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# Enhancing the environment through payment for ecosystem services

## Does payment for ecosystem services offer a new opportunity for natural resource management and how can it work in practice?

Policy and Practice Notes

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**Payment for ecosystem services (PES) seems to be offering a route to the better management of natural resources, and sources of untapped investment for the conservation of natural capital. Does the dash for PES offer the promise of a more sustainable environment for us all?**

## What are ecosystem services and why are they important?

**The services we get from nature are essential to life on earth. They include:**

- Pollination services from insects, estimated to be worth £440 million annually to UK agriculture.
- Supplies of secure, clean drinking water.
- Food and forestry products.
- Wildlife and beautiful landscapes.
- The ability of habitat (e.g. peatbogs and forests) to lock up greenhouse gases such as carbon.

## What is the problem with ecosystem services and why don't we value them?

**The problem with many of the services provided by nature is that they are difficult to value in traditional economic terms:**

- Nature's services belong to everyone, or no-one. For example, the benefits of managing land for conservation rather than food production accrue to society as a whole and not directly to individual land managers.
- It is difficult to put a monetary value on some ecosystem services such as biodiversity and hence compare the true costs and benefits of providing them.
- With weak incentives for protection, failure of markets to deliver for the environment and ineffective regulation ecosystems can become damaged or depleted.
- Government frequently – but not always – steps in to safeguard environmental 'public goods' on our behalf but with varying degrees of efficiency and effectiveness.

## What is payment for ecosystem services?

**Payment for ecosystem services brings economic thinking and a market mechanism into the provision of natural resources:**

- PES schemes are voluntary market-like transactions between buyers and sellers (beneficiaries and providers) of ecosystem services. Because there are clear benefits to both, this should incentivise sustainable management.
- Beneficiaries can be individuals, communities or businesses, or government acting on their behalf
- PES schemes typically pay for the amount of ecosystem service that is delivered, but 'PES-like' schemes are also common, for example agri-environment programmes that pay farmers on the expected outcomes of their land management practices.
- There are many examples of PES approaches in developing countries to help alleviate poverty and conserve natural resources. But examples of privately funded PES in the UK are few and of relatively small scale.

## Why is there growing interest in PES?

**Policy makers are interested because:**
— Concerns over climate change and greenhouse gas emissions.
— Increasing pressures on natural resources and biodiversity.
— The need to ensure high water quality and good ecological status as required by the Water Framework Directive.
— The need to balance food security with environmental conservation in the face of improved (albeit volatile) commodity prices for producers.
— Cuts to conservation budgets, including those funded from the CAP.

**Businesses are interested because:**
— They can derive economic benefit from looking at operations in the context of the wider ecosystem.
— There are opportunities from helping other businesses to take an ecosystems approach.

## What's happening now with PES?

**The Natural Environment White Paper commits the Government to an ecosystems approach including the proper valuation of natural capital and the expansion of markets via PES approaches.**

**Already the Government is:**
— Developing an evidence base that includes research into PES barriers and opportunities.
— Developing a PES action plan and best practice guide.
— Facilitating a programme of on-the-ground pilots to test the PES approach
— Supporting the Ecosystems Markets Task Force that is engaging businesses in the benefits of an ecosystems approach, including PES.

## What can we learn from research?

**Relu and other programmes within LWEC have been at the forefront of ecosystems research and can offer key insights into payment for ecosystems services.**

**PES must bring added benefits:**
— Paying providers for ecosystem services should not be a substitute for meeting basic regulatory requirements but deliver additional benefits. Work in south west England by the Westcountry Rivers Trust and South West Water has demonstrated how additional benefits can be delivered by investing with local farmers for better farm infrastructure and less intensive management practices.

