SECURING ENVIRONMENTAL SERVICES AND ALLEVIATING POVERTY

USAID PES Brief 3.5

Authors

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Introduction

PES programs can have a significant impact on the poor. This is because potential service providers often constitute poor land users who depend directly on the local resource base for their livelihoods[2]. Payments for securing useful environmental services potentially represent an opportunity to improve the economic well being of the poor who provide services. PES literature often highlights the potential compatibility between environmental conservation and poverty alleviation, so much so that some organizations now consider PES primarily as a tool for reducing poverty.

Skeptics, however, question the effectiveness of a market-based instrument like PES to benefit the poor. A crucial point often overlooked in the debate is conditionality, which makes PES unique among various incentive-based conservation approaches. PES programs are based on the principle that people who benefit from environmental services may have to offer payment to the land users who are in position to provide the services. Of course, buyers will not want to pay for services they obtain without paying, and they will not want to make payments to people who do not provide the service. Payments are thus conditional on the continued supply of and demand for the environmental service in question. For PES to benefit the poor, they must be able to provide the desired service, and demand for it must persist, or else payments may no longer be forthcoming. In fact, PES programs must take care to avoid situations where poverty alleviation and environmental protection objectives compete with each other. If efforts to help the poor in a PES program come at the expense of delivery of the service, the program may fail, in which case of course it cannot help the poor.

If a PES program is in place, as service providers supposedly enter into PES contracts on a voluntary basis, it is generally assumed that payments will make them no worse off and in most cases will provide them with additional income. However, discerning the impact of a PES

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[2] This statement applies mainly to developing countries. However, even in rich countries, upstream communities are often found to be poorer than urbanized communities downstream.

program on the poor is often more complicated than this. The poor may not be able to participate in a PES program for various reasons described below. PES contracts may be rigid, trapping the poor in long-term commitments that are not beneficial for them. There are also indirect effects on people who do not participate in the program. The following sections summarize the main issues to be considered when designing pro-poor PES programs. The aim is to highlight only those issues that are unique to PES (see the table below). Also, the focus is only on the service provision side of the story – poor people may benefit as environmental service users, but that is not addressed here.

Potential impact of PES programs on poor people		
Group	Potential impact	Extent of impact depends on
Impact on sellers		
Landowners with secure tenure	Income from PES (+)	• Amount of payment (+) • Opportunity cost (–)
Landowners with insecure tenure	Income from PES (+)	• Amount of payment (+) • Opportunity cost (–) • Ability to participate (+)
Tenants	Income from PES (+)	• Amount of payment (+) • Opportunity cost (–) • Division of benefits with owner or risk of eviction (-)
Downstream service users	Payment for PES (–) Receipt of services (+)	• Amount of payment (-) • Consequences of lack of PES system (+)
Impact on non-sellers		
Farm workers	Change in labor demand (+/–)	• Relative labor needs for current and PES-promoted practices (+/–) • Other employment opportunities (+/–)
People dependent on non-timber forest product (NTFP) collection	Change in availability and access to NTFPs (+/–)	• Nature of current and PES-promoted practices (+/–) • Local context
(+) Positive impact; (–) Negative impact ; (+/–) Uncertain impact; depends on case-specific circumstances		

Source: Pagiola et al., 2005

Barriers to participation

The first question that a pro-poor PES program needs to consider is whether the poor can participate. Constraints to participation include tenure insecurity, high investment and opportunity costs, high transaction costs, and the nature of the environmental service.

Tenure security. The poor often do not have secure land title, which may bar them from obtaining PES contracts. This is especially true for services such as carbon sequestration, where payments are tied to permanence of the service. If service providers do not have secure title to the land, it may be difficult for them to convince buyers that the flow of services will be maintained in the future. Landless poor may in fact be ineligible to participate in such PES programs. Similarly, in the case of rented land, tenants cannot promise anything about long-term land use without input from the landowner.

Also, if the possibility of environmental service payments makes the land more valuable, the landowner may either increase the rent or discontinue the lease, possibly disrupting the renter's livelihood. In some places where land users do not have title to the land, PES programs have used land tenure security itself as a non-monetary reward for securing an environmental service. For instance, under the HKm program in Indonesia, groups of local farmers have received licenses that provide them secure land tenure, conditional on protecting nearby natural forest and providing watershed services.

Costs of producing environmental services. Costs also determine who can participate in PES programs. Because the price offered for the environmental service is typically the same for all service providers, low-cost providers have an edge over high-cost providers. These costs have two components: direct costs for investment and management, and opportunity costs. Often new land-use practices such as afforestation require high investment to buy tree seedlings and hire labor to plant them. Poor farmers may be unable to invest in these activities. One way to address this problem is to devise a payment schedule that enables the poor to finance their investment costs. In Costa Rica's PSA program, for example, payments for reforestation are front-loaded, with a large proportion of the payment being available in the early years and much smaller payments in later years. PES programs can also negotiate with local credit agencies to help the poor gain access to low-cost financing, using the contract itself as collateral.

The opportunity cost of providing an environmental service is the income foregone from land use that is replaced. For example, putting the land under permanent vegetation to sequester carbon and/or provide watershed services may replace agriculture in the form of annual crops. In this case the opportunity cost of providing the environmental service is the foregone income from agriculture. Experience around the world shows that small farmers usually are more productive than large farmers, partly because they use more household labor, which does not require supervision, and because they can work the land in small increments when it is convenient. Their opportunity cost of time is low, as opposed to the daily increments paid at the market wage. As a result, the opportunity cost for small farmers may be higher than that for larger farmers, adding to the constraints they face in providing environmental services.

