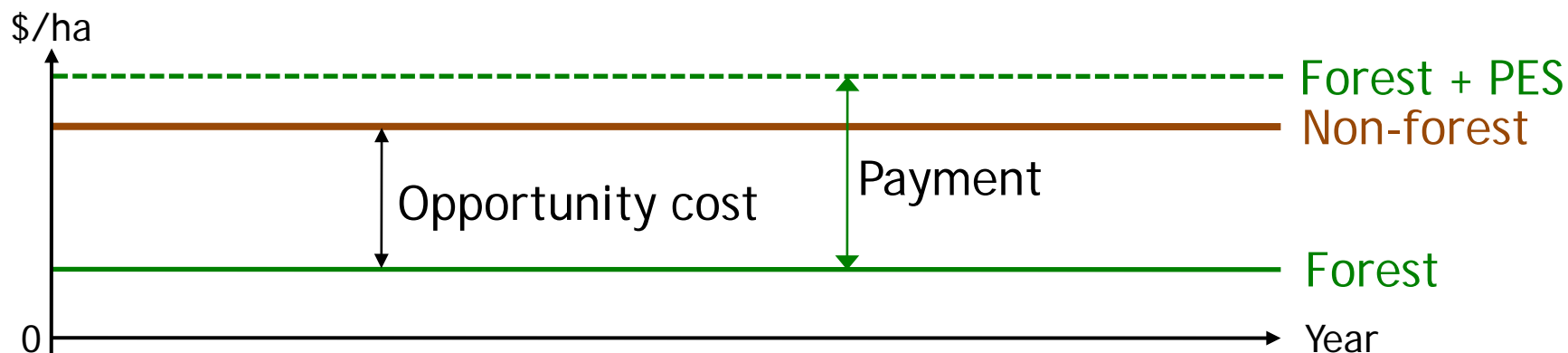


# Hybrid PES programs

- Hybrid PES programs:

