

## Payments for Ecosystem Services: experience and perceptions in the US

This project stemmed from Forestry Commission interests in understanding the role of Payments for Ecosystem Services (PES) in environmental management of carbon, water and biodiversity. Undertaken between spring 2007 and January 2008, the project focused on the experience of PES schemes developed in the US, perceptions of these and of schemes in developing countries to reduce tropical deforestation. The project also considered what lessons might be learnt if PES schemes were to be adopted in the UK.

### Background

Ecosystems provide a range of goods and services, helping regulate the climate and contributing to the social and cultural environment in which we live. However, many are threatened by environmental degradation. (The Millennium Ecosystem Assessment, for example, concluded in 2005 that 15 of the 24 ecosystem services assessed were degraded or used in an unsustainable manner.) This situation can be attributed to there being insufficient incentive for landowners to protect ecosystems and the services that they provide. Payments for Ecosystem Services tackle this by providing a framework of financial incentives. A broad definition of a PES is any mechanism involving payment for an ecosystem service.

To investigate experiences and perceptions in the US of PES schemes, a series of meetings and site visits were conducted in conjunction with Forest Trends in late May 2007 with a range of individuals and organisations in Washington DC, California and Oregon (see Table).

### Objectives

This research aimed to:

- gain a broad understanding of the coverage and workings of PES in the areas of carbon, water and biodiversity in the US
- understand the current role of the forestry sector in PES schemes and its future potential in such schemes
- gauge the environmental and economic performance of PES schemes
- ascertain perceptions of PES as a tool for environmental management, including its use in tackling tropical deforestation
- explore the potential for combining PES across the carbon, biodiversity and water markets

### Methods

Presentations by host organisations, question and answer sessions, discussions, web searches and literature reviews all contributed to the research.

#### Host organisations in the US

##### Public sector

- US Forest Service
- US Department of Agriculture
- Environmental Protection Agency
- US Corps of Engineers
- US Fish and Wildlife Service
- National Association of State Foresters
- Clean Water Services
- World Bank
- Oregon Department of Forestry

##### Voluntary

- Forest Trends
- Winrock International
- Conservation International
- WWF-US
- Environmental Defense
- Centre for Resource Solutions
- Pacific Forest Trust
- Resources for the Future
- Ecotrust, Oregon
- The Climate Trust, Oregon
- Willamette Partnership

##### Private

- Westervelt
- Wildlands Inc.
- Parametrix
- Environmental Banc & Exchange, LLC
- Ecosystem Investment Partners

## Findings

- PES schemes are diverse and have been developing rapidly in recent years in the US. They include public and voluntary payment schemes (financed by governments and the private sector, respectively) and cap-and-trade schemes.
- The world's largest 'voluntary carbon' market has developed in the US in the absence of, and partly in anticipation of, federal regulation. Several cap-and-trade schemes are under development at state and regional level, some incorporating ambitious (by international standards) emissions-reduction targets. A significant component of the voluntary carbon market already, forestry is likely to be included in most regulatory cap-and-trade schemes and is considered important in allowing higher emissions reduction targets to be set while reducing the cost of emissions reductions. Measures both to reduce forest fires and to sequester carbon are viewed as important.
- Water quality trading introduced to meet standards under the Clean Water Act is aimed mainly at reducing phosphorus and nitrogen-based pollutants. Some thermal trading systems also exist, allowing waste water treatment plants, for example, to offset their excess thermal load through flow augmentation schemes and riparian planting.
- Conservation and wetland mitigation banking emerged in the 1990s as a mechanism to compensate for the unavoidable impacts of land development projects on wetland and endangered species habitats, allowing developers to purchase credits for new wetlands or habitat created or restored to offset impacts. Over 500 wetland mitigation banks currently exist in the US, the majority operated for profit. Forests are covered only to the extent that they are also wetlands or endangered species habitats.
- Information is sparse on the performance of PES schemes. The ratios generally applied in conservation and wetland mitigation banking, requiring a larger area to be created for each area adversely impacted, are generally thought to adequately compensate for impacts, as areas impacted tend to be relatively low-grade wetland and habitat near urban areas. With larger areas covered by the banks than on-site mitigation initiatives, they are easier to monitor, and considered to be more effective.
- Few PES schemes in developing countries currently aim to reduce tropical deforestation *per se*. Trade-offs between environmental, poverty reduction and cost-effectiveness objectives influence the design and performance of PES schemes. Dangers exist that PES schemes further marginalise the poorest in society, since they do not own land, or are small-scale land owners facing high transactions costs. These issues can be addressed partly through encouraging active community participation in developing schemes.
- PES schemes encompassing multiple ecosystem services are rare. Payments to forest owners under the pioneering PES scheme in Costa Rica cover climate change mitigation, hydrological services, biodiversity conservation and visual amenity. A trading scheme covering multiple ecosystem services is currently under development in Oregon.

## Recommendations

Further research and policy analysis is needed in considering the potential introduction of PES mechanisms in the UK and on the potential for 'bundling' multiple services within a single scheme.

Research is also needed to help reduce current scientific uncertainties, develop more robust methods to quantify ecosystem services and establish baselines. Quantifying the additional benefits provided by PES schemes ('additionality') is of key importance in evaluating their performance.

### Partners

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### Reports and publications

Valatin, G. and Coull, J. (2008). *Payments for Ecosystem Services: findings and perceptions from the USA*. Report and Policy Summary, Forest Research/FC, Edinburgh. [www.forestresearch.gov.uk/fr/infd-5suk4r](http://www.forestresearch.gov.uk/fr/infd-5suk4r)