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Payments for  
environmental  
services and  
Development

# Combining conservation incentives with investment

Alain Karsenty

**P**aying communities or producers to maintain the quality of water or biodiversity; encouraging farmers to adopt environmentally friendly practices; paying developing countries to avoid deforestation and thereby reduce CO<sub>2</sub> emissions: interest in payments for environmental services (PES) is growing throughout the world.

However, past experience shows that PES are not without their problems: the criterion used to determine the amount; the methods used to evaluate effectiveness; and the uncertain use of payments, etc. Hence the proposal to combine direct incentives to protect ecosystems, especially forests, with the ecological intensification of agriculture and investment in land.

What can be done to correct the negative impact of human activities on the benefits that nature provides to humankind, the environmental services such as the regulation of ecological processes (climate, floods), or the cultural advantages?

Several options exist: regulation, mediation and taxation, for example. Or even paying actors to conduct environmentally friendly initiatives or to give up destructive practices: payments for environmental services (PES). Although this term is ambiguous – it does not imply paying nature, but paying people to ensure that through their practices, they favour certain services provided by ecosystems –, it is widely used in literature and has been given several definitions.

One of the most commonly used definitions is that of Sven Wunder: “a voluntary transaction in which a well defined environmental service (ES) or a form of land use likely to secure that service is bought by at least one ES buyer from

a minimum of one ES provider, if and only if the provider continues to supply that service (conditionality)”.

This definition uses market terminology (buying, selling), which implies that the services have been appropriated prior to the transaction (one can only sell what one possesses). However, environmental services are qualities associated with elements (for example the quality of water flowing through a drainage basin, or the carbon storage capacity of a forest) that cannot be appropriated.

The definition we propose is somewhat different: *a PES is a payment to an agent for services provided to other agents (wherever they may be in space and time) by means of a deliberate action aimed at preserving, restoring or increasing an environmental service agreed by the parties.* PES therefore result from a voluntary agreement between parties, in other words they are based on contracts that are explicit or implicit (oral agreements), and which set out the service

perspective

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## Diversity of environmental services

expected and the corresponding payments, as well as for how long the service must be provided.

A distinction can be made between two categories of environmental services that may be concerned by payments, with implications in terms of institutional forms and evaluating the effectiveness of the tool.

Those concerning **collective goods** are profitable to a limited number of beneficiaries. They are often the subject of bilateral agreements between a community of farmers on the one hand and a company, a water association or a municipality on the other, for example. The direct beneficiary of the service is the payer. Evaluating effectiveness is often straightforward. For example, in a water PES, the resumption of deforestation upstream of a drainage basin, for instance, will be detected through repercussions on water quality downstream.

Those concerning **public goods** benefit everyone (including future generations). They imply institutional mediation between the beneficiary – the whole world – and local service providers. The international emissions trading market and the CCX, or Chicago Climate Exchange (voluntary market for emissions reductions) are some of the methods of mediation, while the major organisations financing conservation are another. The global nature of these services makes it impossible to verify the effective return. For example, if deforestation is transferred outside an area covered by a PES contract, it will be impossible to detect this in global CO<sub>2</sub> emissions. The environmental efficiency will therefore be diminished by this.

### The thorny issue of evaluating the amount of PES

In the case of PES that result in restrictions on land use (the only ones covered here), the amount of the PES differs from the monetary value of the service, just as in economics, the price is different from the value. If there is no market, as for biodiversity, the scope of the monetary evaluation is limited, especially as it is difficult to establish an economic value for heterogeneous assets, including “remarkable” assets. If the service has a market, however, as for carbon, the price of the service will depend on the relationship between supply and demand, but will not correspond to the

market price due to operating and transaction costs.

The amount of a PES does not therefore depend on the monetary evaluation of natural assets. It is determined by means of negotiations, which may or may not be balanced, and should in principle cover at least the net cost of giving up an activity (the opportunity cost) linked to the usage restrictions or changes.

Indexing payments on the opportunity cost nevertheless has certain disadvantages and negative side effects.

“Carbon” PES (especially through avoided deforestation, the basis of the REDD mechanism - Reducing Emissions from Deforestation and Forest Degradation) may be sources of financial gains for operators. In a carbon market (voluntary or regulated) with a single price per tonne of CO<sub>2</sub> resulting from supply and demand, some agents providing an avoided deforestation service will have opportunity costs that are lower than the value of avoided emissions, calculated on the basis of the price per tonne of CO<sub>2</sub>. This difference between the “production cost” of avoided deforestation and its “purchasing price” creates a surplus. This surplus may be conserved by the agents, but will more likely be captured by carbon market brokers or PES project promoters, who will thereby pay themselves to varying extents.