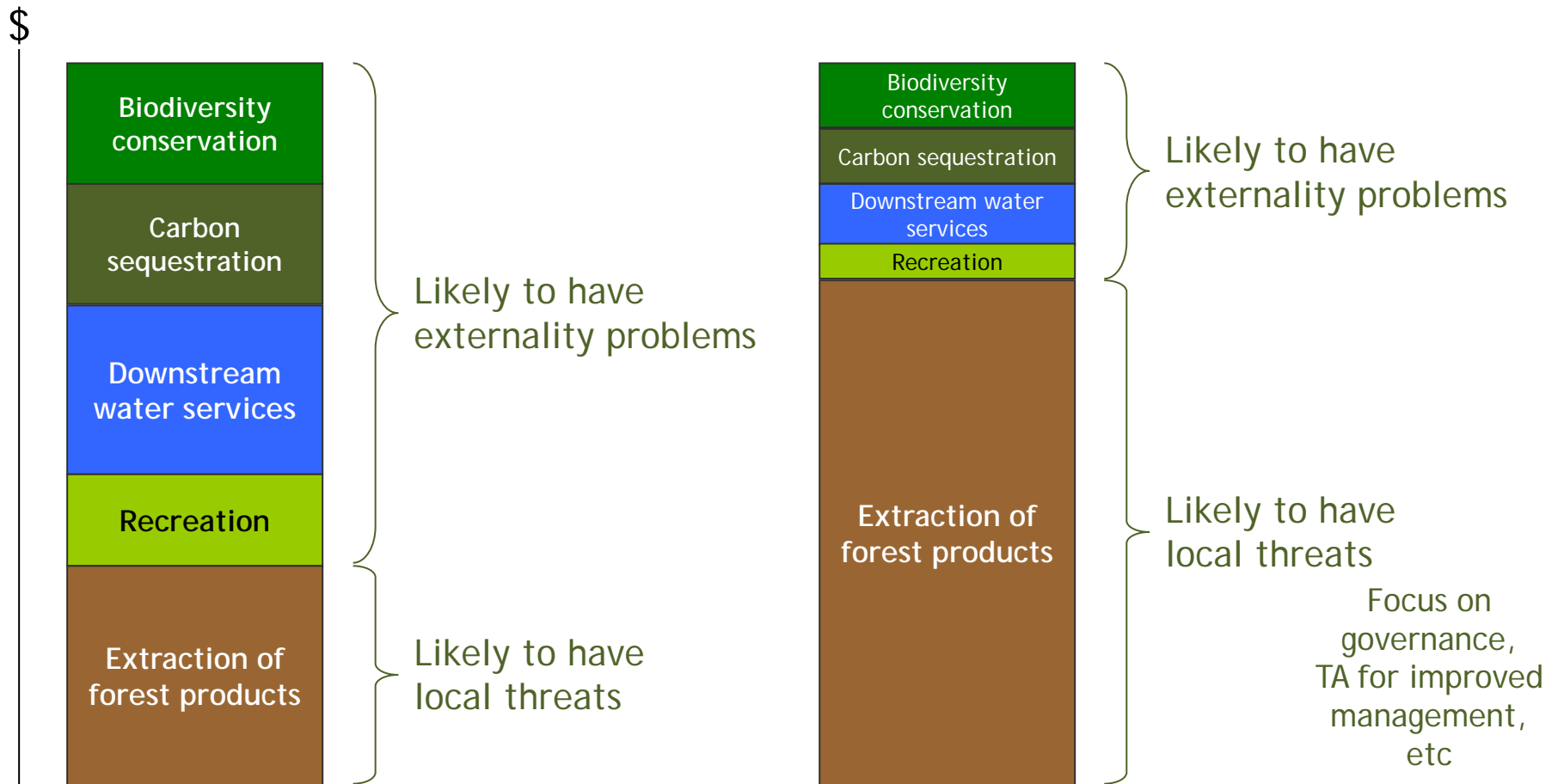


# Time dimension of PES



- Incentive to conserve disappears when payments end
- Requires long-term financing source
  - Users (because it's in their interest)
  - Government (through ear-marked funding)
    - Costa Rica: 3.5% of fuel tax + 25% of water fees
