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Payments for environmental services: Some nuts and bolts

Key points

- Payments for environmental services (PES) are part of a new and more direct conservation paradigm, explicitly recognizing the need to bridge the interests of landowners and outside beneficiaries through compensation payments. PES schemes exist mainly for four services: carbon-sink functions, hydrological protection, biodiversity and landscape aesthetics/ecotourism. Theory indicates that PES schemes can make both sellers and buyers of environmental services better off, and at the same time help to better protect the resource base.
- Some confusion reigns regarding what is a PES scheme and what is not. A simple definition describing the PES principles is proposed here: a voluntary, conditional transaction with at least one seller, one buyer, and a well-defined environmental service. Conditionality - the 'business-like principle' only to pay if the service is actually delivered - is the most innovative feature of PES vis-à-vis traditional conservation tools, but it is also the one many real-world PES initiatives struggle hardest to meet.
- Most existing PES are found in developed countries, and the majority of these are state-run, rather than private-sector schemes. Some pilot PES schemes exist in the tropics. CIFOR field work in three countries suggests that 'pure PES' as defined above often barely exist, though many 'PES-like' initiatives comply with some but not all PES principles. Currently, we lack more PES hands-on experiences with money changing hands between service buyers and sellers, to learn from them and improve PES design.
- Human pressures on natural ecosystems are rising and environmental services previously provided 'for free' become scarcer, thus increasing the scope for PES. Service buyers, not service-selling smallholders and communities, will continue to drive this PES expansion. But users will only pay if schemes can demonstrate clear additionality vis-à-vis carefully established baselines, and if intermediaries can build trust between buyers and sellers. The private sector has a significant PES potential, but it may be wasted if schemes become overloaded with side-objectives, especially vis-à-vis poverty alleviation.

- PES may best suit intermediate and/or projected threat scenarios, often in marginal lands with moderate conservation opportunity costs where a relatively modest subsidy can "tip the balance" in favor of the desired land use. People facing or exercising moderate, credible environmental threats are more likely to become PES recipients than those already living in relative harmony with Nature - paying the latter may be perceived as 'fair', but it does not create additional services.
- Poor PES recipients are generally likely to gain from participation, unless their access to PES is constrained. Non-income gains of participants often include improved internal organization, consolidated land tenure and better visibility vis-à-vis donors and public entities. Non-participating landless poor could lose jobs in those PES schemes that reduce service-degrading production forms, such as logging, charcoal making, and land clearing for agriculture.

A more direct conservation approach

There is a rapidly increasing interest in payments for environmental services (PES), in many cases with forests as a main focus. Many conservation stakeholders hope that PES generally would be more successful and cost-effective than indirect conservation approaches, such as integrated conservation and development projects (ICDPs). At the same time, PES could bring substantial livelihood improvements to poor, remote rural dwellers with few income opportunities. CIFOR is assessing PES experiences in Bolivia, Vietnam and Ecuador¹, supplemented by minor activities in Indonesia and Costa Rica.

At this point, the use of PES is most advanced in developed countries. In the tropics, especially in Latin America, there are some experiences with private sector initiatives, where the buyers pay for the services received either directly or through 'honest brokers' such as NGOs acting as intermediaries. But most PES so far have been state-run schemes where the public sector represents the interests of service buyers, often with a main focus on watershed protection (e.g. Costa Rica, Mexico, China). These



schemes resemble somewhat the traditional public subsidy schemes for reforestation and soil protection. But the new PES schemes put more emphasis on monitoring the compliance of recipients with contractually stipulated land-use caps, i.e. on making sure the buyers (or the taxpayers) really get what they paid for. It is thus a more targeted, business-like approach.

Four environmental service types currently stand out:

1. Carbon sequestration and storage (e.g. a Northern electricity company paying farmers in the tropics for planting and maintaining additional trees);
2. Biodiversity protection (e.g. conservation donors paying local people for setting aside or naturally restoring areas to create a biological corridor);
3. Watershed protection (e.g. downstream water users paying upstream farmers for adopting land uses that limit deforestation, soil erosion, flooding risks, etc.);
4. Landscape beauty (e.g. a tourism operator paying a local community not to hunt in a forest being used for tourists' wildlife viewing).

A Payment for Environmental Services (PES) scheme is:

1. A *voluntary* transaction where
2. a *well-defined* ES (or a land-use likely to secure that service)
3. is being 'bought' by a (minimum one) *ES buyer*
4. from a (minimum one) *ES provider*
5. if and only if the ES provider secures ES provision (*conditionality*).

Framing the concept

The literature so far does not formally define PES, which contributes to some conceptual confusion. For our field work in Bolivia, Vietnam and Ecuador, we used five relatively simple criteria to describe the PES principle, based on the theoretical PES literature (see Box).

First, PES is a voluntary, negotiated framework, distinct from command-and-control measures. Potential services providers thus must have real land-use choices. Secondly, what is bought needs to be well-defined—either a measurable service (e.g. tons of carbon stored) or land-use caps likely to help providing a service (e.g. forest conservation providing clean water). Third, in any PES there should be resources going from at least one ES buyer to, fourth, at least one provider, directly or through an intermediary. Last but not least, user payments need to be truly contingent upon the service being provided continuously in time. ES buyers normally monitor compliance, e.g. has hunting or deforestation really been contained in the manner stipulated in the contract? If that is not the case, payments will either be suspended or entirely stop.