**Regulation and incentives are both important:**
— Cost-effective regulation is needed to underpin PES schemes to ensure additional benefits and value for money.
— Well-designed schemes that use innovative and creative approaches to incentivise land managers are also important for securing ecosystem benefits. Lessons can be learnt from successes in other countries.
— Such innovation can expose deficiencies in existing legal provisions. Long term resource protection requires robust, durable and flexible legal tools. Restrictive covenants are used in the UK but can lack flexibility and enforceability if land ownership changes, compared to conservation easements that protect land from development or certain kinds of use in perpetuity, used in the USA.
— Future PES schemes including public agri-environment schemes need options to further encourage land managers who maintain high conservation standards, as well as compensating intensive producers for changing to less damaging practices, or assisting undercapitalised farms to invest in improved infrastructure.

**Flexible delivery and stakeholder engagement pay dividends:**

— Land management tailored to localities is key to maximising ecosystem benefits.
— PES schemes should vary payments to match the local opportunity cost of resource protection. This can be done through mechanisms such as reverse auctions where land managers bid to provide a particular service.
— Working at landscape scale across ownership boundaries is essential for delivering certain ecosystem services e.g. water provision, biodiversity conservation and carbon and climate regulation.
— Engaging local stakeholders early on can pay dividends and create the right conditions for PES schemes to develop. Investment in building up relationships and the nurturing of trust and acceptance amongst stakeholders are vital.
— Techniques such as participative mapping and modelling of landscape scale ecosystems enable better understanding of different ecosystems services under a variety of scenarios, enabling trade-offs to be negotiated, and priorities agreed.
— PES schemes at local level benefit from the role of an independent, trusted, broker such as a local conservation trust or social enterprise. Brokers have detailed knowledge of local conditions and can help bring together potential buyers and sellers.
— Farm advisers who are locally accepted and trusted are vital. They need to build ecosystem service delivery into advice that benefits the farm as a business and achieves its owner's objectives.

**Practical options are emerging:**

— The most promising PES opportunities are around water and carbon management. The science is relatively well developed; there are buyers and sellers interested in reducing their costs and environmental impact, plus regulatory frameworks and new codes of practice, such as the Woodland Carbon Code, underpinning the safe development of markets. The amount of carbon dioxide predicted to be removed from the atmosphere by woodland planting projects registered under the code has already passed one million tonnes.
— Peatland offers opportunities for bundling together a number of different ecosystem services that provide multiple benefits, for example biodiversity benefits in addition to carbon sequestration and clean water. This could bring in additional investment for peatland restoration and help meet targets under climate legislation and the Habitats Directive.
— Agri-environment schemes under the CAP offer potential for matching public and private investment but need greater flexibility to respond to local conditions whilst targeting ecosystem services effectively.

## What else is needed for PES to work?

**PES will not provide all the answers, but can be a significant policy tool for better natural resource conservation. Careful evaluation is required of the risks involved as well as the benefits.**

**Research has a key role to play. There should be:**

— A bridge between the plethora of research on valuation being undertaken by academics, and decision-makers seeking to establish local ecosystem markets.
— Research and development into practical, low cost tools that can be used by a range of stakeholders to make decisions about value and priorities.
— Continuing research into how different land management practices influence the production of different ecosystem services in different places. The mechanisms that establish cause and effect are not yet sufficiently clear for some habitats and/or ecosystem services.
— More research into the behaviours of potential buyers and sellers of ecosystem services to assist with the development of markets and understand what people value and why.
— Continuing research into incentivising land manager's behaviour e.g. enabling collaboration across property boundaries for the management of certain ecosystem services.
— More links between research and business e.g. academic interns.
— More involvement of businesses in designing ecosystems research relevant to their needs.
— Better understanding of the potentially damaging trade-offs between ecosystem services that may be caused by PES.

## What are the messages for policymakers?

**The Government should:**

— Maintain its commitment to safeguarding ecosystems and the services they provide, including investment in environmental public goods, whilst investigating the opportunities for additional private investment alongside public funds. There is a role for business in PES schemes provided that basic regulation is clear and enforceable.

— Establish a clear regulatory framework for PES, building on the Defra Best Practice Guidance. This would set principles that all PES schemes should adhere to in return for some kind of accreditation, e.g. added value and coordination of local schemes with national strategic priorities. There are several existing bodies that could implement this framework but overall responsibility lies with Defra.