    - Mexico: MXN300 million from water fees + annual budget contribution

# Where do ~~Do~~ you need PES?



✓ □ Yes

Maybe not

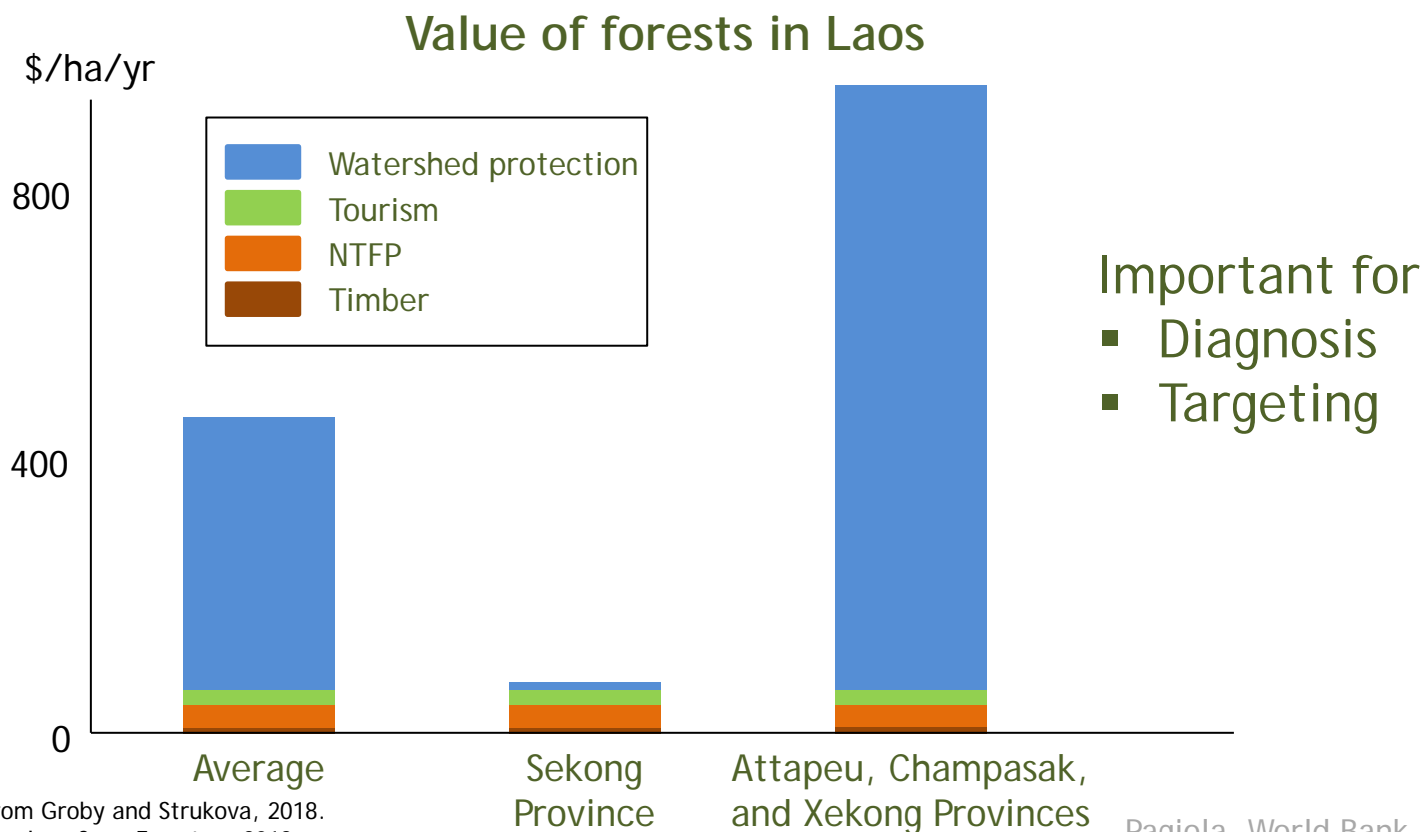
# Some lessons from PES experience

	NCA can help?
■ Understand the problems	✓ □
■ Justifying the program	✓ □
■ Target payments	✓ □
■ Differentiate payments	✓ □
■ Evaluate the impact	✓ □