In developed countries, supporting legal and enforcement apparatus can create the conditions to

pay once and then receive continuous future service flows, e.g. using permanent easements. In developing countries, this legal option is usually lacking—more so in agricultural frontier areas with weak governance. This feature implies that in the tropics PES normally need to be *periodic* (often with an infinite horizon) and tied to *monitored compliance*. Service buyers need to be able to withdraw from a PES contract if they do not get what they paid for.

How much PES is there in the tropics?

How many PES schemes with the above five basic principles are there in the tropics? In our country assessments², Bolivia and Vietnam had no single scheme that satisfied all five criteria; in Ecuador there were two. For instance, in Vietnam watershed payments were being made, but there was no free land-use choice, so payments there were more part and parcel of an elaborate command-and-control system (criterion 1). The more precise nature of the service provided often remained fuzzy (criterion 2). The money often came from benevolent donors rather than from service users (criterion 3). Conversely, sometimes users were charged, but the money was not spent to pay service ES suppliers (criterion 4). Clearly, the hardest criterion to meet was conditionality (criterion 5): many initiatives remain loosely monitored, payments are up front instead of periodic; they are made in good faith rather than being truly contingent. In sum, there are many tropical *PES-like initiatives* satisfying some but not all criteria—a study by IIED reviewed 287 such schemes³—but among these are probably very few 'true PES'.

If PES schemes seem such a good idea, why are there not more of them in the tropics? Mainstreaming PES probably faces two key obstacles. The first is limited demand: too few service users are willing to pay. In some cases, this is because the link between land use and environmental service provision is insufficiently understood or ambiguous. In other cases, users are still so accustomed to receive environmental benefits for free that they do not perceive the necessity to pay—less so if they would have to pay forever. The second major obstacle is poor knowledge about the supply dynamics of environmental services. Even if there is willingness to pay, one often does not know how to convert funds into environmental-asset consolidation. Negotiation and trust-building processes are often complicated, and we know little about PES impacts on local livelihoods and conservation behavior. More hands-on experiments are needed where tangible benefits actually change hands between service buyers and suppliers.

Evaluating environmental service provision

Since services are provided over time, the only way to evaluate the PES scheme's effect is to consider what would hypothetically happen without it. Only with a *counterfactual baseline*, one can deduct if PES has an additional effect, i.e. if it really makes a difference. This *additionality* question is key for forestry's status in the Kyoto Protocol's Clean Development Mechanism (CDM). Only reforestation and afforestation are currently accepted as truly additional and thus eligible for carbon credits. The CDM thus uses a static baseline –in a 'no project' scenario the carbon stock is supposed to remain fixed. However, many critics argue that deforestation is integral to development, so one should adopt a baseline with declining carbon stocks. Protecting forests that would disappear in a no-PES baseline should thus also be eligible. But so far CDM rules bypass opportunities to slow down forest loss, due to the use of a rigid static baseline.

Conversely, countries that without PES schemes are already increasing their forest cover and quality need to adopt an increasing 'no PES' baseline. For instance, in Costa Rica a historical turnaround of deforestation started in the early 1990s, i.e. *before* the PES system was implemented from 1996 onwards. Since the Costa Rican PES system builds on static baselines, it will pay for reforestation and conservation that would have happened anyhow. Adopting the wrong baseline can lower PES efficiency or, in the worst case, waste all the money spent: if no *de facto* change in behavior is achieved, no additional environmental services will be produced.

Fairness or efficiency?

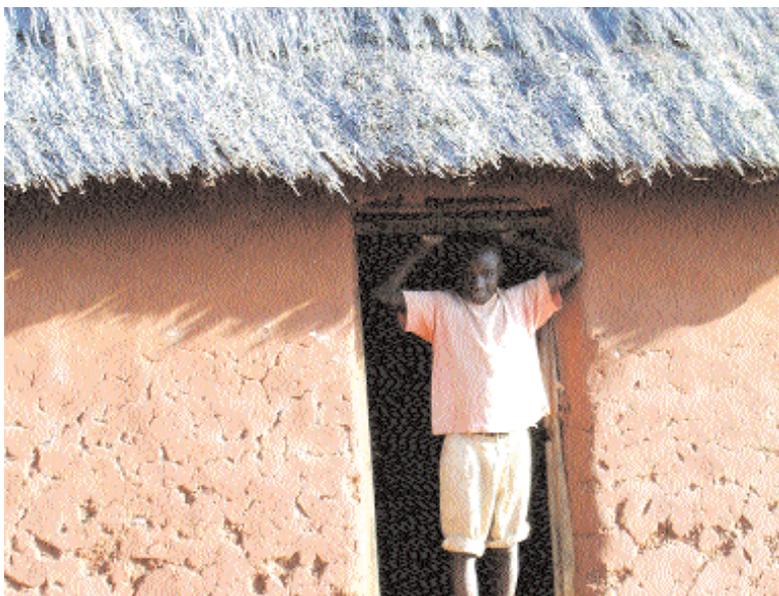
In conservation and rural development circles, many look to PES as a source of just reward for poor rural dwellers who take care of the environment and continuously 'produce' environmental services - until now, for free. However, from an efficiency point of view, only those who constitute a credible threat to environmental service provision should be paid. This is a question PES schemes must somehow relate to, balancing here-and-now efficiency goals with fairness considerations that are vital for long-run viability and for avoiding perverse incentives.