Moreover, conserving forests in agricultural frontiers in the Amazon instead of cultivating soybean, or in South Asia instead of planting oil palms, generates opportunity costs that are often high since these crops are very lucrative. PES programmes will therefore concentrate on forests that are under less threat at the risk of paying actors who have nothing to lose by avoiding deforestation (zero opportunity cost).

PES are caught between two stumbling blocks: where the opportunity costs are high, the sums available are often not enough; but where the opportunity cost is low, the risk of paying for environmental services that are not endangered (lack of additionality) is high. Verifying additionality would require significant means in order to analyse local situations, which would imply higher costs.

A major problem where PES and their social acceptability are concerned is that compensation based on the opportunity cost is inequitable for the poorest populations. Freezing user rights such as clearing, hunting or even the prospect of working in a forestry company deprives people of opportunities to lift themselves out of poverty. Moreover, within com-

*The amount of a PES does not depend on the monetary evaluation of natural assets. It should in principle cover at least the net cost of giving up an activity*

*Compensation based on the opportunity cost is inequitable for the poorest populations.*

munities, it is often the poorest who depend on natural resources. By giving up certain activities, they lose vital access rights that are not generally offset by the payments, which are based on the average opportunity cost for the whole community. Nor is it unusual for these payments to be monopolised by the “elites”. Simply compensating the opportunity cost for very poor farmers therefore raises ethical objections and is enough to justify envisaging another basis for payments.

Finally, adopting the opportunity cost as a basis for compensation does not prepare for the long term. Compensating for the loss of income from giving up certain subsistence activities may free up working time but does not release any new resources to acquire the capital needed to implement new agricultural or agroforestry technologies.

However, increasing food production without encroaching upon forests and protected areas is a considerable challenge, especially in sub-Saharan Africa, where almost one in three people are undernourished. Increasing yields and thereby limiting the extension of agricultural land is one of the keys to increasing agricultural production while controlling deforestation.

*The opportunity cost as a basis for compensation does not prepare for the long term.*

### A new conditionality...

However, although the ecological intensification of agriculture is a necessary condi-

tion for reducing pressure on ecosystems, it is insufficient. This is seen in the relative failure of the Alternative to slash-and-burn (ASB) programmes of the 1990s: with the extra income generated thanks to intensification programmes, farmers developed cash crops at the expense of the forests.

Hence the proposal to combine investment in more intensive agricultural technologies with direct incentives linked to forest preservation provided by PES. Broader PES, in other words aimed at investment, may combine direct incentives with conditionality that was previously lacking.

In addition to compensation for opportunity costs, PES must include a one-off, time-limited investment subsidy. This subsidy will serve to develop areas that have already been cleared and to grow permanent crops there using new sustainable agricultural technologies. It will only make sense if it is part of a mechanism proposing viable alternative agricultural technologies, rural credit programmes and land tenure security procedures through the registration and mapping of local rights. A mechanism of this kind must be accompanied by an integrated programme of support and agricultural training, in order to assist farmers and to reduce the risk of failure.

To ensure agents do not use subsidies for immediate consumption, one option is to use a complementary currency to limit purchases to uses set out in the contract: replacing goods and commodities as a result of usage restrictions; and purchasing material, selected seed, inputs and agricultural services, etc.

The diagram below was proposed in Madagascar as part of preparations for a biodiversity management programme in the Ambohilero forest (municipality of Didy).