# What do we need from WAVES/NCA?

## Sub-national differences

- National-level averages not very useful
- Need sub-national data (ideally by watershed or ecosystem, not administrative units)

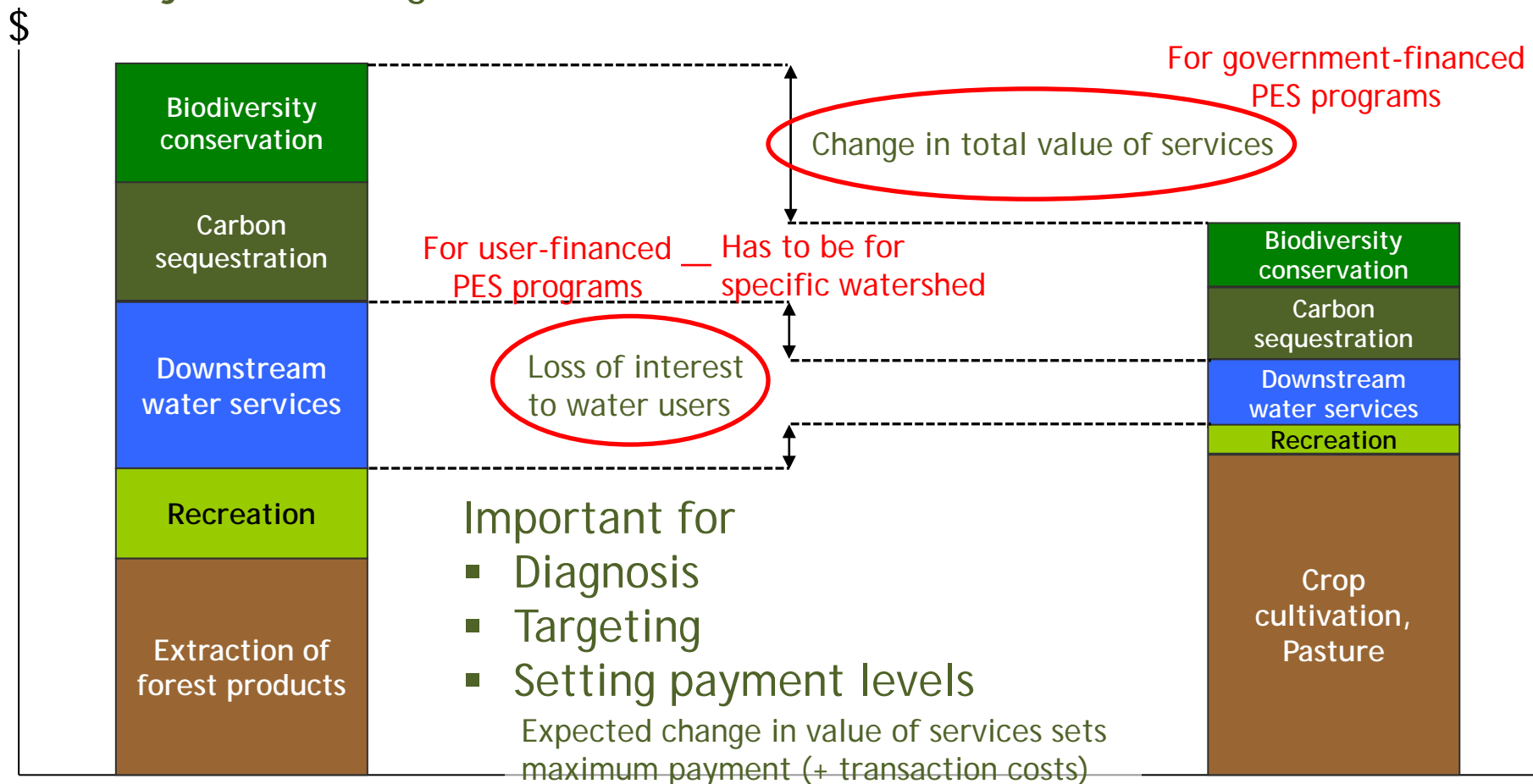




# What do we need from WAVES/NCA?

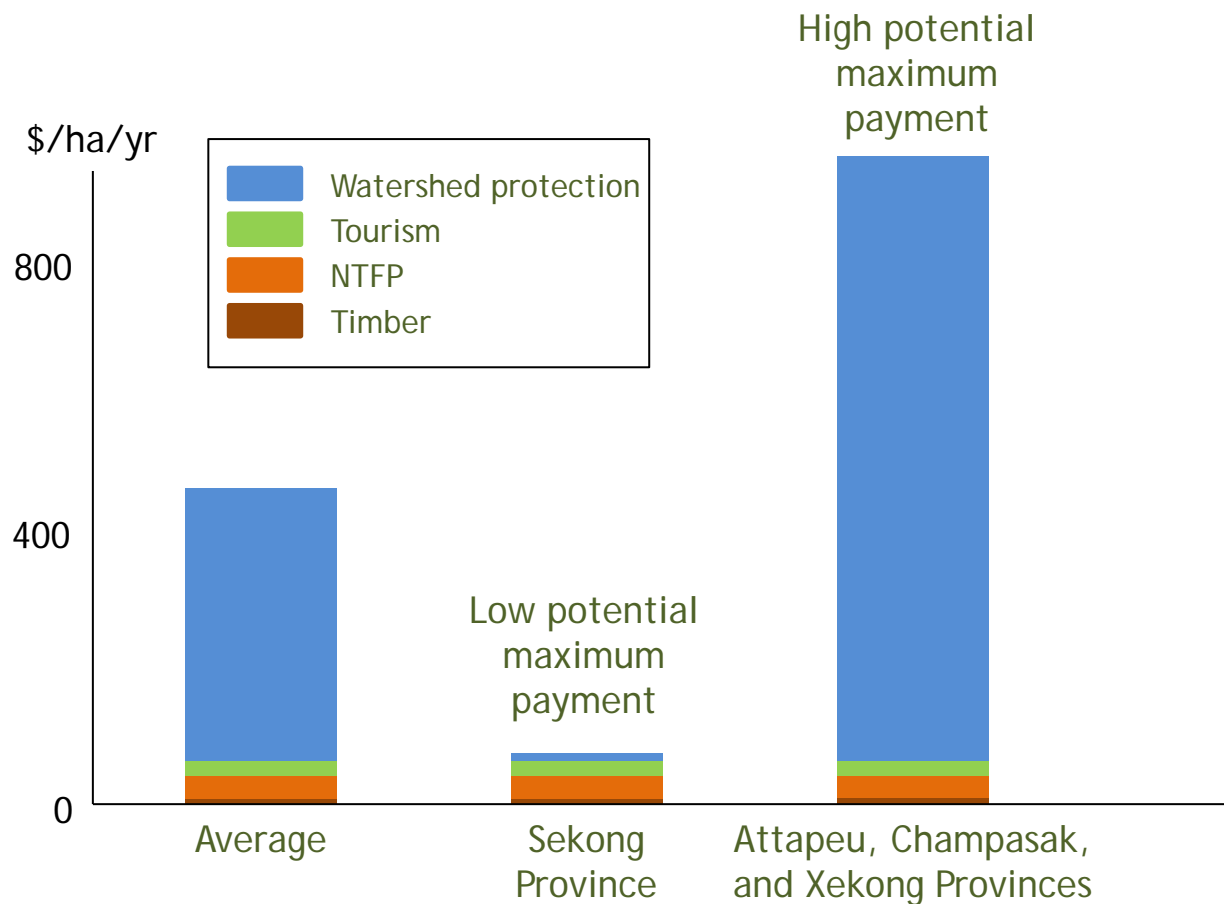
## Changes in value of services provided by NC