To reward in the name of fairness anybody who 'delivers a service' seems unwise. First, current conservation funding falls far short of the amounts required for such indiscriminate payments; services that are not threatened will hardly attract buyers. Second, being a 'service provider' often just means *not being* an environmental vandal; PES builds on a

'victim pays principle'. Across-the-board entitlements could endorse blackmail by anybody owning a non-threatened asset. Payments thus need to be strategic, clearly demonstrating additionality—otherwise users' willingness to pay will not be broadly enhanced. Yet this also means that people already living in approximate harmony with Nature, without any credible reason to endanger or actively protect the service, will generally not qualify as PES recipients—just as they also will not suffer conservation opportunity costs. Conversely, the 'ideal environmental service seller' is, if not outright environmentally nasty, then at least potentially about to become so.

Whom to pay?

One should pay a critical mass of agents that both bear some current (or projected) conservation opportunity costs and have credible, site-specific claims. A timber company would qualify only if it has a concession and profits from it. A land squatter would require informal but widely respected and enforced claims on the land, and the prospect of privately benefiting from its extensive exploitation. Buyers should not necessarily refrain from contracts with informal tenants as long as they can demonstrably deny access to third parties. Buyers may also use PES incentives ('carrots') on top of existing legal 'sticks' (command-and-control regulations) that have proved ineffective, unless this glaringly leads to perverse incentives. These targeting options will be superior in private, localized PES schemes, as opposed to the state-run PES systems where flexibility and additionality are legally and politically constrained.



PES may best suit intermediate and/or projected threat scenarios, often in marginal lands with moderate conservation opportunity costs where a relatively modest subsidy can “tip the balance” in favor of the desired land use. In areas where alternative land uses are highly profitable, funding for PES may simply fall short of the amounts needed to make conservation profitable. This is a feature PES share with other conservation tools based on economic incentives.

How to pay?

In some cases, cash is what remote communities need most urgently to improve their welfare; in others cash flows create problematic social effects. Local PES mode preferences might vary across villages, families and even individuals within families, so that a customized approach is desirable. In terms of periodicity, it is often useful to mimic other regular income flows with small, frequent payments—even if monitoring is done only once a year. *De facto* irreversible benefits, like tenure-security provision, may be a precondition for PES establishment, but they would not be effective as the central incentives for PES. Likewise, schemes biased towards large up-front benefits (e.g. infrastructural investments), encourage service providers’ default on PES obligation, and should generally be avoided. The choice of payment modes should consider whether the opportunity costs are in cash or forgone in-kind benefits.



Will PES help the poor?

Many donors are mainly interested in PES for their hoped-for, pro-poor effects. One should conceptually distinguish between three factors: poor people’s access to receive PES, the impact of PES on those who have enrolled, and the effect of PES on those poor that are not service sellers. The existing comparative assessments conclude that:

- net positive effects for service sellers are likely. Gains include income and non-income benefits, often in particular for moderately poor smallholders;

- some PES access rules and structural constraints hamper participation by the poor, while others are in their favor;
- PES have mixed effects on impoverished non-sellers, but the landless poor engaged in environmentally degrading activities could lose employment options;
- low PES turnover generally also constraints PES poverty-alleviation effects.

If PES do not deliver the service, buyers will not come on board, and thus PES will also not benefit the poor. Poverty alleviation is an important PES side objective, which can be pursued through timely interventions (targeting, transaction-cost reduction, pro-poor premiums and subsidies). But when it becomes the *primary* objective, it will jeopardize the basic PES functionality. Restrictive PES side objectives can be attractive to donors, NGOs, and government agencies, but limit the outreach to the private sector, thus losing new financing sources. Eventually, PES would become ‘old wine in new bottles’, subsumed into the generic family of altruistic development projects to which they were meant to be an alternative.

Endnotes

¹ CIFOR would like to thank the Swiss Agency for Development and Cooperation (SDC) for financing part of the field work underlying this publication.

² Robertson, N., and S. Wunder. 2005. Fresh tracks in the forest: Assessing incipient payments for environmental services initiatives in Bolivia (in print). Page 119. CIFOR, Bogor. A similar PES report on Vietnam is in progress.

³ Landell-Mills, N., and I.T. Porras. 2002. *Silver bullet or fool's gold? A global review of markets for forest environmental services and their impact on the poor*. London: International Institute for Environment and Development.



* This Infobrief is based on text from Wunder, S. 2005. *Payments for Environmental Services: some nuts and bolts*. CIFOR Occasional Paper No. 42. Center for International Forestry Research, Bogor, Indonesia.