Transaction costs. This refers to costs of negotiating, implementing, and monitoring a contract. Elements of these costs are independent of the size of the farm involved, which means PES programs that contract many smallholders face more costs than those that contract with only a few large landowners. Thus PES mechanisms may be less viable where there is a high concentration of very small farms, or service buyers may try to contract with large farmers rather than small ones, which would exclude the poor. Transaction costs play a major role in determining whether PES programs are feasible, and this helps explain why there are many more payment schemes in sparsely populated Latin America than densely populated Asia. Some PES programs have tried to reduce transaction costs by simplifying program design or by developing group-based rather than individual contracts. (Group-based projects do not eliminate transaction costs but effectively transfer them from taking place *between* the buyer and the individual sellers to *within* the group of sellers. Having entered the contract, the group must monitor its members to ensure compliance.)

Programs can also reduce transaction costs by involving local NGOs and other community-based groups as intermediaries. For instance, in the Regional Integrated Silvopastoral Ecosystem Management Project in Nicaragua, Nitlapan, an NGO affiliated with the Central American University, acts as intermediary. It is responsible for field implementation of the project, including organization of local service providers. Intermediaries like Nitlapan help to run the program efficiently and reduce conflicts. Brief 3.4, previously, discusses transaction costs in more depth.

The nature of the environmental service. This often determines whether the poor can participate. In the case of watershed services, once a particular catchment has been identified for providing hydrological services, the program is bound to work with the communities that live in that catchment, irrespective of their socioeconomic status. On the other hand, land users anywhere in the world can provide carbon sequestration services[3]. Poor farmers who depend on marginal lands can provide carbon sequestration services more cheaply than farmers in industrialized countries where land prices and opportunity costs are much higher. Therefore, many carbon projects such as the World Bank's BioCarbon Fund are able to target poor communities for providing carbon sequestration services. Similarly, biodiversity hotspots are predominantly inhabited by the poor, making it easier to target any payment schemes to poor service providers.

Impact on sellers

In the absence of environmental service agreements, land users typically receive no compensation for providing environmental services. This may limit their conservation investments. Service payments can give them a direct incentive, however, to adopt new land-use practices that secure environmental services for downstream communities willing to pay for them. In a voluntary PES scheme, the potential service provider will only accept a payment

[3] This is an oversimplification, as eligibility for providing carbon sequestration payments does depend on the country where land users live and on the land uses they adopt. However, it is not as restrictive as eligibility for providing watershed services.

that meets or exceeds the opportunity cost of investing in conservation.[4] Therefore, payments that land users do accept represent additional income, helping them to improve their economic status. In the case of the Scolel Te community carbon sequestration project in Mexico, an impact study concluded that net present value of discounted benefits (over 25 years) including carbon payments from new forestry management practices were estimated to be in the range of -$110 to +$1,700 per hectare (Tipper, 2002). This would represent modest but significant improvements in incomes for most households that participate in the project. Similarly, the Nhambita Community Carbon Project in Mozambique (Jindal, 2004) is the major source of cash incomes for the local community.

However, it is not necessarily assured that service providers duly understand all aspects of a PES contract and agree to it voluntarily. Local farmers in developing countries are often uneducated and depend on government officials to explain a new program to them. If these officials have a vested interest in the program, they will highlight only its positive aspects and omit the difficult clauses. Service providers thus may be trapped in PES contracts that are not beneficial to them in the long run. PES administrators must ensure that contracting parties understand their obligations well and are in a position to fulfill them voluntarily.

Impact on non-sellers

PES programs affect not only sellers but also non-sellers living in the area. If new land-use practices raise labor demand for these non-sellers, then the program has a positive impact on them. However, a change from seasonal cropping to permanent tress could also reduce demand for labor, which would have an adverse effect on the local poor who depend on farm labor for their livelihoods.

If PES programs are taken up where property rights are unclear, it is also possible that more powerful people may take control of the land, and poor people who have been using it could lose access. For instance, a carbon sequestration project operated by Tree Farms AS of Norway in Bualeba Reserve, Uganda (reference), continues to threaten the livelihoods of the local poor. The company owns a long-term concession to take up plantations over 5,160 hectares of land used for farming, collection of timber, cattle grazing, and fishing by the local people. As these people do not possess formal titles, they face the risk of eviction.

PES-induced changes in land use patterns can also have significant off-site effects. Certain products can become more expensive if their supplies are disrupted. Although biofuels are not covered under PES contracts unless they are produced from woody crops that can also claim carbon sequestration credits, there is a concern that they are fast replacing food crops in many countries, thus raising international food prices. Similarly, PES programs may affect the cheap availability of fodder in local markets by inducing landowners to convert pastures to long-term forests, thus reducing fodder supply. In general, it may be very difficult for a PES program to anticipate all the indirect effects it will have, but it can be cognizant of the major effects, particularly on the poor.

[4] This may not be true in a group-based program, where a member may have preferred not to join the environmental service program but was outvoted.

Further reading

Pagiola, S., A. Arcenas, and G. Platais. 2005. “Can Payments for Environmental Services Help Reduce Poverty? An Exploration of the Issues and the Evidence to Date from Latin America.” *World Development*. Vol .33 (2), pgs. 237-53.

Tipper, R. 2002. Helping Indigenous Farmers to Participate in the International Market for Carbon Services: The Case of Scolel Te. In Pagiola, S., J. Bishop, and N. Landell-Mills (eds.). 2002. *Selling Forest Environmental Services: Market-based Mechanisms for Conservation and Development*. Earthscan, London.

Wunder, Sven. 2005. *Payments for Environmental Services: Some Nuts and Bolts*. CIFOR Occasional Paper No. 42. Center for International Forestry Research.

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