- Observed changes over time
- Projected changes under alternative scenarios



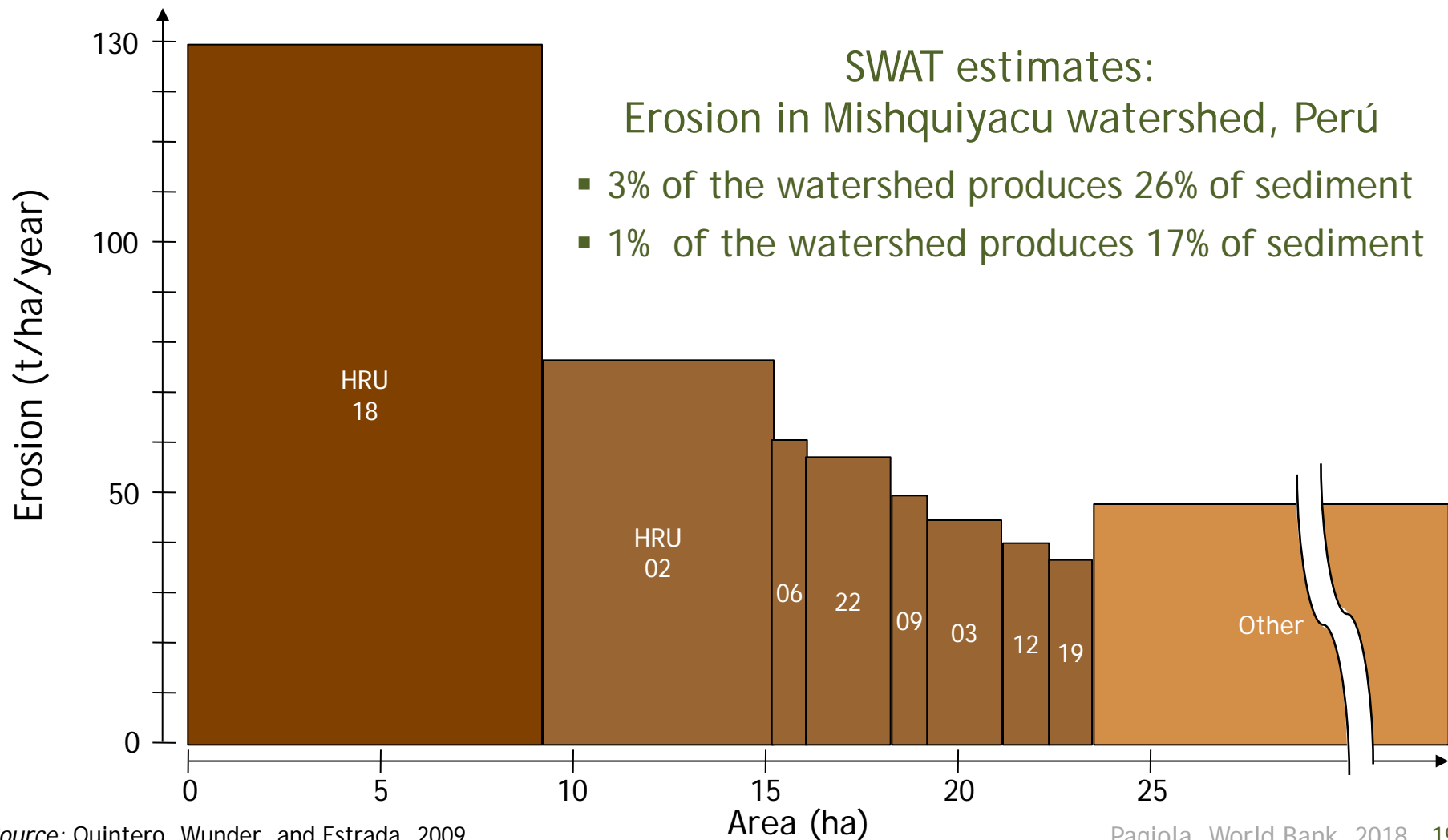
# Need for differentiated payments

## Across watersheds



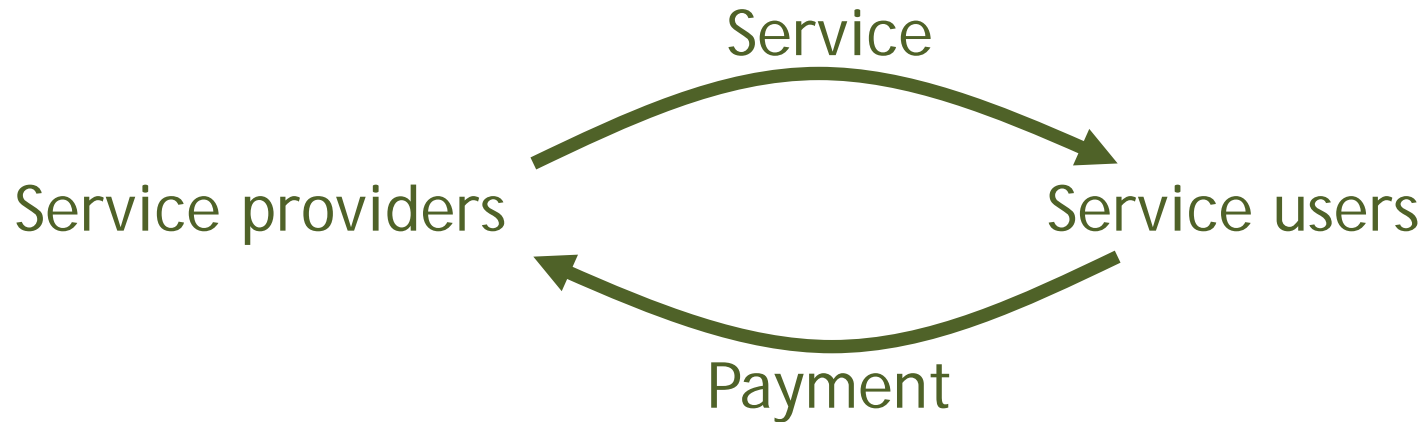