— Work with relevant government departments to produce a combined code for land based carbon, drawing on the Woodland Carbon Code, and the emerging Peatland Carbon Code.

— Accelerate delivery of its PES Action Plan capitalising on the creation of Nature Improvement Areas and Local Nature Partnerships, plus the availability of National Parks and Areas of Outstanding Natural Beauty to test and scale up the design and delivery of PES schemes.

— Make a commitment to disseminate the learning from the PES pilots and feed it into policy and practice, and invest in a programme of formal monitoring and evaluation of PES schemes, both private and public.

— Consider different models of agri-environment delivery and work with farming organisations and other stakeholders to improve targeting and flexibility.

— Maintain its investment in knowledge exchange to provide access to a range of information about ecosystems, including PES.

**The Research Councils should:**

— Step up investment in inter-disciplinary research into PES, involving social scientists as well as ecologists and economists, and key stakeholders such as businesses.

— Pay greater attention to social and economic outcomes of PES approaches as well as environmental ones – for example what can PES do for rural economies?

— Invest in communicating key messages about PES to wider audiences many of whom find the language around PES alienating or incomprehensible.

**Businesses need:**

— More information in non-academic language about the concept of ecosystems services and its drivers for business.

— Clear guidance and information to show how the approach works in practice, perhaps with pilot projects.

— Key business players promoting ecosystems thinking within the business community. These could come from the water, agriculture or food retail industries, from the consultancy and advisory sectors, or from trade organisations.

# Further information

**This Policy and Practice Note was written by Frances Rowe, with comments and assistance from Relu and LWEC researchers. Particular thanks to Ian Bateman, Mark Reed, Laurence Smith and LWEC Land Use Fellow Jeremy Phillipson. The Note draws on Relu research and other LWEC activities.**

**Series editor:** Anne Liddon

**Useful resources:**

**LWEC** is a multi-agency partnership that is concerned with responses to environmental change.
www.lwec.org.uk

**Relu** is an interdisciplinary research programme supporting projects under the theme of adapting rural living to environmental change.
www.relu.ac.uk

**Relevant projects:**
- Sustainable uplands, learning to manage future change
- Innovative market-based mechanisms and networks for long term protection of water resources
- Modelling the impacts of the European Water Framework Directive: implementing the ecosystem services approach
- Integrated management of floodplains
- Science in the field: understanding the changing role of expertise in the rural economy

**VNN** is an interdisciplinary network for valuing ecosystem services, biodiversity and natural resource use.
www.valuing-nature.net

**Relevant projects:**
- Valuing peatlands: assessing and valuing peatland ecosystem services for sustainable management
- Agricultural management: valuing the impacts of ecosystem service interactions for policy effectiveness
- From values to decisions: bridging the gap between supply and demand for valuation evidence

**The NEA (National Ecosystem Assessment) follow-on phase** will further develop and communicate the evidence base of the UK NEA and make it relevant to decision and policy makers at different spatial scales across the UK.
http://uknea.unep-wcmc.org/default.aspx

**BESS** is a research programme investigating the role of biodiversity in ecosystem processes.
www.nerc.ac.uk/research/programmes/bess

**Relevant projects:**
- Urban BESS – Fragments, functions and flows – the scaling of biodiversity and ecosystem services in urban ecosystems
- CBESS – A hierarchical approach to the examination of the relationship between biodiversity and ecosystem service flows across coastal margins
- Wessex BESS – Biodiversity and the provision of multiple ecosystem services in current and future lowland multifunctional landscapes
- DURESS – Diversity in upland rivers for ecosystem service sustainability
- Delivering multiple ecosystem service benefits in real landscapes

**The Insect Pollinator Initiative** is researching the threats to insect pollinators.
www.insectpollinatorsinitiative.net

**The Ecosystems Knowledge Network** is an on-line information resource about ecosystem services.
http://ekn.defra.gov.uk

**Business in the Community**
www.bitc.org.uk

**Ecosystems Markets Task Force**
http://www.defra.gov.uk/ecosystem-markets/about/

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