Science for Environment Policy
DG Environment News Alert Service
European Commission

29 April 2010

When payments are an appropriate policy tool for ecosystem services

Payments for ecosystem services (PES) are one of a number of policy options available to support the provision of ecosystem services. Based on the characteristics of ecosystem services, a recent study has developed a framework for deciding when payments are a suitable tool for delivering ecosystem services.

Ecosystems provide services essential for human well-being and survival. For example, forests help regulate the climate, control soil erosion and provide a pleasant environment. People can choose to leave the natural capital of the ecosystems intact, such as forests or wetlands, to provide these services, or they can choose to exploit them for raw material as inputs in economic processes or use the land differently.

Private landowners often own the physical structures of ecosystems. Since benefits of ecosystems are recognised as public goods, suitable policies are needed to encourage landowners to provide the desired ecosystem services.

In this study five types of policy tools for providing ecosystem services on private property were identified: prescription (regulations), penalties (taxation), property rights (such as alteration of property rights to protect ecosystems), public information (used to change landowner behaviour) and payments for ecosystem services (PES), which compensate landowners who supply ecosystem services on their property.

Focusing on PES, the study has proposed a framework for deciding when payments are a suitable policy option for delivering ecosystem services, based on the characteristics of the services provided. These attributes include the concepts of rivalry, excludability and the extent of the distribution of the service.

Rivalry cannot be altered by policy or legal institutions. For example, use of “non-rival” (a form of rivalry) goods or services (such as protection from the ozone layer) by one person does not significantly affect the quantity or quality of the goods or services (in this case, protection from the ozone layer) available to other people. However, technology or institutions can make goods or a service excludable: for example, private beaches and game reserves can exclude people and their services will be available only to predefined users.

Understanding how widely and in which directions the service is distributed is important in identifying those who could potentially benefit from the service, those who provide the service and the transactions costs connected with the provision. Combinations of these different characteristics can be used to classify the ecosystem services when designing a payment program.

In addition, the study suggests that creating a ‘monopsony’ can provide an effective and efficient way of delivering ecosystem services and can help reduce transaction costs. In a monopsony, there is only a single buyer of the ecosystem services and their willingness to pay can be calculated according to the benefit of the service to their well-being or organisation. For example, a hydroelectric company could pay upstream landowners to manage their land in order to reduce the amount of silt downstream. The researchers suggest a monopsony should be developed through institutions at the scale of the benefits of the ecosystem service.

The authors suggest additional ways to increase the sustainability of PES. These include pooling supply and demand to minimise transaction and implementation costs; using existing intermediaries when setting up PES; and bundling of ecosystem services. Bundling is a holistic approach suitable for complex ecosystems that provide many services: the services can be bundled together and multiple sources of funding can be found to support them.

Source: Kemkes, R.J., Farley, J., Koliba, C.J. (2009). Determining when payments are an effective policy approach to ecosystem service provision. *Ecological Economics*. Doi:10.1016/j.ecolecon.2009.11.032.

Contact: rkemkes@econs.umass.edu

Theme(s): Environmental economics