# Need for differentiated payments

## Within watersheds

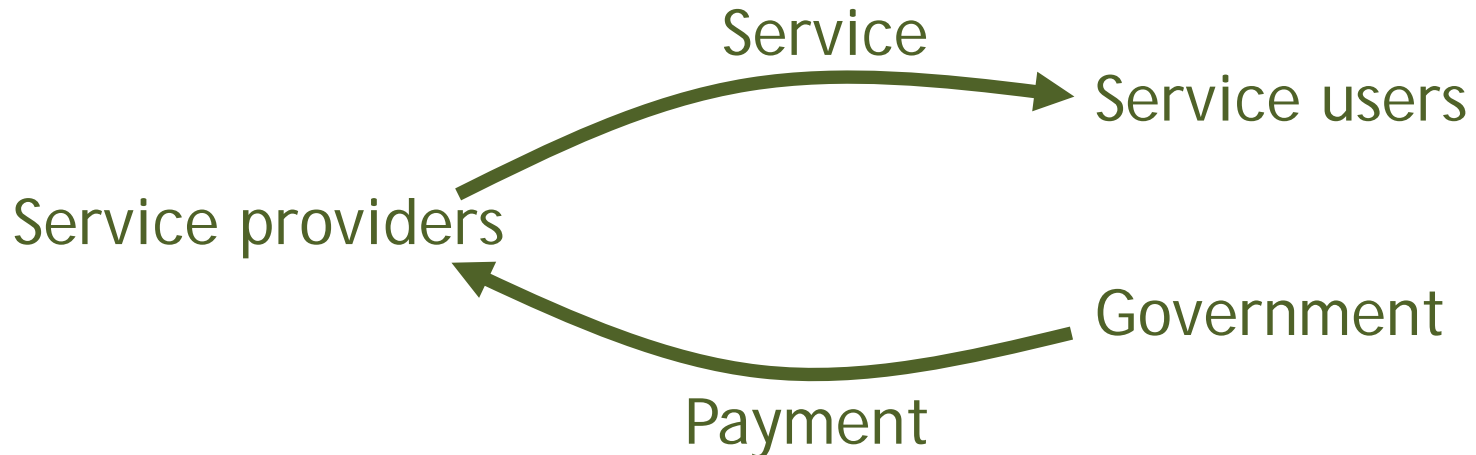


# Two kinds of PES programs

- User-financed PES programs:

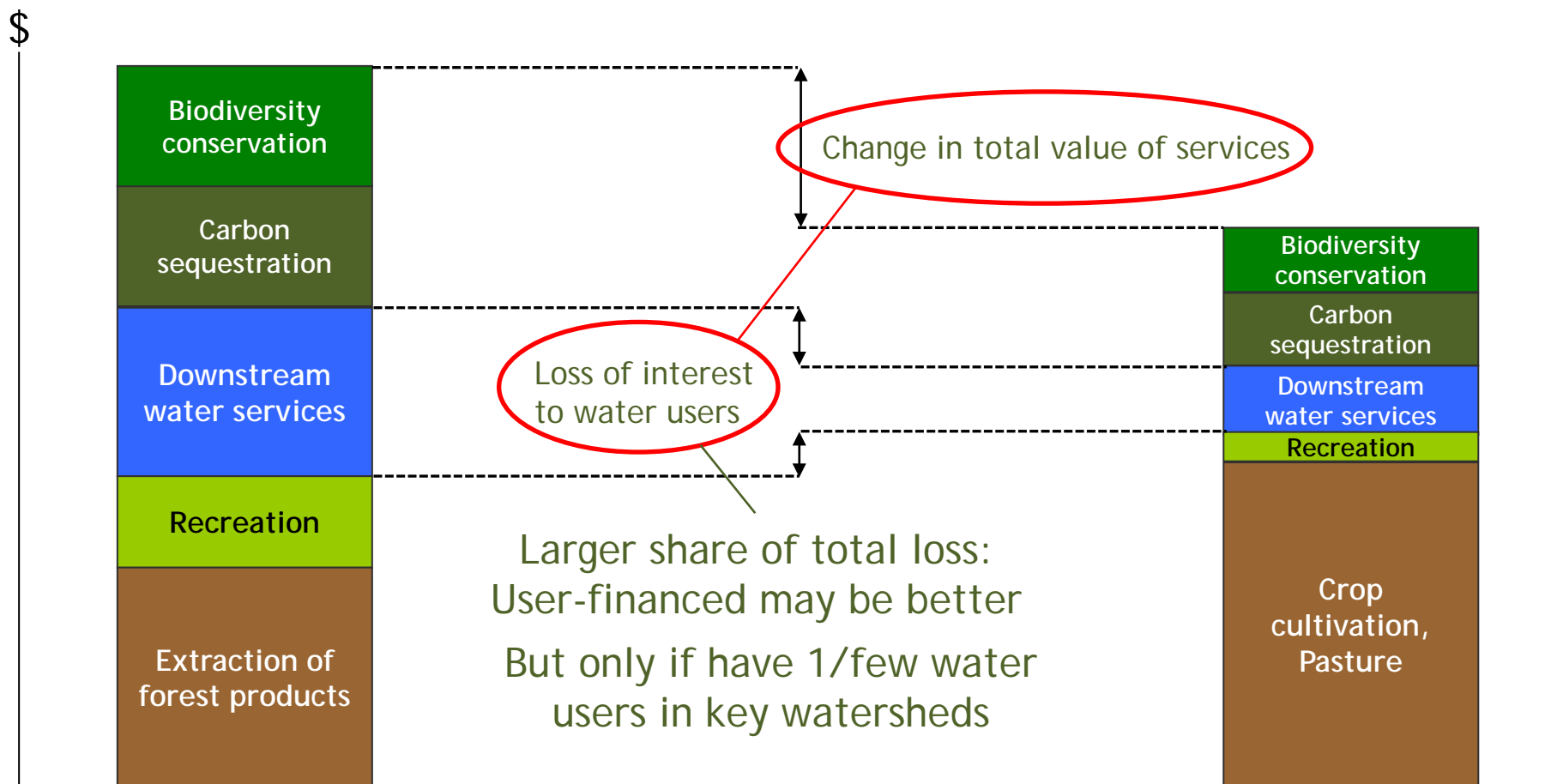


- Government-financed PES programs:



