**Financing mechanisms to capture the value of forest ecosystem services with particular reference to Payments for Environmental Services (PES)**

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**Summary**

Forests produce a wide variety of benefits, but many of these benefits are not received by those who directly manage forested lands. As a result, these landholders do not take many forest benefits into account when making land use choices, and often find alternative land uses to be more profitable from their perspective. The result has been widespread loss of forests and of the ecosystem services they generate.

As long as maintaining forest cover is less profitable to landholders than alternatives, this situation is unlikely to change. Approaches relying on laws and regulations (such as banning deforestation or mandating forests on certain kinds of lands), though adopted by many countries, have proven largely ineffective.

To address this problem, several market-based mechanisms have been developed. By making forests more profitable, they seek to tilt landholders' land use choices in their favor. In the case where landholders are the managers of protected areas, these mechanisms seek to provide them with the resources needed to effectively protect

Important prior conditions for most of these mechanisms to work are (1) property rights over forest lands be reasonably secure, and (2) that policy distortions that tend to favor non-forest land uses be removed.

Many instruments work by increasing the direct benefits generated from forested lands. For example, returns to harvesting timber and other forest products can be increased through measures such as developing markets for new products; improving production or marketing practices for existing products; and/or increasing prices for sustainably produced forest products through eco-certification. Eco-tourism brings in income from those who take advantage of a forest's recreational benefits. As the products being sold under these mechanisms (sustainably produced forest products, entrance to the forest) can be withheld from consumers who do not pay for them, actually capturing the benefits is not very difficult. The challenge in all these efforts is to ensure that the benefits they generate are sufficiently high to exceed the cost of implementing them (certification, for example, can be quite costly, so that a substantial price premium for certified products is needed for it to improve returns to forests).

The situation is different in the case of external benefits – benefits that are enjoyed outside the forests that generate them. These include, in particular, water services, carbon sequestration, and biodiversity conservation. Landholders may prevent a tourist who does not pay an entrance fee from entering the forest to enjoy its recreational services, but they cannot prevent downstream water who do not pay for water from using it.

Payments for Environmental Services (PES) is specifically designed to address this problem of externalities. PES is based on the twin principles that those who benefit from environmental services (such as users of clean water) should pay for them, and that those who contribute to generating these services (such as upstream landholders) should be compensated for providing them. The approach thus seeks to create mechanisms to arrange for financial transactions between service users and service providers that are in both parties' interests, internalizing what would otherwise be an externality. Payments in a PES program are conditional, and participation is voluntary.

The PES approach is attractive in that it (1) generates new financing which would not otherwise be available for conservation; (2) is likely to be sustainable as it depends on the

mutual self-interest of service users and providers and not on the vagaries of government or donor financing; and (3) is likely to be efficient in that it conserves services whose benefits exceed the cost of providing them, and does not conserve services when the opposite is true.

There are two basic kinds of PES programs: *user-financed PES programs* in which service providers are paid by service users, and *government-financed PES programs* in which providers are paid by a third party, typically a government. User-financed PES programs are usually preferred because they are most likely to be efficient as service users provide not only financing but also information on what services are most valuable, can readily observe whether they are receiving the desired services, and have strong incentives to ensure that payments are used effectively. Conversely, government-financed PES programs typically cover much larger areas, but are less likely to be efficient because governments have no direct information on service value or on whether services are being provided, and need to respond to numerous pressures that are often unrelated to the program's objectives. Hybrid programs are also emerging, which seek to combine

In developing countries, user-financed PES programs have most commonly been for water services, where users are easy to identify and receive well-defined benefits. The dominance of payments for water services within PES programs is likely to continue. The very nature of the services involved means that water programs are much easier to implement than, for example, payments for biodiversity services.

There are now numerous PES programs in existence that involve direct payments by various types of water users at a variety of geographic scales. Domestic water supply systems have been the most frequent participant in PES, at a wide variety of scales, ranging from large cities such Quito (Ecuador), through medium-size towns such as Heredia (Costa Rica), to small rural towns such as San Pedro del Norte (Nicaragua). Hydroelectric power (HEP) producers are also well-represented in current PES programs, and some irrigation systems have also participated.

Government-financed PES programs depend either on annual appropriations from the national budget (as in Mexico) or on revenues from earmarked taxes (as in Costa Rica). Government-financed programs can, in principle, target any environmental service deemed to be of social importance. In practice, they have also focused primarily on water services.

Programs aimed at sequestering carbon are a distant second, in terms of number of mechanisms and area covered, after water services. This may change, however, once markets develop for Reduced Emissions from Deforestation and forest Degradation (REDD).

PES is not a magic formula that, once invoked, automagically generates substantial funding flows and improved natural resource management. A lot of hard work is required to turn the concept into a reality on the ground. The process of designing a PES program can be broken into several overlapping steps:

- Identifying the specific services that service users want.
- Identifying and quantifying environmental services. What environmental services does a given land use generate? How much of that service is generated? And how much is the service worth?
- Charging service users. How can payment systems be financed?
- Paying service providers. How should payments be made in order to achieve the desired change in land use sustainability and efficiently?
- Creating an appropriate institutional framework. What are the institutional preconditions for the payments to be possible? How can the sometimes daunting logistical challenges of making direct payments be met? What role should governments play?
- Monitoring. Essential for long-term sustainability.

## Key recommendations

- PES is a potentially attractive approach to conservation financing, but it is only one of many available tools. Successful strategies need to combine several tools to address the range of problems encountered.
- There are many existing PES programs from which countries can learn, but it is important to learn from mistakes as well as successes, and not to simply copy what others have done.
- User-financed PES programs tend to be much more efficient than government-financed ones, so efforts should be made to emphasize this aspect.

## Key words

Forest conservation; Market-based instruments (MBIs); Payments for environmental services (PES); incentives.

## Further reading


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