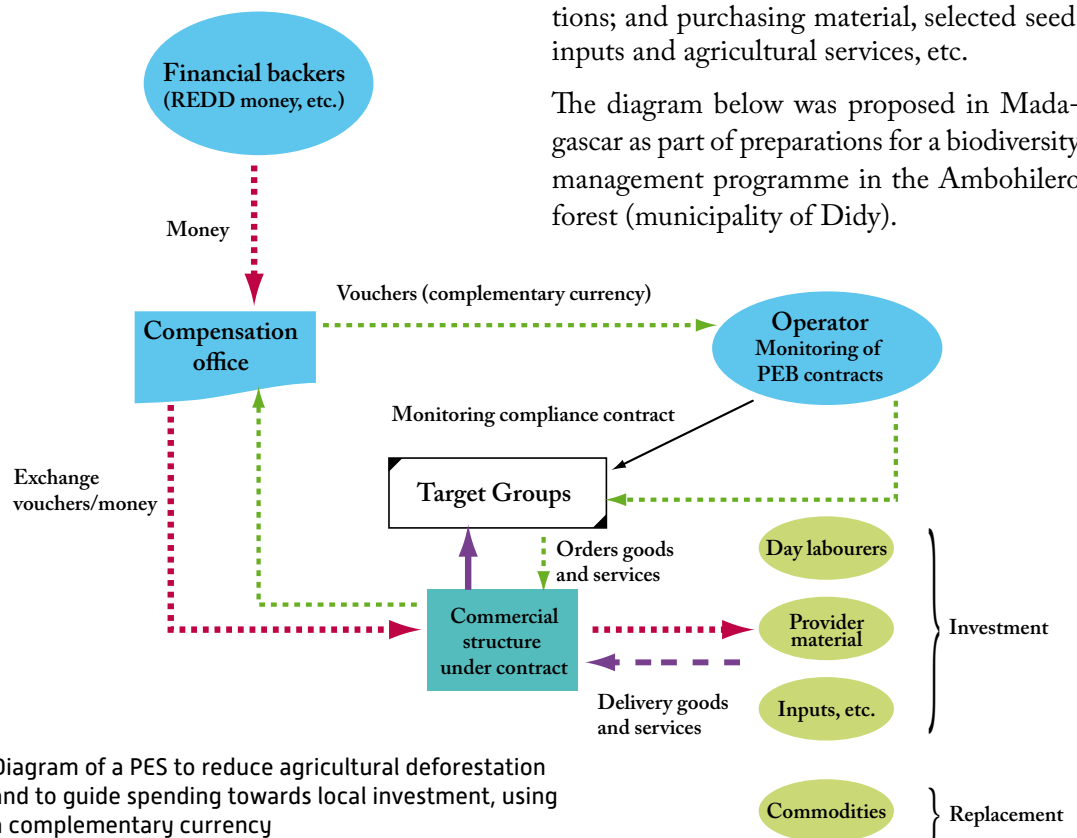


Diagram of a PES to reduce agricultural deforestation and to guide spending towards local investment, using a complementary currency

## A few words about...

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In this diagram, a compensation office changes money into the complementary currency and vice versa. The specific currency (in the form of vouchers) is given to the operator in charge of the implementation and monitoring of the PES. The vouchers are then given to households or groups complying with the contract, who contact a local structure (municipal cooperative or shopkeeper taking part in the programme) which provides them with material and expertise.

The controversial side to using this kind of complementary currency is that it restricts the freedom of farmers who accept the PES contract by forcing them to use the funds received. This issue requires discussion of its own.

## ... for part of the PES

In addition to the opportunity cost and the investment subsidy, the PES must also include operating and transaction costs. The total cost of the PES would therefore be divided into three parts.

The *opportunity cost* remains a useful reference, especially to account for the conditional link between the direct payments and the environmental service. It is the payment of this part that could be suspended to sanction any breach of contract.

The *investment costs* of changes in agricultural practices are linked to the whole of the PES contract and must be understood as such by recipients.

Clarifying local land rights is a precondition for both setting up payments and facilitating the adoption of new agricultural practices. This may require reforming the land tenure regime (always a politically delicate endeavour), which generates costs that must be considered as investment at the local and national levels.

The fact that this investment must be deployed over the long term means it cannot be subject to the same suspension conditions as the amounts paid for the opportunity cost.

Finally, it is also important to include the *operating costs* linked to the establishment of these programmes and the *transaction costs* that occur when drawing up contracts and monitoring the application of agreements, in order to verify their effectiveness and any socially undesirable effects.

Setting up effective and sustainable PES will be costly, at least in the short and medium term, and will undoubtedly make it less financially attractive to use PES to protect bio-

diversity and to combat deforestation. But the principle of a payment over and above the opportunity cost sketches what could be a dividing line between PES that are based solely on compensation for user rights and investment PES aimed at financing local development that uses environmental resources sparingly and that could become autonomous in the long term.

This text is the result of several research studies: those conducted in Madagascar as part of the FFEM-CIRAD-COGESFOR project; surveys conducted in areas covered by the conservation contracts concluded by Conservation International with several communities bordering a protected area in north-east Madagascar; and discussions held as part of the SERENA project (ANR funding).

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## TO FIND OUT MORE

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