# National or local PES program?

- Distribution of benefits and service users



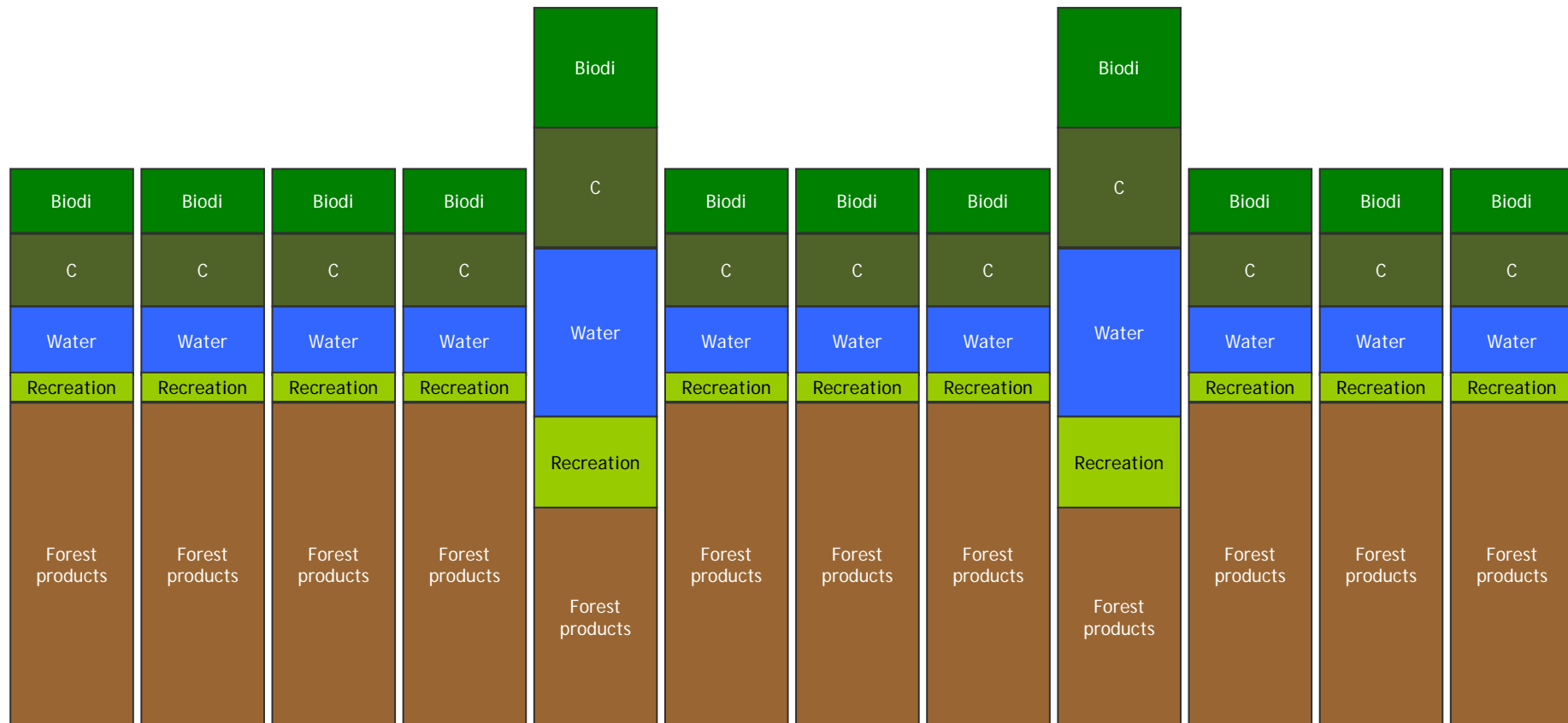
# National program or decentralized local programs?

- National program
  - Larger area
  - Economies of scale in implementation
  - Less efficient “one size fits all”
- Decentralized local program
  - Well adapted to local conditions
  - Smaller area
  - Higher unit costs of implementation

# National program or decentralized local programs?

## ■ Distribution of services

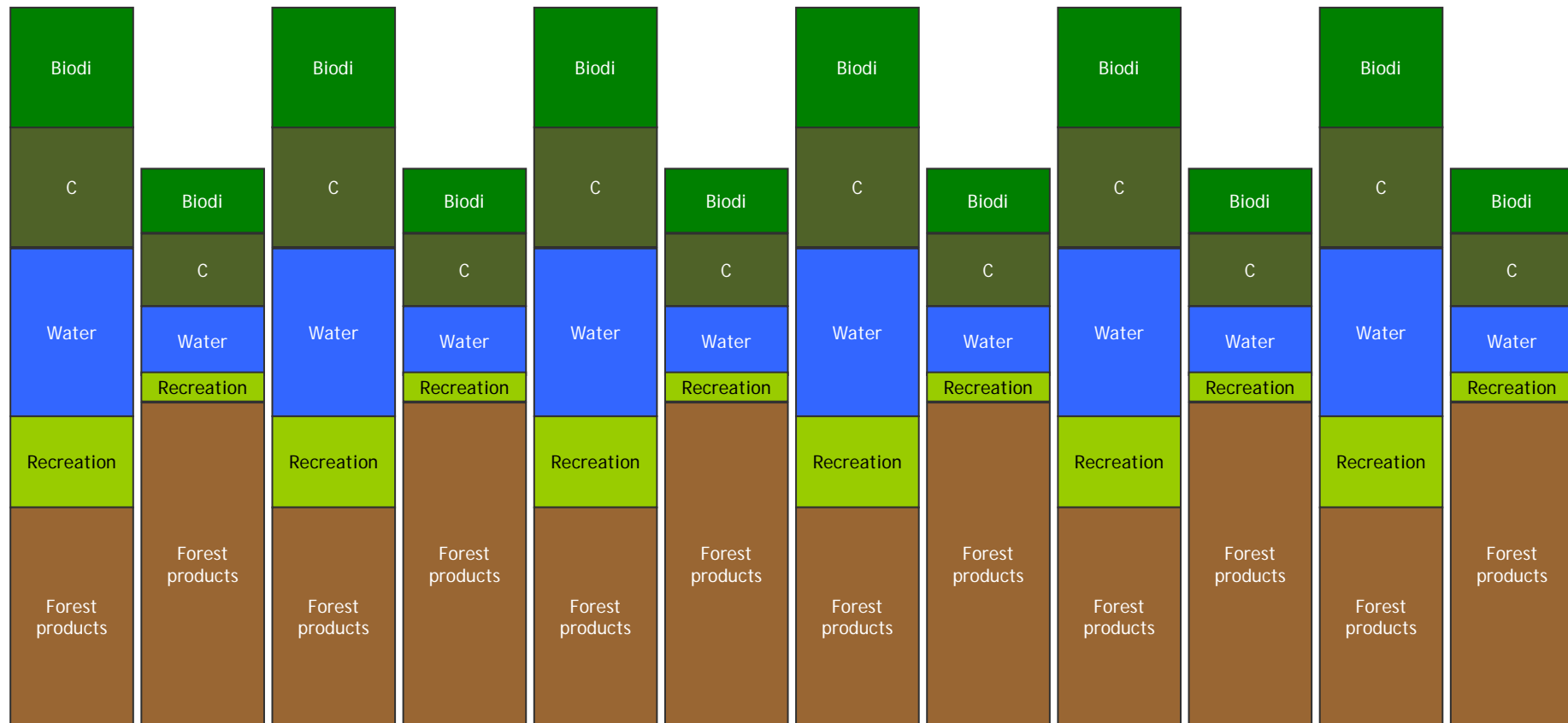
Few areas with substantial externalities → Local programs



# National program or decentralized local programs?

- Distribution of services

Many areas with substantial externalities → National program



National program ≠ untargeted



# NCA can...

- Help identify ecosystems at risk
- Help understand if responses such as PES are needed
- Help design the PES response

# World Bank support to PES



Since 1998

8 completed projects

12 projects under implementation (+ carbon projects)

2 projects under preparation

> USD 100 million a year

> 3 million ha of forest under conservation contracts

# World Bank support to PES: Documenting lessons

<http://tinyurl.com/peslp>

[https://www.researchgate.net/profile/Stefano\\_Pagiola](https://www.researchgate.net/profile/Stefano_Pagiola)

**ELSEVIER**  
**Taking stock: A review of environmental services in developing countries**  
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<sup>a</sup>Center for International Forestry Research  
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**Using the Design of Service**

**PLOS ONE**

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RESEARCH ARTICLE  
**Evaluation of the Permanence of Land Use Change Induced by Payments for Environmental Services in Quindío, Colombia**

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**Abstract**  
The effectiveness of conservation interventions such as Payments for Environmental Services (PES) is often questioned—if it is evaluated at all—only at the completion of the intervention. However, PES may be implemented as a long-term program, a problem that has not been fully examined. We examine the long-term sustainability of PES programs in Quindío, Colombia, between 2003 and 2008. This first PES program in the region was implemented in Quindío, Colombia. Under this program, PES has been found to have a control group for comparison. To assess the long-term permanence of these changes, both PES recipients and control households were re-surveyed in 2011, four years after the program was implemented. To assess the long-term sustainability of these changes, both PES recipients and control households were re-surveyed in 2011, four years after the program was implemented. To assess the long-term sustainability of these changes, both PES recipients and control households were re-surveyed in 2011, four years after the program was implemented.

**Introduction**  
Payments for environmental services (PES) programs have attracted considerable attention as a strategy to protect natural resources and improve their long-term management [1,2,3,4]. As with many other conservation interventions, there are important questions concerning their effectiveness. One such question concerns the long-term sustainability of their results. However, there have been no empirical analyses to date of this long-term sustainability. The

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... (a requirement for participation in many government-financed programmes), may not have the technical or financial means of implementing the PES-supported land use practices, or may find the application process daunting. This invites collaboration between PES programmes and poverty

